DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT REPORT

Vineyard I Community Plan Amendment, Rezone, Use Permit, Reclamation Plan Amendment, and Zoning Agreement Amendments; and Aspen III South Reclamation Plan and Use Permit Amendments and Aspen IV South Reclamation Plan, Use Permit, and Zoning Agreement Amendments

Control Numbers: *2005-CZB-UPB-REB-ZGB-0062, PLNP2008-REB-UPB-00016, & PLNP2008- REB-UPB-ZGB-00017*

State Clearinghouse Number: *1995102057*

Date: *February 2012*

COUNTY OF SACRAMENTO
DIVISION OF ENVIRONMENTAL
REVIEW AND ASSESSMENT
827 7TH STREET, ROOM 220
SACRAMENTO, CALIFORNIA 95814

Board Of Supervisors

1st District: Phil Serna
2nd District: Jimmie Yee
3rd District: Susan Peters
4th District: Roberta MacGlashan
5th District: Don Nottoli

County Executive

Bradley J. Hudson, County Executive Officer

Prepared By

Division of Environmental Review and Assessment

DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT REPORT

VINEYARD I COMMUNITY PLAN AMENDMENT, REZONE, USE PERMIT, RECLAMATION PLAN AMENDMENT, AND ZONING AGREEMENT AMENDMENT; ASPEN III SOUTH RECLAMATION PLAN AND USE PERMIT AMENDMENT; AND ASPEN IV SOUTH RECLAMATION PLAN, USE PERMIT, AND ZONING AGREEMENT AMENDMENT

Control Number: 2005-CZB-UPB-REB-ZGB-0062; PLNP2008-REB-UPB-00016; & PLNP2008-REB-UPB-ZGB-00017
State Clearinghouse Number: 1995102057

This Supplemental Environmental Impact Report has been prepared pursuant to the California Environmental Quality Act of 1970 (Public Resources Code Division 13). An Environmental Impact Report is an informational document which, when this Department requires its preparation shall be considered by every public agency prior to its approval or disapproval of a project. The purpose of an Environmental Impact Report is to provide public agencies with detailed information about the effect that a proposed project is likely to have on the environment; to list ways in which any adverse effects of such a project might be minimized; and to suggest alternatives to such a project.

Prepared by the
COUNTY OF SACRAMENTO
DIVISION OF ENVIRONMENTAL
REVIEW AND ASSESSMENT
827 7TH STREET, ROOM 220
SACRAMENTO, CALIFORNIA 95814
www.DERA.saccounty.net

Community Planning & Development Department
Navdeep Gill, Assistant County Executive Officer

Bradley J. Hudson, County Executive

Division of Environmental Review and Assessment

February 23, 2012

TO: ALL INTERESTED PARTIES

SUBJECT: Vineyard I Community Plan Amendment, Rezone, Use Permit, Reclamation Plan Amendment, and Zoning Agreement Amendments; Aspen III South Reclamation Plan and Use Permit Amendments; and Aspen IV South Reclamation Plan, Use Permit, and Zoning Agreement Amendments (Control Numbers: 2005-CZB-UPB-REB-ZGB-0062, PLNP2008-REB-UPB-00016, & PLNP2008-REB-UPB-ZGB-00017)

The subject Draft Supplemental Environmental Impact Report (SEIR) is attached for your review and comment. This Draft SEIR contains all of the California Environmental Quality Act (CEQA) mandated information and analyses for the subject project. Reviewers should focus on the sufficiency of the Environmental Impact Report in discussing possible impacts upon the environment, ways in which adverse effects might be minimized, and alternatives to the proposed project.

This Draft SEIR updates the prior FEIR/EIS (Morrison Creek Mining Reach Downstream (South) of Jackson Highway), which has been provided on CD and can be found in the inside flap at the back of this Draft SEIR. Additional CD copies of the prior FEIR/EIS are available upon request from the Division of Environmental Review and Assessment, 827 7th Street, Room 220, Sacramento, CA 95814, telephone (916) 874-7914.

Reviewers who wish to comment on the Draft SEIR are urged to submit written comments to this office by April 9, 2012. Comments may also be submitted via e-mail to Catherine Hack at DERA@saccounty.net Please include the project name and control number listed above in all correspondence. Failure to provide comments on the Draft SEIR will not preclude your right to testify before the Sacramento County Project Planning Commission and Board of Supervisors. The date, time and location of the Project Planning Commission and Board of Supervisors hearings are unknown at this time. Please call the Clerk of the Board at (916) 874-5411 to verify the date, time and place of the hearing.

Please contact John Lundgren or Michelle Nagao of this office at 874-7914 if you have questions concerning this Draft SEIR.

Sincerely,

Catherine Hack
Environmental Coordinator

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1 PREFACE

The following Supplemental Environmental Impact Report (SEIR) was prepared to address proposed changes to the Vineyard I, Aspen III South and Aspen IV South Reclamation Plans, as well as inclusion of mining an additional 5.6 acres on the Vineyard I site. Although the three mining sites are three separate projects, the three projects so are closely related that they have been incorporated together as the proposed Project. The existing Reclamation Plans were the subject of a previously certified Final Environmental Impact Report/ Environmental Impact Statement (FEIR/EIS) titled *Morrison Creek Mining Reach (South) of Jackson Highway* (Control Numbers: 94-UPB-0484, 91-CZB-UPB-01118, 90-CZB-UPB-1607 and 94-CZB-UPB-0671) (State Clearinghouse Number: 95102057). The prior FEIR/EIS considered the reach of Morrison Creek that included four mining and reclamation proposals (known as Vineyard I, Aspen III South, Aspen IV South and Aspen V South), as well as an on-site processing plant. The Aspen V South mining project is not included in this Project.

On October 20, 1999, the Sacramento County Board of Supervisors certified the FEIR/EIS. The Board approved the mining projects on December 15, 1999. This SEIR addresses environmental impacts and mitigation measures associated with the proposed revised Reclamation Plans, either resulting from the proposed changes to the Plan or new impacts and/or mitigation measures that result from changed circumstances. In addition, this SEIR addresses environmental impacts and mitigation measures associated with the request for mining the 5.6 acres for Vineyard I (referred to as the Vineyard I expansion mining site throughout this document).

Impacts that were identified in the prior FEIR/EIS as significant and unavoidable remain so for the proposed Project. Impacts identified as significant and reduced to less than significant for the proposed Project, due to either completed mitigations or changed circumstances, are stated as such. Impacts identified as less than significant, remain so. Mitigation measures of the FEIR/EIS that remain applicable to the proposed Project are summarized in the Executive Summary of this SEIR. A copy of the prior FEIR/EIS is attached to this SEIR in CD format (back cover) and is available online as Appendix A at
http://www.dera.saccounty.net/PublicNotices/SQLView/ProjectDetails/tabid/71/Default.aspx?ProjectID=33759)

2 EXECUTIVE SUMMARY AND MITIGATION MEASURES

The subject of this Supplemental Environmental Impact Report (SEIR) is comprised of three separate projects that have been incorporated into the proposed Project known as *Vineyard I Community Plan Amendment, Rezone, Use Permit, Reclamation Plan Amendment, and Zoning Agreement Amendments (Control Number: 05-CZB-UPB-REB-ZGB-0062)*; *Aspen III South Reclamation Plan and Use Permit Amendments (Control Number: PLNP2008-REB-UPB-00016);* and *Aspen IV South Reclamation Plan, Use Permit, and Zoning Agreement Amendments (Control Number: PLNP2008-REB-UPB-ZGB-00017)*.

The Project is located in the Vineyard community in the unincorporated area of Sacramento County. The Vineyard I project parcels are located at the northeast corner of Hedge Road and Elder Creek Road. The Aspen III South project parcels are located in the southwest corner of Fruitridge Road and Mayhew Road. The Aspen IV South project parcels are located at the northeast corner of Mayhew Road and Elder Creek Road.

The proposed project includes revisions to the previously approved reclamation plan, consistent with permits received from the County, State and federal regulatory agencies. The previous reclamation plan consisted of a below grade, 600-foot wide riparian corridor/low-flow channel within the bottom of the mining pit in generally the same location as the existing creek and an at-grade trapezoidal bypass channel around the perimeter of the three mining sites. The proposed project revises the previously approved reclamation plan by completely eliminating the at-grade trapezoidal bypass channel component and changing the below grade, 600-foot wide riparian corridor/low-flow channel to an at-grade mitigation corridor (Morrison Creek Realigned Channel) on the Vineyard I and Aspen III South mining properties. The Morrison Creek Realigned Channel has been designed to contain the 100-year flood flows. On the Aspen IV South property, the existing Morrison Creek channel will now be preserved and a raised bank flood control channel (Raised Bank Channel) is proposed to be constructed outside the effective FEMA floodway. The Morrison Creek Realigned Channel will connect with the preserved Morrison Creek channel on Aspen IV South.

The proposed project also consists of a request for a rezone and a use permit amendment to allow aggregate mining on an additional 5.61 acres (two parcels) and to incorporate this new area into the previously approved Vineyard I mining plan (referred as Vineyard I mining expansion). In addition, the Vineyard I mining expansion will be incorporated into the previously approved reclamation plan, including revisions consistent with the requested reclamation amendments described above. The location of a retention basin on the Vineyard I mining site has been determined for the proposed project and the volume of a retention basin on the Aspen IV South mining site has been determined.

The following environmental impact and mitigation summary table describes the project impacts and the recommended mitigation measures to eliminate or reduce the impacts.

The residual impact after mitigation is also identified. Detailed discussions of each of the identified impacts and mitigation measures, including pertinent support data, can be found in the specific topic sections in the remainder of this report.

This report identifies significant and unavoidable impacts related to land use (conflict with nearby land uses), air quality (exhaust emissions) and geology (permanent alteration of the landform).

This report has identified project-related impacts associated with land use, groundwater hydrology and quality, geology and slope stability, public safety, airport compatibility, cultural resources, aesthetics; biological resources and traffic and circulation as potentially significant, which could be reduced to a less than significant level through inclusion of recommended mitigation measures.

Other impacts associated with surface water hydrology and drainage, groundwater hydrology and water quality, cultural resources, biological resources, aesthetics, climate change, air quality, geology and slope stability, traffic and circulation, land use, public safety and public services are considered less than significant.

Table 2-1
Executive Summary of Impacts and Mitigation

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
SURFACE WATER HYDROLOGY AND DRAINAGE			
In the Post-Reclamation condition, there would be a decrease in the upstream flows between the baseline condition and the Post-Reclamation condition. The Post-Reclamation floodplain upstream would be reduced.	LS	None Required	LS
In the Post-Reclamation condition, the flows downstream of the project site will not increase as a result of the project.	LS	None Required	LS
The proposed project would not result in on-site flooding in the Post-Reclamation condition as peak flows will be contained within the Morrison Creek Realigned Channel.	LS	None Required	LS
The embankments of the Morrison Creek Realigned Channel and the Raised Bank Channel are not likely to fail, but in the unlikely event they did, the applicants have an evacuation and safety plan and there would not be a potential for off-site flooding, or drying up of the creek channel downstream.	LS	None Required	LS
The proposed project will not result in damage to the Jackson Highway Bridge due to high Morrison Creek flows.	LS	None Required	LS
GROUNDWATER HYDROLOGY AND QUALITY			
The prior FEIR/EIS concluded that gravel extraction may alter drainage and groundwater flow and quality which could affect surrounding properties and domestic septic leachfield systems on adjacent surrounding properties. This was found to be a significant impact that could be reduced to less than significant with mitigation	S	This mitigation is from the prior FEIR/EIS and remains applicable to the Vineyard I mining expansion site of the proposed project: **GW-1:** The proponents shall store contaminants in the gravel operation area in a manner that will contain any spills (i.e., containment berms). Any spills occurring in operational areas should be cleaned up immediately.	LS

[1] PS = Potentially Significant S = Significant SU = Significant and Unavoidable LS = Less Than Significant

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
The prior FEIR/EIS determined that mining operations could alter or disrupt any future monitoring of the contamination plume from Mather Field. The contamination plum has not migrated and the inclusion of 5.6 acres to the Vineyard I mining site will not affect future monitoring efforts of contamination plumes from Mather Field. This impact is now considered less than significant.	LS	None Required	LS
CULTURAL RESOURCES			
There are no significant cultural or historical resources on the Vineyard I mining expansion site. Mining of the additional 5.6 acres will not impact known cultural resources	LS	None Required	LS
Mining of the 5.6-acre Vineyard I mining expansion site could uncover subsurface archaeological materials.	PS	**CR-1:** If subsurface deposits believed to be cultural or human in origin are discovered during construction, then all work must halt within a 200-foot radius of the discovery. A qualified professional archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for prehistoric and historic archaeology, shall be retained at the Applicant's expense to evaluate the significance of the find. If it is determined due to the types of deposits discovered, that a Native American monitor is required, the Guidelines for Monitors/Consultants of Native American Cultural, Religious, and Burial Sites as established by the Native American Heritage Commission shall be followed, and the monitor shall be retained at the Applicant's expense. Work cannot continue within the 200-foot radius of the discovery site until the archaeologist conducts sufficient research and data collection to make a determination that the resource is either 1) not cultural in origin; or 2) not potentially eligible for listing on the National Register of Historic Places or California Register of Historical Resources. If a potentially-eligible resource is encountered, then the archaeologist, DERA, and project proponent shall arrange for either 1) total avoidance of the resource, if possible; or 2) test excavations or total data recovery as mitigation. The determination shall be	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		formally documented in writing and submitted to DERA as verification that the provisions of CEQA for managing unanticipated discoveries have been met. **CR-2:** Pursuant to Section 5097.98 of the State Public Resources Code and Section 7050.5 of the State Health and Safety Code, in the event of the discovery of human remains, all work is to stop and the County Coroner shall be immediately notified. If the remains are determined to be Native American, guidelines of the Native American Heritage Commission shall be adhered to in the treatment and disposition of the remains.	
AIR QUALITY			
The proposed project will result in a significant increase of exhaust emissions due to the continued use of heavy off-road equipment for an additional 3-6 months time frame for the Vineyard I mining expansion site. This impact is significant and unavoidable.	S	**AQ-1:** *Category 1: Reducing NOx emissions from off-road diesel powered equipment*. The proponent shall provide a plan, for approval of the lead agency and the Sacramento Metropolitan Air Quality Management District (SMAQMD), demonstrating that the heavy-duty (50 horsepower or more) off-road vehicles to be used in the project, including owned or leased and subcontracted vehicles, will achieve a project wide fleet-average 20 percent NO_x reduction and 45 percent particulate reduction[2] compared to the most recent California Air Resource Board (ARB) fleet average at time of each annual report; and The proponent shall submit to the lead agency and SMAQMD a comprehensive inventory of all off-road equipment, equal to or greater than 50 horsepower, that will be used an aggregate of 40 or more hours per year during any portion of the project. The inventory shall include the horsepower rating, engine production year, and project hours of use or fuel throughput for each piece of equipment. The inventory shall be updated and submitted annually	SU

[2] Acceptable options for reducing emissions may include use of late model engines, low-emissions diesel products, alternative fuels, engine retrofit technology, after-treatment products and/or other options as they become available.

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		throughout the duration of the project. The proponent shall provide SMAQMD with the name and phone number of the project manager and/or on-site foreman. Due to the long term nature of this project, the requirement for the emission reduction plan referenced herein will sunset on Month/date/year[3] due to existing SMAQMD and ARB rules that will affect ARB fleet averages at that time. And: *Category 2: Controlling visible diesel emissions from off-road diesel powered equipment*. Emissions from all off-road diesel powered equipment used on the project site shall not exceed 40 percent opacity for more than three minutes in any one-hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be repaired immediately, and the lead agency and the lead agency and SMAQMD shall be notified within 48 hours of identification of non-compliant equipment. The SMAQMD and/or other officials may conduct periodic site inspections to determine compliance. Nothing in this mitigation measure shall supersede other SMAQMD or State rules or regulations. **AQ-2:** All vehicles shall be maintained in accordance with the manufacturers' recommendations, and all stationary equipment maintained in compliance with emissions limitations established by a permit issued by the SMAQMD. Granite Construction shall maintain records of equipment maintenance activities and records shall be provided to the County upon request. **AQ-3:** Particulate filters and catalysts should be used where technically feasible to reduce NOx emissions from off-road heavy duty equipment. Granite Construction should contact SMAQMD and/or ARB for assistance in determining appropriate emission	

[3] Project proponent should contact SMAQMD staff to determine appropriate sunset period.

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		reducing technologies.	
The prior project was found to have a significant dust (particulate matter) emission impact. During mining of the Vineyard I mining expansion site, all Basic Construction Emission Control Practices will be implemented and the maximum daily disturbed area will not exceed 15 acres. This impact is now considered less than significant.	LS	None Required	LS
GEOLOGY AND SLOPE STABILITY			
The prior project was found to have a significant and unavoidable impact due to the permanent alteration of the project site's landform. Mining the Vineyard I expansion site will increase the amount of land permanently altered by mining. The project does not lessen the prior impact.	S	None Available	SU
The prior project concluded that the project's reclaimed slopes would be subject to slope instability. The proposed project does not change this prior significant impact. Mitigation from the prior FEIR/EIS remains applicable to the proposed project and will reduce the level of significance.	S	The following mitigation is from the prior FEIR/EIS and remains applicable to the Vineyard I mining expansion site of the proposed project. **GS-1:** For the Vineyard I mining expansion site, the proponent shall limit the finished side slopes to 1.5:1 (horizontal:vertical) to ensure stability for existing soil conditions. Soils shall be placed and compacted to 90 percent of the maximum dry density, at or near optimum moisture conditions, in all finished slopes. Since local stability of the slope is critically dependent upon proper compaction of the overburden soils, a qualified soils engineer shall be regularly present throughout grading operations to determine compliance with job specifications. **GS-2:** Prior to allowing re-directed stream flows to the Morrison Creek Realigned Channel, Granite Construction shall submit a report prepared by a California registered professional engineer certifying the channel and embankment engineering and foundation soils of the Morrison Creek Realigned Channel. The engineer's report shall address slope stability, soil compaction rates, foundation soils, potential failure mechanisms and contingencies for repairing failures. The report shall be submitted to the Community Planning and Development Department and the Division of	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		Environmental Review and Assessment for approval. No flows shall be directed to the new channel until approval is granted by both entities. **GS-3:** For the embankments of the Raised Bank Channel and the mining slopes on the Aspen IV South mining site, Teichert Aggregates shall follow the recommendations contained in the GEOCON Consulting, Inc report (September, 2011). At the completion of the construction of the Raised Bank Channel, a report, signed by a California registered professional engineer, shall be submitted to DERA indicating completion of the recommendations from the GEOCON report. During mining, a report, prepared and signed by a California registered professional engineer, shall be submitted indicating completion of the recommendations regarding the mining pit slopes. **GS-4:** Prior to mining within 25 feet of the Mayhew Road right-of-way, Teichert Aggregates shall submit a report, prepared by a geotechnical engineer or engineering geologist, on the soils observed at 25 feet from the right-of-way and whether or not the soils observed are consistent with those anticipated. If the soils observed differ significantly from what was anticipated, the engineer shall increase the proposed 12-foot setback accordingly. This report shall be submitted to DERA and the Community Planning and Development Department for review and approval prior to commencement of mining within 25 feet of the Mayhew Road right-of-way.	
The slopes of the mining pit and recreated channel of the proposed project would be subject to erosion and slope instability if not properly vegetated and maintained.	S	**GS-5:** The proponents shall ensure that the side slopes of the pit are vegetated following final slope placement to prevent excessive erosion and enhance slope stability. The side slopes shall be revegetated with an erosion control mix as specified in an Erosion Control Plan. The Erosion Control Plan shall be prepared by the applicant and submitted to the County prior to issuance of the work authorization permit. The species chosen for the erosion control mix shall be comprised of native stock and shall not contain any species considered to be invasive or noxious weeds. The Erosion Control Plan shall include performance standards that can be used to determine the success of erosion control measures and the	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		revegetation effort, and shall discuss monitoring requirements. The plan shall include remedial measures to be implemented if revegetation is not successful. **GS-6:** The applicant shall submit to the Division of Environmental Review and Assessment (DERA), a ten-year monitoring plan that outlines monitoring requirements and identifies mitigating steps for any significant erosion that may occur at a specific location in the flow channel. If significant erosion is identified during monitoring, the applicant shall contact DERA and submit proof of corrective actions. Appropriate mitigation includes, but is not limited to; strengthening of the channel, re-grading the channel, widening the channel to reduce scour velocities, or any other revision as approved by County staff to mitigate significant erosion.	
The loss of mineral resource availability is not an impact of the proposed project.	LS	None Required	LS
BIOLOGICAL RESOURCES			
Vegetation The loss of existing natural vegetation communities was found to be a significant impact under the prior project. Mitigation included a mitigation corridor which has been revised as the proposed Morrison Creek Preserve Corridor which has been approved by the regulatory agencies. Mitigation has been included to ensure success of the Morrison Creek Preserve Corridor and impacts will be considered less than significant.	S	**BR-1:** Prior to the issuance of a Work Authorization Permit, submit to the County Department of Environmental Review and Assessment the recorded Conservation Easements for the project sites. **BR-2:** Implement the *Wetland, Oak Woodland and Riparian Mitigation Monitoring Plan* (refer to Appendix D1). Submit to the County Division of Environmental Review and Assessment annual monitoring reports. The reports shall present the status of the creek, wetlands, drainage, oak woodland and riparian habitats, including individual wetland data, photo-documentation, status of the riparian and oak woodland plantings, and any recommended remediation. The report shall also include an assessment of the monitoring results against the success criteria described in the *Wetland, Oak Woodland and Riparian Mitigation Monitoring Plan*. A monitoring report will be prepared and submitted to the County (and Corps and CDFG) for each of the monitoring years by December 31st of each monitoring year. The report shall include:	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		a. A map showing the Preserve including wetland locations, location of various monitoring activities and photo points; b. Hydrology, vegetation, and photographic monitoring results as described in the *Wetland, Oak Woodland and Riparian Mitigation Monitoring Plan*; c. An assessment of the monitoring results against the established success criteria; d. A description of the overall site conditions and any management actions taken during that year; and e. Any recommended management or remediation actions to be conducted (if necessary, a contingency plan, as described in Section 8.2 of the *Wetland, Oak Woodland and Riparian Mitigation Monitoring Plan* will be prepared). If any revisions to the Morrison Creek Realigned Channel occur during the first ten years, a letter indicating proposed changes shall be submitted to DERA. If changes require approval by either the Corps or CDFG an approval letter from the respective agency shall be submitted to DERA. At the end of the ten-year monitoring period, monitoring will cease if the Morrison Creek Realigned Channel is found by the County, Corps and CDFG to be in substantial compliance with the established success criteria. Monitoring will be extended beyond the ten-year period for those habitats that are not meeting success criteria.	
Native Trees Mining of the Vineyard I site resulted in removal of 3,562 inches dbh of native oak and walnut trees. The tree plantings within the Morrison Creek Realigned Channel will adequately compensate (out-of-kind, inch-for inch) for this impact. Mining the Vineyard I Expansion Site will result in removal of 40 inches dbh of native trees.	S	**BR-3:** Implement Mitigation Measure BR-1 (submittal of recorded conservation easements) and BR-2 (implement the *Wetland, Oak Woodland and Riparian Mitigation Monitoring Plan for Vineyard I* [refer to Appendix D1] and the *Oak Tree Mitigation and Monitoring Plan for Aspen IV South* [refer to Appendix D2]). **BR-4:** The removal of 40 inches by Granite for the Vineyard I expansion site shall be compensated by planting native oak trees (either valley oak/Quercus lobata, blue oak/ Quercus douglasii	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
Mining the Aspen IV South site will result in 566 inches dbh of tree impacts. Perimeter and landscape tree plantings (140 oak tree plantings) will compensate for 140 inches of impacts. The remaining 426 inches dbh will be adequately mitigated through tree plantings within the Morrison Creek Preserve Corridor. Connection of the Morrison Creek Realigned Channel and Raised Bank Channel will result in impacts to trees located within the Mayhew Road right-of-way. Granite will be responsible for trees located on the western half of the right-of-way for a total of 273 inches. Teichert will be responsible for the trees located on the eastern half of the right-of-way for 74 inches. Planting within the Morrison Creek Raised Bank Channel for Aspen IV South will sufficiently compensate for 875 inches of impacts for Teichert. Granite impacts of 273 inches and 40 inches (for expansion site) will be mitigated consistent with the County tree ordinance.		and/or interior live oak/ Quercus wislizenii) equivalent to the dbh inches lost, based on the ratios listed below, at locations that are authorized by the Division of Environmental Review and Assessment. On-site preservation of native oak trees that are less than 6 inches (<6 inches) dbh, may also be used to meet this compensation requirement. A total of 40 inches for Granite will require compensation. Equivalent compensation based on the following ratio is required: • One preserved native oak tree < 6 inches dbh on-site = I inch dbh • One D-pot seedling (40 cubic inches or larger) = 1 inch dbh • One 15-gallon tree = 1 inch dbh • One 24-inch box tree = 2 inches dbh • One 36-inch box tree = 3 inches dbh Replacement tree plantings shall be completed prior to tree removal or a bond shall be posted by the applicant in order to provide funding for purchase, planting, irrigation, and 3-year maintenance period, should the applicant default on replacement tree mitigation. The bond shall be in an amount equal to the prevailing rate of the County Tree Preservation Fund and will be due within one year of posting the bond. Prior to the issuance of a Work Authorization Permit for the Vineyard I expansion site, a Replacement Oak Tree Planting Plan shall be prepared by a certified arborist or licensed landscape architect and shall be submitted to the Environmental Coordinator for approval. The Replacement Oak Tree Planting Plan(s) shall include the following minimum elements: 1. Species, size and locations of all replacement plantings and < 6 inch dbh trees to be preserved; 2. Method of irrigation; 3. If planting in soils with a hardpan/duripan or clayplan layer, include the Sacramento County Standard Tree Planting Detail L-1, including the 10-foot deep boring hole to provide for adequate drainage; 4. Planting, irrigation and maintenance schedules;	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		5. Identification of the maintenance entity and a written agreement with that entity to provide care and irrigation of the trees for a 3-year establishment period, and to replace any of the replacement oak trees which do not survive during that period; and 6. Designation of a 20-foot root zone radius and landscaping to occur within the radius of oak trees < 6 inches dbh to be preserved on-site. No replacement tree shall be planted within 15 feet of the driplines of existing oak trees or landmark size trees that are retained on-site. The minimum spacing for replacement oak trees shall be 20 feet on-center. If oak tree replacement plantings are demonstrated to the satisfaction of the Environmental Coordinator to be infeasible for any or all trees removed, then compensation shall be through payment into the County Tree Preservation Fund. Payment shall be made at a rate of $325.00 per dbh inch removed but not otherwise compensated, or at the prevailing rate at the time payment into the fund is made.	
Wetlands The prior project found that the prior project would impact 19 acres of waters of the U.S. Mitigation required the applicants to obtain the necessary permits; these permits have been secured. Impacts to wetlands and waters of the U.S. on the Aspen IV South site have decreased under the proposed reclamation plan amendment as there will be no mining within Morrison Creek on Aspen IV South. The Morrison Creek Realigned Channel will mitigate for impacts to wetlands associated with the Vineyard I mining site; however to ensure that the corridor will adequately mitigate for impacts to wetlands, mitigation to submit recorded conservation easements and the mitigation plan has been included.	S	**BR-5:** Implement Mitigation Measures BR-1 and BR-2	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
Wildlife It was determined that the prior project would result in the loss of most existing wildlife habitat and wildlife displacement. Mining the Vineyard I expansion site does not change the prior conclusion that mining activities would result in habitat loss and wildlife displacement. Mitigation Measures BR-1 and BR-2 have been recommended to ensure the recreated habitats function adequately. A wildlife survey has been included within the *Wetland, Oak Woodland and Riparian Mitigation Monitoring Plan.*	S	**BR-6:** Implement Mitigation Measure BR-1 and BR-2	LS
Invertebrates The proposed project will not impact general invertebrate populations (non-special status species populations).	LS	None Required	LS
Fisheries The proposed project will not result in the loss of existing warm water fisheries habitat within approximately two miles of the Morrison Creek channel, nor would the project result in a disruption of fish migration as a result of the loss of two miles of the Morrison Creek stream channel.	LS	None Required	LS
American Badger Mining the Vineyard I expansion site would not adversely impact the American badger. It is also likely that the American badger has fled the project site. The recreated Morrison Creek Preserve Corridor may provide suitable habitat for the badger at completion of mining activities. The project will only result in temporarily displacing the American badger.	LS	None Required	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
Palled bat, Townsend's western big eared bat and other bats The Vineyard I expansion site would remove an abandoned building that is potential roosting habitat for bats in the area. Removal of the building is not a significant loss of roosting habitat for bats, such as the pallid bat, Townsend's western big-eared bat and other bats. This loss is considered temporary since the riparian habitat proposed along the Morrison Creek Preserve Corridor will provide future roosting habitat for bats at the completion of mining activities.	LS	None Required	LS
Valley Elderberry Longhorn Beetle The Vineyard I expansion mining site does not contain any elderberry bushes; mining the site will not result in impacts to the valley elderberry longhorn beetle. Mitigation for the removal of nine elderberry bushes has been completed. This impact is now considered less than significant.	LS	None Required – prior mitigation completed	LS
Special Status Vernal Pool Invertebrates The Vineyard I expansion mining site does not contain any wetlands; therefore vernal pool invertebrates are not utilizing the site. Mining the Vineyard I expansion site will not impact vernal pool invertebrates. The prior project had a significant impact to the loss of vernal pool invertebrates and consulted with the USFWS and purchased necessary vernal pool preservation and creation credits at an approved mitigation bank. The Morrison Creek Realigned Channel will replace wetland habitats; mitigation has been recommended to ensure appropriate wetland habitat functions.	S	**BR-7:** Implement Mitigation Measure BR-1 and BR-2	LS
Swainson's hawk and Other Special Status Birds (Burrowing owl and Tricolored blackbird) The prior FEIR/EIS concluded that the project would result in the temporary loss of approximately 880 acres of	PS	**BR-8:** Prior to the issuance of a Work Authorization Permit, if mining the Vineyard I expansion site is to occur between March 1 and September 15, a focused survey for Swainson's hawk nests on the site and on nearby trees shall take place within ½ mile for rural	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
potential foraging habitat, with potential nesting sites for Swainson's hawk. The proposed Morrison Creek Realigned Channel does not change the overall post-reclamation use of the site and as such, the prior conclusion does not change. The project was found to result in temporary loss of potential nesting sites for both the burrowing owl and tricolored blackbird. The Morrison Creek Realigned Channel will replace this habitat upon completion of mining. Mining the Vineyard I expansion site could have potentially significant impacts to Swainson's hawk, burrowing owl or other special status birds if they are utilizing the site. This is considered a potentially significant impact.		sites and ¼ mile for urban sites, and shall be conducted by a qualified biologist within 14 days prior to the start of construction work (including clearing and grubbing). If active nests are found, the California Department of Fish and Game (CDFG) shall be contacted to determine appropriate protective measures. If no active nests are found during the focused survey, no further mitigation will be required. **BR-9:** Burrowing Owl Survey: Prior to mining activities, a focused survey shall be conducted by a qualified biologist for burrowing owls where suitable habitat is present in the project area. Suitable habitat includes agricultural field margins, drainage ditches and fallow fields. Surveys shall be conducted no less than 14 days and no more than 30 days prior to commencement of construction activities. Surveys shall be conducted in accordance with CDFG protocol (CDFG, 1995). a. If no occupied burrow are found in the survey area, a letter report documenting survey methods and findings shall be submitted to the County and no further mitigation is necessary. b. If an occupied burrow is found, the applicant shall contact DERA and consult with the CDFG, prior to construction or mining activities, to determine if avoidance is possible or if burrow relocation will be required. c. If owls are to remain on-site, a minimum of 6.5 acres of foraging habitat for each occupied burrow needs to be permanently preserved according to CDFG guidelines. d. In order to avoid direct impacts to owls, no activity shall take place within 160 feet of an active burrow from September 1 to January 31 (wintering season) or 250 feet from February 1 through August 31 (breeding season). Protective fencing shall be placed, at the distances above, around the active burrows and no activity shall occur within the protected buffer areas. e. Any impact to active owl burrows, relocation of owls or mitigation for habitat loss shall be done in accordance with CDFG guidelines. Written evidence from CDFG staff shall be	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		provided to DERA attesting to the permission to remove burrows, relocated owls, mitigate for lost habitat and provide a method for preservation habitat in perpetuity. **BR-10:** Survey for Tricolored blackbirds: If mining activities occur between March 1 and July 31, a pre-construction survey for nesting tricolored blackbird shall be performed by a qualified biologist. Surveys shall include the project site and aeras of appropriate habitat within 300 feet of the site. Surveys shall be conducted no less than 14 days and no more than 30 days prior to commencement of mining activities. The biologist shall supply a brief written report (including date, time of survey, survey method, name of surveyor and survey results) to the Department of Environmental Review and Assessment (DERA) prior to ground disturbing activities. If no tricolored blackbirds are found during the pre-construction survey, no further mitigation will be required. If an active tricolored blackbird colony is found on-site or within 300 feet of the project site, the project proponent shall do the following: a. Consult with CDFG to determine if project activity will impact the tricolored blackbird colony(s). Provide DERA with written evidence of the consult or a contact name and number from CDFG. b. With CDFG permission, the applicant may avoid impacts to tricolored blackbirds by establishing a 300-foot temporary setback with fencing that prevents any project activity within 300 feet of the colony. A qualified biologist shall verify that setbacks and fencing are adequate and will determine when the colonies are no longer dependent on the nesting habitat (i.e., nesting have fledged and are no longer using habitat). The breeding season typically ends in July. c. If the tricolored blackbird habitat is permanently destroyed, follow CDFG procedure to mitigate for habitat loss.	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
Special Status Plants The prior FEIR/EIS concluded that the project would not significantly impact any special status plants since none were known to occur within the project site. There are no wetlands or vernal pools on the Vineyard I expansion site; the proposed project will not impact special status plants.	LS	None Required	LS
Giant Garter Snake The USFWS presumed the presence of the giant garter snake in the project area in the issued Biological Opinion for the Aspen IV South site. Impacts are considered potentially significant. Minimization and avoidance measures were included in the issued Biological Opinion and have been carried forward as mitigation.	LS	None Required	LS
TRAFFIC AND CIRCULATION			
The prior FEIR/EIS concluded that the additional haul trucks on the roadway system would degrade the existing level of service and that this was identified as a significant impact. Removal of overburden from the Vineyard I expansion site would not result in additional haul trucks on the roadway system and would not result in a significant increase in worker trips. Mitigation has been included to ensure impacts are less than significant.	PS	**TC-1:** The proponents shall transport mined aggregate material to the processing plants only by conveyor and not by trucks. **TC-2:** If overburden from the Vineyard I mining expansion site is to be removed from the site, overburden transport shall be by conveyor and internal vehicles only and not by on-road haul trucks.	LS
The prior project resulted in significant impacts to traffic safety due to increased truck traffic on roads not designed to accommodate truck traffic and at access points to heavily traveled roads. The proposed project will not result in an increase in haul trucks. Prior mitigation for this impact has been completed. Impacts are now considered less than significant.	LS	None Required	
The proposed project will not result in the introduction of new trucks on the roadway system which will not result in deterioration of pavement and damage to roadway structural sections.	LS	None Required	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
The cumulative condition of the prior FEIR/EIS was identified as year 2010 and significant impacts to the level of service (LOS) were reduced with mitigation. The mitigations from the prior project have been completed and as the proposed project will not result in an increase in truck traffic, the level of service on area roadways in the existing and cumulative conditions are now considered less than significant.	LS	None Required	
NOISE			
The Vineyard I mining expansion site will not expose sensitive receptors to noise levels in excess of noise standards. The Reclamation Plan amendment will not generate noise in excess of the standard. The prior mitigation has been completed; impacts are considered less than significant.	LS	None Required	LS
The conveyor system was found to not violate the Zoning Code Noise Standard and the Vineyard I mining expansion site would utilize the existing conveyor system.	LS	None Required	LS
The proposed project will not have a potential for noise impacts associated with heavy truck traffic.	LS	None Required	LS
LAND USE			
The prior FEIR/EIS concluded that the mining area would potentially conflict with on-site and nearby land uses and this was considered a significant and unavoidable impact. Although the Vineyard I mining expansion does not result in a significant impact, since the Vineyard I mining expansion will be a part of the prior approved Vineyard I mining site, the prior conclusion remains.	S	**LU-1:** In order to mitigate potential impacts to surrounding land uses, the proponents shall be required to comply fully with mitigation measures identified in the Noise; Traffic and Circulation; Air Quality; and Visual Resources sections of this SEIR. These mitigation measures employ appropriate state-of-the-art techniques for erosion control, reclamation, nuisance prevention, and environmental impact mitigation relative to surface mining and processing operations.	SU

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
The prior project was found to disturb 31 acres of Prime Farmland, 435 acres of Farmland of Statewide Importance and 419 acres of Farmland of Local Importance. The proposed Vineyard I expansion site will disturb an additional 5.6 acres of Prime Farmland and Farmland of Statewide Importance.	S	**LU-2:** In order to mitigate potential impacts to agricultural uses, prior to the issuance of the work authorization permit, Granite shall revise/prepare a plan, that includes the additional 5.6 acres, for the preservation and salvage of topsoil resources suitable for sustaining economically viable agricultural uses, consistent with the performance standards set forth in Sections 3708 and 3711 of the State Mining and Geology Board Reclamation Regulations.	LS
The prior project was found to have a significant impact as the post-project development of the site was limited and lacked open space/recreational uses of the site. The proposed project includes a recreational opportunity (trail) that was not a part of the prior project. This proposed component reduces the prior significant impact to less than significant.	LS	**LU-3:** Prior to redirecting Morrison Creek to the Morrison Creek Realigned Channel, the applicants shall provide copies to DERA and the Planning Division of executed trail easements dedicated to the Southgate Recreation and Park District.	LS
AIRPORT COMPATIBILITY			
The proposed project is consistent with the Mather Airport Comprehensive Land Use Plan (CLUP). A Bird Airstrike Hazard (BASH) Analysis has been completed and the potential for bird airstrikes over the project site is low.	PS	**LU-4:** The retention basins on Vineyard I and Aspen IV South shall include the following design criteria to the maximum extent practicable, while still adhering to the federal agency regulations: a. The basin shall incorporate steep side slopes (3:1 or greater) b. The basin shall be designed to remain clear of vegetation that may provide nesting, roosting or foraging opportunities for birds. Only herbaceous vegetation necessary for erosion control purposes will be allowed.	LS
PUBLIC SAFETY			
The use of heavy equipment, creation of a 25± foot deep, steep-sided pit and inadvertent public entry to the mining site could create a public safety hazard. Mitigation requiring perimeter fencing until post-reclamation development or future use of the site occurs would reduce the level of significance.	S	**PS-1:** All perimeter fencing shall be retained until post-reclamation development/ future use of the project site occurs.	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
The proposed project will not create hazardous conditions post reclamation.	LS	None Required	LS
AESTHETICS AND VISUAL RESOURCES			
The project will not result in degradation of the visual character or quality of the site and its surroundings. Mitigation from the prior project that required visual screening of the mining activities has been completed and is currently in place. Impacts are now considered less than significant.	LS	None Required	LS
The prior project was found to have a significant impact as a result of creating a new source of substantial light or glare affecting nighttime views in the area. The proposed project does not create any new impacts to nighttime lighting or glare. Mitigation from the prior project remains applicable to the proposed project.	S	With minor changes, the mitigation measure from the prior FEIR/EIS below is applicable to the proposed project: **AV-1:** Any lighting shall be arranged and controlled so as not to illuminate public rights-of-way or adjacent properties. In order to reduce direct and reflected light pollution, lighting at the project site shall be equipped with shields that concentrate the illumination downward such that no direct light is cast off the site. Energy efficient lights shall be used, similar to the types used as residential outdoor security lights. The candle power of the illumination at ground level shall not exceed what is required by any safety or security regulations of any government agency with regulatory oversight of the mining operation.	LS
PUBLIC FACILITIES AND SERVICES			
Energy Supply (Electric & Gas)			
The proposed project will not require additional electric facility use over what was originally permitted.	LS	None Required	LS
The proposed project will not require the use of natural gas; new natural gas facilities will not be required as part of the proposed project.	LS	None Required	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
Emergency Services			
The proposed project will provide public use of the mitigation corridor. In addition, the Sacramento Metropolitan Fire District provides fire protection services to the project area and provided conditions of approval. The project will not adversely affect the provision of fire services.	LS	None Required	LS
Parks and Recreation			
The proposed project provides for a trail easement through the Morrison Creek Realigned Channel and Raised Bank Channel. This trail will provide recreational opportunities and will not result in an adverse impact to the provision of park services.	LS	None Required	LS
Water Supply			
The proposed project will not have a significant impact as a result of well water use or removal of onsite water wells.	LS	None Required	LS
Removal of water wells in compliance with EMD regulations and Building Department guidelines will be required.	LS	None Required	LS
Sewer Service			
The proposed project will not have an impact to SRCSD and/or SASD (formally CSD-1) sewage lines.	LS	None Required	LS
The Vineyard I expansion mining site will not have an adverse impact to existing septic systems.	LS	None Required	LS
CLIMATE CHANGE			
The proposed project will not result in a cumulative build up of greenhouse emissions.	LS	None Required	LS

TERMINOLOGY USED IN THIS EIR

This Draft EIR uses the following terminology to describe environmental effects of the project.

- **Significance Criteria.** A set of criteria used by the lead agency to determine at what level, or "threshold," an impact would be considered significant. Significance criteria used in this EIR include those that are set forth in the CEQA Guidelines, or can be discerned from the CEQA Guidelines; criteria based on factual or scientific information; criteria based on regulatory standards of local, state, and federal agencies; and criteria based on goals and policies identified in the Sacramento County General Plan.
- **Less-than-Significant Impact.** A project impact is considered less than significant when it does not reach the standard of significance and would therefore cause no substantial change in the environment. No mitigation is required for less-than-significant impacts.
- **Potentially Significant Impact.** A potentially significant impact is a substantial, or potentially substantial, adverse change in the environment. Physical conditions which exist within the area will be directly or indirectly affected by the proposed project. Impacts may also be short-term or long-term. A project impact is considered significant if it reaches the threshold of significance identified in the EIR. Mitigation measures may reduce a potentially significant impact to less than significant.
- **Significant Unavoidable Impact.** A project impact is considered significant and unavoidable if it is significant and cannot be avoided or mitigated to a less-than-significant level once the project is implemented.
- **Cumulative Significant Impact.** A cumulative impact can result when a change in the environment results from the incremental impact of a project when added to other related past, present or reasonably foreseeable future projects. Significant cumulative impacts may result from individually minor but collectively significant projects.
- **Mitigation.** Mitigation measures are revisions to the project that would minimize, avoid, or reduce a significant effect on the environment. CEQA Guidelines §15370 identifies 5 types of mitigation:

  a) Avoiding the impact altogether by not taking a certain action or parts of an action.

  b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation.

  c) Rectifying the impact by repairing, rehabilitating, or restoring the impacted environment.

  d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.

  e) Compensating for the impact by replacing or providing substitute resources or environments.

MITIGATION MONITORING AND REPORTING PROGRAM

Comply with the Mitigation Monitoring and Reporting Program (MMRP) for this project as follows:

1. It shall be the responsibility of the project applicant to reimburse the County for all expenses incurred in the implementation of the Mitigation Monitoring and Reporting Program (MMRP), including any necessary enforcement actions. Each Applicant (Granite and Teichert) shall pay an initial deposit of **$5,000.00 each**. Over the course of the project, DERA will regularly conduct cost accountings and submit invoices to the applicant when the County monitoring costs exceed the initial deposit.

2. Until the MMRP has been recorded and initial deposit paid, no work authorization permit, grading permit or encroachment permit from Sacramento County shall be approved.

3 PROJECT DESCRIPTION

INTRODUCTION

On July 9, 1999, Sacramento County published a Final Environmental Impact Report/ Environmental Impact Statement (FEIR/EIS) for the Morrison Creek Mining Reach Downstream (South) of Jackson Highway [(Control Numbers: 94-UPB-0484; 90-CZB-UPB-1607; and 94-CZB-UPB-0671) (State Clearinghouse Number: 95102057) (Public Notice Number: 199400102)].

The Sacramento County Board of Supervisors certified the Final Environmental Impact Report on October 20, 1999, and approved the project and adopted Findings of Fact and Statement of Overriding Considerations on December 15, 1999.

The project evaluated in the prior FEIR/EIS was a request for the necessary land use entitlements to surface mine sand and gravel on the proposed Vineyard I, Aspen III South, Aspen IV South and Aspen V South sites and divert Morrison Creek around the mining area. The prior project included a request to reclaim 881.7 acres of a 966.3 acre project site. The Federal action was a Section 404 permit to be issued by the Army Corps of Engineers to allow work to occur in waters of the United States.

The current proposed project consists of three separate projects, known as Vineyard I project, Aspen III South project and Aspen IV South project. Since these three projects are interrelated, they have been incorporated as the proposed project.

Drainage Mitigation Plan

The drainage mitigation plan included in the project was part of a larger plan (Morrison Creek Mining Reach Drainage Mitigation Plan – Part A) and the overall impacts of the project on the drainage mitigation plan were addressed in the Morrison Creek Upstream (North) Mining Reach EIR/EIS. The intent of the drainage mitigation plan was to mitigate the drainage impacts resulting from mining within the Morrison Creek 100-year floodplain. The drainage mitigation plan included the construction of an unlined trapezoidal bypass channel. The channel was to be constructed at the existing ground surface elevation around the perimeter of the mining area to convey the bulk of the flows of Morrison Creek around the aggregate mining pits. The channel would begin/meet the natural Morrison Creek drainage on the Aspen IV South site between Mayhew Road and Bradshaw Road. Construction of the bypass channel was to occur during years 7 and 8, of the anticipated 12 year duration of mining activities. Morrison Creek would not have been affected until year 9, at which time the flows would be diverted from the creek to the bypass channel.

When the drainage volume from Morrison Creek exceeded the capacity of the bypass channel, the excess was to be diverted into one of the pit floor detention areas via

weir/outfall structures in the bypass channel. A small and variable speed pump station would be located adjacent to the northeast portion of the project site where the bypass channel proposed in the upstream portion of the mining reach terminates and where the existing drainage channel of Morrison Creek continues to the project site (on the Aspen V South site, not a component of the current proposed project).

Wetland Mitigation Plan/ Reclamation Plan

It was determined in the prior FEIR/EIS that the proposed combined mining activities would impact approximately 19.83 acres of Waters of the United States, which are under jurisdiction of the United States Army Corps of Engineers. The estimated acreage included impacts to seasonal wetlands, portions of Morrison Creek, and irrigated seasonal wetlands. The proponents developed a wetland mitigation plan that outlined how the loss of acreage and function of wetlands impacted by the project would be compensated. The plan included developing a 600-foot wide riparian corridor along a re-created low flow channel within the bottom of the mining pit in generally the same location as the existing creek. The corridor would contain a creek channel, perennial marsh, riparian woodlands, seasonal marsh and valley oak woodlands in a series of terraces.

Granite obtained a Section 404 permit from the U.S. Army Corps of Engineers that reflected the approved reclamation plan on Vineyard I and Aspen III South. However, since the issued Section 404 permit, Granite and Teichert proposed changes to the previously approved reclamation plan to form a Morrison Creek Preserve Corridor that would re-create Morrison Creek at or near original grade, just north of the existing Morrison Creek location. Granite has received amended Section 404 (federal) and 401 (State) permits that reflect the proposed reclamation change to Vineyard I and Aspen III South. Teichert has received federal and State permits that reflect the proposed reclamation changes for Aspen IV South.

The proposed project requests to amend existing approved reclamation plans to be consistent with the applicants' amended federal stream restoration and mitigation plans. Additionally the Vineyard I project requests new entitlements to mine two additional small parcels totaling 5.61 acres.

This chapter discusses the three mining sites that together comprise the proposed project; Vineyard I, Aspen III South, and Aspen IV South. This chapter will provide the requested entitlements, project features and project objectives of the proposed project. Teichert Aggregates is the project proponent for the Aspen III South and Aspen IV South sites and Granite Construction Company is the project proponent for the Vineyard I site.

PROJECT LOCATION

The proposed project is located within the Vineyard Community Plan Area in the unincorporated area of Sacramento County. The Vineyard I project parcels are located at the northeast corner of Hedge Road and Elder Creek Road. The Aspen III South project parcels are located in the southwest corner of Fruitridge Road and Mayhew Road. The Aspen IV South project parcels are located at the northeast corner of Mayhew Road and Elder Creek Road. Plate PD-1 presents the regional location and Plate PD-2 presents an aerial photograph of the project site, captured in 2011. Plate PD-3 presents an overview of the proposed Morrison Creek Preserve Corridor.

PROJECT PROPONENTS

APPLICANTS

Teichert Aggregates
Attn: John Lane

Granite Construction Company
Attn: Yasha Saber

OWNERS

Teichert Land Co.

Granite Construction Company

ENGINEER

G.C. Wallace of CA, Inc.

Cunningham Engineering
Attn: Steve Greenfield

PLANNING CONSULTANT

Jeff Gamel, Senior Planner, Sacramento County Planning and Community Development Department

Plate PD-1: Regional Location Map

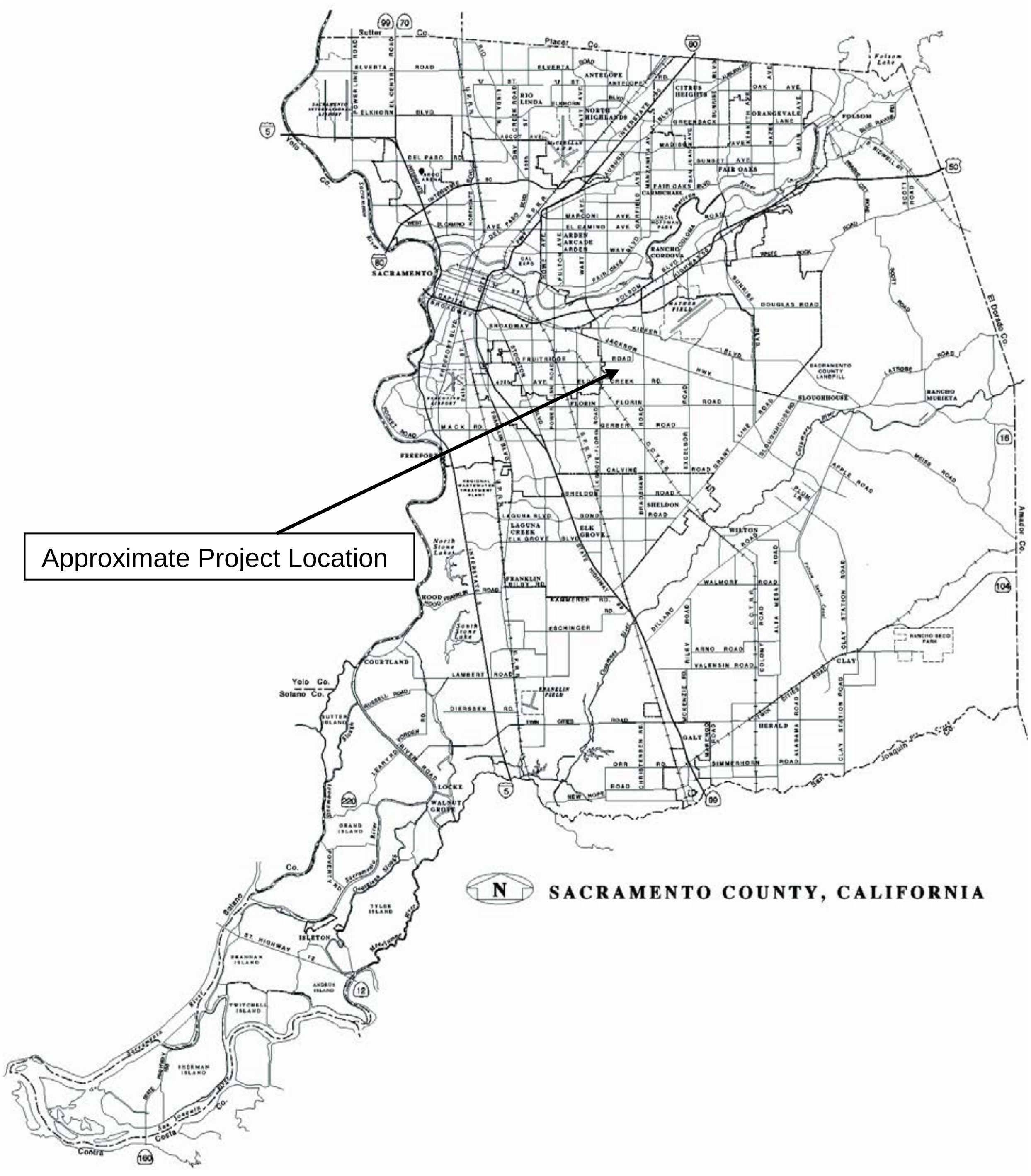


Plate PD-2: Aerial of the Project Site

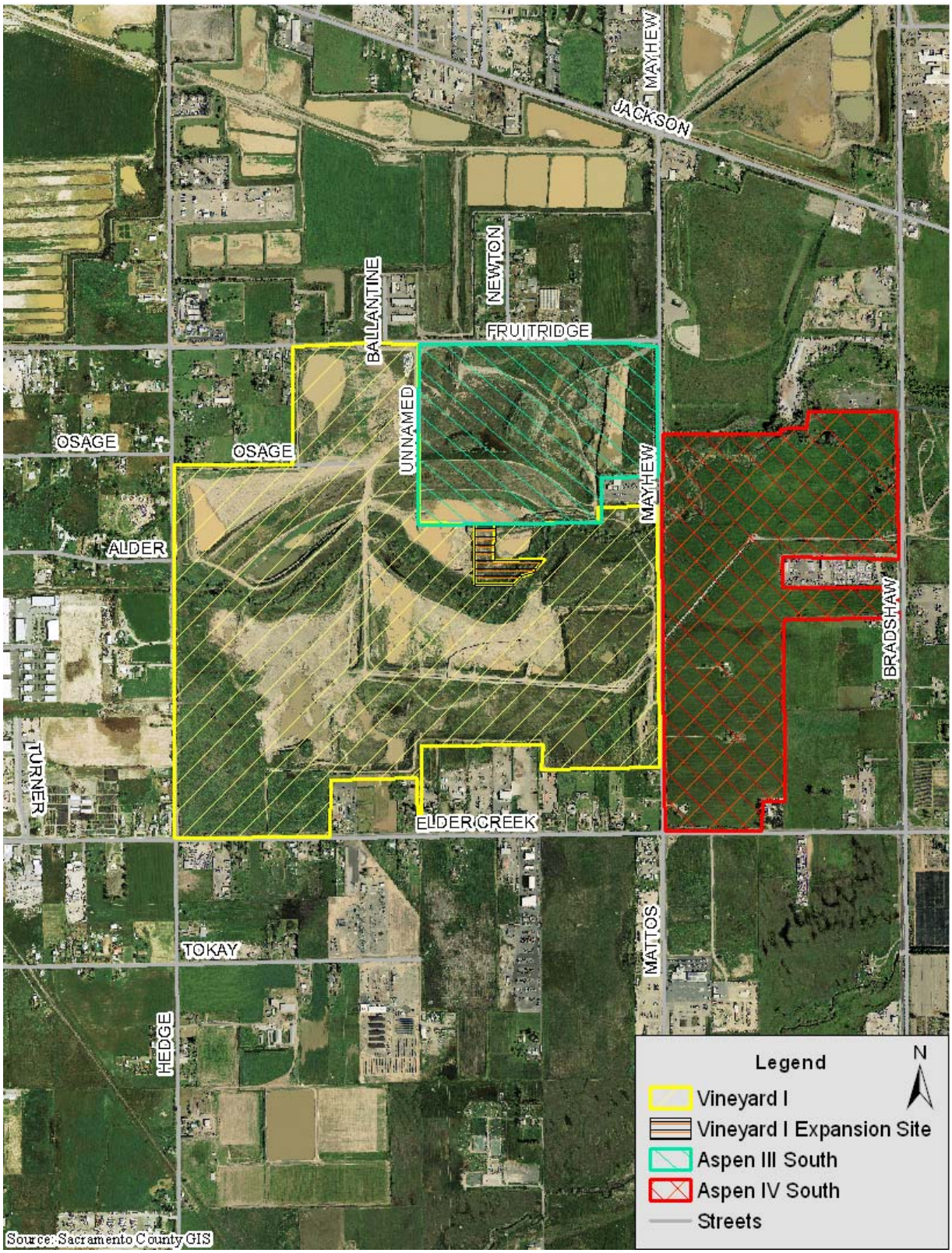
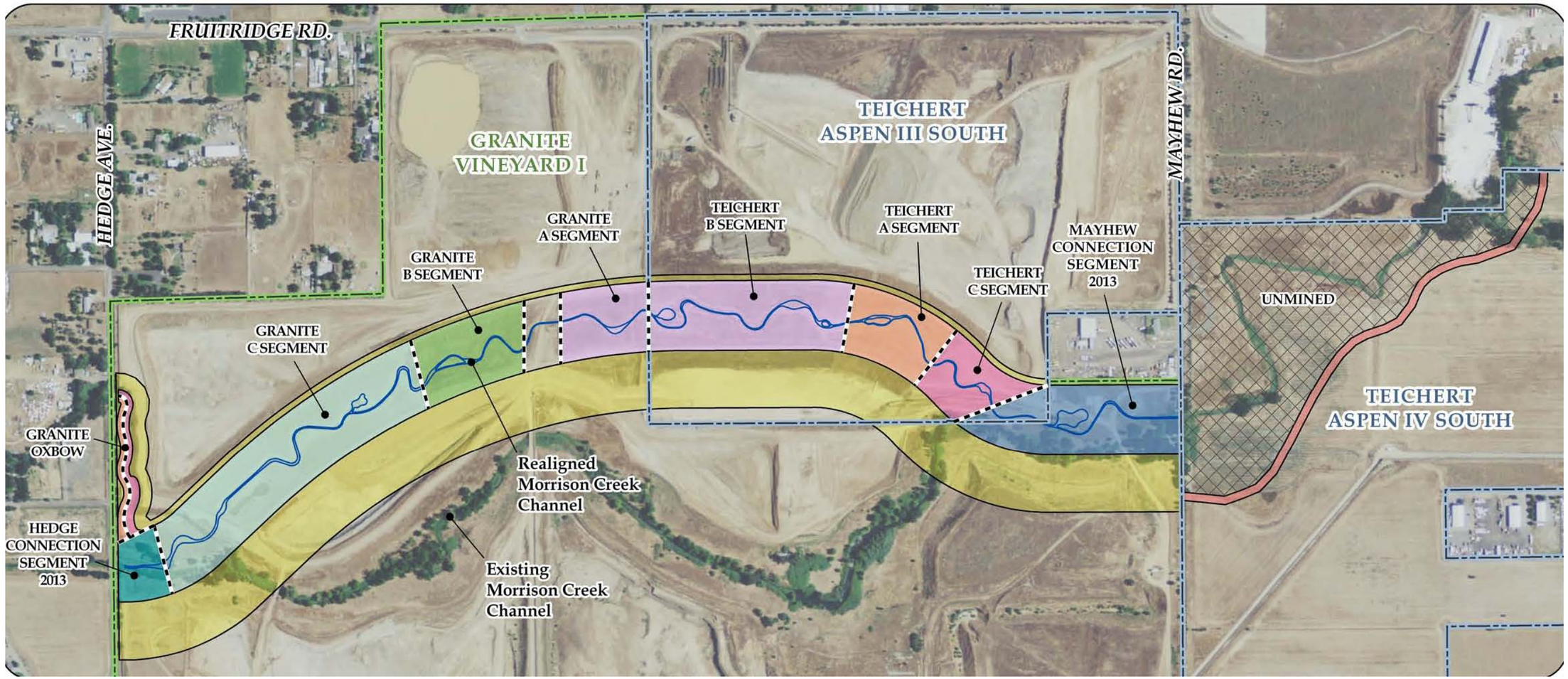


Plate PD-3: Overview of Project Plans



ENVIRONMENTAL SETTING

The Vineyard I, Aspen III South and Aspen IV South mining sites are within the Vineyard Community Planning Area in unincorporated Sacramento County. The project parcels are part of a larger aggregate mining area. Most of the site is disturbed from mining activities.

The project is proposing a stream corridor (referenced as the Morrison Creek Realigned Channel throughout this document) in an area where mining activities have been completed. A portion of the Morrison Creek Realigned Channel has been vegetated with grasses, with tree saplings planted throughout. A drainage channel has been cut, in a meandering fashion, through this corridor. The stream corridor has been elevated back to nearly the original grade prior to mining consistent with the requested reclamation plan amendment.

PROJECT PROPOSAL

PROJECT FEATURES

The mining sites in this project include Vineyard I, Aspen III South and Aspen IV South. The proposed project includes revisions to the previously approved Reclamation Plan, consistent with permits received from the County, State and federal regulatory agencies. The revised reclamation plan eliminates the previously approved 600-foot wide riparian corridor/low-flow channel at the bottom of the mining pit in generally the same location as the existing creek and an at-grade trapezoidal bypass channel around the perimeter of the mining pits and constructs an at-grade mitigation corridor (referred to as the Morrison Creek Realigned Channel) on the Vineyard I and Aspen III South mining properties. The Morrison Creek Realigned Channel has been designed to contain the 100-year flows and be a self-sustaining stream corridor, and will be constructed to mimic a natural meandering stream with varied slopes ranging from 3:1 to 7:1 (horizontal:vertical). In addition, a low flow channel with varying widths and depths (not less than 10 feet wide), and a native riparian/upland buffer area with varying widths will be constructed. The area north of the corridor will be brought back to within five feet of original grade over time and the area south of the corridor will be reclaimed with available overburden and include a retention pond for stormwater drainage from the surrounding areas. The Morrison Creek Realigned Channel will connect upstream with the existing Morrison Creek on the Aspen IV South property and downstream at Hedge Road (on the Vineyard I property) at the boundary of the City of Sacramento and Sacramento County.

On the Aspen IV South site, Morrison Creek will not be impacted by mining activities and will now be preserved. Raised bank flood control berms (referred to as the Raised

Bank Channel throughout this document) are proposed to be constructed outside of the floodway of Morrison Creek on the Aspen IV South mining site. Furthermore, a recreation trail is proposed through the Morrison Creek Realigned Channel and Raised Bank Channel.

A recreation trail is proposed through the Vineyard I, Aspen III South and Aspen IV South properties.

REQUESTED ENTITLEMENTS

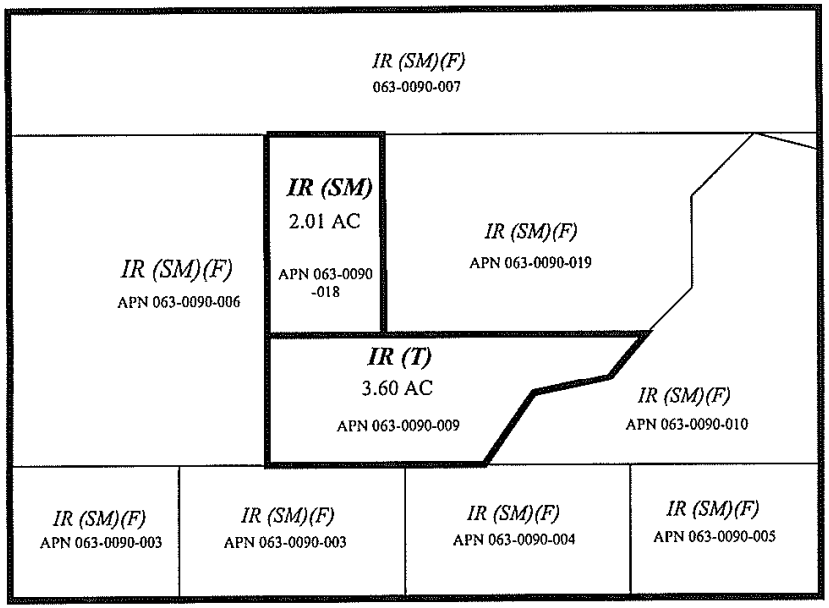
The proposed Project seeks to amend existing approved mining and reclamation plans to be consistent with the applicants' amended federal stream restoration and mitigation plans. Additionally the Vineyard I project seeks new entitlements to mine two additional small parcels totaling 5.61 acres (referred to as the Vineyard I mining expansion site).

VINEYARD I

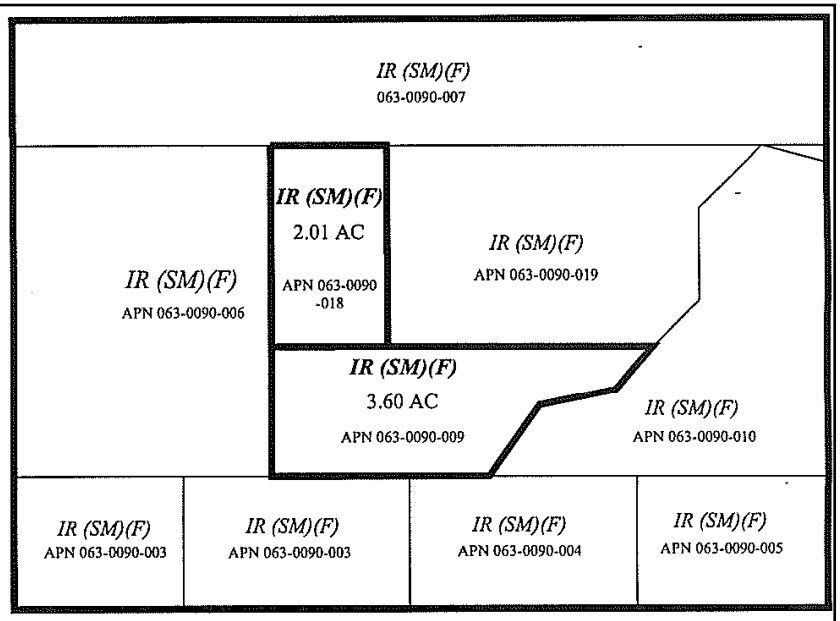
The Vineyard I mining expansion site consists of two parcels, requests a rezone, community plan amendment and a use permit to allow surface mining. The two parcels are identified as assessor parcel numbers (APNs) 063-0090-009 and 063-0090-018.

In addition to the rezone and surface mining use permit for the Vineyard I mining expansion site, all of the project parcels within the Vineyard I project are the subject of a reclamation plan revision. The parcels are APNs 063-0080-010 through 013, 063-0090-001 through 003, 063-0090-006, 063-0090-009 through 011, 063-0090-015 through 019, 063-0110-001 through 006, 063-0110-012, 063-0110-028, and 063-0110-029. The Vineyard I proposed rezone and community plan amendment is shown on Plate PD-4. The previously approved reclamation plan within Vineyard I is shown on Plate PD-5 and the proposed (revised) reclamation plan within Vineyard I is shown on Plate PD-6.

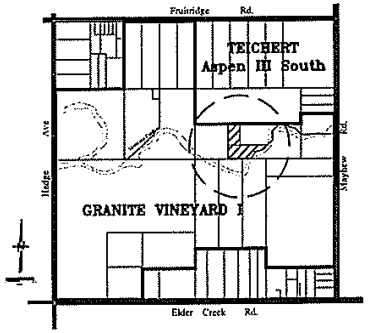
Plate PD-4: Proposed Vineyard I Community Plan Amendment and Rezone



Existing Zoning



Proposed Zoning



Vicitinity Map

RECEIVED
05 0062
FEB 10 2005
PLANNING DEPT
County of Sacramento

APN	AREA	EXISTING ZONE	PROPOSED ZONE
063-0090-009	3.60-AC	IR(SM)	IR(SM)(F)
063-0090-018	2.01-AC	IR(T)	IR(SM)(F)

GRANITE CONSTRUCTION COMPANY

Drawn by: Tyler Chatriand
Date: 02/02/05

Plate PD-5: Approved Reclamation Plan (section within Vineyard I)

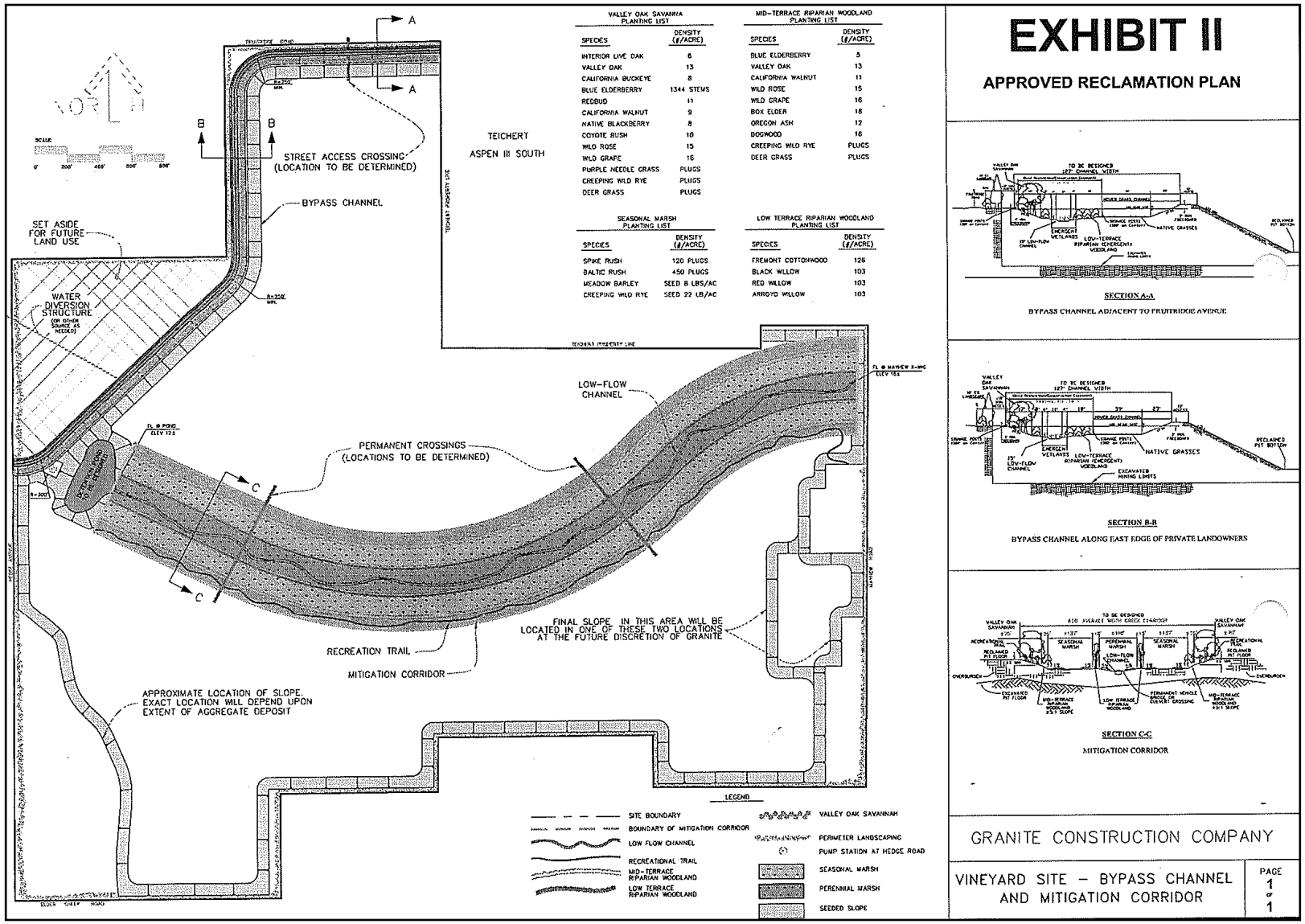
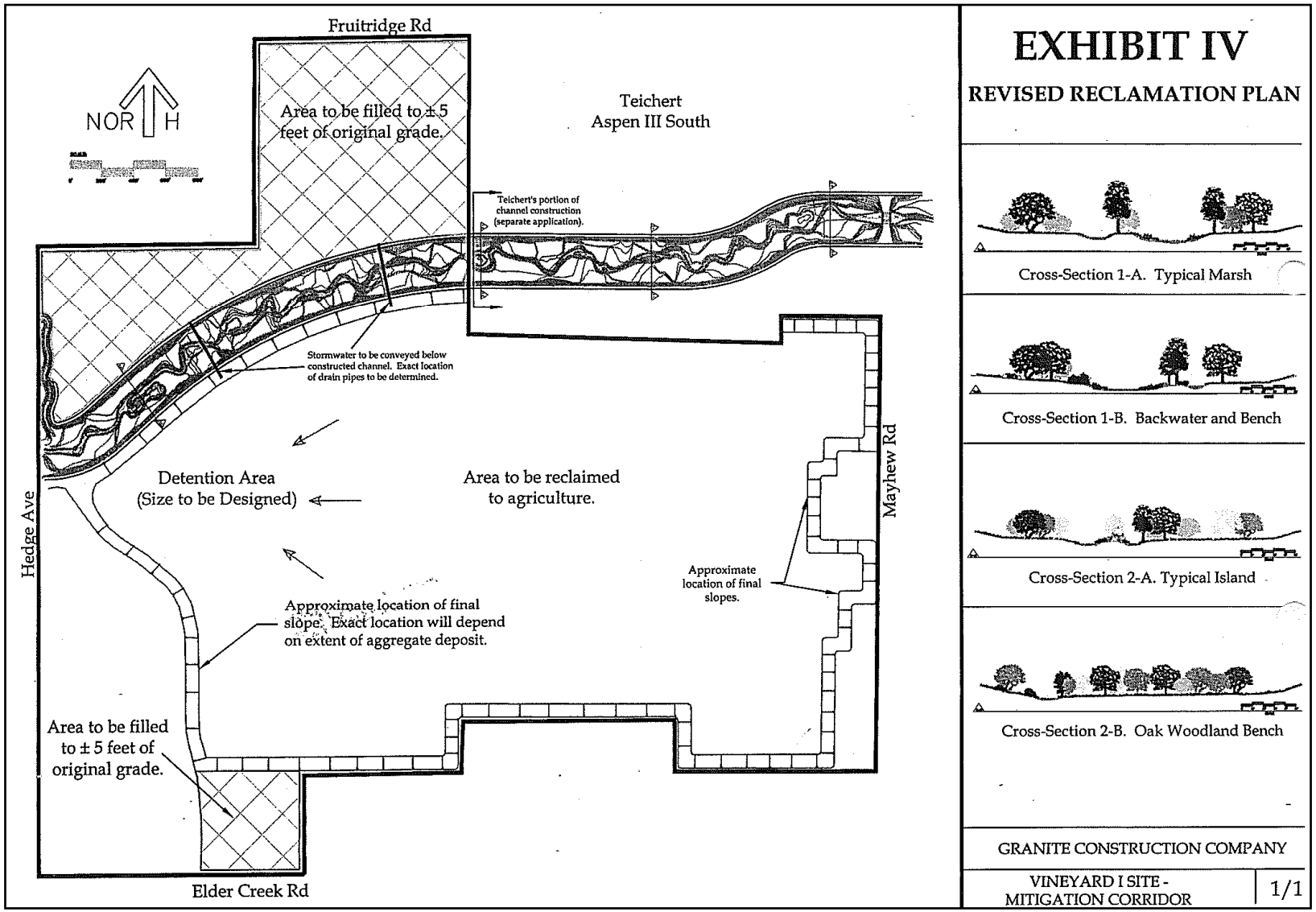


Plate PD-6: Revised (Proposed) Reclamation Plan (Vineyard I)



The following are the requested entitlements for the Vineyard I project site:

1. A **Community Plan Amendment** and corresponding **Rezone** to change the designations from Industrial Reserve with Surface Mining Combining (IR (SM)) and Industrial Reserve with Flood combining (IR (F)) to Industrial Reserve with Surface Mining/Flood Combining (IR (SM)(F)) for 5.61 acres (i.e., APN: 063-0090-009 and -018) of the project site.

2. A **Use Permit Amendment** for an aggregate mining operation known as Vineyard I, approved in 2000 (Control Number: 91-CZB-UPB-0118) to allow aggregate mining on an additional 5.61 acres, and to incorporate this new area into the previously approved mining plan.

3. A **Reclamation Plan Amendment** to the Vineyard I approval to allow:

    a. The additional 5.61 acre area proposed for mining to be incorporated into the previously approved reclamation plan.

    b. A revision to the drainage and wetland mitigation plans for the project site that will include the construction of a new Morrison Creek Realigned Channel (mining of the creek bed was approved in 2000) that will be approximately 300 feet in width at or near original grade, and will include adjacent buffer lands for a total width of 650 feet. This new Morrison Creek Realigned Channel will accommodate 100-year flood flows and incorporate wetland/riparian habitat mitigation elements.

    c. The previously approved elevated bypass channel for Morrison Creek, and the 600-foot wide pit floor riparian corridor would be superseded with the construction of the new Morrison Creek Realigned Channel, as described above.

    d. Fill (overburden) will be added to portions of the pit floor to bring the areas north of the creek to within 5 feet of original grade.

    e. A stormwater retention basin designed to accommodate 297-acre feet of water will be added to a portion of the pit floor.

4. A **Use Permit Amendment** and **Zoning Agreement Amendment** to the Vineyard I approval to allow:

    a. Amendments to several of the conditions of the original approval that reference an approved elevated bypass channel for Morrison Creek and a 600-foot wide pit floor riparian corridor, and instead reference the new Morrison Creek Realigned Channel, as described above.

    b. An update of several conditions to reflect the 2011 Morrison Creek Hydrology and Hydraulic Analysis prepared for the project.

c. An update of several conditions to reflect new wetland and oak woodland mitigation consistent with recent approvals by the U.S. Army Corps of Engineers.

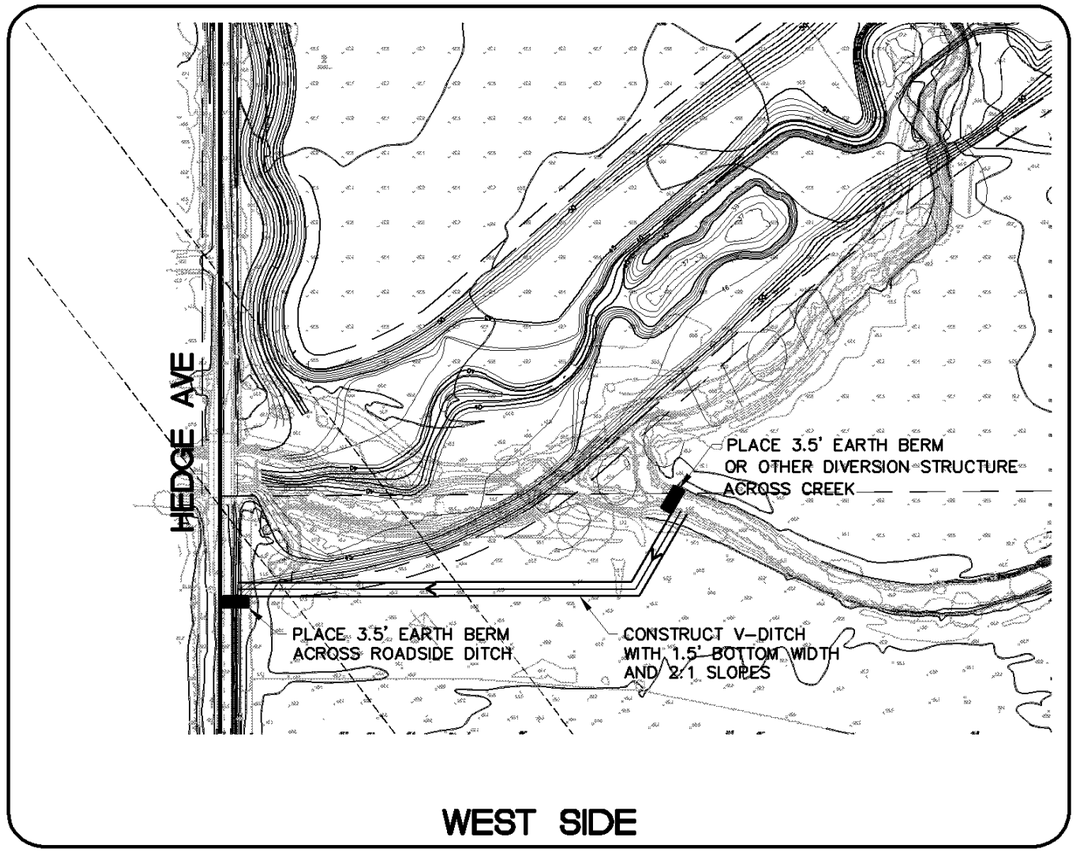
d. A revision to conditions requiring the dedication of a public trail easement corresponding to the alignment of Morrison Creek.

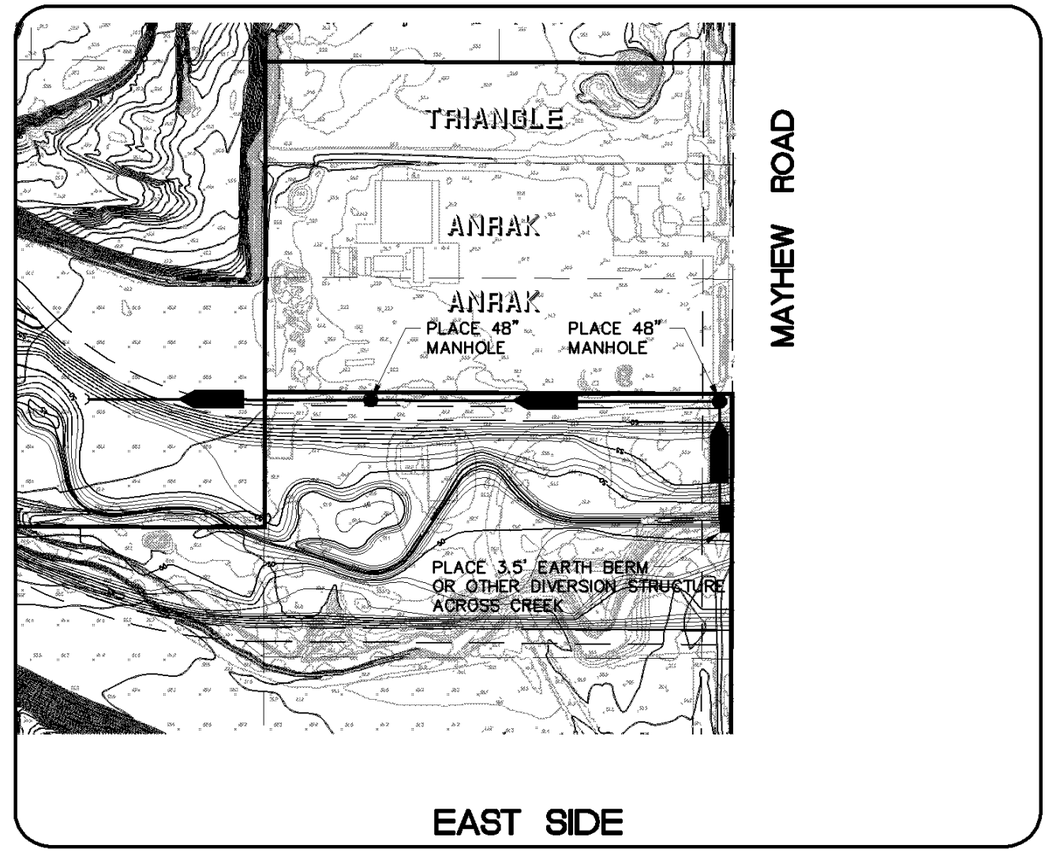
5. A **Release** from the prior Zoning Ordinance, adopted by Ordinance No. SZC 2000-0001, to be replaced by an amended Zoning Ordinance.

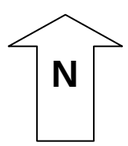
Temporary Diversion Channel:

In order to construct the connections of existing Morrison Creek (offsite) with the recreated Morrison Creek Realigned Channel (on Vineyard I property), temporary Morrison Creek diversions to convey dry season (summer) creek flows have been proposed at Hedge Avenue and at Mayhew Road, as shown on Plate PD-7. The temporary Morrison Creek diversion at Hedge Avenue is expected to occur in 2010 and will divert a portion of Morrison Creek flows south of the proposed Hedge Connection Segment (as shown on Plate PD-3). The diversion at Mayhew Road is expected to occur in 2012 or 2013 and an earth berm or other diversion structure will be placed within Morrison Creek and dry season creek flows will be piped north and then west, into the proposed Morrison Creek Realigned Channel. This diversion is necessary so that the Mayhew Connection Segment (as shown on Plate PD-3) can be mined and reclaimed consistent with the proposed realigned Morrison Creek.

Plate PD-7: Temporary Channel Diversion Plans for Vineyard I







Aspen III South

The project parcels within Aspen III South are the subject of a use permit and reclamation plan amendment. The project parcels are APNs 063-0080-016, 063-0080-028 through -032, 063-0090-007, and 063-0090-012. Plate PD-8 and Plate PD-9 shows the revised reclamation plan (section within Aspen III South) and Plate PD-10 shows the conceptual riparian and oak woodland planting plan for Aspen III South.

The following are the requested entitlements for the Aspen III South project:

1. A **Reclamation Plan Amendment** for an aggregate mining operation known as Aspen III South approved in 1999 (Control Number: 94-UPB-0484) to allow:

    a. A revision to the drainage and wetland mitigations plans for the project site that will include the construction of a new Morrison Creek Realigned Channel (mining of the creek bed was approved in 1999) that will be approximately 300 feet in width at or near original grade, and will include adjacent buffer lands for a total width of 650 feet. This new Morrison Creek Realigned Channel will accommodate 100-year flood flows and incorporate wetland/riparian habitat mitigation elements.

    b. The previously approved elevated bypass channel for Morrison Creek and the 600-foot wide pit floor riparian corridor would be superseded with the construction of the new Morrison Creek Realigned Channel, as described above.

    c. Selected pit floor elevations may be raised to within 2 feet of the original grade over the term of the use permit (i.e., 22 years) using the “drying bed” method (i.e., the accumulation of silt like material obtained from aggregate washings or direct import).

2. A **Use Permit Amendment** to amend the Aspen III South approval to allow:

    a. Amendments to several of the conditions of the original approval that reference the approved elevated bypass channel for Morrison Creek and a 600-foot wide pit floor riparian corridor, and instead reference the new Morrison Creek Realigned Channel, as described above.

    b. An update of several conditions to reflect the 2011 Morrison Creek Hydrology and Hydraulic Analysis prepared for the project.

    c. An update of several conditions to reflect landscape plans approved for the project in 2002 (Control No 01-PAB-0686).

    d. An update of several conditions to reflect new wetland and oak woodland mitigation consistent with recent approvals by the U.S. Army Corps of Engineers.

Plate PD-8: Revised Reclamation Plan (Section within Aspen III South)

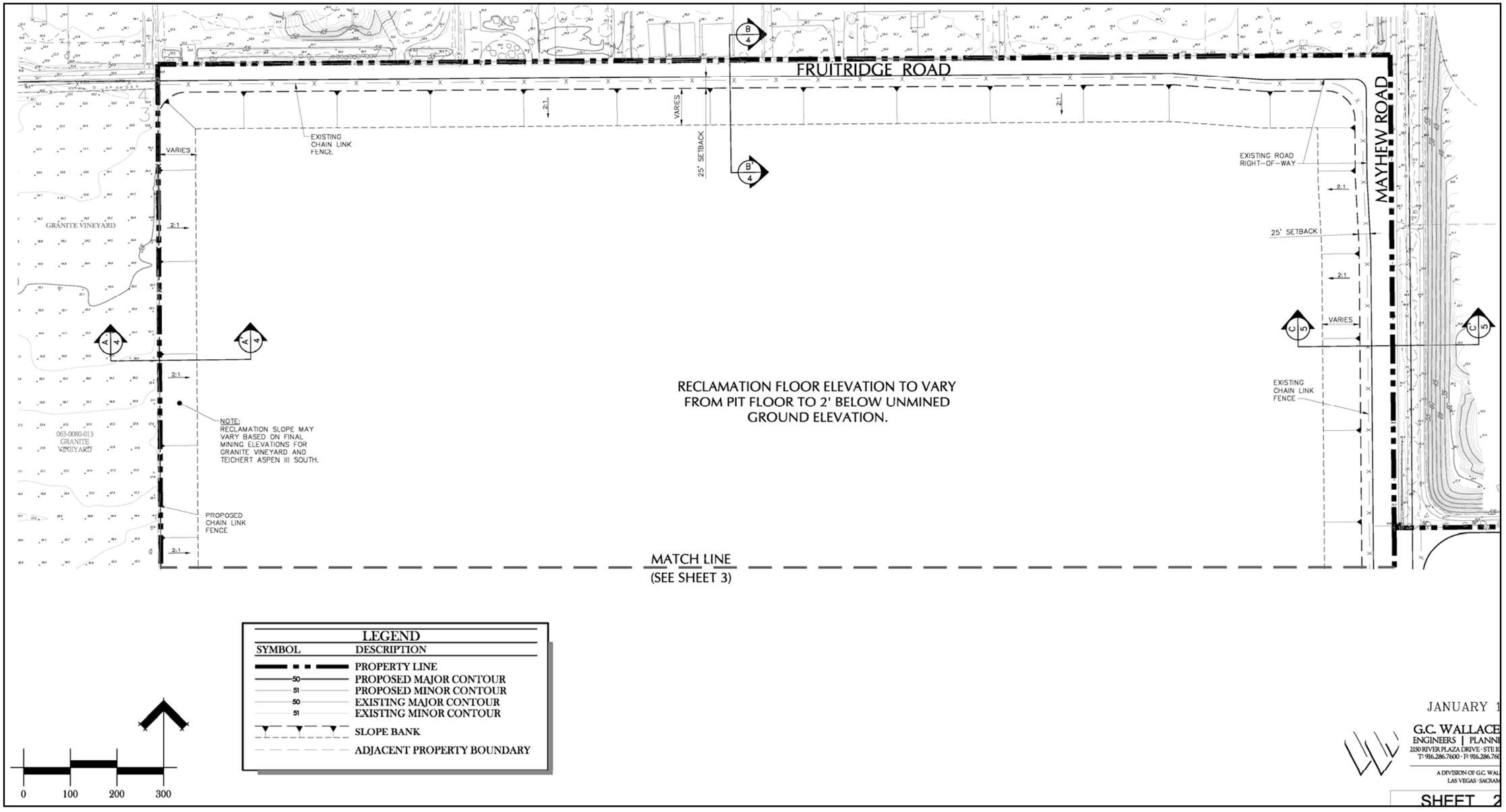


Plate PD-9: Revised Reclamation Plan (Section within Aspen III South) (page 2)

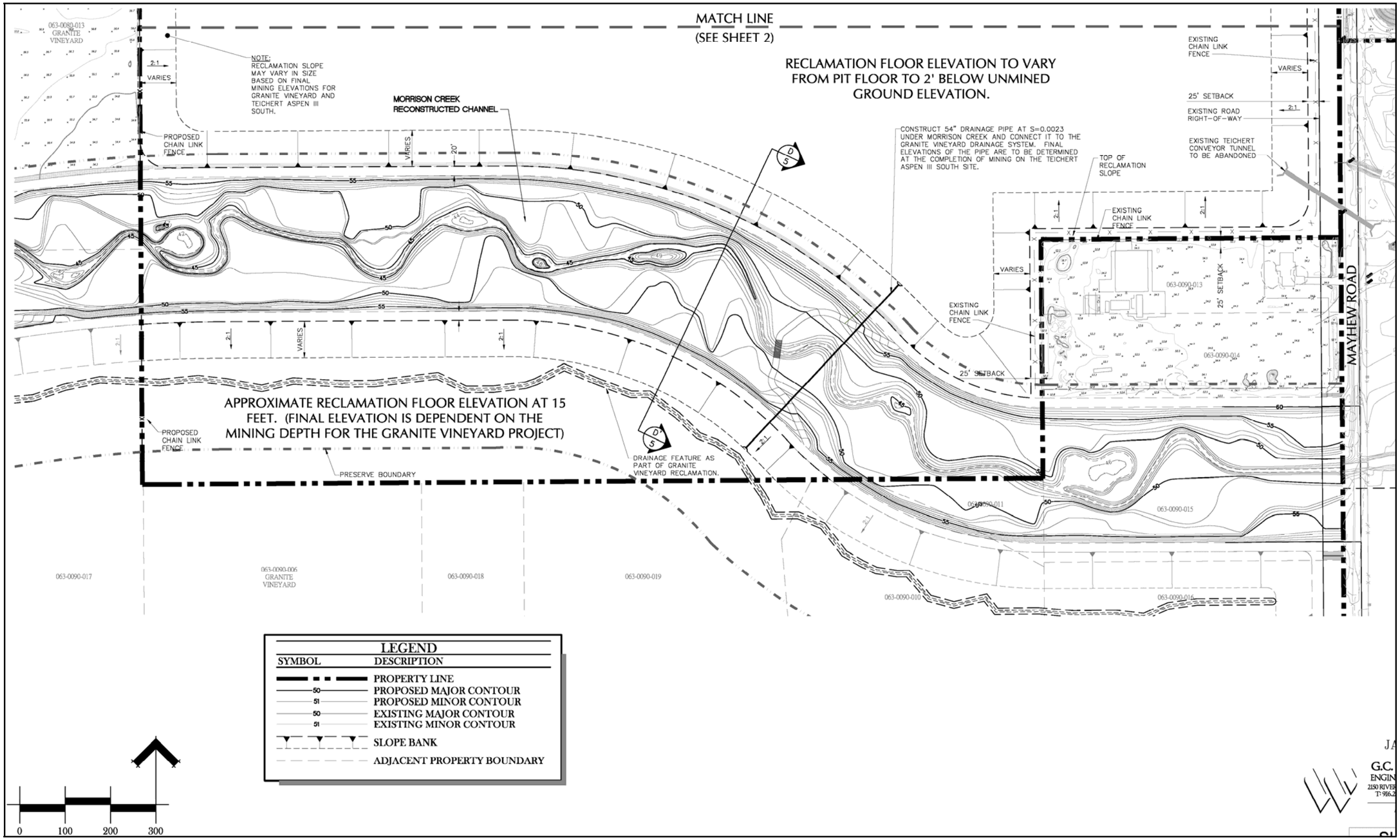
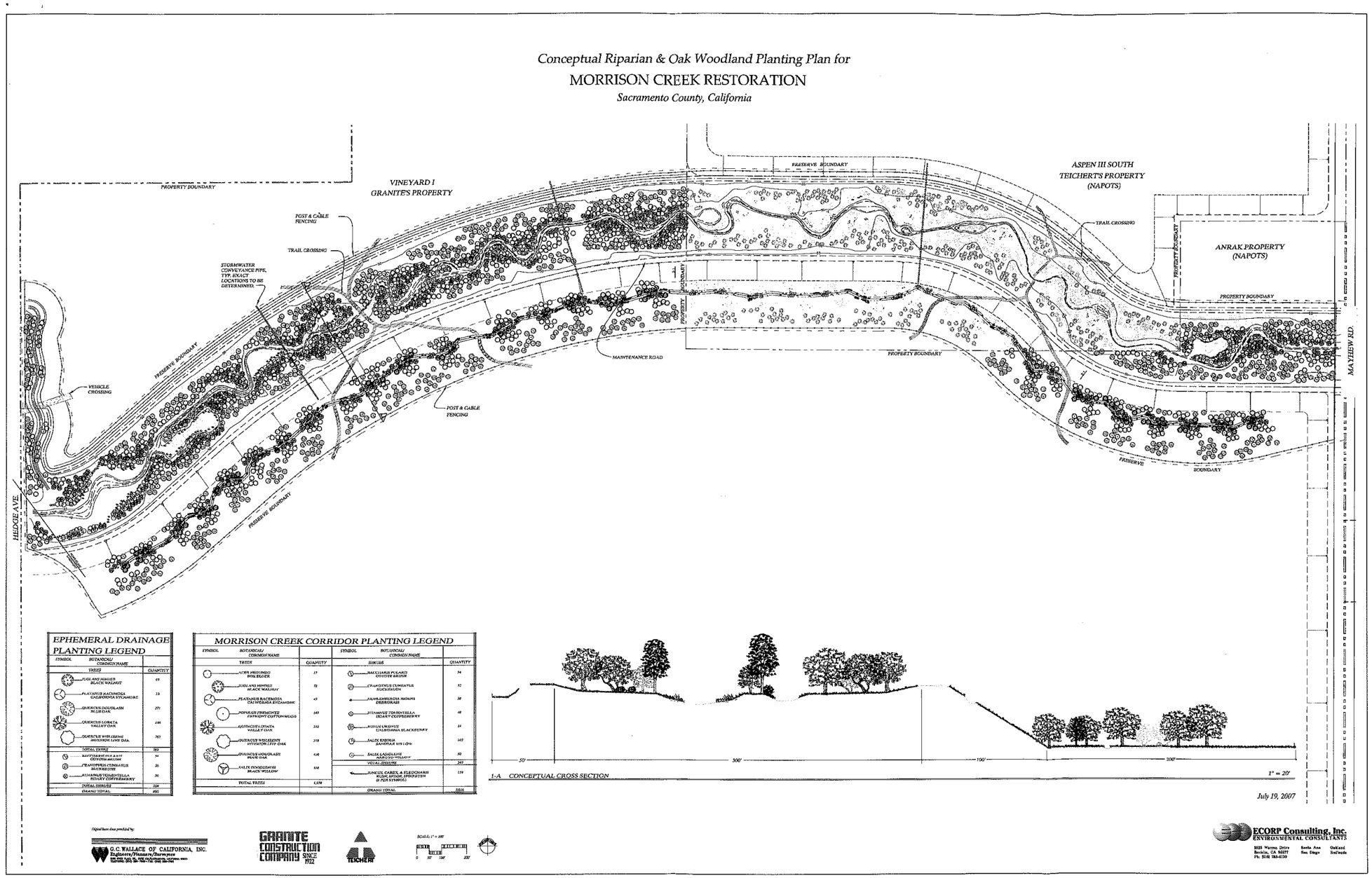


Plate PD-10: Conceptual Riparian & Oak Woodland Planting Plan (Aspen III South)



Aspen IV South

The project parcels within the Aspen IV South project are the subject of a use permit and reclamation plan amendment. The project parcels are APNs 063-0100-011, -014 through -016, 063-0100-019, 063-0130-001, -002, -009, -010 and -011. Plate PD-11 and Plate PD -12 show the revised reclamation plan within Aspen IV South. Plate PD-13 represents the conceptual riparian and oak woodland planting plan for this site.

The following are the requested entitlements for the Aspen III South project:

1. A **Reclamation Plan Amendment** for an aggregate mining operation known as Aspen IV South approved in 1999 (Control Number: 90-CZB-UPB-1607) to allow:

    a. A revision to the drainage and wetland mitigations plans for the project site that consists of completely avoiding Morrison Creek on the Aspen IV South property and constructing a “Raised Bank Channel”. Teichert will mine up to the southern edge of the floodway of Morrison Creek, and will construct berms outside of the floodway on the north and south sides of the creek to create a Raised Bank Channel.

    b. The previously approved elevated bypass channel for Morrison Creek, and the 600-foot wide pit floor riparian corridor would be superseded with the construction of the Raised Bank Channel, as described above.

    c. Selected pit floor elevations may be raised to within 2 feet of the original grade over the term of the use permit (i.e., 22 years) using the “drying bed” method (i.e., the accumulation of silt like material obtained from aggregate washings or direct import).

    d. Two options for on-site retention of stormwater: (a) drain to the adjacent Vineyard I mining site (this option was approved in 1999), or (b) retain on site in an engineered retention basin.

2. A **Use Permit Amendment** and **Zoning Agreement Amendment** to the Aspen IV South approval to allow:

    a. Amendments to several of the conditions of the original approval that reference the previously approved elevated bypass channel for Morrison Creek and a 600-foot wide pit floor riparian corridor, and instead reference the new Raised Bank Channel, as described above.

    b. An update of several conditions to reflect the 2011 Morrison Creek Hydrology and Hydraulic Analysis prepared for the project.

    c. An update of several conditions to reflect landscape plans approved for the project in 2002 (Control No 01-PAB-0686).

Plate PD-11: Revised Reclamation Plan for Aspen IV South (north portion)

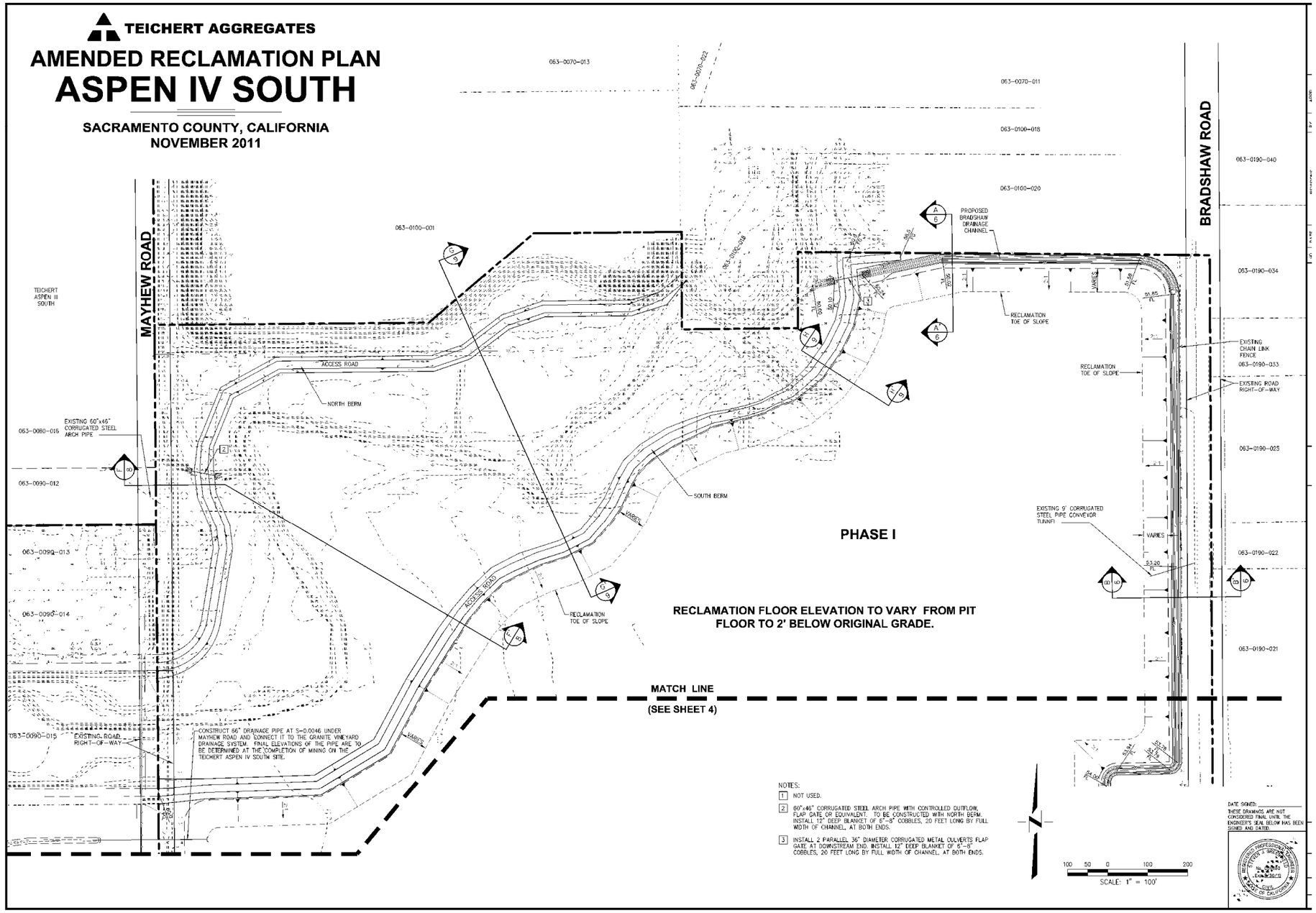


Plate PD -12: Revised Reclamation Plan for Aspen IV South (south portion)

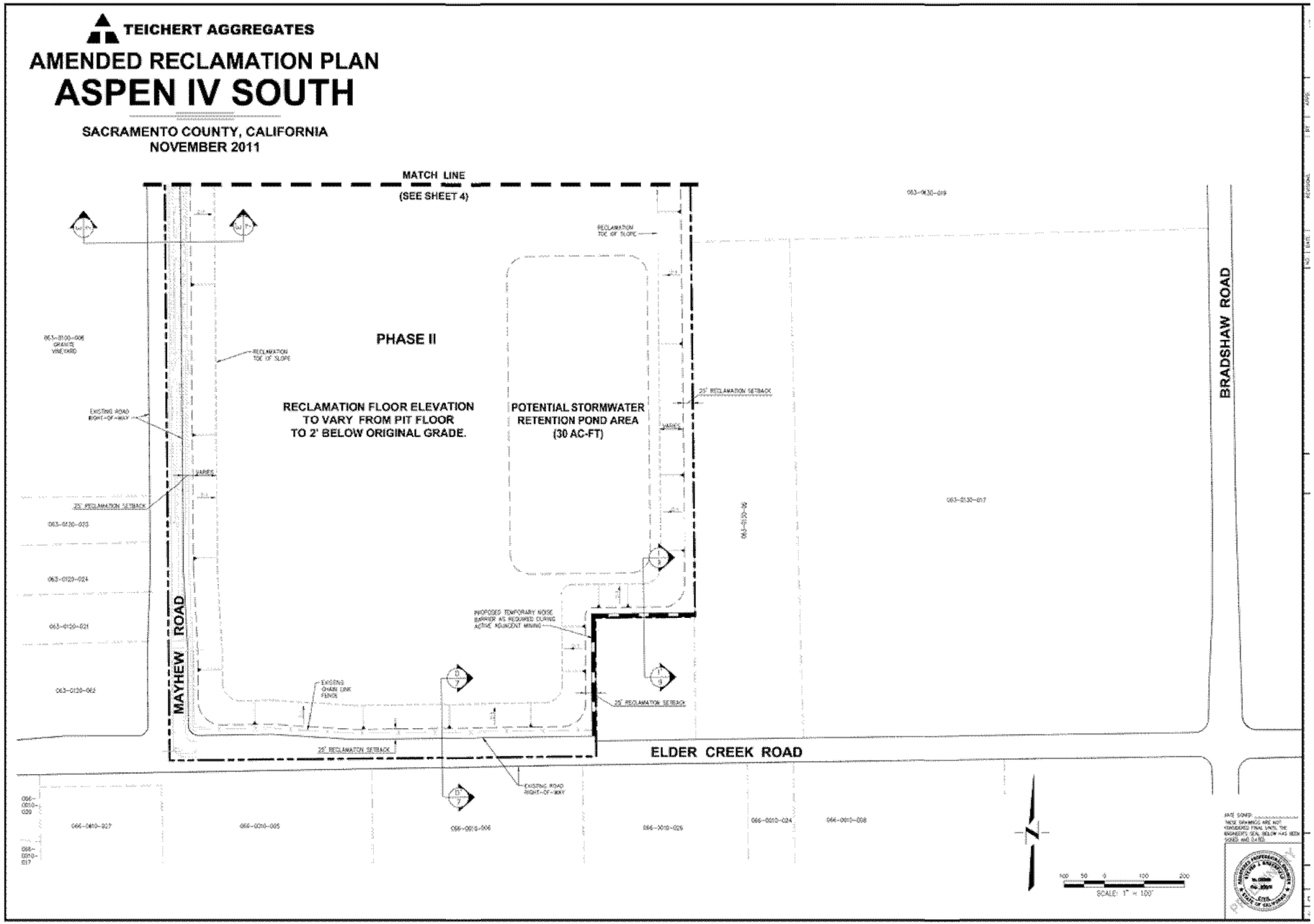


Plate PD-13: Conceptual Oak Tree Planting Plan (Aspen IV South)

d. An update of several conditions to reflect new wetland and oak woodland mitigation consistent with recent approvals by the U. S. Army Corps of Engineers.

e. A revision to conditions requiring the dedication of a public trail easement corresponding to the alignment of Morrison Creek.

3. A **Release** from the prior Zoning Ordinance, adopted by Ordinance No. SZC 99-0068, to be replaced by an amended Zoning Ordinance.

PROJECT OBJECTIVE

The applicants have provided a project justification statement and the following are portions of the statement which serve to outline the project objectives:

- **Granite Construction Company: Vineyard I**
  - The proposed entitlements would allow the applicant to consolidate the currently approved pit floor mitigation corridor and enhanced bypass channel from the Vineyard I project into a single recreated creek channel that more closely mirrors Morrison Creek's natural condition.
  - Maximizes the production of vital aggregate resources

- **Teichert Aggregates: Aspen III South and Aspen IV South**
  - The proposed mitigation corridor better mirrors the natural creek condition, while eliminating the need for a mechanical pump system.
  - The at-grade, single channel design avoids the separation of creek function and habitat.
  - The revised reclamation plan allows Teichert to mine aggregates with fewer operational constraints while minimizing impacts to the environment.
  - Mining on Aspen IV South will avoid Morrison Creek which eliminates direct impacts to the creek and related habitat.
  - There is currently great demand for aggregates in Sacramento County and surrounding areas and this demand continues to increase as the population of the region grows.

INTENDED USE OF THE EIR

The Project Planning Commission and the Board of Supervisors will use the information contained in the SEIR in evaluating the proposed project and rendering a decision to approve or deny the requested entitlements. The SEIR will serve as an informational document for the general public as well. Responsible agencies may also use the SEIR for subsequent discretionary actions.

4 ALTERNATIVES

INTRODUCTION

The proposed project is an amalgamation of the alternatives that were analyzed in the Prior FEIR/EIS.

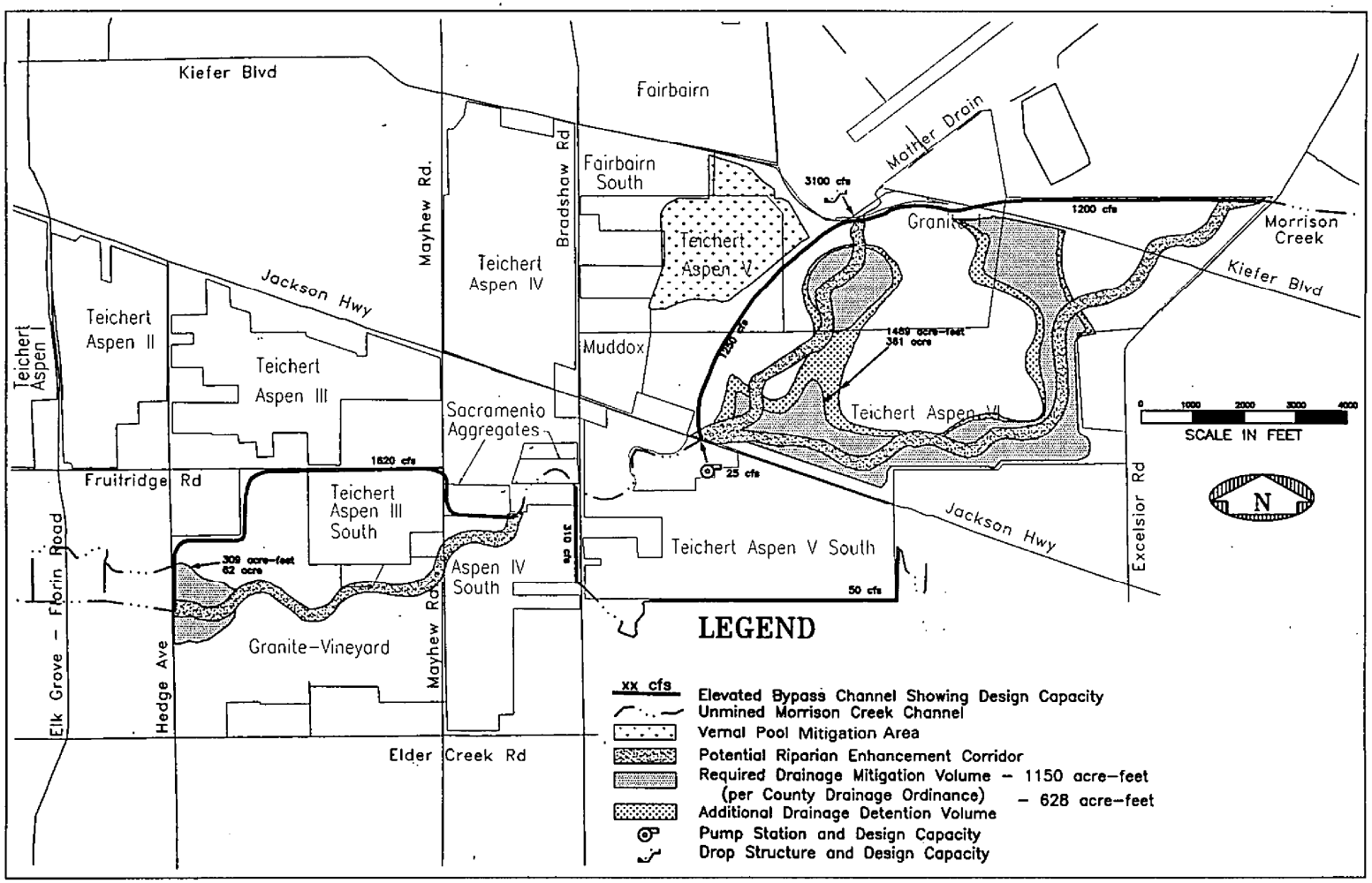
The proposed project is a result of revisions to the previously approved reclamation plan consistent with permits received from the County, State and federal regulatory agencies. The prior approved reclamation plan was not favored by the State and federal agencies from a biological standpoint. The applicants (Granite Construction and Teichert Aggregates) worked with the regulatory agencies in designing the proposed project so that it would have fewer biological impacts. This chapter will present the previously analyzed alternatives and compare the proposed project to those alternatives and the prior approved project.

BACKGROUND

In 1989 it was recommended that a comprehensive drainage mitigation plan for Morrison Creek be prepared prior to approval by the County of any mining project within the Morrison Creek floodplain. The purpose of this recommendation was to prepare a plan that would accurately assess the cumulative effects of mining projects within the 100-year floodplain. The intent of the drainage mitigation plan is to mitigate the drainage impacts of mining on the Morrison Creek 100-year floodplain, as required by the County floodplain management policies. As a result, proposed mining projects at the time were placed on hold while the County prepared the *Morrison Creek Mining Reach Drainage Mitigation Plan.* The boundary of the drainage plan is the portion of Morrison Creek located between Mather Airport and Hedge Avenue (referred to as the "Morrison Creek Mining Reach").

The miner's preferred alternative of the *Morrison Creek Mining Reach Drainage Mitigation Plan* was referred to as Part A which consisted of the construction of an unlined trapezoidal bypass channel. The bypass channel would be at-grade and convey the bulk of the flows of Morrison Creek through the reclaimed aggregate mining areas and lower pit. The bypass channel would begin/meet the natural Morrison Creek drainage on the Aspen IV South site. The bypass channel would be located along the alignment shown in Plate ALT -1.

Plate ALT -1: Drainage Mitigation Plan of Prior Project – Bypass Channel and Mitigation Corridor



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 3-7
Drainage Mitigation Plan—Proposed Project (Part A)

EDAW Inc.

Source: County of Sacramento Water Resources Division

The bypass channel would be sized to contain the 100-year peak flows which would allow the majority of Morrison Creek to continue downstream through the project site with minimal disruption. When the drainage exceeded the capacity of the bypass channel, the excess flows would be diverted into one of the pit floor detention areas via a weir or outfall structure constructed in the bypass channel. The lower pit was proposed to provide 306 ac-ft of detention/storage volume. The upper pit (located at the upstream portion of the mining reach) would be substantially larger, providing 1,469 ac-ft of detention/storage volume. A small variable speed pump station was also proposed to be located on the Aspen V South mining site. The purpose of the pump station is to evacuate water that does not percolate, evaporate, or transpire from the ponding/detention area located north of Jackson Highway (the upstream portion of the mining reach). The bypass channel, pit floor detention and small pump station was to be fully financed and constructed by the mining companies which would relieve the County of any involvement in the operation and maintenance of the bypass channel. The drainage mitigation plan Part A was a component of the project proposal in the prior FEIR/EIS. The following alternatives were analyzed in the prior FEIR/EIS (Pages 4-1 through 4-16 of FEIR/EIS):

- Proposed Project Without the Vineyard I Processing Plant
    - The Proposed Project Without the Vineyard I Processing Plant Alternative was included to allow for flexibility in land use decisions during the application review process and following the potential approval of entitlements. This alternative does not include processing facilities on the Vineyard I mining site; it was assumed that Granite would use a conveyor to transfer mined material from the site to an existing processing facility located off site. Subsequent to the release of the Draft EIR/EIS, Granite obtained conveyor access, thus this alternative became a part of the proposed project.
- Proposed Project with County Drainage Alternatives (Part B Options)
    - The Proposed Project with County Drainage Alternative (Part B Options) was developed as part of the Sacramento County Water Resources Division's 1994 *Morrison Creek Mining Reach Drainage Mitigation Plan* which was developed to go beyond the minimum requirements for drainage mitigation, in order to provide additional flood control and stormwater detention benefits. However, it was stated in the FEIR/EIS that following additional consideration and evaluation of the County Drainage Alternatives (Part B) subsequent to the release of the Draft EIR/EIS, the County of Sacramento determined that the incremental downstream flood control benefits would be minimal and decided to forego additional consideration of this alternative at the time of writing the FEIR/EIS.

- 100-Year Floodplain Protection Alternative
    - The Floodplain and Creek Protection Alternative was considered so as to minimize the cumulative effects of mining inside the 100-year floodplain. Under this alternative, the 100-year floodplain protection alternative, the natural character of the 100-year floodplain for the creek would be maintained by avoiding aggregate extraction within the floodplain.
- Creek Buffer Alternative
    - The Creek Buffer Alternative was included in the FEIR/EIS since during the comment period on the Draft EIR/EIS there were several comments requesting that a modified floodplain protection alternative be considered in the EIR/EIS. This alternative was to include a 150-foot buffer area on either side of Morrison Creek similar to the condition of approval placed on the north project by the U.S. Army Corps of Engineers. As a result of these comments, the “Creek Buffer Alternative” was incorporated into the FEIR/EIS. Under this alternative, the natural creek channel and associated riparian vegetation would be preserved by precluding mining activities within 150 feet of the lateral extent of Corps jurisdiction associated with the main stem of Morrison Creek. Mining and reclamation would occur up to the edge of the 150-foot buffer and the perimeter would be back filled with 2:1 slopes. The Morrison Creek channel would be retained at existing grade throughout the project site. Under this alternative, a 350-foot corridor of land, including the creek, would be preserved and surrounded on both sides by the proposed mining and reclamation areas.
- No project Alternative
    - The No Project Alternative assumed that the project sites would not be mined for aggregate and that the sites would have remained in their present condition or be used consistent with existing zoning, which was general agricultural.

The FEIR/EIS also considered the following alternatives, but the alternatives were rejected due to not meeting the project objective or because they were infeasible:

- Recycling Alternative
- Off-site Alternative
- Mather Field Alternative

Identification of the Environmentally Superior Alternative

The FEIR/EIS identified the following as the Environmentally Superior Alternative: (page 6-8 of FEIR/EIS):

> *Based on the alternatives analysis in the individual sections in Chapter 5 (Affected Environment and Environmental Consequences), the 100-Year Floodplain Protection Alternative is the environmentally superior alternative. Under this alternative, the natural character of the 100-year floodplain for Morrison Creek would be maintained by avoiding aggregate extraction within the floodplain. Unlike the other mining alternatives, this alternative would not require reconstruction of the floodplain, would not alter flows downstream, and would not result in hydrologic and landform changes to the existing floodplain. Thus, impacts to biological resources, open space, and aesthetic values inherently associated with the streambed, floodplain and uplands under natural conditions would be avoided.*

None of the alternatives were chosen over the proposed project; accordingly, the project, as proposed, was approved. Approval of the prior project allowed for mining operations through Morrison Creek and the construction of the at-grade trapezoidal bypass channel, pump station and a riparian/low-flow corridor at the bottom of the mining pit.

Proposed Project

The proposed project eliminates the previously approved bypass channel around the perimeter of the Aspen IV South, Aspen III South and Vineyard I mining sites. The previously approved 600-foot wide riparian corridor/ low-flow channel at the bottom of the mining pit has been revised to be an at-grade Morrison Creek Realigned Channel on the Aspen III South and Vineyard I mining sites. As the Morrison Creek Realigned Channel does not require a pump station, it will maintain the hydroconnectivity of Morrison Creek, compared to an at pit-bottom channel. The Morrison Creek Realigned Channel has also been designed to contain the 100-year flows of Morrison Creek, and will mirror a meandering creek; therefore, biological functions of this design are superior to the prior approved bypass channel and pit-bottom creek corridor (refer to the Biological Resources chapter).

Morrison Creek on the Aspen IV South site will not be impacted under the proposed project. A flood control channel (Raised Bank Channel) will be constructed outside the effective floodway of Morrison Creek on the Aspen IV South site. The Raised Bank Channel on Aspen IV South portion of the proposed project is very similar to the 100-year Floodplain Protection Alternative and the Creek Buffer Alternative, both previously proposed in the prior FEIR/EIS. This component of the proposed project will not mine through the existing Morrison Creek (similar to the Creek Buffer Alternative) and will not mine through the Morrison Creek floodplain since the Raised Bank Channel will be

constructed outside the floodplain which will preclude mining within the channel (similar to the 100-year floodplain protection alternative). This portion of the project is mostly consistent with the identified environmentally superior alternative of the prior FEIR/EIS.

5 SURFACE WATER HYDROLOGY AND DRAINAGE

INTRODUCTION

This section describes the surface water hydrology and drainage of the project site, including issues relating to the Morrison Creek channel, flood protection and channel stability. The analysis contained in this chapter is based on the *Aspen IIIS, IVS and Granite Vineyard I Post Reclamation Plan Hydrology & Hydraulic Analysis,* prepared by Wood Rodgers, dated June 2011 (hereinafter referred to as 2011 H&H Analysis) and the technical memo for the *Granite Vineyard I/ Aspen VI Weir Sensitivity Analysis,* dated July 6, 2011. Both documents are provided in Appendix B1. The Sacramento County Department of Water Resources (DWR) reviewed the 2011 H&H Analysis report and deemed it to be technically adequate for CEQA review on August 3, 2011.

The proposed project includes revisions to the previously approved reclamation plan, consistent with permits received from the County, State and federal regulatory agencies. The mining sites in this project include Vineyard I, Aspen III South and Aspen IV South. The previously approved reclamation plan consisted of a below grade, 600-foot wide riparian corridor/low-flow channel within the bottom of the mining pit in generally the same location as the existing creek and an at-grade trapezoidal bypass channel around the perimeter of the mining sites. The proposed project revises the previously approved reclamation plan by completely eliminating the at-grade trapezoidal bypass channel component and changing the below grade, 600-foot wide riparian corridor/low-flow channel to an at-grade mitigation corridor (Morrison Creek Realigned Channel) on the Vineyard I and Aspen III South mining properties. The Morrison Creek Realigned Channel has been designed to contain the 100-year flows within the flood control channel. On the Aspen IV South property, the existing Morrison Creek channel will be preserved and a raised bank flood control channel (Raised Bank Channel) is proposed to be constructed outside of the effective FEMA floodway. The Morrison Creek Realigned Channel will connect with the existing Morrison Creek channel on Aspen IV South. The connection of the Morrison Creek Realigned Channel to the Raised Bank Channel will require grading within the Mayhew Road right-of-way to contour the levees of the creek in order to maintain the flood protection banks across Mayhew Road.

The proposed project also consists of a request for a rezone and use permit amendment to allow aggregate mining of an additional 5.6 acres on the Vineyard I mining site (Vineyard I mining expansion). In addition, the Vineyard mining expansion will be incorporated into the previously approved reclamation plan, with revisions consistent with the requested reclamation amendments described above. The proposed project also includes an option for a retention basin on the Aspen IV South mining site (a retention basin was approved in 1999 as part of the prior project).

Impacts associated with groundwater quality and use of groundwater supplies are addressed in the Groundwater Hydrology and Quality Chapter (Chapter 6 of this SEIR).

SETTING

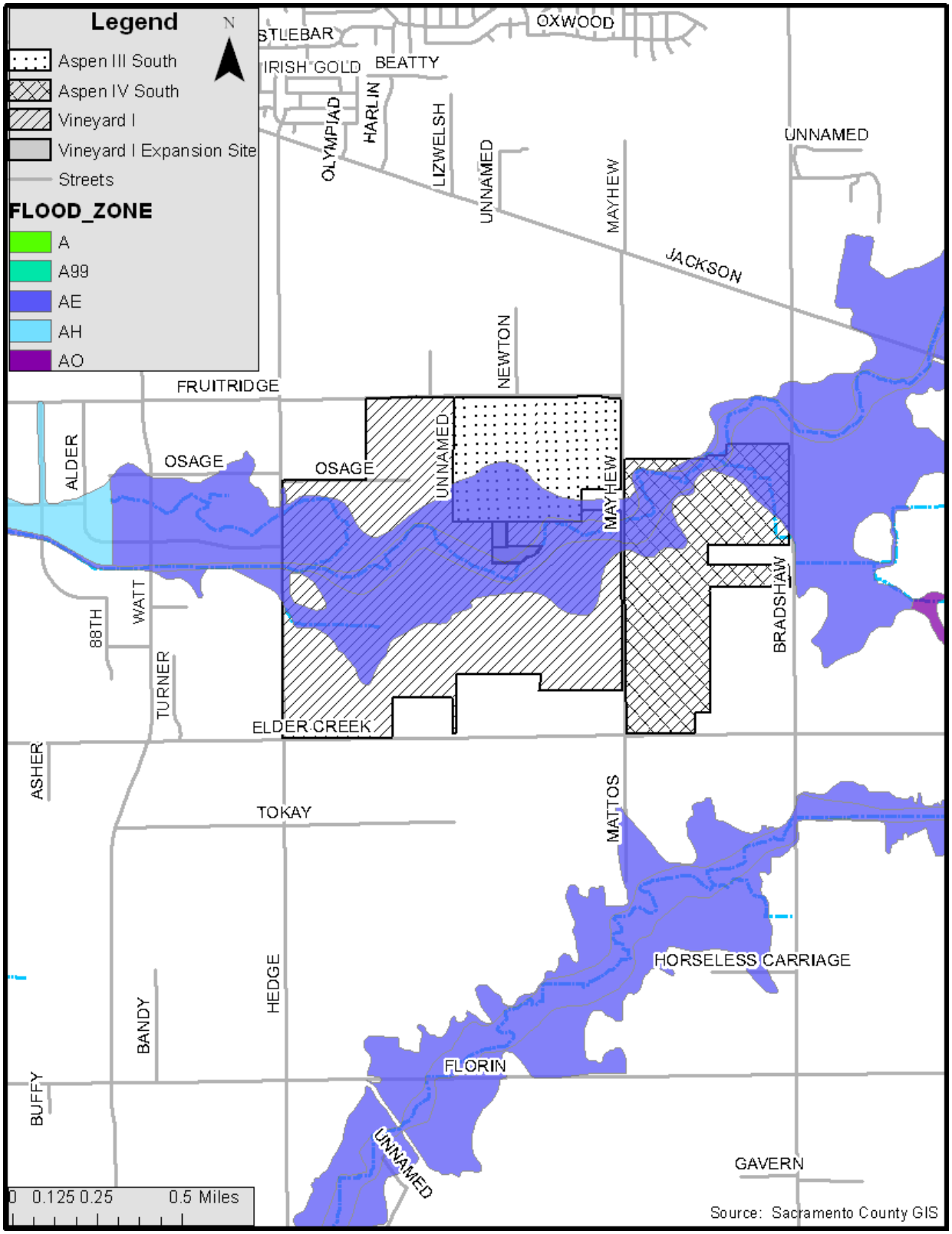
The prior FEIR/EIS provided the following hydrological setting:

> The project site is located in the upper Morrison Creek watershed in the reach between Jackson Highway and Hedge Road. Morrison Creek flows from the low foothills of eastern Sacramento County to the Sacramento River Delta at Snodgrass Slough. Elevations range between 170 feet above mean sea level (MSL) in the headwaters to below MSL at Snodgrass Slough. The watershed terrain is characterized by low rolling hills with an annual grassland cover, agricultural and urban development, vernal pools and seasonal wetland swales. The Morrison Creek corridor occupies a shallow valley with sparse riparian vegetation. The lower water is highly urbanized and Morrison Creek has been channelized. A good portion of the site is located within a federally designated floodplain, as shown on FEMA Flood Insurance Rate Map, panel number 060262-0215D, dated November 15, 1989.
>
> The project site experiences a Mediterranean climate with periods of precipitation in mild winter months (November through April) and hot, dry summers (May through October). Morrison Creek is presently classified as an intermittent stream where winter rains generate storm runoff and recharge moisture in shallow soils and alluvium. Although flow and soil moisture are unmeasured, visual observations indicate that residual winter runoff or baseflow dissipates in the early summer. Summer conditions are dry except for an unknown but important volume of urban and agricultural-irrigation tailwater flow. Fine-grained soils on the valley floor along Morrison Creek retain moisture into late spring.

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) used in the prior FEIR/EIS was dated 1989; however, the current FEMA Flood Insurance Rate Map is dated 1998 and the majority of the project site is still located within a federally designated floodplain. Refer to Plate HY-1.

The majority of the Granite Vineyard I mining site is located south of the existing Morrison Creek. This area has been partially mined and the area north of Morrison Creek has been mostly mined under existing entitlements and is proposed to be filled and reclaimed after mining is complete. The Teichert Aspen III South site is located north of Morrison Creek and mining on this site is almost completed, under existing entitlements. Mining on the Teichert Aspen IV South site is permitted under existing entitlements, but mining has not started.

Plate HY-1: Existing FEMA Flood Zone Designations in Project Area



Downstream of the project site, Morrison Creek flows westerly through the City of Sacramento before entering the Beach-Stone Lakes area at the Sacramento River. The proposed Reclamation Plan will recreate a natural low-flow channel on Vineyard I and Aspen III South mining sites and construct raised channel banks outside the effective FEMA floodway on all three mining sites.

REGULATORY FRAMEWORK

STATE REGULATIONS

THE OFFICE OF MINE RECLAMATION AND THE SURFACE MINING AND RECLAMATION ACT OF 1975 (SMARA)

The Office of Mine Reclamation (OMR) was created in 1991 to administer the Surface Mining and Reclamation Act of 1975 (SMARA). OMR provides assistance to cities, counties, state agencies and mine operators for reclamation planning. Successful reclamation includes maintaining water and air quality, minimizing flooding, erosion and damage to wildlife and aquatic habitats caused by surface mining. The goals of OMR is to have successful reclamation as it relates to environmental quality, as well as reclaim mined lands to a beneficial end-use through the implementation of SMARA and to minimize residual hazards to public health and safety through the Abandoned Mine Lands program.

STATE WATER RESOURCES CONTROL BOARD

The State Water Resources Control Board was created by the State Legislature in 1967 and has jurisdiction throughout California and aims to protect water quality by setting statewide policy, coordinating and supporting the Regional Water Board efforts and reviewing petitions that contest Regional Board activities. There are nine regional water quality control boards that were created as a result of the State Porter-Cologne Water Quality Act of 1970. The regional water quality control boards regulate surface and ground water and established the requirements for waste discharges.

The federal Clean Water Act prohibits discharge of pollutants to waters of the United States from any point source unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. Stormwater associated with industrial activities that discharge either directly to surface waters or indirectly through municipal storm sewers must be regulated by an NPDES permit. To obtain the NPDES General Permit, the facility operator must submit a Notice of Intent (NOI) to the State Water Resources Control Board. The General Permit generally requires facility operators to (1) eliminate unauthorized non-storm water discharges; (2) develop and implement a storm water pollution prevention plan (SWPPP); and (3) perform monitoring of storm water discharges and authorized non-storm water discharges. The State Water Resources Control Board issues the NPDES general permit.

LOCAL REGULATIONS

COUNTY OF SACRAMENTO

Sacramento County has a National Pollutant Discharge Elimination System (NPDES) Municipal Stormwater Permit issued by the Regional Board. The Municipal Stormwater Permit requires the County to reduce pollutants in stormwater discharges to the maximum extent practicable. The County complies with this permit in part by developing and enforcing ordinances and requirements to reduce the discharge of sediments and other pollutants in runoff.

The County has established a Stormwater Ordinance (Sacramento County Code 15.12). The Stormwater Ordinance prohibits the discharge of unauthorized non-stormwater to the County's stormwater conveyance system and local creeks. It applies to all private and public projects in the County, regardless of size or land use type. In addition, the Land Grading and Erosion Control Ordinance (Sacramento County Code 16.44) requires private construction sites disturbing one or more acres or moving 350 cubic yards or more of earthen material to obtain a grading permit. To obtain a grading permit, project proponents must prepare and submit for approval an Erosion and Sediment Control (ESC) Plan describing erosion and sediment control best management practices (BMPs) that will be implemented during construction to prevent sediment from leaving the site and entering the County's storm drain system or local receiving waters. Construction projects not subject to the Land Grading and Erosion Control Ordinance (SCC 16.44) are subject to the Stormwater Ordinance (SCC 15.12) described above.

Other County documents which contain standards and specifications for the regulation of water quality include:

- The County Stormwater Quality Improvement Standards;
- Standard Construction Specifications;
- Stormwater Quality Design Manual (May 2007);
- Sacramento County Industrial BMP Manual; and
- Sacramento County Stormwater Sampling Guidance.

SACRAMENTO COUNTY GENERAL PLAN

The Sacramento County General Plan has been updated and was approved and adopted on November 9, 2011 by the Sacramento County Board of Supervisors. The planning horizon of the previous General Plan was from 1990 to 2010. The updated General Plan has a planning horizon to the year 2030. Section I of the Conservation Element of the General Plan addresses Water Resources. Policies pertain to optimal use of surface water, sustainable yield of groundwater, efficient use of urban and

agricultural water, protection of ecosystems, managing runoff and the efficient use of municipal and industrial water. Updates to the policies in the General Plan that are applicable to the proposed project are as follows:

CO-24: Comply with the Sacramento Areawide National Pollutant Discharge Elimination System Municipal Stormwater Permit (NPDES Municipal Permit) or subsequent permits issued by the Central Valley Regional Water Quality Control Board (Regional Board) to the County, and the Cities of Sacramento, Elk Grove, Citrus Heights, Folsom, Rancho Cordova, and Galt (collectively known as the Sacramento Stormwater Quality Partnership [SSQP]).

CO-25: Support the preservation, restoration and creation of riparian corridors, wetlands and buffer zones.

Sacramento County Zoning Code

The Sacramento County Zoning Code includes Mining-Related regulations which outline permitted surface mining operations, requirements for a Work Authorization Permit, and mining application data, standards and guidelines.

Sacramento County Floodplain Management Ordinance

Sacramento County has participated in the National Flood Insurance Program since 1979. A County Floodplain Management Ordinance is required to meet or exceed the minimum standards of FEMA for participation in the National Flood Insurance Program. The Floodplain Management Ordinance specifically describes what types of development activities are allowed and how proposed development may be permitted. The purpose of floodplain management is to realize the extent of flood hazards and to manage the flooding in a manner so as to reduce damage to structures and infrastructure and to minimize the risk of human casualties.

All proposed development activity in a floodplain (those areas designated by FEMA on the Flood Insurance Rate Map for Sacramento County) and other areas subject to flooding, must be reviewed and permitted by the County's Floodplain Administrator (Water Resources) prior to construction. Per the Floodplain Management Ordinance, a Floodplain Management Permit must be obtained from the Floodplain Administrator before any new construction, substantial improvements or other development, including alteration of land, begins within any special flood hazard area or local flood hazard area established in Section 903-02 of the ordinance.

In addition, Section 905-06 provides that the Floodplain Administrator may impose conditions necessary to ensure compliance with the Floodplain Management Ordinance, other County ordinances, or state or federal laws. The Floodplain Administrator may also require that the owner of the property, the permit applicant, or both, enter into a written agreement with the County holding the County of Sacramento and the Sacramento County Water Agency free from liability for any harm that may occur to any real or personal property or person by flooding.

The Sacramento County Department of Water Resources has reviewed the proposed project and has submitted various comment letters pertaining to the project. The following memorandums have been submitted by DWR for the proposed project:

- July 15, 2008 (For Vineyard I)
- July 15, 2008 (For Aspen III South)
- August 3, 2011 (For Vineyard I, Aspen III South and Aspen IV South)
- December 23, 2011 (For Vineyard I, Aspen III South and Aspen IV South)

The memorandums have been included as Appendix B2.

The conditions of approval from the memorandums include for the provision of drainage easements, installation of drainage facilities, and floodplain easements pursuant to the Sacramento County Floodplain Management Ordinance. DWR also requests for a long term maintenance agreement between the miners and DWR to address funding and long term maintenance of drainage facilities.

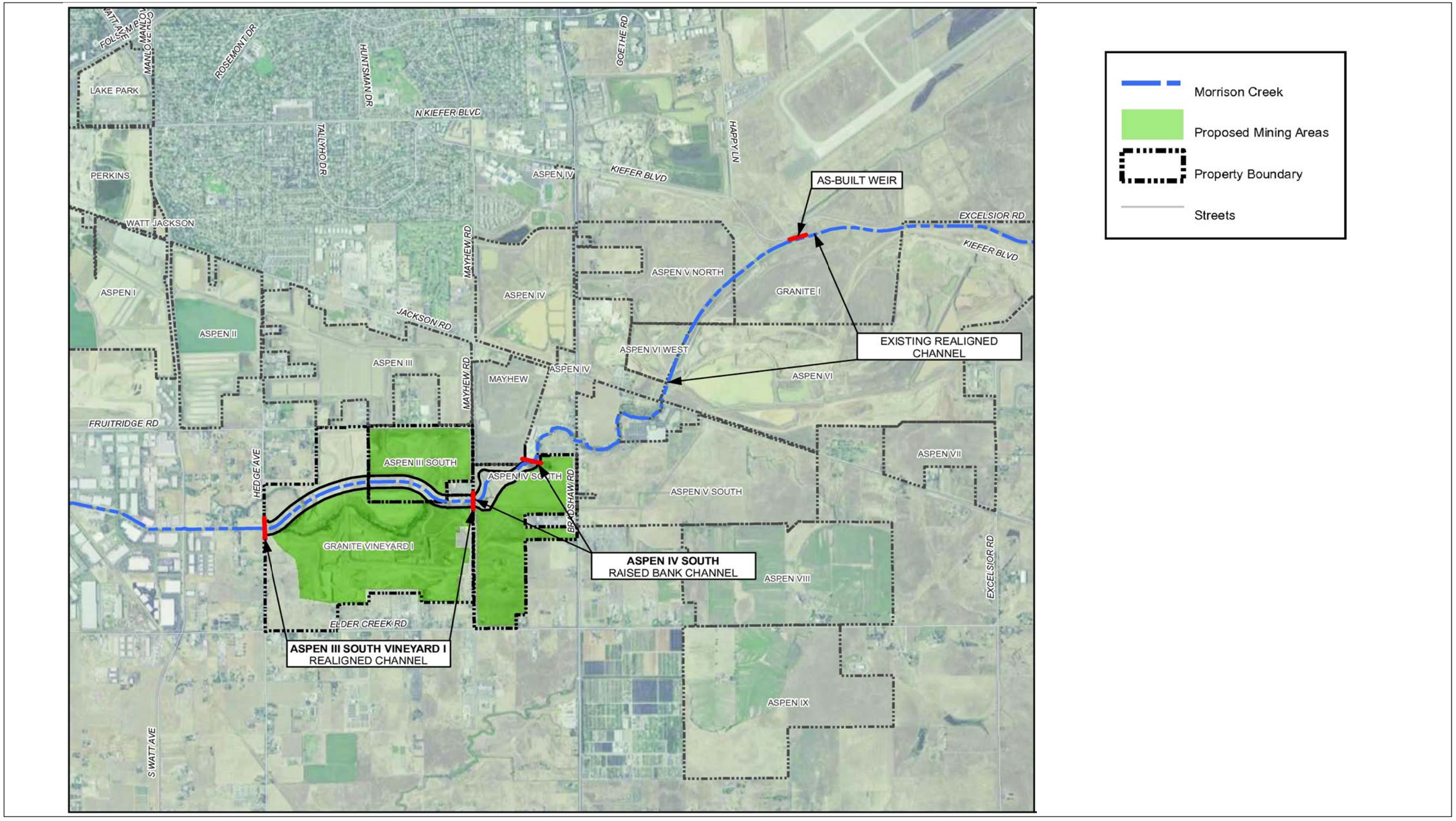
HYDROLOGIC AND HYDRAULIC CONDITIONS

BASELINE CONDITIONS

Wood Rodgers used the 1998 Effective FEMA Flood Insurance Study (FIS) for Sacramento County Unincorporated Areas (revised February 14, 1998) and the Revised 2000 FEMA Flood Insurance Rate Map (FIRM) for peak flow and water surface elevations to develop the baseline floodplain analysis for the Pre-Reclamation condition, which is used for comparison to the Post-Reclamation Channel Model.

Granite and Teichert constructed a weir, associated bypass channel and detention basin upstream of Jackson Highway in approximately 2001-2003 to mitigate flows in Morrison Creek (refer to Plate HY-2) pursuant to 1999 mining project approvals of Granite's Granite I and Teichert's Aspen VI mining projects. The Vineyard I, Aspen III South and Aspen IV South Post-Reclamation condition assumes that the weir on the Granite I property is in place and functioning. The function of the weir is to divert peak flood-related flow out of Morrison Creek and into the Granite I and Aspen VI mining pits for offline retention and detention. The current operation of the weir is considered the "As-Built Condition" and Teichert and Granite will be responsible to continue the ongoing operation and maintenance of the weir and basin on the Aspen VI and Granite I mining sites. Establishing the baseline condition allowed Wood Rodgers to analyze the impact of the proposed project on the hydrology and hydraulic conditions of Morrison Creek.

Plate HY-2: Morrison Creek in the Post Reclamation Condition (Including Upstream and Downstream of Project Site)



STUDY METHODOLOGY

Wood Rodgers has previously developed a HEC-RAS Model for Morrison Creek upstream of Jackson Highway for other projects. HEC-RAS is a computer program developed by the Hydrologic Engineering Center (HEC) of the Army Corps of Engineers. The HEC developed the River Analysis System (RAS) to aid hydraulic engineers in analyzing channel flows and identifying the extents of floodplains; the computer program models the hydraulics of water flow through natural rivers and other channels.

In order to determine the hydrological impacts of the proposed Morrison Creek Realigned Channel, Wood Rodgers developed a Post-Reclamation Channel model. The Post-Reclamation Channel model was developed by extending the HEC-RAS model downstream of Jackson Highway to South Watt Avenue by utilizing existing data from the FEMA FIRM and HEC-2 model cross sections (HEC-2 is an older hydraulic program). Utilizing these two data sets (FEMA FIRM and HEC-2) allowed Wood Rodgers to establish the existing conditions. For the HEC-RAS model upstream of project area, (from Mayhew Road to Jackson Highway), Wood Rodgers used the cross sections of the HEC-2 model and supplemented the HEC-2 data with current topography from Sacramento County LiDAR[1] data.

In developing the HEC-RAS model for the Post-Reclamation Channel Model, Wood Rodgers also used the grading contours (prepared by GC Wallace) of the proposed Morrison Creek Realigned Channel between Mayhew Road and Hedge Avenue.

In the 2011 H&H Analysis, the Post-Reclamation condition assumes that the mining operations on Aspen III South and Vineyard I properties are completed and significant portions of the Vineyard I, Aspen III South, and Aspen IV South properties are mined below existing grade. The Post-Reclamation condition also assumes that the proposed Morrison Creek Realigned Channel (on the Vineyard I and Aspen III South mining sites) is constructed and connected to the constructed berms (Raised Bank Channel) on the Aspen IV South mining site where the natural Morrison Creek low flow channel and floodway has been preserved.

In the prior FEIR/EIS, a permanent retention basin was proposed (and later approved) to be located on the Vineyard I mining site, which would retain runoff from the three mining properties - Vineyard I, Aspen III South and Aspen IV South. Aspen IV South has the alternative (approved in 1999) to not convey stormwater runoff into the Vineyard I retention basin and instead retain stormwater runoff on-site in a 14-acre retention basin. The 2011 H&H Analysis analyzed the hydrological impacts of retaining Aspen IV South stormwater runoff on-site, in a 14-acre retention basin on the Aspen IV South property. The retention basin will be evacuated solely by infiltration into the soil and

[1] LiDAR (Light Detection and Ranging) is an optical remote sensing technology that uses pulses from a laser to measure the distance to a target or other features of the target. In geography, LiDAR data is used to determine contours of the land.

evaporation off the basin water surface. The 2011 H&H Analysis determined that the retention basin on Aspen IV South could store 30 ac-ft of local runoff and that the permanent retention basin on Vineyard I could store 267 ac-ft of local runoff from Vineyard I and Aspen III South properties. The two retention basins could store a combined total runoff of 297 ac-ft. The prior FEIR/EIS identified that there would need to be a total of 309 ac-ft of storage for the mining sites.

For additional information on the methodology used, please refer to Appendix B1.

MODELING RESULTS

The resulting HEC-RAS flow in the Post-Reclamation condition is shown in Table HY-1 below. The results are divided into three categories: upstream, on-site and downstream.

Table HY-1: Morrison Creek Flows (cubic feet per second)

		100 Year 24 hour	
		FEMA FIS*	**Post- Reclamation**
Upstream (off site)	Jackson Hwy.	2,755	1,032
	Bradshaw Rd.	2,755*	1,331
On-site	Mayhew Rd.	2,755*	1,494
	Hedge Ave.	2,755*	1,507
Downstream (off site)	S. Watt Ave.	2,755*	1,550
	CCTC RR	2,855	1,678

* FEMA FIS Flows are only reported at Jackson Hwy and the CCTC RR Crossing with an increase of only 100 cfs over 3.8 miles of channel. The lowest flow is assumed for the most conservative benchmark flow.
Source: Wood Rodgers, 2011

As shown on Table HY-1, there is a decrease in the upstream, on-site and downstream flows between the FEMA FIS baseline condition and the Post-Reclamation condition.

STANDARDS OF SIGNIFICANCE

Appendix G of the California Environmental Quality Act (CEQA) provides guidance for assessing the significance of potential environmental impacts. Relative to hydrology and water quality as it relates to surface water, a project will normally have a significant effect on the environment if it will:

- Violate any water quality standards or waste discharge requirements;

- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;
- Create or contribute runoff water, which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
- Otherwise substantially degrade water quality;
- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map, or other flood hazard delineation map;
- Place within a 100-year flood hazard area structures, which would impede or redirect flood flows;
- Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam; or
- Expose people or structures to inundation by seiche, tsunami, or mudflow.

IMPACTS AND ANALYSIS

IMPACT: INCREASE MORRISON CREEK FLOODPLAIN UPSTREAM IN THE POST-RECLAMATION CONDITION

In the Post-Reclamation condition, there would be a decrease in the upstream flows between the baseline condition and the Post-Reclamation condition as a result; the overall Post-Reclamation floodplain upstream is reduced.

The HEC-RAS modeling shows a decrease in the Morrison Creek upstream flows between the baseline condition and the Post-Reclamation condition (refer to Table HY-1). This decrease in upstream flows is due to the existing weir at Granite I which diverts peak flows out of Morrison Creek and into the Granite I/ Aspen VI detention/retention basin. As a result of this decrease of the upstream flows, the Post-Reclamation 100 year 24-hour floodplain is reduced when compared to the current Flood Zone AE floodplain, as shown on Plate HY-3.

Plate HY-3: Aspen IV South and Upstream Post-Reclamation Floodplain

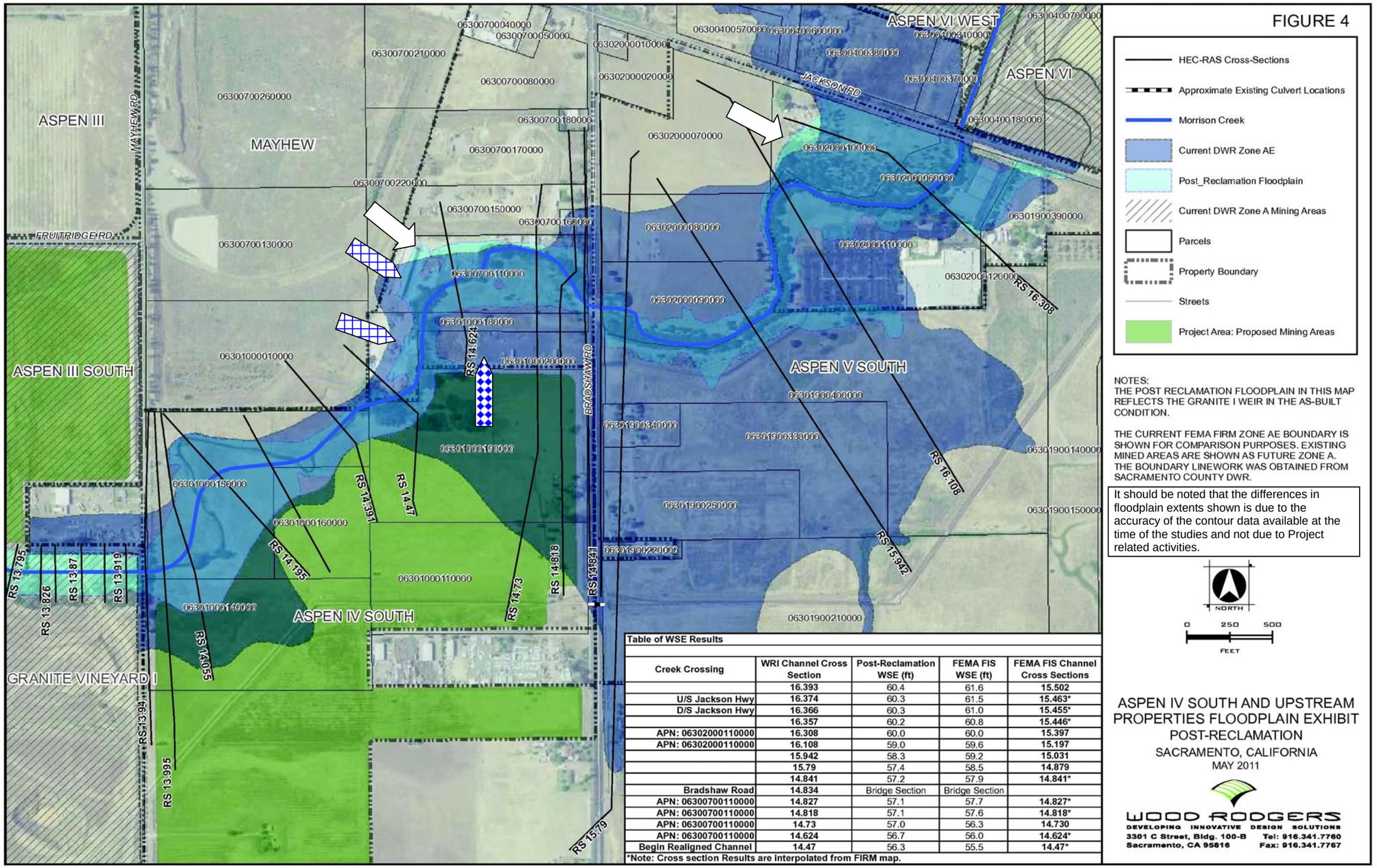


Table of WSE Results

Creek Crossing	WRI Channel Cross Section	Post-Reclamation WSE (ft)	FEMA FIS WSE (ft)	FEMA FIS Channel Cross Sections
	16.393	60.4	61.6	15.502
U/S Jackson Hwy	16.374	60.3	61.5	15.463*
D/S Jackson Hwy	16.366	60.3	61.0	15.455*
	16.357	60.2	60.8	15.446*
APN: 06302000110000	16.308	60.0	60.0	15.397
APN: 06302000110000	16.108	59.0	59.6	15.197
	15.942	58.3	59.2	15.031
	15.79	57.4	58.5	14.879
	14.841	57.2	57.9	14.841*
Bradshaw Road	14.834	Bridge Section	Bridge Section	
APN: 06300700110000	14.827	57.1	57.7	14.827*
APN: 06300700110000	14.818	57.1	57.6	14.818*
APN: 06300700110000	14.73	57.0	56.3	14.730
APN: 06300700110000	14.624	56.7	56.0	14.624*
Begin Realigned Channel	14.47	56.3	55.5	14.47*

*Note: Cross section Results are interpolated from FIRM map.

The white arrows represent locations where the Post-Reclamation Floodplain extent is greater than the Effective FEMA Zone AE Baseline floodplain.

The patterned arrows represent locations where the Effective FEMA Zone AE Baseline floodplain is reduced:

By 25%

By 84%

Please note that the colors in the legend are not accurately presented when this graphic is printed in black and white. This graphic can be found in color online at http://www.dera.saccounty.net/PublicNotices/SQLView/ProjectDetails/tabid/71/Default.aspx?ProjectID=33759

As shown on Plate HY-3 there are two locations (APN: 063-0200-010 and 063-0070-011) where the water surface elevation increases in the Post-Reclamation condition when compared to the Effective FEMA Zone AE Baseline water surface elevation. Although the water surface elevation slightly increases on a portion of the two properties, the water surface elevation is substantially reduced on other properties (refer to Plate HY-3). As described by Wood Rodgers in the 2011 H&H Analysis, when the Effective FEMA Zone AE Baseline Floodplain is compared to the Post-Reclamation floodplain, the area of inundated floodplain on the upstream property APNs 063-0070-011 and 063-0100-018 are reduced by 25% under the Post-Reclamation condition and the area of inundated floodplain on the upstream property APN 063-0100-020 is reduced by 84%. Wood Rodgers has noted that the difference in the floodplain extent is due to the differences in the accuracy of the contour data available at the time of the studies and not due to the proposed project structures (i.e., Morrison Creek Realigned Channel, Raised Bank Channel and retention basins).

The 2011 H&H Analysis assumed that the existing weir on Granite I would be operated and maintained in the "As-Built Condition", which results in the impacts of the proposed project to upstream flows of Morrison Creek to be considered less than significant. However, if the weir were not operated and maintained in its existing "As-Built Condition", there would be a potential that the water surface elevation upstream could be significantly affected. Therefore, DWR has recommended as a condition of approval to the proposed project, that the weir be maintained in the "As-Built Condition" by the mining companies and that any proposed changes to the weir must be substantiated with a hydrology and hydraulic analysis and must obtain approval from Sacramento County (refer to Appendix B2 for the December 2011 memorandum detailing the condition of approval). Implementation of this recommended condition of approval will ensure that impacts remain less than significant, consistent with what has been analyzed by this environmental document.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measures: None Required

IMPACT: INCREASE MORRISON CREEK DOWNSTREAM FLOWS IN THE POST-RECLAMATION CONDITION

> *In the Post-Reclamation condition, the flows downstream of the project site will not increase as a result of implementation of the proposed project.*

The peak flows downstream of the site would not increase in the Post-Reclamation condition due to the existing weir on Granite I operating in the "As-Built Condition". The recommended condition of approval from DWR requiring that the mining companies maintain the weir on Granite I operating in the "As-Built Condition" will ensure that the weir functions and operates as it is supposed to, which is to divert peak flood-related flow out of Morrison Creek and into Granite I and Aspen VI pits for offline detention and retention. Therefore, the 100-year storm flows leaving the project site would be less than the flows in the FEMA FIS Baseline study (refer to Table HY-1). The project will

not result in an increase in the peak flows downstream of the project site; impacts are considered less than significant.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measures: None Required

IMPACT: RESULT IN ON-SITE FLOODING IN THE POST-RECLAMATION CONDITION

> *The prior FEIR/EIS concluded that unchanneled flow from the Jackson Highway bridge to the bypass channel inlet at Aspen IV South could spill into the gravel pits proposed within the Aspen III, IV and V South and Vineyard parcels.*

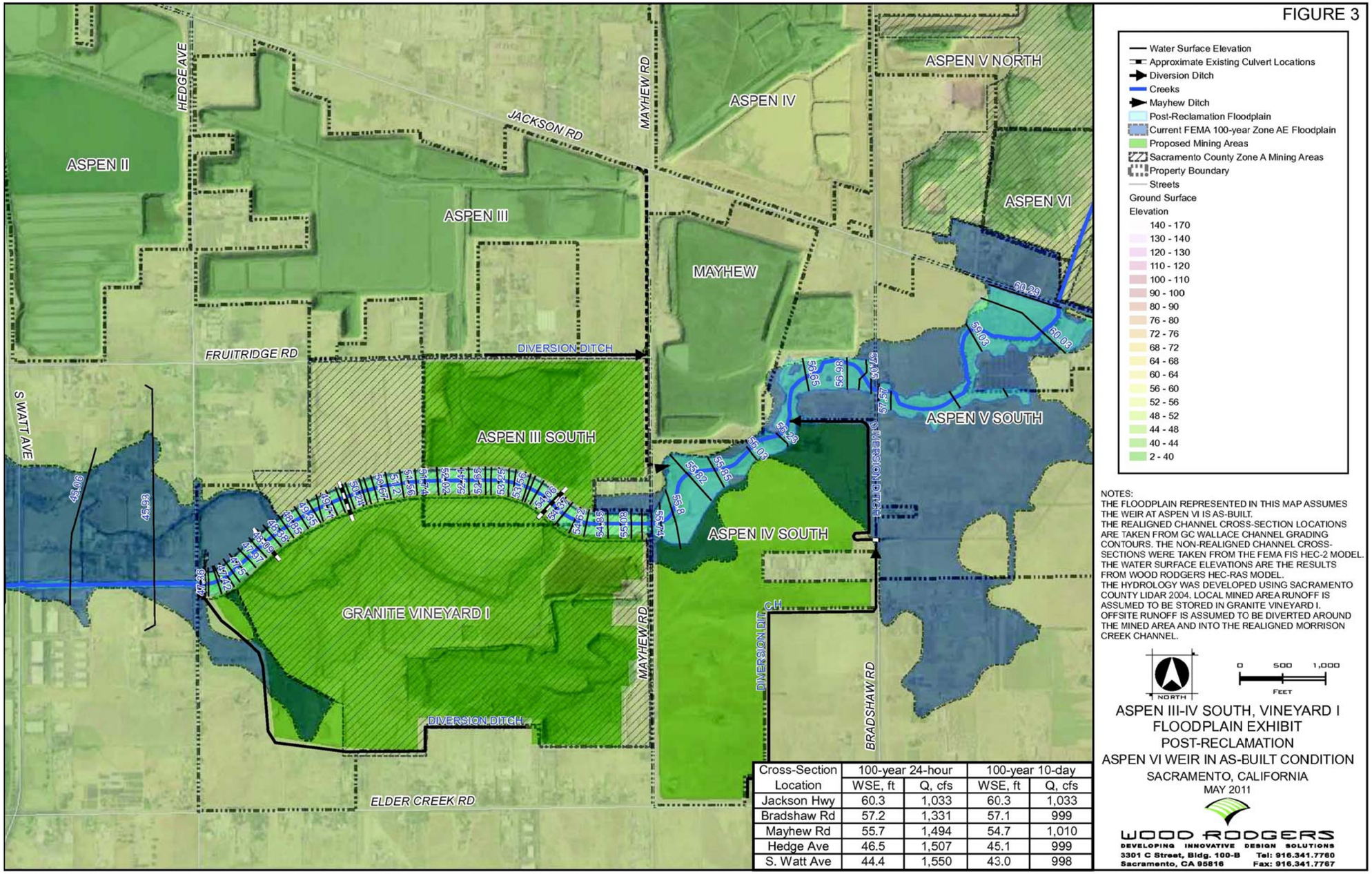
The proposed project eliminates the previously proposed bypass channel and instead constructs a Morrison Creek Realigned Channel on Vineyard I and Aspen III South properties and constructs a Raised Bank Channel, preserving the existing Morrison Creek channel, on Aspen IV South. The 100-year storm flows will be contained within the flood control banks of the both the Morrison Creek Realigned Channel and Raised Bank Channel, as shown on Plate HY-4. An analysis of the impact of embankment failure is analyzed separately.

The 2011 H&H Analysis determined the Morrison Creek flows in the Post-Reclamation Condition. This analysis assumes that the weir on Granite I will be operating in the "As-Built Condition". The result is that due to the existing weir on Granite I, upstream peak flows are diverted into the Granite I / Aspen VI retention basin.

In the Post-Reclamation condition, Morrison Creek on-site peak flows will be entirely contained within the banks and channel of the Morrison Creek Realigned Channel and Raised Bank Channel; therefore, on-site flooding due to peak flows overtopping the banks of the Morrison Creek Realigned Channel or the Raised Bank Channel is not expected. Based on modeling performed by Wood Rodgers for the 2011 H&H Analysis, the floodplain area in the Post-Reclamation Condition would be reduced from the FEMA Baseline Floodplain area by 81 percent (refer to Table HY-1).

On-site local runoff (100-year 10-day storm event) of 267 ac-ft for the Vineyard I and Aspen III South properties will be retained within a retention basin located on the Vineyard I property. For the Aspen IV South site, on-site local runoff (100 year 10-day storm event) of 30 ac-ft may either be retained on-site (as previously approved) within a potential 14-acre retention basin, or be conveyed to the Vineyard I retention basin. There will be a combined retention volume of 297 ac-ft of total runoff. The prior FEIR/EIS identified that there would need to be 309 ac-ft of storage for the three mining properties.

Plate HY-4: On-site Post Reclamation Floodplain



Cross-Section Location	100-year 24-hour		100-year 10-day	
	WSE, ft	Q, cfs	WSE, ft	Q, cfs
Jackson Hwy	60.3	1,033	60.3	1,033
Bradshaw Rd	57.2	1,331	57.1	999
Mayhew Rd	55.7	1,494	54.7	1,010
Hedge Ave	46.5	1,507	45.1	999
S. Watt Ave	44.4	1,550	43.0	998

Although the combined retention basin volume of 297 ac-ft is less than the prior FEIR/EIS volume of 309 ac-ft, Wood Rodgers has indicated that the 297 ac-ft storage is sufficient due to differences in the models, topographic data and assumption used between the prior FEIR/EIS and the 2011 H&H Analysis. The current model takes into account the revised configuration of the Morrison Creek Realigned Channel and Raised Bank Channel, the proposed grading contours, and current topography data. The differences between the current retention volume of 297 ac-ft and the prior FEIR/EIS determination of 309 ac-ft is within 4%, which is within the expected accuracy of the modeling and assumptions used; therefore, the current retention volume of 297 ac-ft is considered consistent with the prior FEIR/EIS of 309 ac-ft. The two retention basins will not have a pump (pump was previously proposed for only the Vineyard I retention basin); the basins will be evacuated solely by infiltration into the soil and evaporation off the basin water surface.

To determine the rate of evacuation out of the basins, Wood Rodgers conducted a Mean Annual Precipitation water balance analysis (100-year 10-day) for both the Vineyard I and Aspen IV South retention basins; it was concluded that the Vineyard I retention basin would infiltrate and evaporate the 100-year 10-day volume within 16 days and the Aspen IV South retention basin would infiltrate and evaporate the 100-year 10-day volume within 8 days. The result of the water balance analyses is that there will not be excess flows stored on site. However, the retention of local runoff volume for more than 48 hours has the potential to attract wildlife and pose a hazard to aircraft; this is further discussed in the Land Use Chapter (chapter 12) in the Consistency with Mather Airport Comprehensive Land Use Plan impact discussion.

The floodplain would not increase since excess on-site water will be retained in the retention basins and peak flows will be contained within the banks of the Morrison Creek Realigned Channel and the Raised Bank Channel. These results are based on the existing “As-Built Conditions” of the weir on Granite I property. This impact is considered less than significant.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measures: None Required

IMPACT: EMBANKMENT/LEVEE FAILURE

> *The embankments of the Morrison Creek Realigned Channel and the Raised Bank Channel have the potential to fail, which could result in on-site flooding, off-site flooding or reduced downstream flows and may result in a safety impact to employees and visitors of the mining site.*

The Morrison Creek Realigned Channel and Raised Bank channel will be constructed on an engineered fill embankment. The slopes of the Morrison Creek Realigned Channel and Raised Bank Channel are proposed to be 2:1. Mitigation in the Geology and Slope Stability Chapter requires that the engineered channel and embankment and foundation soils be certified by a California registered professional engineer

accompanied with the engineer's report addressing slope stability, soil compaction rates, foundation soils, potential failure mechanisms and contingencies for repairing failures (Mitigation Measure GS-2). In addition, the slopes of the recreated channel will be vegetated to reduce erosion and slope instability impacts. With implementation of Mitigation Measure GS-2 it is unlikely that the embankments would fail; however, in the extreme unlikely event that the embankments were to fail, there is a potential to create impacts on-site or downstream of the breach.

Wood Rodgers conducted an analysis of the effect to downstream flows and on-site impacts due to an embankment failure along Morrison Creek in the Post-Reclamation channel. For this analysis, a 100-year 10-day storm event was used and Wood Rodgers determined that the total volume of the 100-year 10-day storm event would be 7,140 ac-ft.

It is assumed that if the embankment were to fail, it would be near the peak Morrison Creek water surface elevation; therefore it is assumed that half of the storm flows would have passed downstream, past the breach location. The other half of the total storm volume would flow into the mined areas, as the mined areas would operate as offline storage retention basins until the embankment was rebuilt.

Wood Rodgers determined the available storage volume for the three mining sites, which is provided in Table HY-2 below.

Table HY-2: Morrison Creek Embankment Failure

Embankment Location	Estimated Available Storage* (ac-ft)	50% of 100-year 10-day Storm Volume (ac-ft)	Max Water Depth (ft)
Aspen IV South	4,410	3,570	30
Aspen III South	2,400	3,570	40+**
Vineyard I	7,890	3,570	17

*Based on 40 foot depth from existing ground and 2:1 slide slopes as shown in the Reclamation Plans
** Excess Volume is equalized between the mined area and the channel at the elevation of the downstream cross section adjacent to the mined areas
Source: Wood Rodgers, 2011

As shown in Table HY-2, if an embankment failure were to occur on the Aspen IV South or the Vineyard I property, the available storage volume of these two properties is greater than half of the 100-year 10-day storm volume; therefore, the storm volume would be contained within the mined area. The available storage volume was based on the cross sections in the Reclamation plan which portrayed a mining pit depth of 40 feet below existing ground surface with 2:1 side slopes. An embankment failure on Aspen IV South would result in a maximum water depth of 30 feet and on the Vineyard I

property the maximum water depth would be 17 feet. Since the mining pits would have a depth of 40 feet, the storm water volume would be contained within the mined area on these two properties.

Aspen III South has a storage capacity less than the half of the 100-year 10-day storm volume. Aspen III South and Vineyard I properties will be connected by culverts which would combine the available storage volume. This combined available storage volume exceeds the 100-year 10-day storm volume; therefore, it is unlikely that the combined mined area storage would be exceeded due to an embankment failure. If the these two mined areas were not connected by culverts and if there were an embankment failure on the Aspen III South property, the storm water would fill up the mined areas where it will eventually equalize with the water surface elevation within the channel and flows would resume to flow downstream at the same rate as the upstream flows; accordingly, under this condition, there would not be a significant impact of overland flow off the mining properties.

An embankment failure during a worst case scenario would be when more than half of the 100-year 10-day storm volume fills up the mined areas. Under this scenario, the mined areas would fill up until the capacity was exceeded, at which the water surface elevation in the mined area would then equalize with the water surface elevation in the channel and flows would resume downstream at the same rate as the upstream flows, and would not overtop the mining property boundaries. In addition, Wood Rodgers noted that due to the low velocity of flows in the creek, there would not be a total diversion of flows out of the creek. For the above reasons, an embankment failure on the project site would not increase off-site flooding potential or result in drying up of the creek channel downstream of the breach.

Safety and Evacuation Plan

Granite and Teichert have proposed a safety and evacuation plan in the unlikely event of embankment failure. These plans consist of preventative safety measures to alert employees and visitors of potential hazards associated with work areas; employees and visitors will be informed of evacuation and site access/exit routes; and during high flow events, those in proximity to the embankments will be informed of the risk of embankment failure and proper emergency procedures. In addition, embankments will be patrolled periodically during high water or heavy rainfall events to assess levee conditions and identify potential areas of concern. In the event of a failure or overtopping, all personnel and mobile equipment will be relocated away from the channel and to higher ground and if necessary, evacuated from the site. Emergency exit routes will take personnel to Fruitridge Road on the north and Mayhew Road on the east, which both connect to other arterial and major roadways in the area.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measures: None Required

IMPACT: DAMAGE TO THE JACKSON HIGHWAY BRIDGE DUE TO HIGH MORRISON CREEK FLOWS

In the Post-Reclamation Condition, there would be a decrease in the upstream flows between the baseline condition and the Post-Reclamation Condition.

The 2011 H&H analysis determined that the 100-year 24-hour water surface elevation at the Jackson Highway/ Morrison Creek crossing, upstream of the project site, is lowered by 1.9 feet in the Post-Reclamation Condition when compared to the FEMA FIS Baseline water surface elevation. This result is based on the operation of the Granite I weir in the existing "As-Built Condition". The weir was designed to mitigate flows in Morrison Creek upstream of Jackson Highway consistent with the conditions present prior to mining the Aspen VI and Granite I mining sites. This impact is considered less than significant.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measures: None Required

CUMULATIVE IMPACT

The design of the Morrison Creek Realigned Channel and the Raised Bank Channel, as well as the weir on Granite I operating and functioning the in the "As-Built Condition", results in no adverse drainage or surface water hydrological impacts. The project does not result in an increase of flows in Morrison Creek and therefore would not contribute incrementally to any flow related impacts. Cumulative impacts are considered **less than significant**.

6 GROUNDWATER HYDROLOGY AND WATER QUALITY

INTRODUCTION

This section describes the proposed Project's potential impact on groundwater hydrology and groundwater quality from water usage and potential contamination.

The proposed Project consists of a request for a rezone and use permit amendment to allow aggregate mining on an additional 5.6 acres (two parcels) to the Vineyard I mining site (referred as Vineyard I mining expansion). The proposed Project also includes revisions to the previously approved reclamation plan, consistent with permits received from the County, State and federal regulatory agencies. The mining sites in this project include Vineyard I, Aspen III South and Aspen IV South. The previously approved reclamation plan consisted of a below grade, 600-foot wide riparian corridor/low-flow channel and an at-grade trapezoidal bypass channel. The proposed project revises the previously approved reclamation plan by constructing an at-grade mitigation corridor (Morrison Creek Realigned Channel) on the Vineyard I and Aspen III South mining properties. The Morrison Creek Realigned Channel has been designed to contain the 100-year flood flows. On the Aspen IV South property, the existing Morrison Creek channel will be preserved and a raised bank flood control channel (Raised Bank Channel) is proposed to be constructed outside of the effective FEMA floodway. The Morrison Creek Realigned Channel will connect with the existing Morrison Creek channel on Aspen IV South. Impacts associated with channel failure and flooding potential are addressed in the Surface Water Hydrology and Quality Chapter (Chapter 5 of this SEIR).

SETTING

The prior FEIR/EIS provided the following groundwater setting:

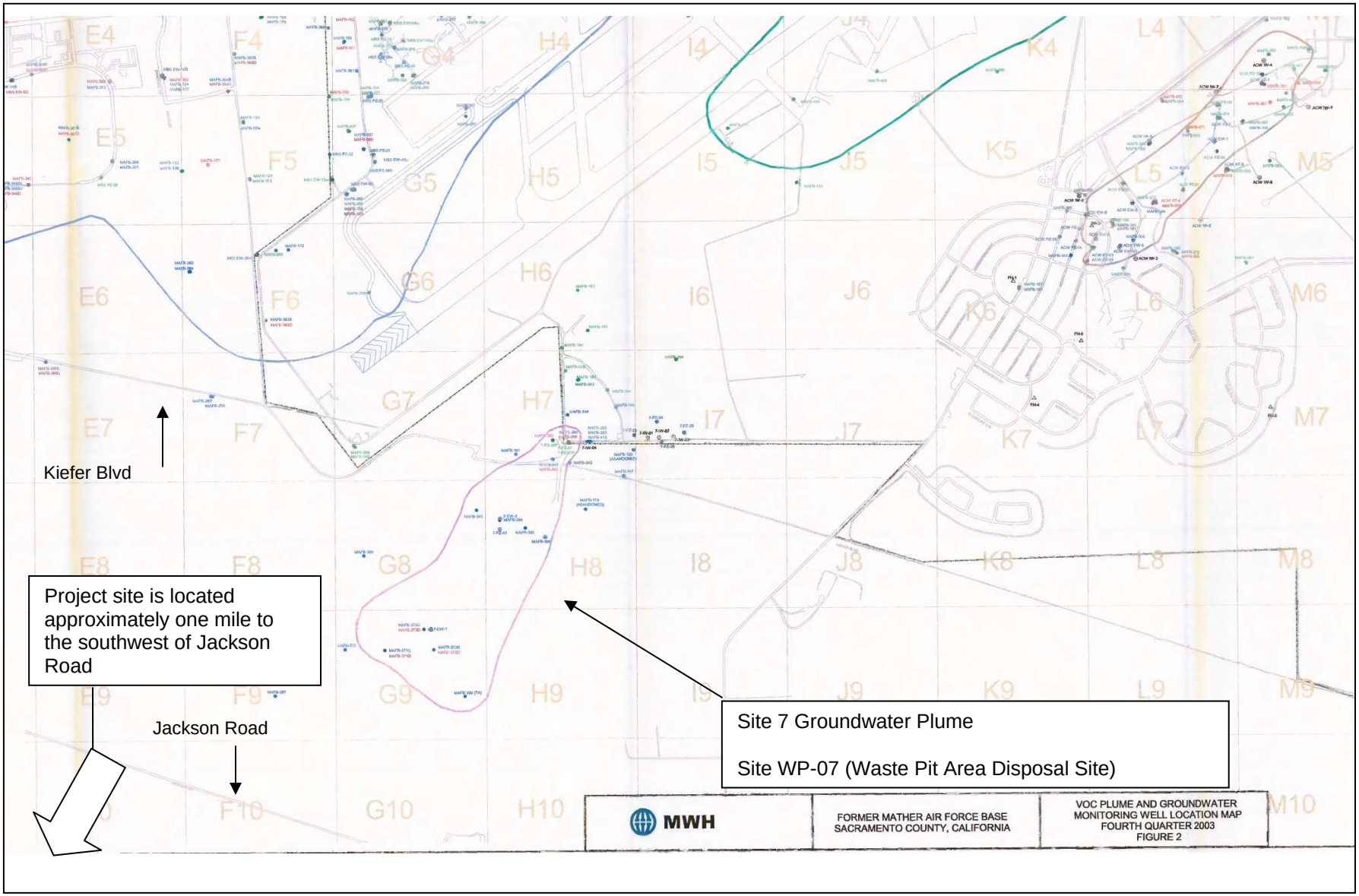
> *The project site is underlain by a portion of the Sacramento Valley Ground Water Basin (SVGWB) aquifer, a regionally important groundwater supply covering about 6,000 square miles. The aquifer is contained within Quaternary Central Valley sediments and provides domestic and agricultural water supply to a great portion of the southern Sacramento County. Groundwater flow is from east to west. Overdrafting over the past 11 years has lowered the groundwater table approximately ten feet.*
>
> *As of Spring of 1995, the groundwater table was measured 80 to over 100 feet below the present land surface within the project site. The proposed maximum depth of aggregate extraction is 45 feet, therefore the post-mining groundwater depth would be 35 to 55 feet below the pit floor. The groundwater appears semi-*

> *confined by fine grained layers in the project site area with less confinement to the east and greater confinement to the west as finer basin deposits occur. The presence of impermeable surface hardpan soils and relatively fine grained soils in the 15-foot surface overburden precludes percolation and recharge from the project site to the aquifer. Groundwater flow in the aggregate-producing zone is generally unsaturated flow. However, there may be seasonally perched pockets of shallower groundwater during the winter rainy season. Subsurface investigations by the project proponent indicate that the floor of the finished extraction pits is less permeable than the aggregate production zone but greater than the infiltration rates found in the hardpan soils and overburden. Precise infiltration rates are not known.*

The prior FEIR/EIS also described groundwater contamination from Mather Field, formerly Mather Air Force Base (located approximately 3 miles northeast of the current project site). This contamination was a result of dumping of waste chemicals associated with past Air Force operations.

The *Mather Air Force Base, Final Second Five-Year Review of Remedial Actions Conducted Under the Comprehensive Environmental Response, Compensation, and Liability Act* (September 24, 2004, Air Force Real Property Agency, Administrative Record #2157) is the second five-year review report that documents the assessment of whether each of the ongoing cleanup actions at the former Mather Air Force Base are protective of human health and the environment, pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). An Installation Restoration Program (IRP) began in 1982 to identify locations at Mather where hazardous substances or other pollutants might have been released to the environment. Mather was proposed for listing on the Superfund (CERCLA) National Priorities List (NPL) in July 1989 and was placed on the NPL in November 1989. IRP site WP-07 (Waste Pit Area Disposal Site) required a statutory review in this second five-year review report. Site WP-07 is located south of the Mather runway and was a gravel pit used for disposal of construction rubble as well as petroleum oil, and lubricant wastes during the time period from 1953 to 1966. WP-07 is the source of the groundwater plume (WP-07 Plume) that extends off the former base to the south/southwest for about half a mile (refer to Plate GW-1). The plume extends past Kiefer Boulevard, but not past Jackson Road. The plume is located under a portion of the Granite I mining site and near the Aspen V site. These mining sites are not a part of the proposed project. The proposed project is located further to the southwest and is not expected to encounter a Mather Air Force Base contaminated groundwater plume.

Plate GW-1: Mather Contaminant Plume



STANDARDS OF SIGNIFICANCE

Appendix G of the California Environmental Quality Act (CEQA) provides guidance for assessing the significance of potential environmental impacts. Relative to hydrology and water quality as it pertains to groundwater, a project will normally have a significant effect on the environment if it will:

- Violate any water quality standards or waste discharge requirements;
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted);
- Otherwise substantially degrade water quality;

IMPACTS AND ANALYSIS

IMPACT: ALTER DRAINAGE AND GROUNDWATER FLOW AND AFFECT GROUNDWATER QUALITY

The prior FEIR/EIS concluded that gravel extraction may alter drainage and groundwater flow and quality which could affect surrounding properties and domestic septic leachfield systems on adjacent surrounding properties. This was found to be a significant impact that could be reduced to less than significant with mitigation.

The proponents of the prior project were required to obtain all necessary permits from the Sacramento County Environmental Management Department (EMD) for the construction or removal/abandonment of any water wells and septic systems. The proponents were also required to revise the Mining Plan to specifically identify all sewage disposal systems within 300 feet of the proposed mining area. Mining setbacks from these sewage disposal systems were required. These mitigation measures were satisfied as part of the prior project.

The applicant submitted an exhibit that depicts the approximate location of wells/septic on the Vineyard I site. The exhibit does not specify if each location is a well or a septic. Based on the exhibit, there is one well/septic located within the 5.6-acre Vineyard I expansion site and two located south of the expansion site.

Staff (C. Hawkins) of EMD submitted comments (letter dated January 3, 2008) for the proposed use permit for the Vineyard I mining expansion and requested that any existing well that will not be operational be destroyed under permit from EMD. The

well/septic on the Vineyard I mining expansion site will have to be destroyed under permit from EMD. Compliance with EMD regulations will ensure that impacts to water wells and septic systems as a result of mining the additional 5.6 acre site are expected to be less than significant.

Mining of the additional 5.6 acres would reduce the depth to groundwater (measured from the bottom of the pit) in that area. The prior FEIR/EIS discussed similar impacts for the other mined areas and included mitigation that required the proponents to store contaminants in the gravel operation area in a manner that would contain any spills (i.e., containment berms) to reduce the potential to contaminate groundwater. This mitigation measure remains applicable to the Vineyard I mining expansion site.

Level of Significance Before Mitigation: Significant

Mitigation Measure:

GW-1 The proponents shall store contaminants in the gravel operation area in a manner that will contain any spills (i.e., containment berms). Any spills occurring in operational areas should be cleaned up immediately.

Level of Significance After Mitigation: Less than Significant

IMPACT: DISRUPT OR ALTER MATHER FIELD GROUNDWATER CONTAMINATION MONITORING

The prior FEIR/EIS determined that the proposed mining operations could alter or disrupt any future monitoring of the contamination plume from Mather Field. This was found to be a significant impact that could be reduced to less than significant with mitigation.

As stated in the Setting section above, the contamination plume from Site WP-07 has not been detected to have migrated beyond Jackson Road, as of the last five year review (September 2004). As the proposed project's mining sites (Vineyard I, Aspen III South and Aspen IV South) are located approximately 1 mile southwest of Jackson Highway (as shown on Plate GW-1), the inclusion of 5.6 acres to the Vineyard I mining site would not affect the future monitoring efforts of contamination plumes from Mather Field. This impact is considered less than significant.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measures: None Required

CUMULATIVE IMPACTS

Mining the Vineyard I mining expansion site would reduce the depth to the groundwater in that area. This reduction, in combination with the prior project's four mining sites and other mining sites in the vicinity of the project site would not result in a cumulatively

considerable incremental contribution to a cumulatively significant groundwater hydrology or groundwater quality impact. Additionally, since the contamination plume identified in the prior FEIR/EIS has not migrated beyond Jackson Road and Mather Field is located north of Jackson Road whereas the project site is located southwest of Jackson Road, the project does not contribute to a cumulatively adverse impact to the monitoring efforts of contamination at Mather Field. Impacts associated with groundwater hydrology and quality in the cumulative condition are considered **less than significant**.

7 CULTURAL RESOURCES

INTRODUCTION

Under CEQA, lead agencies must consider the effects of their projects on cultural resources. This chapter describes the potential impacts to cultural resources that could occur as a result of proposed project, which includes revisions to the previously approved reclamation plan and the inclusion of an additional 5.6 acres to the existing Vineyard I mining site. Cultural resources may include historic buildings and structures, historic districts, historic sites, culturally sacred sites, prehistoric and historic archaeological sites, and other prehistoric and historic objects and artifacts.

Overall, cultural resources that are known to exist and those that may be present in the project area could include the categories described in Table CR-1 below, identified pursuant to *California Code of Regulations, Title 14, Section 4852*.

The following analysis provides an overview of known cultural resources within the project area and identifies any potential adverse impacts to them associated with the project. Potential unknown resources are also addressed. The analysis also recommends mitigation measures to reduce impacts to cultural resources within the project area.

CULTURAL RESOURCES BACKGROUND

A cultural resources investigation was undertaken for the prior project located on the project site entitled “Morrison Creek Mining Reach Downstream (South) of Jackson Highway”. As part of the EIR/EIS process an extensive cultural resources survey was conducted to identify potential resources present within the project area and to provide recommendations to protect any resources. These surveys were conducted in accordance with the provisions of the California Environmental Quality Act Statutes and Guidelines and with provisions of Section 106 of the National Historic Preservation Act of 1966.

The prior survey identified 22 resources on the project site, as follows: 1) eight historic resources, consisting of eight complexes of standing structures; 2) thirteen historic archaeological sites, consisting of one deposit of historic domestic debris and the remains of twelve destroyed farmsteads; and 3) identification of a modern trash deposit. According to the EIR/EIS, none of these resources were considered to be “important” or “significant” per CEQA Guidelines and the regulations of Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation (36 CFR Part 60.4: Criteria for Evaluation).

Table CR-1
Categories of Cultural Resources

Category	Description	Example
Building	Structures created principally to shelter or assist in carrying out any form of human activity. May also refer to a historically and functionally related unit (e.g., courthouse and jail).	Houses, barns, churches, factories, and hotels
Site	A site is the location of a significant event, a prehistoric or historic occupation or activity, or a building or structure, whether standing, ruined, or vanished, where the location itself possesses historical, cultural, or archeological value regardless of the value of any existing building, structure, or object. A site need not be marked by physical remains if it is the location of a prehistoric event, and if no buildings, structures, or objects marked it at that time.	Trails, designed landscapes, battlefields, habitation sites, Native American ceremonial areas, petroglyphs, and pictographs
Structure	The term "structure" is used to describe a construction made for a functional purpose rather than creating human shelter.	Mines, bridges, and tunnels
Object	The term "object" is used to describe those constructions that are primarily artistic in nature or are relatively small in scale and simply constructed, as opposed to a building or a structure. Although it may be moveable by nature or design, an object is associated with a specific setting or environment. Objects should be in a setting appropriate to their significant historic use, role, or character. Objects that are relocated to a museum are not eligible for listing in the California Register.	Fountains, monuments, maritime resources, sculptures, and boundary markers
Historic District	Unified geographic entities which contain a concentration of historic buildings, structures, objects, or sites united historically, culturally, or architecturally. Historic districts are defined by precise geographic boundaries. Therefore, districts with unusual boundaries require a description of what lies immediately outside the area, in order to define the edge of the district and to explain the exclusion of adjoining areas.	---

Given that the 22 resources were not considered “important” or “significant”, the prior EIR/EIS concluded that the proposed project would have a less than significant impact on the identified resources. The prior project did identify a potentially significant impact to subsurface resources and provided mitigation to reduce the impact to less than significant.

Since the publication of the EIR/EIS, the project area identified in the environmental document has been mined for aggregate resources. All 22 resources were impacted during/prior to the subsequent mining efforts. Given that the project area has been mined well below grade, the proposed project would not result in further impacts to any of the previously identified resources. Additionally, it is not expected that the current proposal of amendments to the reclamation plan would have any impact on cultural resources. Essentially the existing proposal would have no measurable impact with the exception of the additional 5.6 acres that will be added to the existing Vineyard I mining site. Also, although unlikely, there may be potential impacts associated with subsurface resources with the excavation of the stormwater detention basin. These two potential impacts are the subject of the following discussions.

The Department of Environmental Review and Assessment retained PAR Environmental Services, INC (PAR), to conduct a cultural resources inventory for the additional 5.6 acres of un-mined land on the Vineyard I site (*Cultural Resources Inventory of Vineyard I Reclamation Plan Amendment, Rezone and New Mining Use Permit for Adjacent Property, Sacramento County, California,* June 2009). The following chapter is based on and contains portions of the inventory study.

CULTURAL RESOURCES SETTING: VINEYARD I

PREHISTORIC ARCHAEOLOGY

One of the earliest clearly dated contexts for human occupation in north central California is from site CA-SHA-475 located north of Redding on Squaw Creek, where a charcoal based C-14 date suggests initial Native American presence within this area around 6,500 years ago. Continuous use of the region is indicated on the basis of evidence from this and other regional sites, particularly within the Farmington area and along the Truckee River drainage east of Sacramento within the Sierra Nevada. Most of the artifactual material dating to this early time period suggests cultural affiliation with the Borax Lake area—the presence of large wide-stemmed projectile points and manos and metates being the most prominent and distinctive artifact types represented. The possibility exists that this early culture represents Hokan-speaking peoples who were also ancestral to those who subsequently expanded into the southern Cascade, the southern Klamath, the North Coast Range, and the lower reaches of the Sierra Nevada near Folsom and Sacramento.

Sometime around AD 200-400, the first major disruption of this early California culture is believed to have occurred. Arriving ultimately from Southern Oregon and the Columbia

and Modoc Plateau region and proceeding down the major drainage systems (including the Feather, Yuba and American Rivers), Penutian-speaking peoples began arriving in the area and soon occupied much of the Sacramento Valley floor and the margins of the Sacramento River. Presumably introduced by these later arrivals were more extensive use of bulbs and other plant foods, animal and fishing products more intensively processed with mortars and pestles, and perhaps the bow and arrow and associated small stemmed- and corner-notched projectile points. In the northernmost Sacramento Valley, the so-called Shasta (archaeological) Complex represents the material culture record of the local Penutian speakers. Generally similar archaeological expressions also define the Penutian-speaking occupants of the northern Sierra Nevada around Grass Valley and Nevada City, and the Nisenan ancestors who occupied the area in the foothills above and valley margins around, Sacramento, Folsom, Orangevale and Citrus Heights.

ETHNOLOGY

Ethnography is the written record of a culture. Archaeology can be combined with ethnography to identify groups more specifically. Ethnographic records (from missions and other documents) show that the groups that inhabited Sacramento County are the Nisenan, or Southern Maidu, and the Plains Miwok, a subgroup of the Eastern Miwok. The Plains Miwok traditional territory included the lower reaches of the Cosumnes and Mokelumne Rivers and extended west to the Sacramento River from Rio Vista north to Freeport (Levy 1978). Ethnographers generally agree that Nisenan territory included the drainages of the Bear, American, Yuba, and southern Feather Rivers and extended from the Sacramento River east to the crest of the Sierra Nevada (Beals 1933, Faye 1923, Gifford 1927, Kroeber 1925, Powers 1976, Wilson and Towne 1978). Thus, the proposed project is located within the territory commonly attributed to the ethnographic Nisenan.

NISENAN

The Nisenan built their villages on low, natural rises along streams and rivers or on gentle slopes with a southern exposure, usually in places protected from flooding. Village populations ranged from 15 to 500 people, with one village usually playing a dominant role in the sociopolitical organization of a particular area. The ethnographic village of Pusune or Pushuni (CA-SAC-26), located at the confluence of the American and Sacramento Rivers, served as the head village for the area (Wilson and Towne 1978).

Nisenan settlements varied from three to as many as 50 houses. Structures were dome-shaped; 10-15 feet in diameter; and covered with earth, tule mats, or grass. A variety of other structures, including sweat houses, dance houses, and acorn granaries, were also constructed (Kroeber 1925, Wilson and Towne 1978). Ethnographic village sites located along the American River area in Nisenan territory include Ekwo (on Sunrise Boulevard), Shiba (on Hazel Avenue), and Yodok (at Folsom) (Wilson and Towne 1978).

The Sacramento Valley and lower foothills were rich in natural resources, and the Nisenan took advantage of the wide variety of food sources. Waterfowl, fish, and freshwater mussels and clams were readily available in the rivers. Acorns were important to their diet and were supplemented with seeds, nuts, berries, herbs, and fruit. Except for lizards, snakes, and grizzly bears, virtually every animal was a food source, including tule elk, deer, and antelope. The Nisenan moved with the seasons, following game and collecting plants. Manzanita berries, pine nuts, block oak acorns, skins, bows and bow wood were traded to the valley people in exchange for fish, roots, grasses, shells, beads, salt, and feathers (Kroeber 1925, Wilson and Towne 1978).

Because early contact with the Spaniards was limited to the southern edge of their territory, the Nisenan were not affected by Spanish soldiers searching for mission converts in the late 1700s, although they often sheltered Plains Miwok who had escaped from the missions (Wilson and Towne 1978). In 1808, Gabriel Moraga crossed Nisenan territory, but it was not until the Hudson's Bay Company trappers journeyed through the region in the 1820s and 1830s that the first impacts on the native residents were felt. The fur trappers introduced malaria into the Central Valley, leading to an epidemic that decimated the local population in 1833. The Valley Nisenan were particularly affected by the disease, with entire villages wiped out (Wilson and Towne 1978). Cook (1955a) estimates that 75% of the Valley Nisenan population died during this epidemic.

John Sutter initiated further disruption when he introduced Plains Miwok into the region in the early 1840s and persuaded or forced the local Nisenan village people to either work for him or live peaceably with him. The Nisenan that had survived the epidemic and Sutter's working conditions had little chance against the gold miners that poured into the valley and foothills in the later 1840s. Most of the Nisenan population was completely eliminated by the mid-1850s (Wilson and Towne 1978). The survivors eked out a living working in agricultural activities, ranching activities, logging and/or in the domestic sphere (Wilson and Towne 1978).

HISTORICAL CONTEXT

The project area is located about one mile southwest of the intersection of Bradshaw Road and the Jackson Highway, which historically was the site of the small farming community of Walsh Station. Walsh Station was established in the latter half of the nineteenth century. The Enterprise Grange Hall was constructed by 1873 and J.M. Walsh settled there between 1874 and 1877. Gudde notes that the post office was established there in 1875 and named by the Postal Service for J.M. Walsh, the local storekeeper and first postmaster. Census and other evidence indicate that the area was never densely populated, with the grange having a peak membership of around 100 people in the 1880s.

Nineteenth-century land use focused on large scale grain farms. During the first half of the twentieth century dry farming declined and residents began leaving the vicinity. The area experienced a small growth spurt immediately following World War II. In the late 1940s and early 1950s large farms were divided into small 10 to 20-acre parcels,

occupied primarily by people who worked in Sacramento but chose to live in "the country." The house that once stood in the project site was built in 1947, during this population boom. By 1950, Walsh Station had only five structures, a change that reflects the increase use of supermarkets and strip malls in the County. This trend of scattered small residences surrounded by open space continued to define the project region into the 1990s, when suburban growth reached the area.

CULTURAL RESOURCES REGULATORY SETTING

FEDERAL REGULATIONS

Cultural resources are considered during federal undertakings chiefly under Section 106 of the National Historic Preservation Act (NHPA) of 1966 (as amended) through one of its implementing regulations, 36 CFR 800 (Protection of Historic Properties), as well as the National Environmental Policy Act (NEPA). Properties of traditional religious and cultural importance to Native Americans are considered under Section 101(d)(6)(A) of NHPA. Other federal laws pertinent to cultural resources include the Archaeological Data Preservation Act of 1974, the American Indian Religious Freedom Act (AIRFA) of 1978, the Archaeological Resources Protection Act (ARPA) of 1979, the Native American Graves Protection and Repatriation Act (NAGPRA) of 1989, among others. Below is a more detailed description of applicable federal regulations.

ANTIQUITIES ACT

The federal Antiquities Act of 1906 was created with the intent to protect cultural resources in the United States. The Act prohibits appropriation, excavation, injury, and destruction of "any historic or prehistoric ruin or monument, or any object of antiquity" located on lands owned or controlled by the federal government, without permission of the secretary of the federal department with jurisdiction. Accordingly, the Act provided early framework to protect cultural resources within the United States.

NATIONAL ENVIRONMENTAL POLICY ACT

NEPA requires that federal agencies assess whether federal actions would result in significant effects on the human environment. The Council on Environmental Quality's (CEQ's) NEPA regulations further stipulate that identification of significant effects should incorporate "the degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register for Historic Places or may cause loss or destruction of significant scientific, cultural, or historic resources" (40 CFR 1508.27[b][8]).

National Historic Preservation Act

Section 106 of NHPA (16 USC 470f) requires federal agencies to take into account the effects of their undertakings on any district, site, building, structure or object that is included in or eligible for inclusion in the NRHP and to afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment on such undertakings (36 CFR 800.1). Under Section 106, the significance of any adversely affected cultural resource is assessed and mitigation measures are proposed to reduce any impacts to an acceptable level. Significant cultural resources are those resources that are listed, or are eligible for listing, on the NRHP per the criteria listed at 36 CFR 60.4 (Advisory Council on Historic Preservation 2000) below.

The quality of *significance* in American history, architecture, archaeology, engineering and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling and association and that:

a. Are associated with events that have made a significant contribution to the broad patterns of our history; or

b. Are associated with the lives of persons significant in our past; or

c. Embody the distinctive characteristics of a type, period, or method of installation, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

d. Have yielded, or may be likely to yield, information important in prehistory or history.

State of California Regulations

California Environmental Quality Act

CEQA requires a lead agency to determine whether a project may have a significant effect on historical resources. If it can be demonstrated that a project will cause damage to a unique archaeological resource, the lead agency may require reasonable efforts to be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that they cannot be left undisturbed, mitigation measures are required (Section 21083.2 (a), (b), and (c)). Section 21083.2(g) describes a *unique archaeological resource* as an archaeological artifact, object, or site about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

(1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.

(2) Has a special and particular quality such as being the oldest of its type or the best available example of its type.

(3) Is directly associated with a scientifically recognized important prehistoric or historic event or person.

A *historical resource* is a resource listed, or determined to be eligible for listing, in the California Register of Historical Resources (CRHR) (Section 21084.1); a resource included in a local register of historical resources (Section 15064.5(a)(2)); or any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant (Section 15064.5 (a)(3)). Sacramento County does not currently have a local register.

Public Resources Code (PRC) Section 5024.1, Section 15064.5 of the Guidelines, and Sections 21083.2 and 21084.1 of the Statutes of CEQA were used as the basic guidelines for the cultural resources study. PRC Section 5024.1 requires evaluation of historical resources to determine their eligibility for listing on the CRHR. The purpose of the register is to maintain listings of the State's historical resources and to indicate which properties are to be protected from substantial adverse change. The criteria for listing resources on the California Register were expressly developed to be in accordance with previously established criteria developed for listing on the National Register of Historic Places (NRHP).

Native American Burials and Accidental Discoveries

California law protects Native American burials, skeletal remains and associated grave goods regardless of their antiquity and provides for the sensitive treatment and disposition of those remains (Section 7050.5 of the Health and Safety Code and Public Resources Code 5097.9).

When human remains are discovered, the protocol to be followed is specified in California Health and Safety Code, which states:

> *In the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered has determined, in accordance with Chapter 10 (commencing with Section 27460) of Part 3 of Division 2 of Title 3 of the Government Code, that the remains are not subject to the provisions of Section 27492 of the Government Code or any other related provisions of law concerning investigation of the circumstances, manner and cause of death, and the recommendations concerning treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative, in the manner provided in Section 5097.98 of the Public Resources Code.*

State CEQA Guidelines Section 15064.5, subdivision (e), requires that excavation activities be stopped whenever human remains are uncovered and that the county coroner be called in to assess the remains. If the county coroner determines that the remains are those of Native Americans, the Native American Heritage Commission (NAHC) must be contacted within 24 hours. At that time, the lead agency must consult with the appropriate Native Americans, if any, as timely identified by the NAHC. Section 15064.5 directs the lead agency (or applicant), under certain circumstances, to develop an agreement with the Native Americans for the treatment and disposition of the remains.

In addition to the mitigation provisions pertaining to accidental discovery of human remains, the State CEQA Guidelines also require that a lead agency make provisions for the accidental discovery of historical or archaeological resources. Pursuant to Section 15064.5, subdivision (f), these provisions should include "an immediate evaluation of the find by a qualified archaeologist. If the find is determined to be an historical or unique archaeological resource, contingency funding and a time allotment sufficient to allow for implementation of avoidance measures or appropriate mitigation should be available. Work could continue on other parts of the building site while historical or unique archaeological resource mitigation takes place."

LOCAL REGULATIONS

SACRAMENTO COUNTY GENERAL PLAN

The Sacramento County General Plan Conservation Element (adopted November 2011 with a planning horizon out to 2030), states under Section VI, Cultural Resources, the following goal:

> GOAL Promote the inventory, protection and interpretation of the cultural heritage of Sacramento County, including historical and archaeological settings, sites, buildings, features, artifacts and/or areas of ethnic historical, religious or socio-economical importance.

Also, the Cultural Resources section of the Conservation Element has specific objectives related to the protection of archaeological sites during development, historic structure preservation, and destruction of cultural resources sites. Following are the applicable General Plan Conservation Element cultural resources objectives that would be applicable to the proposed project:

> OBJECTIVE: Attention and care during project review and construction to ensure that cultural resource sites, either previously known or discovered on the project site, are properly protected with sensitivity to cultural and ethnic values of all affected.
>
> OBJECTIVE: Preserve structures such as buildings, bridges, or other permanent structures with architectural or historical importance to maintain contributing design elements.

OBJECTIVE: Protect any known cultural resources from vandalism unauthorized excavation, or accidental destruction.

OBJECTIVE: Increase public education, awareness and appreciation of both visible and intangible cultural resources.

The following policies may apply to the project:

CO-155 Native American burial sites encountered during preapproved survey or during construction shall, whenever possible, remain in situ. Excavation and reburial shall occur when in situ preservation is not possible or when the archeological significance of the site merits excavation and recording procedure. On-site reinterment shall have priority. The project developer shall provide the burden of proof that off site reinterment is the only feasible alternative. Reinterment shall be the responsibility of local tribal representatives.

CO-156 The cost of all excavation conducted prior to completion of the project shall be the responsibility of the project developer.

CO-157 Monitor projects during construction to ensure crews follow proper reporting, safeguards, and procedures.

CO-158 As a condition of approval of discretionary permits, a procedure shall be included to cover the potential discovery of archaeological resources during development or construction.

CO-164 Structures having historical and architectural importance shall be preserved and protected.

CO-171 Design and implement interpretive programs about known archeological or historical sites on public lands or in public facilities. Interpretation near or upon known sites should be undertaken only when adequate security is available to protect the site and its resources.

CO-172 Provide historic and cultural interpretive displays, trails, programs, living history presentations, and public access to the preserved artifacts recovered from excavations.

DISCLOSURE OF CULTURAL RESOURCES INFORMATION

Public disclosure of site specific cultural resources information is expressly exempt from the California Public Records Act, Government Code Sections 6250-6270. Furthermore, information obtained during Native American consultation or through consultation with the local and state agencies, including the North Central Information Center (NCIC), should remain confidential and is exempt from public disclosure under Senate Bill 922. Additionally Sacramento County staff has signed an “Agreement to

Confidentiality" with the NCIC that states that site specific information will not be distributed or released to the public or unauthorized individuals. An authorized individual is a professional archaeologist or historian that qualifies under the Secretary of Interior's standards to view confidential cultural resources materials.

METHODOLOGY

Archival research, consultation, and fieldwork were conducted to establish what cultural resources may be present within the 5.6-acre Vineyard I project area and, furthermore, may be impacted as a result of implementation of the proposed Vineyard I mining expansion project.

PRE-FIELD RESEARCH: VINEYARD I

INFORMATION CENTER RECORD SEARCH

Data maintained by the North Central Information Center (NCIC) of the California Historical Resources Information System (CSU-Sacramento) including State and federal listings of significant cultural resources and associated data bases was conducted by DERA on May 26, 2009. Standard references and lists consulted include the following:

- National Register of Historic Places (United States Department of the Interior [USDI] 1979, computerized updates through May 2009);
- California Register of Historic Resources (California Department of Parks and Recreation [DPR] 1998, computerized updates through May 2009);
- California Historical Landmarks (California DPR 1996, computerized updates through May 2009);
- California Inventory of Historic Resources (California DPR 1976, obsolete);
- Historic Properties Directory (California DPR, computerized updates through May 2009);
- California Points of Historical Interest (California DPR 1992, computerized updates through May 2009);
- Archaeological Site Records – computerized updates through May 2009, and
- NCIC, California Historic Resource Information System historic resource records and maps – May 2009.

The record search at the NCIC identified four previous cultural resources studies that include portions of the project area or directly adjacent to the project area. Two

resources were identified within the search radius by the NCIC. One of the resources was characterized as Asian ceramics (CA-SAC-790-H), while the other resource was a 1947 residence. Neither of these resources are located within the 5.6 acre Vineyard I expansion area. Historic GLO maps from the mid-nineteenth century illustrate residences and a road within the project vicinity

In addition to the background research conducted at the NCIC, PAR sent inquiries to the following individuals/agencies requesting any background information about the project area:

- Wayne Donaldson, State Historic Preservation Officer, State Office of Historic Preservation
- Jim Henley, President, Sacramento County Historical Society
- Dwight Dutschke, State Office of Historic Preservation
- Debbie Pilas-Treadway, Native American Heritage Commission

No responses have been received from any of the above individuals/agencies to date.

FIELD ASSESSMENT: VINEYARD I

PEDESTRIAN SURVEY

DERA requested that PAR conduct an intensive pedestrian survey on the 5.6 acre Vineyard I expansion site to identify any sensitive cultural resources that may exist on the project site. PAR Senior Archaeologist, John Dougherty, undertook the survey on June 4, 2009. Mr. Dougherty conducted a thorough reconnaissance of the site using transect intervals no greater than ten meters apart. The maximum physical footprint, the area of potential ground-disturbing activities, was surveyed. Ground surfaces and any cuts were carefully inspected for evidence of historical use such as fragments of ceramics, metal, and glass, and for indications of prehistoric use such as chipped stone artifacts and debitage, ground stone artifacts, bone fragments, and soil color changes. Boot scuffs and trowel scrapes were also employed to expose soil where possible.

PEDESTRIAN SURVEY RESULTS

After a thorough reconnaissance, PAR determined that there was no evidence of historic or prehistoric sites on the 5.6 acre Vineyard I expansion area. PAR did note that the 1947 house that was located on the northern portion of the project site had been bull-dozed into an unidentifiable pile and moved approximately 300 feet to the southern edge of the project site. The only identifiable remnants of the structure included milled lumber, plywood and asphalt roofing. In addition, PAR documented that a trailer, measuring 60 feet in length and dating to the 1970s, was located in the

southwest corner of the project site. PAR noted that the trailer was abandoned and damaged by vandalism.

SIGNIFICANCE CRITERIA

In order for a cultural resource to be considered a “historic property” under NRHP criteria (i.e., eligible for inclusion on the NRHP), it must be demonstrated that the resource possesses *integrity* of location, design, setting, materials, workmanship, feeling and association, and must meet at least one of the following four criteria delineated by Section 106 (Advisory Council on Historic Preservation 2000), as listed in 36 CFR 60.4:

> (a) That are associated with events that have made a significant contribution to the broad patterns of our history; or
>
> (b) That are associated with the lives of persons significant in our past; or
>
> (c) That embody the distinctive characteristics of a type, period or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
>
> (d) That have yielded, or may be likely to yield, information important in prehistory or history.

The criteria for listing resources on the CRHR were expressly developed to be in accordance with previously established criteria developed for listing on the NRHP, enumerated above, and require similar protection to what NHPA Section 106 mandates for historic properties. According to PRC Section 5024.1(c)(1-4), a resource is considered *historically significant* if it meets at least one of the following criteria:

> (1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
>
> (2) Is associated with the lives of persons important in our past;
>
> (3) Embodies the distinctive characteristics of a type, period, region or method of installation, or represents the work of an important creative individual, or possesses high artistic values; or
>
> (4) Has yielded, or may be likely to yield, information important in prehistory or history.

Under CEQA, if an archeological site is not a significant “historical resource” but meets the definition of a “unique archeological resource” as defined in PRC Section 21083.2,

then it should be treated in accordance with the provisions of that section. A unique archaeological resource is defined as follows:

> An archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:
>
> > (1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
> >
> > (2) Has a special and particular quality such as being the oldest of its type or the best available example of its type.
> >
> > (3) Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Resources that neither meet any of these criteria for listing on the NRHP or CRHR nor qualify as a “unique archaeological resource” under CEQA PRC Section 21083.2 are viewed as not significant. Under CEQA, “A nonunique archaeological resource need be given no further consideration, other than the simple recording of its existence by the lead agency if it so elects” (PRC Section 21083.2(h)).

Impacts to *significant* cultural resources (“historic properties” under NHPA and “historical resources” under CEQA) that affect the characteristics of any resource that qualify it for the NRHP or adversely alter the significance of a resource listed on or eligible for listing on the CRHR are considered a significant effect on the environment (CEQA guidelines 15065(a)(1)). Impacts to *significant* cultural resources from the proposed project are thus considered significant if the project physically destroys or damages all or part of a resource, changes the character of the use of the resource or physical feature within the setting of the resource which contribute to its significance or introduces visual, atmospheric, or audible elements that diminish the integrity of significant features of the resource.

IMPACTS AND ANALYSIS

IMPACT: IMPACT TO KNOWN CULTURAL OR HISTORIC RESOURCES ON THE VINEYARD I EXPANSION SITE

> *There are no significant cultural or historic resources on the 5.6 acre site. Mining of the additional 5.6 acre Vineyard I expansion area will not impact known cultural resources.*

The 5.6 acre Vineyard I expansion area was surveyed to determine if sensitive cultural are present on the project site and would be impacted by the proposed project. The

results of the survey indicated the only cultural materials located on the project site consist of the remains of a 1947 home and a modern, 1970s, trailer. PAR evaluated the cultural features and determined that they are not considered significant cultural resources and that no further cultural resources management is recommended for these features. They do not qualify as historical resources under CEQA Guidelines 15064.5 and impacts to these features would result in less than significant impact on the environment.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measures: None Required

IMPACT: IMPACT TO BURIED RESOURCES ON THE VINEYARD I EXPANSION SITE

Mining of the 5.6 acre expansion site could uncover subsurface archaeological materials.

Although no additional cultural resources management is recommended at this time for the Vineyard I expansion site, there is a possibility of uncovering subsurface archaeological materials during the implementation phases of the project. Buried resources may consist of historic remains such as structural features (foundations, cellars, etc.) or buried trash deposits containing glass, ceramics and metal, or the resources may be of prehistoric origin containing chipped stone, shell, bone and other remains. If such subsurface resources are encountered, work should halt in the vicinity of the discovery until its significance can be evaluated by a professional archaeologist. An impact to any subsurface resources is considered a potentially significant impact. Mitigation to reduce this impact is recommended below.

In unlikely circumstance that a human burial was encountered during implementation of the proposed project, this impact would be considered potentially significant. Section 5097.94 of the Public Resources Code and Section 7050 of the California Health and Safety Code protect Native American burials, skeletal remains and grave goods, regardless of age and provide method and means for the appropriate handling of such remains. If human remains are encountered, work should halt in that vicinity and the County coroner should be notified immediately. At the same time, an archaeologist should be contacted to evaluate the situation. If the human remains are of Native American origin, the coroner must notify the Native American Heritage Commission within 24 hours of such identification. Strict adherence to mitigation as outlined below would reduce this impact to a less than significant level.

Level of Significance Before Mitigation: Potentially Significant

Mitigation Measures:

CR-1 If subsurface deposits believed to be cultural or human in origin are discovered during construction, then all work must halt within a 200-foot radius of the

discovery. A qualified professional archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for prehistoric and historic archaeology, shall be retained at the Applicant's expense to evaluate the significance of the find. If it is determined due to the types of deposits discovered that a Native American monitor is required, the Guidelines for Monitors/Consultants of Native American Cultural, Religious, and Burial Sites as established by the Native American Heritage Commission shall be followed, and the monitor shall be retained at the Applicant's expense.

Work cannot continue within the 200-foot radius of the discovery site until the archaeologist conducts sufficient research and data collection to make a determination that the resource is either 1) not cultural in origin; or 2) not potentially eligible for listing on the National Register of Historic Places or California Register of Historical Resources.

If a potentially-eligible resource is encountered, then the archaeologist, DERA, and project proponent shall arrange for either 1) total avoidance of the resource, if possible; or 2) test excavations or total data recovery as mitigation. The determination shall be formally documented in writing and submitted to DERA as verification that the provisions of CEQA for managing unanticipated discoveries have been met.

CR-2 Pursuant to Section 5097.98 of the State Public Resources Code and Section 7050.5 of the State Health and Safety Code, in the event of the discovery of human remains, all work is to stop and the County Coroner shall be immediately notified. If the remains are determined to be Native American, guidelines of the Native American Heritage Commission shall be adhered to in the treatment and disposition of the remains.

Level of Significance After Mitigation: Less than Significant

CUMULATIVE IMPACTS

Significant impacts to cultural resources are considered cumulative impacts since each impact contributes to the overall loss of the cultural and historic setting. However, the proposed project does not result in an impact to known significant cultural resources; thus the proposed project does not contribute to the degradation of the overall cultural landscape. Therefore, the proposed project would not result in a cumulatively considerable incremental contribution to cultural resources.

8 AIR QUALITY

INTRODUCTION

This chapter will provide the current setting and evaluate the air quality impacts of the proposed project, specifically the request by Granite Construction for a use permit amendment to allow aggregate mining on an additional 5.6 acres, and to incorporate this new area into the previously approved Vineyard I mining plan (referred as Vineyard I mining expansion). Analysis of air quality impacts will include emissions associated with the operation of the mining equipment necessary to excavate the site and placement of mined material onto the existing conveyor (which will take the material to the existing plant and processing facility). In addition, air quality effects associated with soil disturbance from fugitive dust from trucks and equipment will be analyzed. What is not included in this analysis are the air quality impacts of the continued operation of the plant or processing facility since this was previously analyzed and the proposed project does not include an extension of the permitted timeline or increase in production. Furthermore, the analysis does not focus on air quality impacts of the aggregate haul trucks to and from the facility as those impacts were previously analyzed in the prior FEIR/EIS and the proposed project does not result in an increase in haul traffic (refer to the Traffic and Circulation chapter).

The proposed project includes revisions to the previously approved reclamation plan for Vineyard I, Aspen III South and Aspen IV South, consistent with permits received from the County, State and federal regulatory agencies. The previous reclamation plan consisted of a below grade, 600-foot wide riparian corridor/low-flow channel within the bottom of the mining pit in generally the same location as the existing creek and an at-grade trapezoidal bypass channel around the perimeter of the three mining sites. The proposed Project revises the previously approved reclamation plan by completely eliminating the at-grade trapezoidal bypass channel component and changing the below grade, 600-foot wide riparian corridor/low-flow channel to an at-grade mitigation corridor (Morrison Creek Realigned Channel) on the Vineyard I and Aspen III South mining properties. The Morrison Creek Realigned Channel has been designed to contain the 100-year flood flows. On the Aspen IV South property, the existing Morrison Creek channel will now be preserved and a raised bank flood control channel (Raised Bank Channel) is proposed to be constructed outside the effective FEMA floodway. The Morrison Creek Realigned Channel will connect with the preserved Morrison Creek channel on Aspen IV South.

ENVIRONMENTAL SETTING

The Vineyard I mining expansion site is located between the Vineyard I mining site and Aspen III South mining site. The site totals 5.6 acres and is surrounded by mining activities; the site is not currently being mined. The Morrison Creek Realigned Channel is located north of the existing Morrison Creek and is currently in the process of being constructed. The existing Morrison Creek channel has not been mined.

ATMOSPHERIC CONDITIONS

Air quality is a function of both the rate and location of pollutant emissions under the influence of meteorological conditions and topographic features that influence pollutant dispersal. Atmospheric conditions such as wind speed, wind direction, atmospheric stability, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants, and consequently affect air quality.

Sacramento County is located at the southern end of the Sacramento Valley, which is bounded by the Coast and Diablo Ranges on the west and the Sierra Nevada on the east. Sacramento County is 55 miles northeast of the Carquinez Strait, a sea-level gap between the Coast Range and the Diablo Range; the intervening terrain is flat. These mountain ranges channel winds through the Sacramento Valley but also inhibit dispersion of pollutant emissions.

The climate of the Sacramento Valley is Mediterranean in character, with mild, rainy winter weather from November through March, and warm to hot dry weather from April through October. The prevailing wind is from the south, primarily because of marine breezes through the Carquinez Strait, although during winter, the sea breezes diminish and winds from the north occur more frequently. There is no other source of significant marine air into the Sacramento Valley because the Carquinez Strait is the only break that exists in the Coastal Mountains. Occasionally a strong north or northeasterly pressure gradient develops, forcing air south and west from the plateau of the Great Basin, over the Sierra Nevada Range and into the Valley. This air is warmed by compression as it descends reaching the valley floor as a hot dry north wind. These winds are generally followed by afternoon cool southwest delta breezes.

The vertical and horizontal movement of air is an important atmospheric component involved in the dispersion and subsequent dilution of air pollutants. Without movement, air pollutants can collect and concentrate in a single area, increasing associated health hazards. For instance, in the winter months, Sacramento Valley typically experiences calm atmospheric conditions. These calm conditions result in stagnation of air and increased air pollution. Persistent inversions occur frequently in Sacramento Valley, especially during late fall and early spring and act to restrict vertical dispersion of pollutants released near ground level.

EXISTING AIR QUALITY

The amount of pollutants released and the atmosphere's ability to transport and dilute the pollutants affect a given pollutant's concentration in the atmosphere. Factors affecting transport and dilution include terrain, wind, atmospheric stability, and, for photochemical pollutants, sunlight. Sacramento's poor air quality can largely be attributed to emissions, geography, and meteorology.

In Sacramento, air pollutants of greatest concern are ozone precursors [reactive organic gases (ROG) and nitrogen oxides (NO_X)], carbon monoxide (CO), and particulate matter (PM_{10} and $PM_{2.5}$). The largest single source of air pollutants in the Sacramento area is automobile exhaust; ozone and carbon monoxide pollution are largely attributable to automobile use. Other sources, such as agriculture and construction/demolition activities (including mining), also contribute to high levels of suspended particulates.

Table AQ-1 identifies the attainment status for Sacramento County for various air pollutants. In the prior FEIR/EIS, Sacramento County was in nonattainment for ozone, PM10 and carbon monoxide. Sacramento County is currently in nonattainment for ozone, PM_{10} and $PM_{2.5}$. Sacramento County is now in attainment for the 1-hour and 8-hour standard for carbon monoxide.

The Sacramento Federal Nonattainment Area (SFNA) for ozone is comprised of five air districts in the southern portion of the Sacramento air basin. The SFNA air districts include all of Sacramento and Yolo Counties, and portions of El Dorado, Placer, Sutter and Solano Counties. With two exceptions, this area is in attainment for all State and national AAQS. However, the SFNA is designated a "serious" nonattainment area for federal eight hour AAQS for ozone, and is also a "serious" nonattainment area for the State one hour ozone standard. As a part of the SFNA, Sacramento County is out of compliance with the State and federal ozone standards.

OZONE

Ozone is not a directly emitted pollutant, but is formed by a chemical reaction between oxides of nitrogen (NO_X) and reactive organic gases (ROG) in the presence of heat and sunlight over time. Ozone is primarily a summer air pollution problem. The time required for ozone formation allows the reacting compounds to spread over a large area, producing a regional pollution concern. The principal sources of ozone precursors (ROG and NO_X) are the combustion of fuels and the evaporation of solvents, paints, and fuels.

Ozone is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections. Even at very low levels, ground-level ozone can trigger a variety of health problems including aggravated asthma, reduced lung capacity, and increased susceptibility to respiratory illnesses like pneumonia and bronchitis. Children and others who are physically active outdoors in the summertime are particularly susceptible to the effects of ozone.

Table AQ-1: Attainment Status for Sacramento County

Parameter	California Standard	Federal Standard
Ozone	Non-Attainment Classification = Serious (1 hour and 8 hour Standards)	Non-Attainment* Classification = Serious (8 hour Standard)
Particulate Matter 10 Micron (PM_{10})	Non-Attainment (24 hour Standard and Annual Mean)	Non-Attainment** Classification = Moderate (24 hour Standard)
Particulate Matter 2.5 Micron ($PM_{2.5}$)	Non-Attainment (Annual Standard)	Non-Attainment (24 hour Standard and Annual Mean)
Carbon Monoxide	Attainment (1 hour and 8 hour Standard)	Attainment (1 hour and 8 hour Standard)
Nitrogen Dioxide	Attainment (1 hour Standard)	Attainment (Annual Standard)
Sulfur Dioxide	Attainment (1 hour and 24 hour Standards)	Attainment (3 hour, 24 hour and Annual Standards)
Lead	Attainment (30 Day Standard)	Attainment (Calendar Quarter)
Visibility Reducing Particles	Unclassified (8 hour Standard)	No Federal Standard
Sulfates	Attainment (24 hour Standard)	No Federal Standard
Hydrogen Sulfide	Unclassified (1 hour Standard)	No Federal Standard

* A formal request for voluntary reclassification from “serious” to “severe” for the 8-hour ozone nonattainment area with an associated attainment deadline of June 15, 2019, was submitted from the Air Resources Board to EPA on February 14, 2008. EPA action to approve the reclassification request is pending.

** Air Quality meets Federal PM_{10} Standards. The AQMD must request redesignation to attainment and submit a maintenance plan to be formally designated to attainment.

California Area Designation based on AQ Data collected during 2001-2003

Source: SMAQMD website www.airquality.org: http://www.airquality.org/aqdata/attainmentstat.shtml

Carbon Monoxide

Carbon Monoxide (CO) is a public health concern because it combines readily with hemoglobin and thus reduces the amount of oxygen transported in the bloodstream. Individuals with cardiovascular limitations are sensitive to CO at low levels. At higher concentration levels anyone can experience visual problems, dizziness, and difficulty learning or performing complex tasks.

In the Sacramento area, high CO levels develop primarily during winter when winds are calm and a ground level temperature inversion is in place, resulting in reduced dispersion of vehicle emissions. Motor vehicles also exhibit increased CO emission rates at low air temperatures. CO is a directly emitted pollutant, with concentrations typically highest near major thoroughfares and heavily congested urban streets.

Particulate Matter

Health concerns associated with suspended particulate matter focus on particulate matter that is less than 10 microns in diameter (PM_{10}), since those particulates are small enough to reach the lungs when inhaled. Scientific studies have linked these particles with aggravated asthma, increases in respiratory symptoms like coughing and difficult or painful breathing, chronic bronchitis, decreased lung function, and premature death.

Particulate matter conditions in Sacramento County are a result of a mix of urban and rural sources, including vehicle exhaust emissions, dust suspended by vehicle traffic and construction activities, wood burning fireplaces, agricultural activities, industrial emissions, and secondary aerosols formed by reactions in the atmosphere.

Regulatory Context

Air quality in Sacramento County is regulated by several agencies, which include the U.S. Environmental Protection Agency (EPA), California Air Resources Board (ARB), and Sacramento Metropolitan Air Quality Management District (SMAQMD). Each of these agencies develops rules and/or regulations to attain the goals or directives imposed upon them through legislation. Although EPA regulations may not be superseded, both State and local regulations may be more stringent. In general, air quality is evaluated based upon standards developed by federal and State agencies. Mobile sources of air pollutants are largely controlled by federal and State agencies, while local air pollution control districts (APCD) or air quality management districts (AQMD) regulate stationary sources.

Ambient air quality standards (AAQS) define clean air. The federal and state AAQS establish the concentration above which a pollutant is known to cause adverse health effects to sensitive groups within the population, such as children and the elderly. Because AAQS have been established for specific pollutants using health-based

criteria, the pollutants for which standards have been set are known as “criteria” pollutants. For some of the criteria pollutants, the State standards are more stringent than the federal standards. The differences in the standards are due to variations in health studies and interpretations involved in the standard-setting process.

The EPA is responsible for establishing NAAQS, enforcing the federal Clean Air Act, and regulating aircraft, shipping, and certain locomotive emission sources.

The ARB is responsible for establishing CAAQS and implementing the California Clean Air Act, meeting state requirements of the federal Clean Air Act, and setting California vehicle emission standards.

Table AQ-2 summarizes the federal (NAAQS) and state (CAAQS) ambient air quality standards.

State standards for ozone have been set for a 1-hour averaging time and an 8-hour averaging time. The state 1-hour and 8-hour ozone standards are 0.09 parts per million (ppm) and 0.07 ppm, respectively, and are not to be exceeded. Federal standards have been set for the 8-hour averaging time and are 0.075 ppm. These standards are not to be met or exceeded more than three times during a 3-year period.

State and federal carbon monoxide (CO) standards have been set for both 1-hour and 8-hour averaging times. The state 1-hour standard is 20 ppm by volume, and the federal 1-hour standard is 35 ppm. Both State and federal standards are 9 ppm for the 8-hour averaging period.

There are both State and federal standards that apply to PM_{10} (particulate matter that is less than 10 microns in diameter) and $PM_{2.5}$ (particulate matter that is less than 2.5 microns in diameter. The state PM_{10} standards are 50 micrograms per cubic meter as a 24-hour average and 20 micrograms per cubic meter as an annual arithmetic mean. The federal PM_{10} standards are 150 micrograms per cubic meter as a 24-hour average. The federal $PM_{2.5}$ standards are 35 micrograms per cubic meter as a 24-hour average and 15 micrograms per cubic meter as an annual arithmetic mean. The state $PM_{2.5}$ standard is 12 micrograms per cubic meter as an annual arithmetic mean; there is no separate state 24-hour average standard.

The federal Clean Air Act requires states that exceed the NAAQS to prepare air quality plans (State Implementation Plans or SIPs) that show how the federal standards will be met. The California Clean Air Act generally requires regions that exceed the CAAQS to reduce harmful pollutants by five percent or more per year, or implement all feasible measures to meet the State air quality standards as expeditiously as possible. Regional air quality management districts are required to prepare air quality plans specifying how the federal and State AAQS will be met.

Table AQ-2: California and National Ambient Air Quality Standards

Pollutant	Averaging Time	CAAQS[a]	NAAQS[b]
Ozone (O_3)	1 hour	0.09 ppm[c]	NA
	8 hour	0.07 ppm	0.075 ppm
Carbon Monoxide (CO)	1 hour	20 ppm	35 ppm
	8 hour	9.0 ppm	9 ppm
Nitrogen Dioxide (NO_2)	1 hour	0.18 ppm	NA
	Annual	0.030 ppm	0.053 ppm
Sulfur Dioxide (SO_2)	1 hour	0.25 ppm	NA
	3 hour	NA	0.5 ppm
	24 hour	0.04 ppm	0.14 ppm
	Annual	NA	0.03 ppm
Inhalable Particulate Matter (PM10)	24 hour	50 µg/m^3[c]	150 µg/m^3
	Annual	20 µg/m^3	NA
Fine Particulate Matter (PM2.5)	24 hour	NA	35 µg/m^3
	Annual	12 µg/m^3	15 µg/m^3
Sulfates	24 hour	25 µg/m^3	NA
Lead (Pb)	30 day	1.5 µg/m^3	NA
	Calendar quarter	NA	1.5 µg/m^3
Hydrogen Sulfide	1 hour	0.03 ppm	NA
Vinyl Chloride	24 hour	0.010 ppm	NA

[a] The California ambient air quality standards (CAAQS) for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, PM10 and PM2.5 are values not to be exceeded. All other California standards shown are values not to be equaled or exceeded.

[b] The National Ambient Air Quality Standards (NAAQS), other than O_3 and those based on annual averages, are not to be exceeded more than once a year. The O_3 standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above the standard is equal to or less than one.

[c] ppm = parts per million by volume; µg/m^3 = micrograms per cubic meter.

NA = not applicable.

California ARB (http://www.arb.ca.gov/research/aaqs/aaqs2.pdf), 2010

The ARB requires local air quality management districts to develop their own strategies for achieving compliance with the State and federal air quality standards, but maintains regulatory authority over those strategies. The SMAQMD is responsible for administering federal and state air quality laws, regulations, and policies within Sacramento County. SMAQMD monitors regional air quality conditions; prepares regional air quality plans and programs for the attainment of federal and State ambient air quality standards; and adopts and enforces Rules and Regulations for the management of stationary and area source emissions. SMAQMD also sets thresholds to determine when a proposed project may have a significant adverse effect on air quality.

The federal Clean Air Act required states exceeding NAAQS to prepare air quality plans showing how the standards would be met by 1987. Sacramento is one of many urban areas that failed to attain the NAAQS by 1987 and, as a result, the EPA disapproved the Sacramento Air Quality Plan in 1988. The Clean Air Act was amended in 1990 to extend the deadline for compliance with the NAAQS, and to require states to prepare revised SIPs for attainment of standards.

The 1990 federal Clean Air Act amendments established new requirements for many areas, like Sacramento, that had not attained the NAAQS. Non-attainment area classifications were set according to the severity of an area's air pollution problem. The EPA classified the Sacramento metropolitan area, which includes all of Sacramento and Yolo Counties and parts of El Dorado, Placer, Solano and Sutter Counties, as a "severe" non-attainment area for ozone. All of Sacramento County was classified as a "moderate" non-attainment area for PM_{10}. The Sacramento urbanized area was classified as a "moderate" non-attainment area for carbon monoxide.

Prior to the 1990 amendments, non-attainment areas were only required to make "reasonable further progress" toward meeting the standards. The 1990 amendments were more stringent and defined each area's responsibilities in more detail. In the case of ozone, for example, non-attainment areas were to reduce volatile organic compound (VOC) emissions by 15 percent within six years. To ensure that an area would implement the necessary measures to achieve these emission reductions, the amendments established a number of specific requirements that were to be met over several years.

In response to the federal Clean Air Act Amendment requirements, the ARB submitted a State Implementation Plan (SIP) to the EPA in November 1994. The SIP strived for compliance with the federal ozone standard by 2005 through provisions that would (1) establish a buy-back program for older, polluting cars; (2) require minimum percentage requirements for low- and zero-emission vehicles in new car fleets; and (3) incorporate regional attainment plans from throughout the State into the SIP. In November 1994, the Sacramento Regional Ozone Attainment Plan (ROAP) was submitted to the ARB for inclusion in the State Implementation Plan. The ROAP was cooperatively prepared by five APCDs or AQMDs: the Sacramento Metropolitan AQMD, the Yolo-Solano APCD, the Feather River AQMD, the El Dorado County APCD, and the Placer County APCD. The ROAP focuses on reducing emissions of ozone precursors through stationary

source controls, motor vehicle emission controls, and transportation system improvement measures.

Sacramento County has been free of federal CO violations since 1993. The CARB found Sacramento to be in compliance with the state CO standards in November 1996 and forwarded a request to the EPA to be reclassified as an attainment area for federal standards. The EPA officially approved CO attainment status for the Sacramento region in March 1998.

Data from air monitoring stations in Sacramento County indicates that there have been no violations of the federal PM_{10} standards since 1995. Based on this, the SMAQMD has requested that the U.S. EPA amend the designation for PM_{10} to attainment. For the time being, however, Sacramento remains designated as a non-attainment area for the federal PM_{10} standards. In regards to $PM_{2.5}$, the U.S. EPA Administrator signed the final $PM_{2.5}$ nonattainment designation for Sacramento on October 8, 2009.

Sacramento Metropolitan Air Quality Rules and Regulations

As indicated previously, SMAQMD regulates air quality in Sacramento County through its permit authority over stationary sources of emissions, through its vehicle and fuels management program, and through planning and review activities.

All projects are subject to SMAQMD Rules and Regulations in effect at the time of construction. Several SMAQMD Rules pertinent to the project include:

Rule 201: General Permit Requirements

Any project that includes the use of equipment capable of releasing emissions to the atmosphere may require permit(s) from SMAQMD prior to equipment operation. The applicant, developer or operator of a project that includes an emergency generator, boiler, or heater should contact the District early to determine if a permit is required, and to begin the permit application process. Portable construction equipment (e.g. generator, compressors, pile drivers, lighting equipment, etc.) with an internal combustion engine over 50 horsepower are required to have a SMAQMD permit or a California Air Resources Board portable equipment registration.

Rule 402: Nuisances

A person shall not discharge from any source whatsoever such quantities of air contaminants or other materials which cause injury, detriment, nuisance or annoyance to any considerable number of person or the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause or have natural tendency to cause injury or damage to Business or property. (California Health & Safety Code, Section 41700)

RULE 403: FUGITIVE DUST

A person shall take every reasonable precaution not to cause or allow the emissions of fugitive dust from being airborne beyond the property line, from which the emission originates, from any construction, handling or storage activity, or any wrecking, excavation, grading, clearing of land or solid waste disposal operation. Reasonable precautions shall include, but are not limited to:

- Use, where possible, of water or chemicals for control of dust in the demolition of existing buildings or structures, construction operations, the construction of roadways or the clearing of land.
- Application of asphalt, oil, water, or suitable chemicals on dirt roads, materials stockpiles, and other surfaces which can give rise to airborne dusts;
- Other means approved by the Air Pollution Control Officer.

ZONING CODE POLICIES

The Sacramento County Zoning Code contains the following regulations relevant to the mining expansion:

> 235-48. Air Pollution Control Plan
>
> Applicant shall give proof of submission of an air pollution control plan to the Air Pollution Control District (APCD). The plan shall provide at least for dust control measure proposed for:
>
> (a) Moving aggregate from mine area(s) to processing plant(s) on the subject property.
>
> (b) Roads and other graded surfaces on the subject property.
>
> (c) Removal of aggregate from off-site public streets or roads used by trucks for a distance of 1500 feet along the public right-of-way from the point of ingress and egress to the subject property.
>
> The plan must be approved by the APCD before a work authorization is issued as provided in Section 235-75.

STANDARDS OF SIGNIFICANCE

Appendix G of the California Environmental Quality Act (CEQA) provides guidance for assessing the significance of potential environmental impacts. Relative to air quality, a project will normally have a significant effect on the environment if it will:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceeded quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations;
- Create objectionable odors affecting a substantial number of people

In addition, the SMAQMD has adopted significance thresholds for CEQA projects within the District. These thresholds are used to determine the significance of project-related air quality impacts. The thresholds are defined as follows:

- 85 pounds per day (lbs/day) of NOx for short-term construction emissions;
- 65 lbs/day of NOx and 65 lbs/day of ROG for long-term operational emissions;
- Emissions exceed a CAAQS or contribute substantially to an existing or projected violation of a CAAQS. An emission is considered to be a substantial contribution if it equals or exceeds 5% of the CAAQS. The CAAQS are shown in Table AQ-2 above.

ENVIRONMENTAL IMPACTS AND ANALYSIS

The reclamation plan amendment portion of the project consists of a revised Morrison Creek Realigned Channel on the Vineyard I and Aspen III South mining sites and a Raised Bank Channel on the Aspen IV South mining site. There are no new air quality impacts associated with this mitigation corridor, since it is being constructed in phases and is occurring at the same time as the previously approved mining and reclamation activities and is consistent with the mass grading expected with the previously approved project.

The Vineyard I mining expansion would have air quality impacts associated with the use of heavy equipment on the new 5.6-acre site associated with overburden removal and gravel extraction.

INCREASE OF EXHAUST EMISSIONS

The prior FEIR/EIS determined that the initial removal of overburden would affect emissions of pollutants along roadways because the haul trucks would access

the roadway network to remove the overburden. The overburden from the Vineyard I mining expansion site would remain in the mining area and would not be distributed via the roadway network. The addition of 5.6 acres to the mining site would increase NO_x emissions in association with the use of heavy equipment.

In the prior FEIR/EIS it was determined that the mining projects would not generate additional auto or truck trips during operations, but would generate new truck trips during initial removal of 430,000 cubic yards of overburden. This was found to be a significant impact that would be reduced to less than significant with mitigation.

Information from Granite Construction indicates that mining of the Vineyard I expansion site would require three workers, each with a pickup truck, for up to six months time. Granite Construction estimates removal of approximately 120,833 cubic yards of overburden for the Vineyard I mining expansion site. The overburden and mined material of the Vineyard I mining expansion site will be hauled around onsite and then sent to processing facilities via the existing conveyor system. Overburden removal on the Vineyard I mining expansion site will not cause an increase in truck traffic; therefore, there would not be an increase in exhaust emissions associated with overburden removal within the air basin. This impact is now considered less than significant.

Operational Emissions Impact (ROG and NO_x emissions)

The SMAQMD thresholds identify short-term construction and long-term operational air quality emissions standards of significance for ROG and NOx. In the prior EIR/EIS the construction thresholds were used; however, in the 10+ years since the release of the prior FEIR/EIS, the methodologies for assessing emissions associated with mining activities have changed. In consultation with SMAQMD staff, it has been determined more appropriate to apply the long-term operational emission thresholds to ongoing mining operations due to the long term nature of mining. This means that instead of an 85 lbs/day threshold for NOx and no threshold for ROG, the project will be analyzed based on the operational thresholds of 65 lbs/day of ROG and 65 lbs/day of NOx.

Granite Construction has provided an equipment list for the Vineyard I mining expansion site. The equipment is grouped into phases of mining (clearing/grubbing activities; overburden stripping activities; gravel extraction activities; and move feeder/conveyor), with number of days corresponding to each phase. Based on this information, it has been estimated by Granite Construction that mining the 5.6 acres would take approximately 62 working days. However, Granite has verbally indicated that mining could take up to 6 months time. The equipment list provides the total number of hours equipment would run for each day, under each phase. In order to determine the operational emissions, URBEMIS version 9.2.4 was used. URBEMIS is an emissions model that calculates construction, area source and operational (vehicle) emissions.

Since mining is not a land use option in URBEMIS, mining was added to the blank land use category, and 5.6 acres was entered as the total area in acres. The construction tab allows the user to define phases, input date ranges and number/ type of heavy

equipment used during each phase. Based on the equipment list provided by Granite Construction, the clearing/grubbing phase would take two days, the overburden stripping phase would take 13 days, gravel extraction phase 45 days and use of the move feeder and conveyor would be a total of 2 days, for a total of 62 working days. The estimated project emissions are summarized in Table AQ-3 below.

Table AQ-3: URBEMIS Results – Estimated Emissions for Vineyard I Mining

Pollutant	Emission	Significance Threshold – Operational Emissions
ROG	12.18 lbs/day	65 lbs/day
NO_x	110.05 lbs/day	65 lbs/day

The standard of significance for operational emissions is 65 lbs/day of both NO_x and ROG emissions. Based on the emissions estimate from URBEMIS, mining activities associated with the Vineyard I mining expansion site would result in 110 lbs/day of NO_x emissions and 12 lbs/day of ROG emissions. Since ROG emissions are within the significance threshold, the project would not have a significant contribution of ROG emissions to the air basin. However, the project would exceed the threshold for NO_x emissions.

The prior FEIR/EIS reported that the NO_x emissions for the Vineyard I, Aspen III South, Aspen IV South and Aspen V South sites would result in 404 lbs/day of NO_x exhaust emissions. ROG daily exhaust emissions were estimated at 32 lbs/day. The prior FEIR/EIS concluded:

> …equipment used on the mining sites would be transferred from active mining areas when these areas are depleted. Therefore, the emissions from activities within the project site, though substantial, would be replacing emissions currently occurring in other mining areas. No net change in regional emissions would occur, so project impacts on regional air quality would be less than significant.

Although mining the Vineyard I mining expansion site would utilize the same heavy off-road equipment that is currently in use at the Vineyard I mining site and would be a continuation of mining activities for up to an additional six months time, as previously stated, since the release of the prior FEIR/EIS, the methodologies for assessing air quality impacts have changed; no longer are emission impacts considered to have a no net change if the emissions are a result of the continuation of an existing activity on a new site not previously included in the prior assessment. Therefore, as the Vineyard I mining expansion site is a new site not previously analyzed, air quality impacts will be assessed based on current methodologies.

Mining on the Vineyard I mining expansion site would result in 110 lbs/day of NOx emissions. Although mining of the site is subject to operational thresholds, the

SMAQMD has developed standard on-site construction mitigation that would be appropriate to apply to the proposed project. The standard on-site construction mitigation results in a project wide fleet average of 20 percent NO_x reduction and 45 percent particulate reduction compared to the most recent ARB (California Air Resources Board) fleet average at time of construction (or in this specific case, mining). Compliance with this standard mitigation for construction emissions would help reduce project NOx emissions by 20 percent. A 20 percent reduction in NO_x would result in NO_x emissions of 88 lbs/day. This is still above the threshold of 65 lbs/day. The project would be in excess of the standard by 23 lbs/day. The project will have a significant and unavoidable impact to air quality.

Level of Significance Before Mitigation: Significant

Mitigation Measures:

AQ-1 *Category 1*: Reducing NO_x emissions from off-road diesel powered equipment.

The proponent shall provide a plan, for approval of the lead agency and the Sacramento Metropolitan Air Quality Management District (SMAQMD), demonstrating that the heavy-duty (50 horsepower or more) off-road vehicles to be used in the project, including owned or leased and subcontracted vehicles, will achieve a project wide fleet-average 20 percent NO_x reduction and 45 percent particulate reduction[1] compared to the most recent California Air Resource Board (ARB) fleet average at time of each annual report; and

The proponent shall submit to the lead agency and SMAQMD a comprehensive inventory of all off-road equipment, equal to or greater than 50 horsepower, that will be used an aggregate of 40 or more hours per year during any portion of the project. The inventory shall include the horsepower rating, engine production year, and project hours of use or fuel throughput for each piece of equipment. The inventory shall be updated and submitted annually throughout the duration of the project. The proponent shall provide SMAQMD with the name and phone number of the project manager and/or on-site foreman.

Due to the long term nature of this project, the requirement for the emission reduction plan referenced herein will sunset on Month/date/year[2] due to existing SMAQMD and ARB rules that will affect ARB fleet averages at that time.

And:

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[1] Acceptable options for reducing emissions may include use of late model engines, low-emissions diesel products, alternative fuels, engine retrofit technology, after-treatment products and/or other options as they become available.

[2] Project proponent should contact SMAQMD staff to determine appropriate sunset period.

Category 2: Controlling visible diesel emissions from off-road diesel powered equipment.

Emissions from all off-road diesel powered equipment used on the project site shall not exceed 40 percent opacity for more than three minutes in any one-hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be repaired immediately, and the lead agency and the lead agency and SMAQMD shall be notified within 48 hours of identification of non-compliant equipment. The SMAQMD and/or other officials may conduct periodic site inspections to determine compliance. Nothing in this mitigation measure shall supersede other SMAQMD or State rules or regulations.

AQ-2 All vehicles shall be maintained in accordance with the manufacturers' recommendations, and all stationary equipment maintained in compliance with emissions limitations established by a permit issued by the SMAQMD. Granite Construction shall maintain records of equipment maintenance activities and records shall be provided to the County upon request.

AQ-3 Particulate filters and catalysts should be used where technically feasible to reduce NOx emissions from off-road heavy duty equipment. Granite Construction should contact SMAQMD and/or ARB for assistance in determining appropriate emission reducing technologies.

Level of Significance After Mitigation: Significant and Unavoidable

PARTICULATE MATTER (PM_{10}) DUST EMISSIONS

Mining of the Vineyard I mining expansion site would not change the prior conclusion that trucks could track dirt or mud onto surface streets, thus increasing dust emissions in the area. This was found to be a significant impact, but with mitigation it was found to be less than significant. In addition, the use of heavy equipment has the potential to increase dust generation onsite.

The prior FEIR/EIS determined that mining operations would create new sources of air pollutants. Specific to fugitive particulate emissions were activities associated with material loading and unloading; scraper travel over unpaved roads; and conveying of raw materials to the processing plant.

The proposed project would mine an additional 5.6 acres on the Vineyard I mining site. The use of heavy equipment for the above mentioned activities would result in dust generation on the project site, which would increase particulate emissions.

The SMAQMD "Guide to Air Quality Assessment in Sacramento County" (December 2009, revised May 2011, and referred hereinafter as the SMAQMD Guide) contains thresholds for air pollutants and particulate matter emissions (PM_{10} and $PM_{2.5}$) in a volume concentration (microgram per cubic meter), which

the available URBEMIS model does not provide (URBEMIS provides particulate matter emissions as pounds per day). However, the SMAQMD Guide does provide information for lead agencies analyzing PM_{10} emission from construction activities. On page 3-12 of the SMAQMD Guide, it states that the Air District recommends lead agencies do a PM_{10} model to determine the emission concentrations; however, projects can be screened out of performing a PM_{10} model if the following conditions are met:

- The project would implement all Basic Construction Emission Control Practices, and
- The maximum daily disturbed area would not exceed 15 acres

Projects that meet the above two conditions are considered by the District to not have the potential to exceed the District's concentration-based threshold of significance for PM_{10} (and therefore $PM_{2.5}$) at an off-site location.

Dust abatement practices are required pursuant to SMAQMD Rule 403 and California Code of Regulations, Title 13, sections 2449(d)(3) and 2485; the SMAQMD Guide simply lays out the basic practices needed to comply. Since these are already required by existing rules and regulations, it is not necessary to include them as mitigation. The Basic Construction Emission Control Practices are consistent with the District Rule 403 and California regulations limit idling from both on-road and off-road diesel powered equipment. Therefore, those conditions of approval and mitigation measures from the prior FEIR/EIS that are consistent with SMAQMD Rule 403 (fugitive dust) and Rule 402 are not repeated as mitigation, but remain applicable to the proposed project. Mitigation Measure AQ-2 above is one of the listed Basic Construction Emission Control Practices.

In addition, Granite Construction submitted an Air Pollution Control Plan to the SMAQMD in February 2001 for the Vineyard I mining site. The SMAQMD reviewed the Air Pollution Control Plan and found that the plan fulfilled the requirements of SMAQMD's Rule 403. Granite will have to submit a revised Air Pollution Control Plan to SMAQMD for review for the Vineyard I mining expansion site. Compliance with existing rules and regulations and Mitigation Measure AQ-2 above would ensure that mining of the Vineyard I mining expansion site would not result in significant increases in particulate matter dust emissions. Impacts associated with particulate matter dust emissions are considered less than significant.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measures: None Required

CUMULATIVE IMPACTS

In the Cumulative No Project condition, mining of the three approved mining sites would be completed and the mining properties would be in the Post-Reclamation phase; the site would be returned to agricultural uses. The Reclamation Plan amendment portion of the proposed project (Morrison Creek Realigned Channel and Raised Bank Channel) would not contribute to any cumulative air quality impacts. There is no long term air quality impact associated with this portion of the proposed project.

Currently, mining activities on the Vineyard I mining site are coming to an end. The Vineyard I mining expansion site would result in the continuation of mining activities for three months up to six months time after completion of the approved portion of Vineyard I property. The continuation of mining for the additional three to six months was found to have a significant exhaust emission impact. However, there is not a long term operational impact of mining the Vineyard I mining expansion site since in the cumulative condition (e.g., 2020), mining activities on the Vineyard I mining expansion site would be complete and the project site would return to agricultural activities. The approval of the use permit for the Vineyard I mining expansion would not result in a cumulatively incremental increase in emissions to the Sacramento Valley air basin; therefore, the cumulative air quality impacts are considered **less than significant**.

9 GEOLOGY AND SLOPE STABILITY

INTRODUCTION

This chapter describes the existing soils and geology of the project site. It provides an analysis of slope stability, landform alteration and erosion impacts. Where appropriate, mitigation is included to reduce or eliminate impacts.

The proposed project includes revisions to the previously approved reclamation plan, consistent with permits received from the County, State and federal regulatory agencies. The previously approved reclamation plan consisted of a below grade, 600-foot wide riparian corridor/low-flow channel within the bottom of the mining pit in generally the same location as the existing creek and an at-grade trapezoidal bypass channel around the perimeter of the three mining sites. The proposed project revises the previously approved reclamation plan by eliminating the at-grade trapezoidal bypass channel component and changing the below grade, 600-foot wide riparian corridor/low-flow channel to an at-grade mitigation corridor (Morrison Creek Realigned Channel) on the Vineyard I and Aspen III South mining properties. The Morrison Creek Realigned Channel has been designed to contain the 100-year flood flows. On the Aspen IV South property, the existing Morrison Creek channel will be preserved and a raised bank flood control channel (Raised Bank Channel) is proposed to be constructed outside of the effective FEMA floodway. The Morrison Creek Realigned Channel will connect with the existing Morrison Creek channel on Aspen IV South. Impacts associated with channel failure and flooding potential are addressed in the Surface Water Hydrology and Quality Chapter (Chapter 5 of this SEIR). The project also consists of a request for a rezone and a use permit amendment to allow aggregate mining on an additional 5.61 acres and to incorporate this new area into the previously approved Vineyard I mining plan (referred as Vineyard I mining expansion). The impacts to slope stability, erosion and landform alteration on the Vineyard I mining expansion site is analyzed in this chapter.

GEOCON Consultants, Inc performed a Slope Stability Evaluation (September, 2011) for the Raised Bank Channel and their report is included as Appendix C.

PHYSICAL CONDITIONS

The Vineyard I mining expansion site totals approximately 5.6 acres and is surrounded by active mining operations. This area is similar in character to the area approved to be mined in the 1999 use permit. As stated in the prior FEIR/EIS the project site is located within two sections of the Victor Plain: the Riverbank Formation (lower member) and the

Laguna Formation. The project site is not indicated to be located across a mapped trace of any earthquake fault (FEIR/EIS, page 5-27).

The current project proposes amendments to the previously approved reclamation plan, including fill (overburden) to be added to portions of the pit floor to bring those areas to within 5 feet of original grade (for the Vineyard I properties) and raising selected pit floor elevations to within 2 feet of the original grade over the term of the use permit (i.e. 22 years) using the "drying bed" method (e.g., the accumulation, drying and compacting of silt-like material obtained from aggregate washings or direct import) for the Aspen III South and Aspen IV South properties. The Vineyard I mining expansion site is included within the proposed reclamation plan amendment.

The proposed Morrison Creek Realigned Channel is located on the Vineyard I and Aspen III South mining sites, north of the existing Morrison Creek, in an area where mining activity has been completed. This area has already been back filled and brought up to within 5 feet of original grade. Ultimately, the Morrison Creek Realigned Channel will be constructed at grade and contain a meandering stream channel with native trees and grasses. The Raised Bank Channel consists of modifying the natural floodplain of Morrison Creek by constructing earthen embankments (i.e., levees) on either side of Morrison Creek to contain the 100-year floodplain and the height of the levee embankments will generally vary from approximately 4 to 6 feet (with some isolated areas approaching 8 feet) in order to provide a minimum free board of 3 feet above adjacent floodplain elevation.

STANDARDS OF SIGNIFICANCE

Appendix G of the California Environmental Quality Act (CEQA) provides guidance for assessing the significance of potential environmental impacts. Relative to geology and soils and mineral resources, a project will normally have a significant effect on the environment if it will:

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
    - Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault
    - Strong seismic ground shaking
    - Seismic-related ground failure, including liquefaction
    - landslides;
- Result in substantial soil erosion or the loss of topsoil;

- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse;
- Be located on an expansive soil, as defined in Table 18-1B of the Uniform Building Code (1994), creating substantial risks to life or property;
- Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water;
- Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state;
- Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.

ENVIRONMENTAL IMPACTS AND ANALYSIS

PERMANENTLY ALTER THE LANDFORM

The prior FEIR/EIS concluded that the project would result in the permanent alteration of the project site's landform and identified this as a significant and unavoidable impact. The additional 5.6 acres of mining does not substantially change this impact. The recreated at-grade Morrison Creek Realigned Channel will better mirror a natural meandering creek, as opposed to the previously approved pit bottom riparian corridor and at-grade trapezoidal bypass channel.

The Vineyard I mining expansion site will increase the amount of land permanently altered by mining. The prior FEIR/EIS concluded that the permanent alteration to the land as a result of mining is a significant and unavoidable impact. This conclusion remains applicable to this project as there are no mitigation measures available to reduce impacts to less than significant.

Level of Significance Before Mitigation: Significant

Mitigation Measures: None Available

Level of Significance After Mitigation: Significant and Unavoidable

SLOPE STABILITY

The prior FEIR/EIS concluded that the project's reclaimed slopes (ranging from 1.5:1 to 2:1) would potentially be subject to slope instability, including potential

instability induced by earthquakes and/or ground shaking. This was considered a significant impact that could be reduced to less than significant with mitigation.

The prior FEIR/EIS stated that the mining operations would utilize an unlined trapezoidal bypass channel at the existing (unmined), elevation around the mined pits. The bypass channel was to be constructed on top of a 35- to 40-foot high engineered fill embankment using the overburden materials. The slopes of the proposed embankments were indicated as 2:1.

The prior FEIR/EIS also stated that the foundation soils would experience a net unloading after construction of the embankments; therefore, settlement would be minimal from the standpoint of consolidation or compression of the foundation soils. It was noted that even a properly constructed embankment would experience some settlement of the engineered fill. Uniform and adequate compaction of the embankment soils would mitigate, but not eliminate, future differential settlement. These settlements are generally minor, and are not expected to affect the overall stability of the embankment. It was concluded that periodic inspection and maintenance of the channel, including repair of any minor cracks resulting from shifting of the embankment would be sufficient to allow the continued performance of the embankment.

On the Vineyard I mining site, the areas immediately to the east, west and south of the Vineyard I mining expansion site have not been mined to date. The additional 5.6 acres would be mined after completion of mining the surrounding Vineyard I mining areas; mitigation regarding slope stability from the prior FEIR/EIS remains applicable to the Vineyard I mining expansion site.

The Morrison Creek Realigned Channel would be constructed on an engineered fill embankment. The *Wetland, Oak Woodland, and Riparian Mitigation Monitoring Plan* prepared for the Granite Vineyard I site by ECORP (revised July 20, 2007) (provided as Appendix C) provides contingency measures that state that the Morrison Creek Realigned Channel would be engineered to a minimum of 90% compaction and would be constructed to federal and local standards. Compaction testing will be performed throughout the course of construction to ensure adequate compaction is obtained (Section 8.2.2). This design and construction ensures that failure associated with the Morrison Creek Realigned Channel would not be likely. Phased construction of the Morrison Creek Realigned Channel on Vineyard I and Aspen III South has occurred and is nearing completion. The Morrison Creek Realigned Channel will contain a low flow channel that mirrors a meandering stream, which will be vegetated throughout. The slopes of the Morrison Creek Realigned Channel are proposed to be 2:1. Mitigation has been included that requires Granite Construction to submit a soils and engineering report identifying and certifying the compaction rates of the engineered fill embankment and ensuring stability prior to redirecting the flows of the existing Morrison Creek to the recreated Morrison Creek Preserve Corridor.

The Raised Bank Channel on Aspen IV South will be an earthen levee. GEOCON Consulting has performed an analysis of the stability of the slopes using seepage conditions that were modeled based on conservative low-flow and high-flow conditions

within the creek and constrained floodplain, respectively. The result of this analysis is that potential seepage conditions would not adversely impact slope stability. Furthermore, the proposed Raised Bank Channel and reclamation slopes for the proposed project, from a static and seismic viewpoint, would have a less than significant impact when the recommendations contained in the report are incorporated into the design and construction of the Raised Bank Channel and mining slopes. Therefore, mitigation is recommended that Teichert Aggregates implements the recommendations made by GEOCON.

In addition, Teichert is requesting to mine closer than the recommended 25 feet from the Mayhew Road right-of-way on the Aspen IV South site. GEOCON conducted a geotechnical investigation to evaluate the long-term seepage and slope stability conditions during mining of the site. Based on the results of their study, the proposed reclamation slopes of the subsurface materials on the Aspen IV South site are anticipated to be stable under long-term static and seismic conditions. GEOCON concluded that based on their investigation, slope stability is expected to be adequate to allow mining up to 12 feet of the right-of-way assuming the soils encountered are consistent with conditions encountered in the investigation. GEOCON recommends that soil testing be conducted when mining approaches the 25-foot setback from the right-of-way to verify that conditions are consistent with what was anticipated from the investigation. GEOCON indicated that if the soils differ significantly from what was observed and/or anticipated, the mining setback will need to be modified accordingly. Mitigation requiring the preparation and submittal of a soil report and slope stability analysis within the 25-foot setback has been recommended to ensure impacts associated with slope stability within the Sacramento County right-of-way are less than significant.

Level of Significance Before Mitigation: Significant

Mitigation Measure:

The following mitigation is from the prior FEIR/EIS and remains applicable to the Vineyard I mining expansion site of proposed project. With mitigation, this impact will be considered less than significant.

GS-1 For the Vineyard I mining expansion site, the proponent shall limit finished side slopes to 1.5:1 (horizontal:vertical) to ensure stability for existing soil conditions. Soils shall be placed and compacted to 90 percent of the maximum dry density, at or near optimum moisture conditions, in all finished slopes. Since local stability of the slope is critically dependent upon proper compaction of the overburden soils, a qualified soils engineer shall be regularly present throughout grading operations to determine compliance with job specifications.

GS-2 Prior to allowing re-directed stream flows to the Morrison Creek Realigned Channel, Granite Construction shall submit a report prepared by a California registered professional engineer certifying the channel and embankment engineering and foundation soils of the Morrison Creek Realigned Channel. The

engineer's report shall address slope stability, soil compaction rates, foundation soils, potential failure mechanisms and contingences for repairing failures. The report shall be submitted to the Community Planning and Development Department and the Division of Environmental Review and Assessment (DERA) for approval. No flows shall be directed to the new channel until approval is granted by both entities.

GS-3 For the embankments of the Raised Bank Channel and the mining slopes on the Aspen IV South mining site, Teichert Aggregates shall follow the recommendations contained in the GEOCON Consulting, Inc report (September, 2011). At the completion of the construction of the Raised Bank Channel, a report, signed by a California registered professional engineer, shall be submitted to DERA indicating completion of the recommendations from the GEOCON report. During mining, a report, prepared and signed by a California registered professional engineer, shall be submitted indicating completion of the recommendations regarding the mining pit slopes.

GS-4 Prior to mining within 25 feet of the Mayhew Road right-of-way, Teichert Aggregates shall submit a report, prepared by a geotechnical engineer or engineering geologist, on the soils observed at 25 feet from the right-of-way and whether or not the soils observed are consistent with those anticipated. If the soils observed differ significantly from what was anticipated, the engineer shall increase the proposed 12-foot setback accordingly. This report shall be submitted to DERA and the Community Planning and Development Department for review and approval prior to commencement of mining within 25 feet of the Mayhew Road right-of-way.

Level of Significance After Mitigation: Less Than Significant

EROSION IMPACTS

The prior FEIR/EIS concluded that the project's reclaimed slopes would be subject to erosion if not adequately constructed and vegetated. It was determined that this was a significant impact that could be reduced to less than significant with mitigation. The proposed project will result in similar reclaimed slopes.

The slopes of the mining pit and recreated channel would be subject to erosion and slope instability if not properly vegetated and maintained.

South of the Morrison Creek Realigned Channel there is an open pit, with 2:1 slopes down to the pit floor. At completion of reclamation, a drainage channel with mitigation plantings will be located at the pit floor. Portions of this pit have been vegetated. Mitigation from the prior FEIR/EIS remains applicable to the Vineyard I mining expansion site and has been included to ensure that once the remaining area is mined, the slopes of the pit walls will be vegetated to reduce erosion impacts.

The proposed Morrison Creek Realigned Channel is located at grade and is a 300-foot wide stream corridor, with varied slopes no steeper than 3:1 and as gentle as 7:1. The 300-foot corridor contains the meandering low flow channel (recreated creek) and raised benches of varying heights and widths. Information from G.C. Wallace (consultant for Granite Construction) states that some movement of this low flow channel is expected and has been included within the design. G.C. Wallace has indicated that a ten-year monitoring plan has been established. This ten-year monitoring plan outlines actions that are to be implemented if significant erosion were to occur during the monitoring period at a specific meander in the flow channel. Measures include strengthening of the channel, re-grading the channel, widening the channel to reduce scour velocities, or any other revision as approved by County staff to mitigate erosion. G.C. Wallace concluded that at the end of the monitoring period, the vegetation should be well established and thus minimize the chance for further meandering to occur. Mitigation requiring submittal and implementation of the ten-year monitoring plan has been included. With mitigation, impacts are considered less than significant.

Level of Significance Before Mitigation: Significant

Mitigation Measure:

GS-5 The proponents shall ensure that the side slopes of the pit are vegetated following final slope placement to prevent excessive erosion and enhance slope stability. The side slopes shall be revegetated with an erosion control mix as specified in an Erosion Control Plan. The Erosion Control Plan shall be prepared by the applicant and submitted to the County prior to issuance of the work authorization permit. The species chosen for the erosion control mix shall be comprised of native stock and shall not contain any species considered to be invasive or noxious weeds. The Erosion Control Plan shall include performance standards that can be used to determine the success of erosion control measures and the revegetation effort, and shall discuss monitoring requirements. The plan shall include remedial measures to be implemented if revegetation is not successful.

GS-6 The applicant shall submit to the Division of Environmental Review and Assessment (DERA), a ten-year monitoring plan that outlines monitoring requirements and identifies mitigating steps for any significant erosion that may occur at a specific location in the flow channel. If significant erosion is identified during monitoring, the applicant shall contact DERA and submit proof of corrective actions. Appropriate mitigation includes, but is not limited to; strengthening of the channel, re-grading the channel, widening the channel to reduce scour velocities, or any other revision as approved by County staff to mitigate significant erosion.

Level of Significance After Mitigation: Less Than Significant

LOSS OF AVAILABILITY OF MINERAL RESOURCES

Loss of mineral resource availability is not an impact of the project.

The proposed project is a post-mining reclamation plan amendment and request to expand the Vineyard I mining site to include an additional 5.6 acres. The project provides for the continued extraction of mineral resources.

Level of Significance Before Mitigation: Less Than Significant

Mitigation Measures: None Required

CUMULATIVE IMPACTS

At the completion of mining, the three mining sites will be in reclamation. In the Post-Reclamation condition, the Morrison Creek Realigned Channel and Raised Bank Channel would be completed and functioning. The project also proposes the use of the drying bed method for reclamation for the Aspen III South and Aspen IV South properties. The drying bed method has been approved by the County via a use permit associated with County Control Number 04-UPB-0230, which involves the accumulation of silt-like material obtained from washing aggregate and subsequent placement of this material on mined out areas to facilitate reclamation. Depending on the amount of silt-like material available, the pits could be raised to within 2 feet of the original adjacent grade. If there is enough silt-like material to bring elevations to within 2 feet of original adjacent grade, there would not be any long-term cumulative impact as it relates to slope stability. If the elevations of the pits are not raised to near existing grade, then the mitigations that have been recommended regarding slope stability would ensure no adverse long-term impact. In addition, the pits would not be accessible by the public; therefore, in the unlikely event that the slopes do fail, there would not be a safety hazard to people.

The mitigation measures recommended in this chapter will ensure that slope stability and erosion impacts remain less than significant. The project would not have a cumulative impact as it relates to soil stability or erosion.

10 BIOLOGICAL RESOURCES

INTRODUCTION

This chapter describes the biological resources that occur in the project area and analyzes the impact of the proposed project on biological resources and recommends mitigation measures to reduce or eliminate significant impacts.

The proposed project includes revisions to the previously approved reclamation plan, consistent with permits received from the County, State and federal regulatory agencies. The mining sites in this project include Vineyard I, Aspen III South and Aspen IV South. The previous reclamation plan consisted of a below grade, 600-foot wide riparian corridor/low-flow channel within the bottom of the mining pit in generally the same location as the existing creek and an at-grade trapezoidal bypass channel around the perimeter of the three mining sites. The proposed project revises the previously approved reclamation plan by completely eliminating the at-grade trapezoidal bypass channel component and changing the below grade, 600-foot wide riparian corridor/low-flow channel to an at-grade mitigation corridor (Morrison Creek Realigned Channel) on the Vineyard I and Aspen III South mining properties. The Morrison Creek Realigned Channel has been designed to contain the 100-year flood flows. On the Aspen IV South property, the existing Morrison Creek channel will now be preserved and a raised bank flood control channel (Raised Bank Channel) is proposed to be constructed outside the effective FEMA floodway. The Morrison Creek Realigned Channel will connect with the preserved Morrison Creek channel on Aspen IV South. The connection of the Morrison Creek Realigned Channel to the Raised Bank Channel will require grading within the Mayhew Road right-of-way to contour the levees of the creek in order to maintain the flood protection banks across Mayhew Road.

The proposed project also consists of a request for a rezone and a use permit amendment to allow aggregate mining on an additional 5.61 acres (two parcels) and to incorporate this new area into the previously approved Vineyard I mining plan (referred as Vineyard I mining expansion). In addition, the Vineyard I mining expansion will be incorporated into the previously approved reclamation plan, including revisions consistent with the requested reclamation amendments described above. The location of a retention basin on the Vineyard I mining site has been determined for the proposed project, as well an option for a retention basin on the Aspen IV South mining site.

ENVIRONMENTAL SETTING

The project site consists of an active mining site. Morrison Creek traverses the mining properties (located on Vineyard I and Aspen IV South sites; Aspen III South does not

contain any portion of the existing Morrison Creek). The creek has not been mined. The applicants have begun construction of the proposed Morrison Creek Realigned Channel, which spans across Vineyard I and Aspen III South, and is located generally north of the existing Morrison Creek. The Morrison Creek Realigned Channel will align and connect with the existing Morrison Creek located on Aspen IV South site, as Morrison Creek will now remain undisturbed when mining commences on Aspen IV South. The Morrison Creek Realigned Channel varies between 200 and 500 feet wide and contains a meandering stream channel, surrounded by native trees and grasses. There is a large open pit south of the corridor on the Vineyard I mining site which will contain an ephemeral drainage and will be vegetated with trees. This same pit will function as a stormwater retention basin. The trees planted within the Morrison Creek Realigned Channel, and within the bottom of the pit along the ephemeral drainage will be mitigation tree plantings for impacts of the prior project. The trees planted within the Raised Bank Channel on Aspen IV South will be mitigation tree plantings for impacts of the prior project as well as impacts of the current proposed project.

The proposed project also consists of a 5.6 acre expansion to the Vineyard I mining site. The Vineyard I mining expansion site consists of two parcels, which have not been mined and are surrounded by active mining.

Granite obtained Foothill Associates to prepare a tree inventory of the Vineyard I mining expansion site (May 2006). The report identified two native trees on this site. Foothill Associates identified a valley oak (*Quercus lobata*) tree (tree #224) and a Northern California black walnut (*Juglans hindsii*) tree (tree #225). The other trees on the site are limited to red gum eucalyptus with valley oak and walnut saplings. Other vegetation on the site is comprised of annual grasses, Himalayan blackberry, giant reed and coyote brush.

The Vineyard I mining expansion site does not contain any vernal pools. A portion of Morrison Creek is located within the expansion site and although the expansion site was not included within the use permit for mining activities for Granite's Vineyard I, the two properties were included when determining impacts to biological resources associated with the prior project.

In addition, the applicants have applied for, and have been issued, a Section 404 permit from the U.S. Army Corps of Engineers. The proposed Morrison Creek Realigned Channel is consistent with the issued Section 404 permit.

BACKGROUND

The project approved in 1999 consisted of 966.3 acres of undeveloped or sparsely developed land within the urban policy area of unincorporated Sacramento County. The prior FEIR/EIS identified the following habitat types within the 966.3 acre area:

- Riparian forest/riparian scrub
- Valley oak woodland

- Ruderal habitat
- Pasture
- Cultivated areas
- Disked areas
- Developed areas
- Wetlands
    - Drainages and streams
    - Seasonal wetlands
    - Irrigated seasonal wetlands
    - Vernal Pools

The prior FEIR/EIS identified various wildlife species that utilize the project site. The following excerpt is from the prior FEIR/EIS and describes the general wildlife of the project area, prior to mining activities:

> *The project site contains a variety of habitats for wildlife. As described above, the dominant habitat types are riparian forests/riparian scrub, pasture, ruderal habitats (including disced areas) and various wetland habitats. Morrison Creek (including the oxbow channel on the Vineyard I parcel) provides aquatic and wetland habitat for waterfowl, amphibians, and aquatic invertebrates during winter and spring. During the summer and fall months, when flows become reduced, persistent or even perennial pools may form in the creek channel and become small pockets of habitat. The creek bed and banks are also important to wildlife when dry as they offer loose, sandy loam for burrowing animals and movement corridors for mammalian predators and other species. The various tributary streams, drainage ditches, and other wetlands within the project site also provide seasonal aquatic habitats. The riparian forest and scrub habitats along Morrison Creek, as well as the oak woodlands and scattered trees, provide nesting habitat for raptors and other birds. The grasslands and ruderal areas offer foraging habitat for raptors, mammals and reptiles. Currently, much of the Aspen III South, IV South and V South parcels are used for cattle and horse grazing. A list of wildlife species observed at the project site is provided in Appendix B* (Appendix B of the prior FEIR/EIS which is provided on the CD)*. The field surveys conducted for most animal species were limited to brief reconnaissance surveys with slightly more intensive surveys conducted for special status reptiles and amphibians (page 5-43).*

The prior FEIR/EIS also identified special status plant species that may occur within the project site and special status wildlife species observed or potentially occurring on the site. The following special status plants were identified as having the potential to occur within the project site:

- San Joaquin spearscale (*Atriplex joaquiniana*)

- Dwarf downingia (*Downingia pusilla*)
- Boggs Lake hedge-hyssop (*Gratiola heterosepala*)
- Rose-mallow (*Hibiscus lasiocarpus*)
- Ahart's dwarf rush (*Juncus leiospermus* var. *ahartii*)
- Legenere (*Legenere limosa*)
- Hoary navarretia (*Navarretia eriocephala*)
- Pincushion navarretia (*Navarretia myersii*)
- Slender Orcutt grass (*Orcuttia tenuis*)
- Sacramento Orcutt grass (*Orcuttia viscida*)
- Sandford's arrowhead (*Sagittaria sandfordii*)

It was stated in the prior FEIR/EIS that none of the special status plants were observed on the site during surveys conducted by the project proponents. Vernal pools and seasonal wetlands are known to support the majority of the special status plant species identified above.

Three special status invertebrate species potentially occur within the project site: valley elderberry longhorn beetle (*Democerus californicus dimorphus*), vernal pool fairy shrimp (*Branchinecta lynchi*) and tadpole fairy shrimp (*Lepidurus packardi*). The valley elderberry longhorn beetle (VELB) was documented to be using the Vineyard I site; three of the seven elderberry bushes on the Vineyard I parcel were observed to contain beetle emergence holes typical of the VELB.

Plate BR-1, Plate BR-2, and Plate BR-3 shows the previously approved reclamation plan for Vineyard I, Aspen III South and Aspen IV South, respectively. The reclamation plan mitigated for impacts to Morrison Creek and other waters of the U.S. by (1) construction of an at-grade bypass channel and (2) construction of a below-grade, 600-foot wide riparian corridor/low-flow channel. A riparian corridor would have been located within the mining pit, and would have included a low-flow channel, perennial marsh, riparian woodlands, seasonal marsh and valley oak woodlands in a series of terraces. Plate BR-4 and Plate BR-5 shows the previous wetland mitigation plans for Vineyard I and Aspen IV South. There were no wetlands or waters of the U.S. located on the Aspen III South site.

Plate BR-1: Vineyard I Approved Reclamation Plan Details

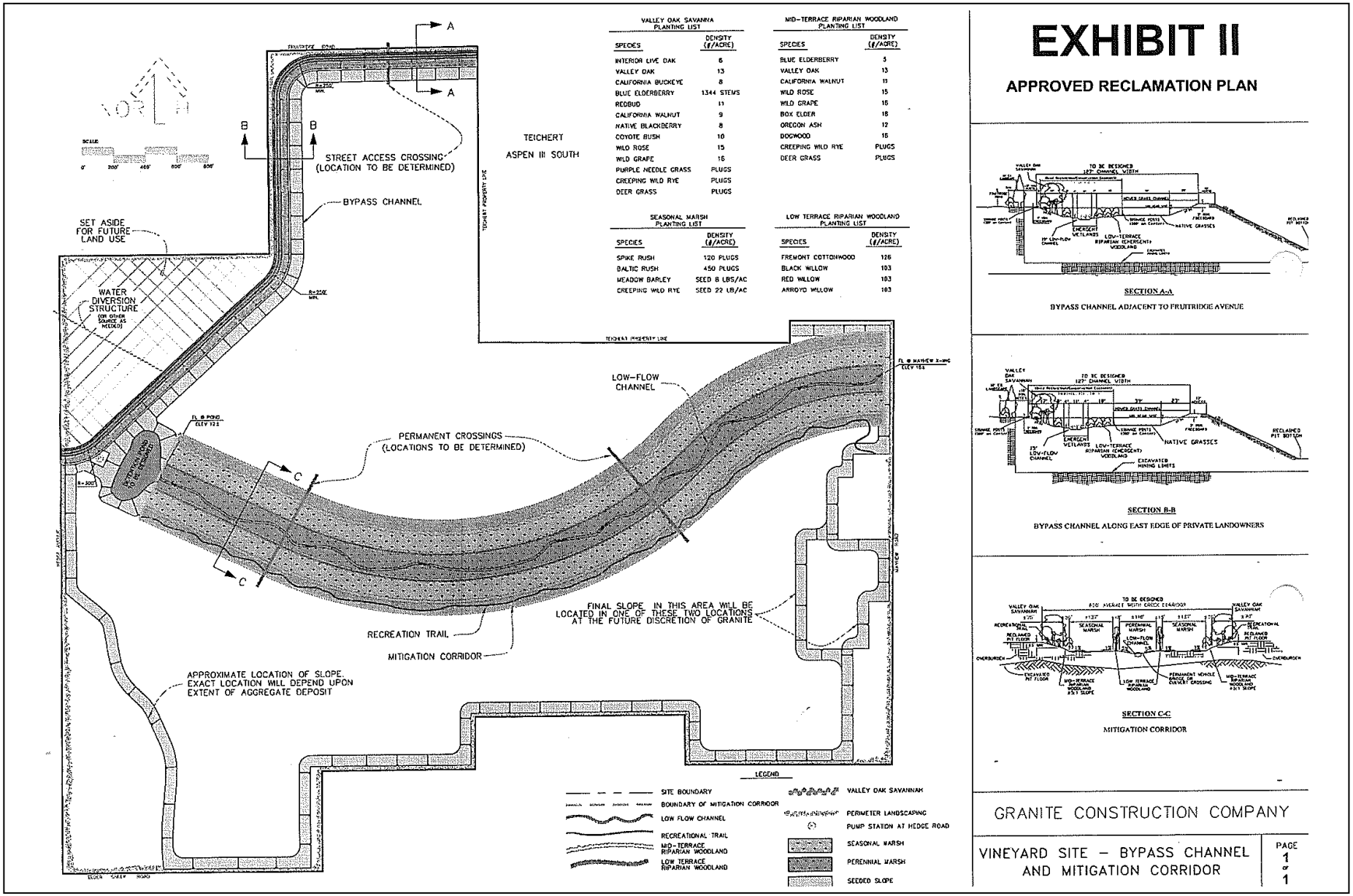


Plate BR-2: Aspen III South Approved Reclamation Plan Details

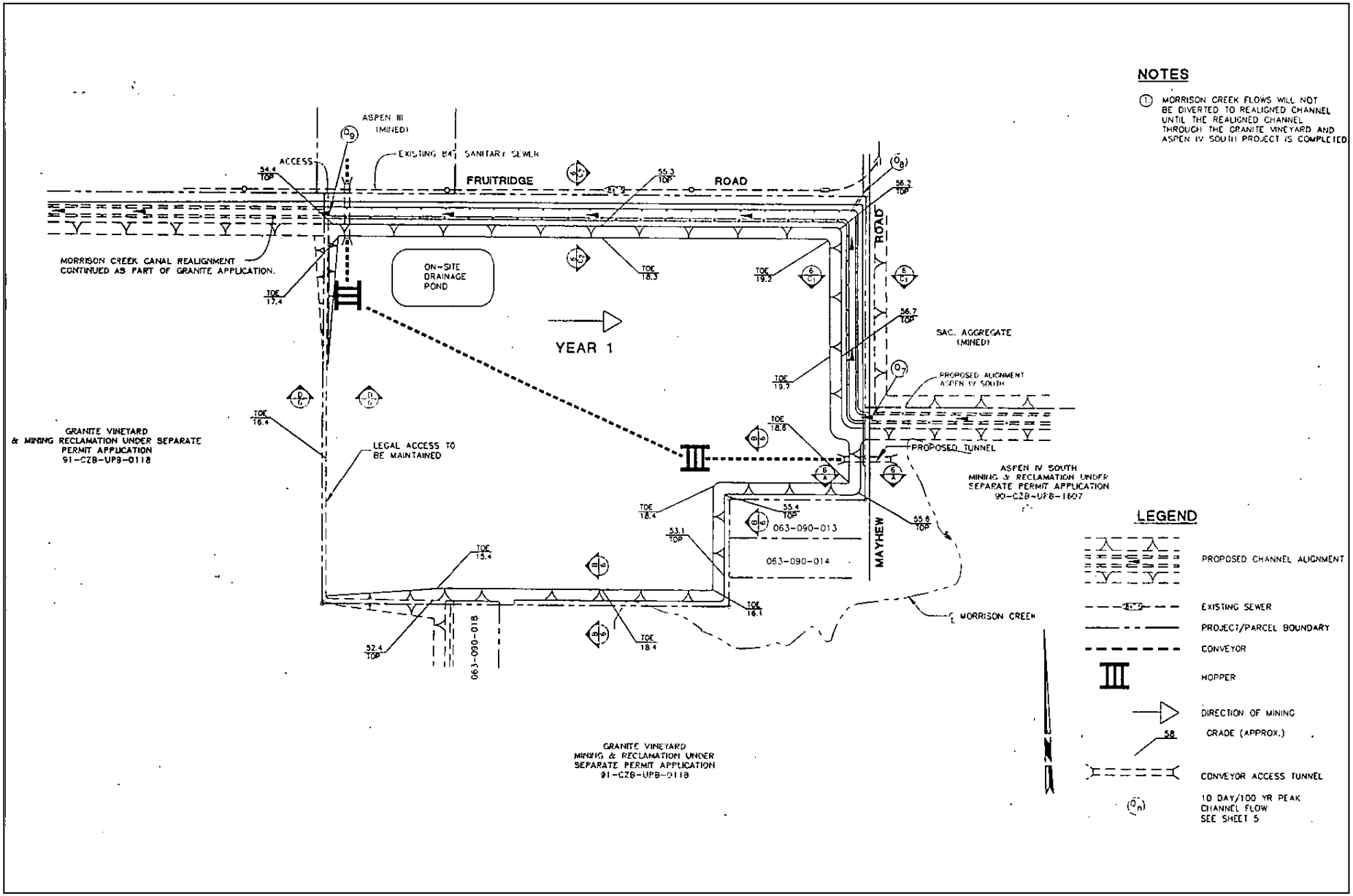


Plate BR-3: Aspen IV South Approved Reclamation Plan Details

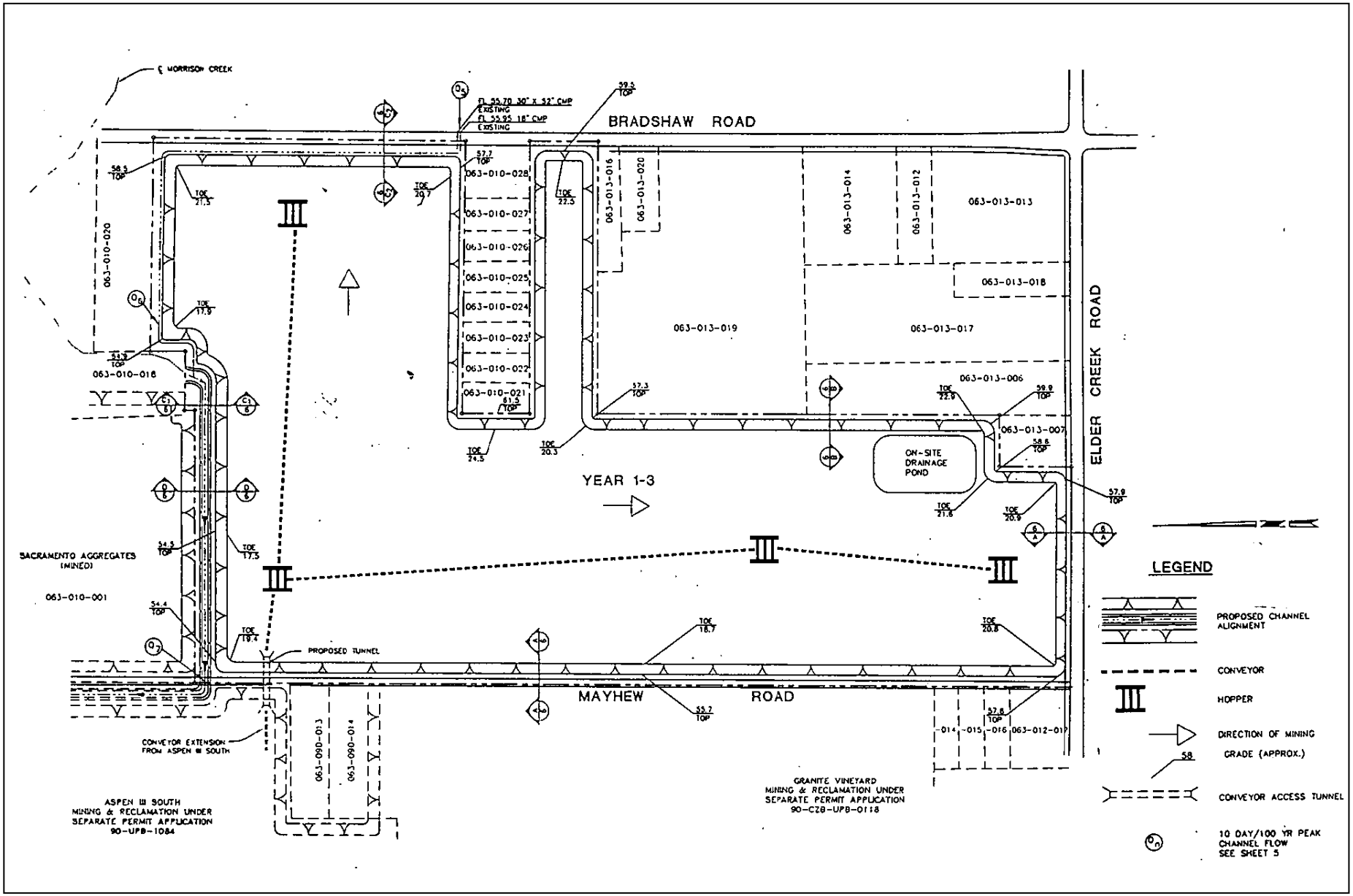


Plate BR-4: Prior Wetland Mitigation Plan for Vineyard I

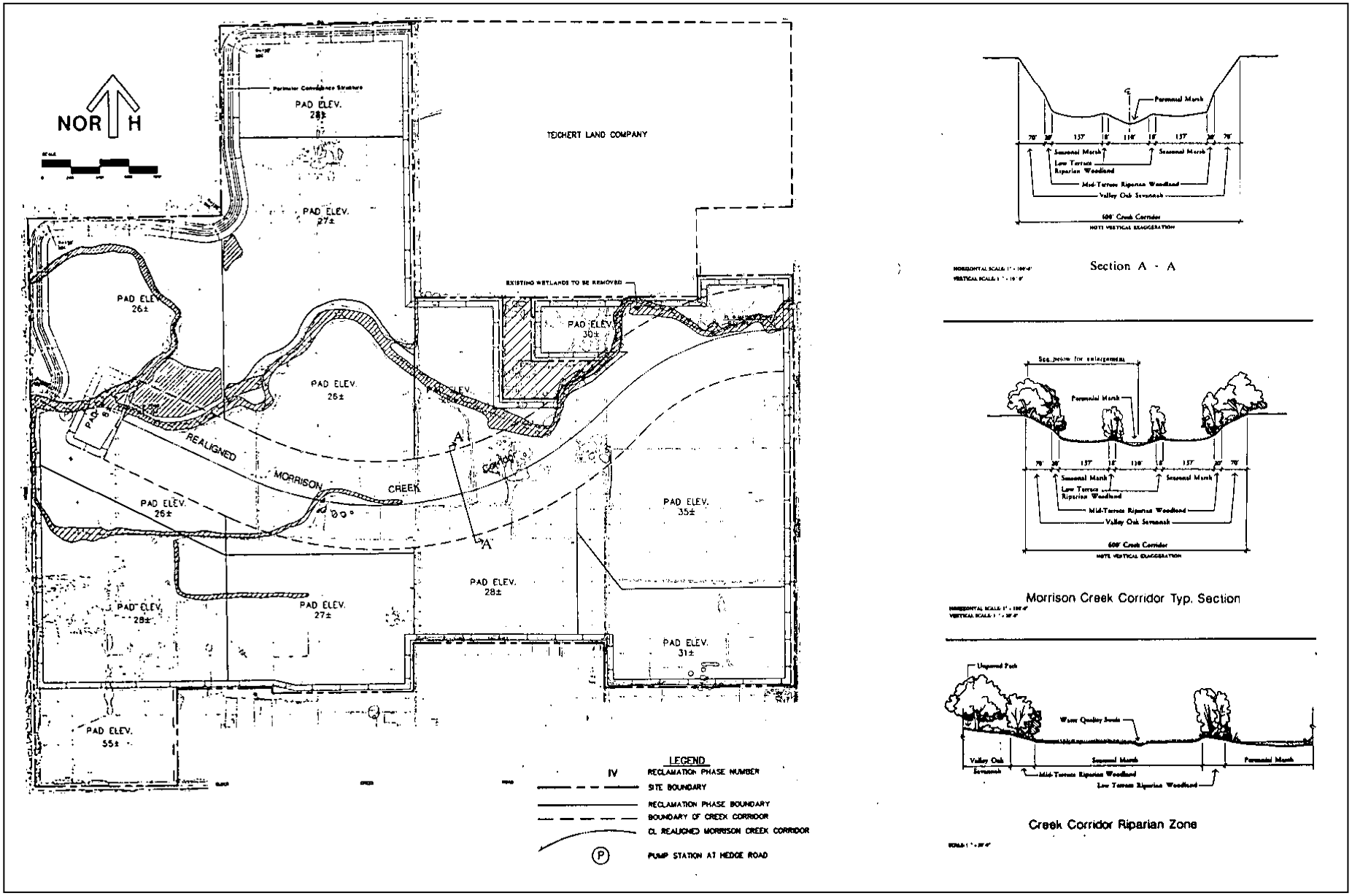
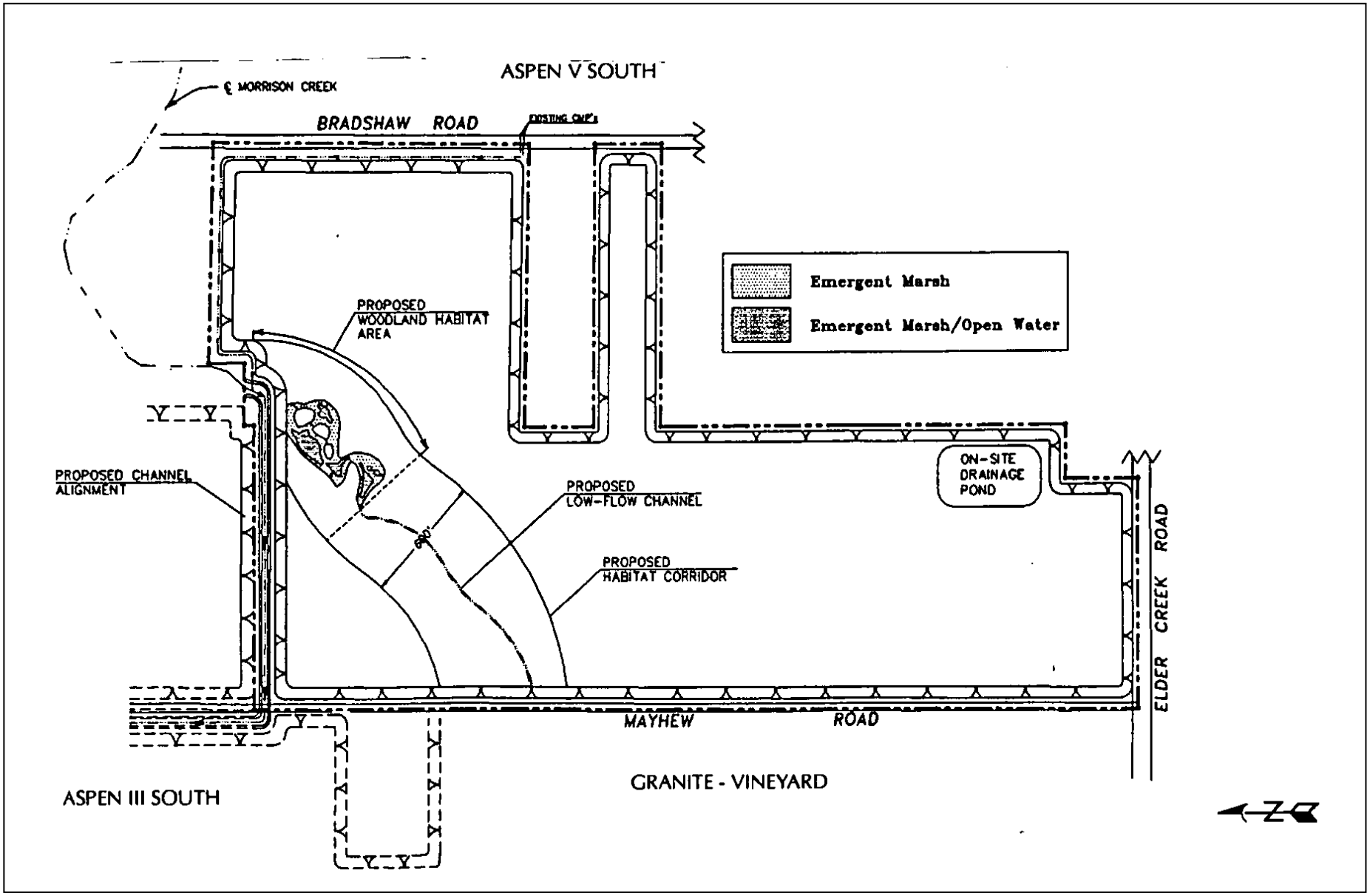


Plate BR-5: Prior Wetland Mitigation Plan for Aspen IV South



A pumping mechanism from the bypass channel would have been required in order to maintain sufficient water flows to support the various riparian habitats. This pumping requirement produced an operation dilemma for the two applicants, due to stricter water quality standards since project approval. The flaws in the approved reclamation plan brought the two mining companies together and they jointly collaborated in creating a new design.

The applicants obtained ECORP Consulting, Inc., to develop an at-grade mitigation corridor extending across the three mining sites (Vineyard I, Aspen III South and Aspen IV South), which reflects the proposed reclamation plans. However, subsequent to the project's submittal to the County, Teichert Aggregates decided rather than construct the recreated Morrison Creek channel on Aspen IV South property, Teichert will instead preserve the existing Morrison Creek channel on the Aspen IV South property and construct a Raised Bank Channel outside the floodplain. The proposed Morrison Creek Realigned Channel across Vineyard I and Aspen III South is shown on Plate BR-6 and Plate BR-7. The preserved Morrison Creek and Raised Bank Channel on the Aspen IV South site is shown on Plate BR-8.

ECORP determined that in order to ensure a feasible and functional creek corridor, a 300-foot wide corridor would be necessary. The prior reclamation plan required a 600-foot wide mitigation corridor located at the bottom of the mining pit. The applicants state that the proposed 300-foot wide restored creek corridor will contain the necessary mitigation to satisfy requirements of the various resource agencies. The agencies have indicated that from a biological standpoint, an at-grade creek with riparian habitat will have much higher functional values, compared to an isolated pit bottom habitat area (per Granite response to County initial review letter, dated June 26, 2006).

The U.S. Army Corps of Engineers issued a Section 404 Individual Permit to Granite Construction Company for the Vineyard I mining site on July 25, 2007 (Permit Number: 199400102) and to Teichert Aggregates for the Aspen IV South and Aspen V South mining sites on May 13, 2009 (Permit Numbers: 199400503 and 199400693). The issued permits are herein incorporated by reference and are available for viewing at the Division of Environmental Review and Assessment office, 827 7th Street, Room 220, Sacramento, CA 95814. Teichert's permit from the U.S. Army Corps of Engineers will be amended (under the same permit number) to reflect the current proposed changes of now preserving Morrison Creek on Aspen IV South.

Plate BR-6: Proposed Reclamation Plan for Vineyard I (Morrison Creek Realigned Channel)

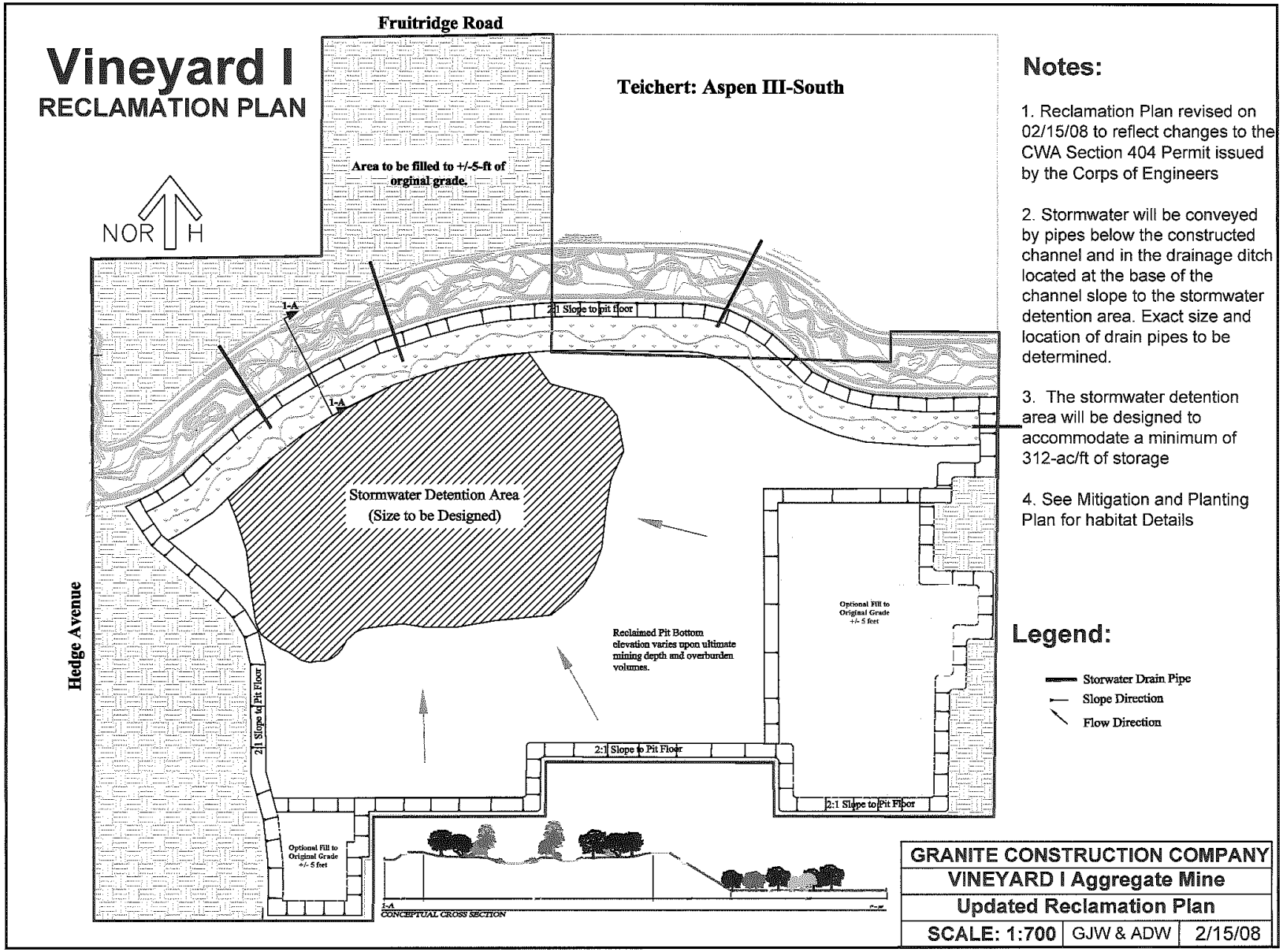


Plate BR-7: Proposed Reclamation Plan for Aspen III South (Morrison Creek Realigned Channel)

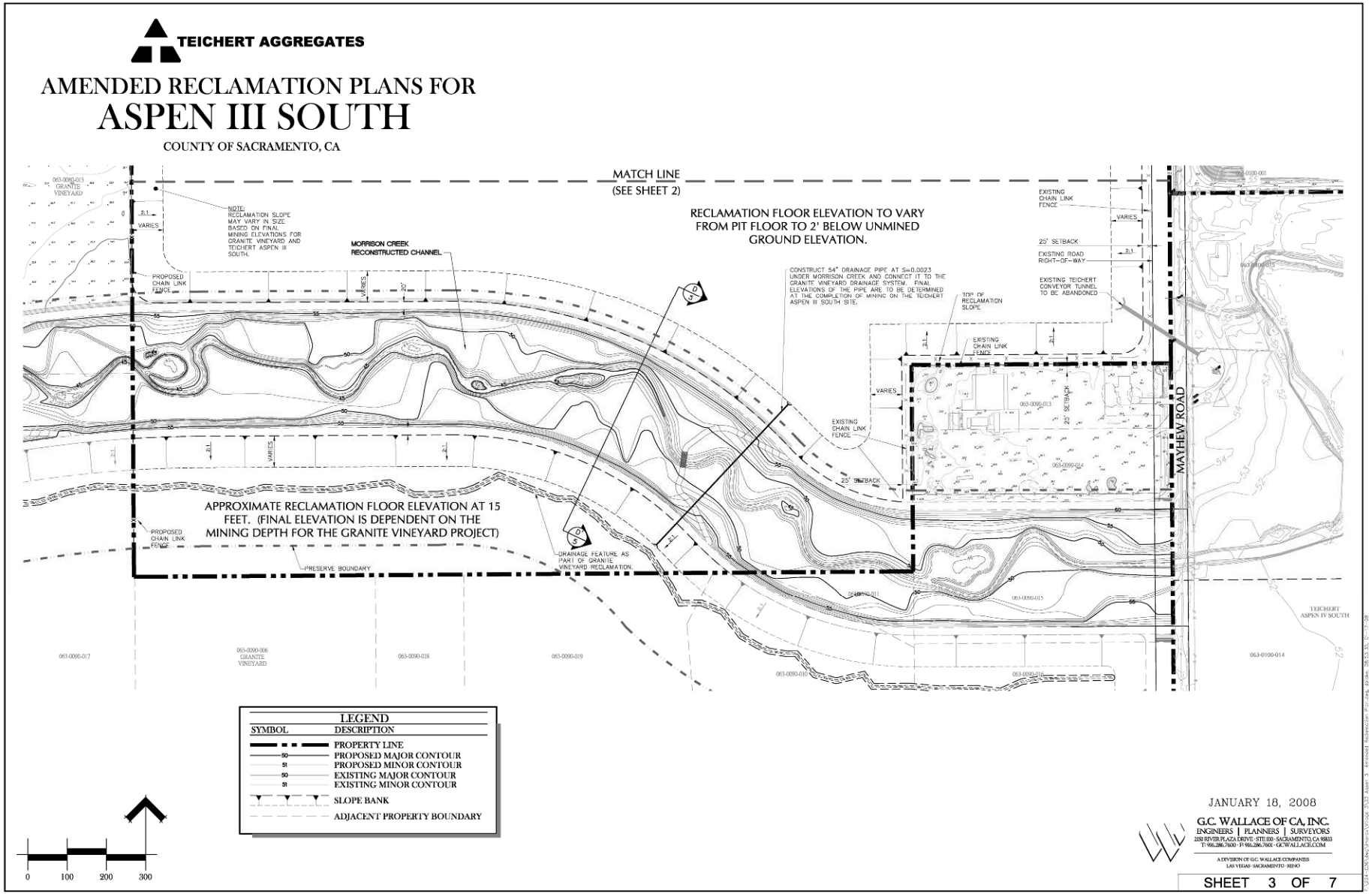
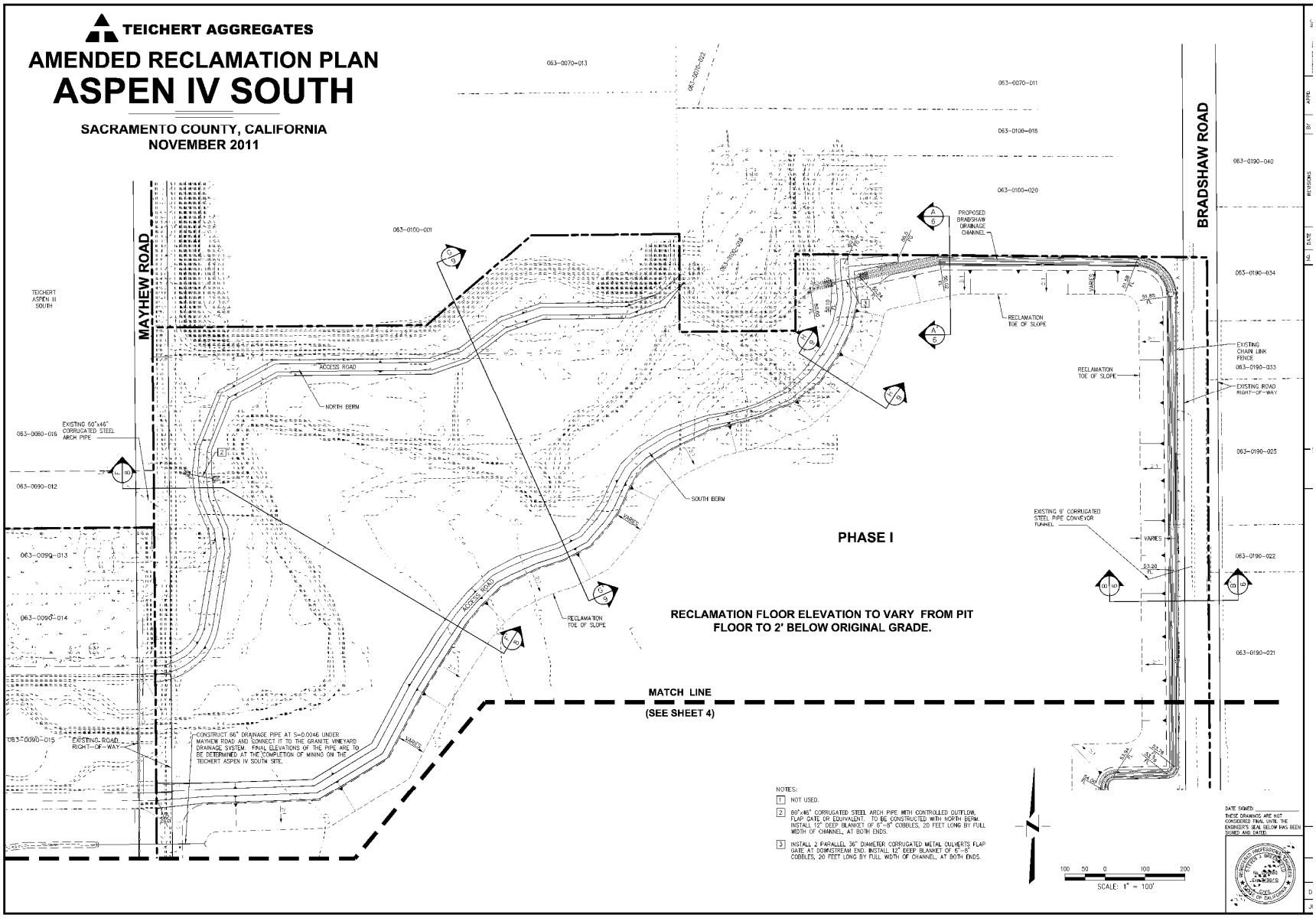


Plate BR-8: Proposed Reclamation Plan for Aspen IV South (Morrison Creek Raised Bank Channel)



STANDARDS OF SIGNIFICANCE

Appendix G of the California Environmental Quality Act (CEQA) Guidelines and the Sacramento County General Plan provide guidance for assessing the significance of potential environmental impacts. Relative to biological resources, a project will normally have a significant effect on the environment if it will:

- Have a substantial adverse effect, either directly or indirectly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service;

- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service;

- Have substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;

- Interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;

- Conflict with any local policies or ordinances protecting biological resources, such as tree preservation policy or ordinance; or

- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation.

ENVIRONMENTAL IMPACTS AND MITIGATION

In the following sections, the impacts as identified in the prior FEIR/EIS are presented and an analysis of the proposed Morrison Creek Realigned Channel in mitigating those impacts, as well as new impacts as a result of the Morrison Creek Realigned Channel and mining of the Vineyard I expansion site follows.

Table BR-1 below, is a summary of the comparison between the approved bypass channel/pit-bottom mitigation corridor (at 600 feet wide) and the proposed 300-foot wide Morrison Creek Realigned Channel.

Table BR-1: Comparison of the Approved and Revised Mitigation Corridor

Approved Bypass Channel/ Pit Bottom Mitigation Corridor	**Proposed Morrison Creek Realigned Channel * (Vineyard I and Aspen III South sites)**
127-foot perimeter bypass channel	N/A
600-foot wide pit-bottom mitigation corridor contains :	300-foot wide at-grade mitigation corridor contains:
12.24 acres of Morrison Creek	13.33 acres of Morrison Creek
11.74 acres of seasonal marsh	1.11 acres of seasonal marsh/wetland
N/A	300-foot wide Ephemeral Drainage corridor includes:
N/A	1.65 acres ephemeral drainage
8.76 riparian woodland	10 acres riparian woodland and marsh
16.12 acres Oak Savannah	30 acres of Valley Oak woodland
	36 acres grassland
Total mitigation: 49.24 acres	Total mitigation: 89 acres
* 3.79 acres of seasonal wetland/marsh and 0.53 acres of vernal pool credits were also purchased offsite.	

As shown in Table BR-1, the revised Morrison Creek Realigned Channel increases the acreage of recreated Morrison Creek, wetlands, and riparian/ oak plantings.

VEGETATION

The prior FEIR/EIS concluded that the proposed project would result in the systematic loss of all existing natural vegetation communities of 881.7 acres (or 91%) of the 966.3-acre project site. Plant communities adversely affected by the proposed project would include: most of the riparian forest/riparian scrub habitat (approximately 14 acres); wetland habitat and waters of the U.S. (19.83 acres);

> *ruderal habitats; pastures; and cultivated areas. This was found to be a significant Impact.*

Mitigation from the prior FEIR/EIS required that the project proponents implement a wetland mitigation plan. It was through this wetland mitigation plan, in consultation with the USFWS, the Corps, CDFG and the County, that it was determined that the flows were to be regulated and maintained within the mitigation corridor (now the proposed Morrison Creek Realigned Channel). The channel was required to be sufficient in size to support the mosaic of habitats proposed for the corridor.

The proposed Morrison Creek Realigned Channel effectively accomplishes the prior mitigation. The proposed Morrison Creek Realigned Channel was created at the request of the regulatory agencies, as well as various environmental groups since the prior reclamation proposal of a bypass channel and a channel at the bottom of the mining pit was not favorable to either group. The project proponents then consulted with ECORP to create a better mitigation corridor. The Morrison Creek Realigned Channel has been designed to provide increased and more diverse habitat value compared what was present prior to project impacts.

The Morrison Creek Realigned Channel will vary in width between 200 and 500 feet wide, will accommodate 100-year flood flows of Morrison Creek and is consistent with the issued Section 404 permit. The Morrison Creek Realigned Channel contains tree plantings which mitigates the riparian and oak woodlands lost by the prior project (further discussed below in the Native Trees section).

ECORP has prepared a *Wetland, Oak Woodland and Riparian Mitigation Monitoring Plan* for the both the Granite Vineyard I mining site (revised date July 20, 2007) and Teichert Aspen IV South and Aspen V South mining sites (revised date May 8, 2009). The *Wetland, Oak Woodland and Riparian Mitigation Monitoring Plans* for the two mining sites have been approved by the Corps and are included as Appendix D1. In this plan, under Chapter 2.2 (Characteristics, functions and values of habitat prior to impact) is the following description:

> [t]he functional capabilities of Morrison Creek at the Vineyard I site were assessed. Using the Hydrogeomorphic methodology, the reach of Morrison Creek that intersects the project site was considered a ‘moderate value riparian wetland’ scoring a 0.55 out of a possible 1.0. According to Zentner and Zentner, Morrison Creek at the project site has been partially channelized, reducing the creek systems capability to provide geomorphologic and hydrologic functions. In addition, the site has been historically farmed or otherwise disturbed up to the edge of the channel, eliminating native riparian trees and decreasing the native biological functions of the site.

In Chapter 2.3, (Characteristics, Functions and Values of Habitat to be Created/ Enhanced) the following is provided:

Morrison Creek will be enhanced from its current state. As mentioned above, Morrison Creek prior to mining was partially channelized, with mostly sparse non-native riparian habitat. To create improved wildlife, creek and wetland habitat (i.e., increased functions and values) and a more aesthetic feature, the creek will be re-contoured and planted with native trees and shrubs both as mitigation for the removal of native oak and black walnut trees, and to enhance the overall habitat quality of the riparian system.

In addition, an ephemeral drainage will be constructed south of the restored creek corridor and planted with riparian species. The constructed ephemeral drainage is to provide additional functions and values (i.e., additional length) for the loss of channel length.

Impacts and mitigation efforts related to wetlands and the creek are discussed separately, in the Wetlands impact discussion below.

Although mining activities of the project will result in permanent impacts to various habitats at the site, the proposed Morrison Creek Realigned Channel will effectively replace the riparian and wetland habitats onsite. The overall goal of the Morrison Creek Realigned Channel is no net loss of wetland, riparian and oak woodland functions and values as a result of the project. The monitoring plan in the *Wetland, Oak Woodland and Riparian Mitigation Monitoring Plan* outlines monitoring requirements over a ten-year period and has determined the final success criteria for the creek, wetland habitats, vegetation and trees. The maintenance schedule states that there will be annual maintenance inspections of the mitigation site occurring concurrently with other monitoring activities for the first ten years or until mitigation monitoring obligations have been met. The prior mitigation required monitoring efforts for the riparian woodland, riparian scrub and Valley oak savanna habitats be performed for a period of ten years to ensure success of the plantings and development of the habitats anticipated; therefore, submittal of the annual monitoring reports to the Division of Environmental Review and Assessment (DERA) will be required as mitigation.

In addition, the prior FEIR/EIS included mitigation that required that after the five year monitoring period, written determination was to be made as to the success or failure of the wetland and habitat mitigation. The Mitigation Monitoring Plan contains success criteria and satisfies this prior mitigation. The prior mitigation does not have to be reiterated.

Granite and Teichert will be responsible for the maintenance activities within the mitigation project area and the Corps-approved easement holder will be responsible for those items/inspections outlined in the Operations and Management Plan (OMP). Once the success monitoring is completed, the Corps-approved easement holder will take over all maintenance activities. In addition, through the OMP, monitoring/ maintenance will occur in perpetuity. Submittal of the recorded Conservation Easements has been included as mitigation.

The Morrison Creek Realigned Channel has been approved by the regulatory agencies. The Raised Bank Channel portion of the project is currently undergoing slight revisions to the *Wetland, Oak Woodland and Riparian Mitigation Monitoring Plan* and will be reviewed by the Corps; Teichert desires to receive an amended Section 404 permit from the Corps at the completion of review. Implementation of the *Wetland, Oak Woodland and Riparian Mitigation Monitoring Plan* and recommended mitigation for submittal of annual reports will ensure that the loss of vegetative communities on the project site is adequately compensated. With mitigation, impacts are considered less than significant.

Level of Significance Before Mitigation: Significant

Mitigation Measures:

BR-1 Prior to the issuance of a Work Authorization Permit, submit to the County Division of Environmental Review and Assessment (DERA) the recorded Conservation Easements for the project sites.

BR-2 Implement the *Wetland, Oak Woodland and Riparian Mitigation Monitoring Plan* (refer to Appendix D1). Submit to the County DERA annual monitoring reports. The reports shall present the status of the creek, wetlands, drainage, oak woodland and riparian habitats, including individual wetland data, photo-documentation, status of the riparian and oak woodland plantings, and any recommended remediation. The report shall also include an assessment of the monitoring results against the success criteria described in the *Wetland, Oak Woodland and Riparian Mitigation Monitoring Plan.*

A monitoring report will be prepared and submitted to the County (and Corps and CDFG) for each of the monitoring years by December 31st of each monitoring year. The report shall include:

a. A map showing the Preserve including wetland locations, location of various monitoring activities, and photo points;

b. Hydrology, vegetation, and photographic monitoring results as described in the *Wetland, Oak Woodland and Riparian Mitigation Monitoring Plan*;

c. An assessment of the monitoring results against the established success criteria;

d. A description of the overall site conditions and any management actions taken during that year; and

e. Any recommended management or remediation actions to be conducted (if necessary, a contingency plan, as described in Section 8.2 of the *Wetland, Oak Woodland and Riparian Mitigation Monitoring Plan* will be prepared).

If any revisions to the Morrison Creek Realigned Channel occur during the first ten years, a letter indicating proposed changes shall be submitted to DERA. If changes require approval by either the Corps or CDFG an approval letter from the respective agency shall be submitted to DERA.

At the end of the ten-year monitoring period, monitoring will cease if the Morrison Creek Realigned Channel is found by the County, Corps and CDFG to be in substantial compliance with the established success criteria. Monitoring will be extended beyond the ten-year period only for those habitats that are not meeting success criteria.

Level of Significance After Mitigation: Less than Significant

Native Trees

The prior FEIR/EIS did not indicate how many oak trees would be impacted as a result of the project. However, the prior FEIR/EIS included mitigation for compensation of trees to be removed and included preservation/ protection of oak trees that were to remain on the project site.

The prior FEIR/EIS included a mitigation measure for the proposed project (Part A), for impacts to native trees. Mitigation Measure 5 required that the project proponents comply with the County's standard tree preservation ordinance for all oak trees on the site to be preserved and protected from mining operations. This mitigation measure also required in-kind, inch-for-inch compensation for any oak tree greater than four inches dbh and all landmark size (19 inches dbh or greater) native trees (except cottonwoods and willows) proposed for removal.

Native Oak Trees Background

Over the years, a significant number of trees have been removed throughout Sacramento County to facilitate urban development, to accommodate agriculture, to provide fuel wood, or to be milled into building materials. It is clear that with continued urban and rural development, the County's woodlands and the variety of species they support will disappear unless concerted efforts are pursued to protect this valuable resource. Sacramento County has identified the value of its native and landmark trees and has adopted measures in its General Plan to provide for their preservation. The Tree Ordinance (Chapter 19.04 of the County Code) Section 19.04.030 (6) provides the following definition: "Landmark tree" means an especially prominent or stately tree on any land in Sacramento County, including privately owned land." Heritage trees are native oak trees that are 19" diameter at breast height (dbh) or larger. All native oak trees are protected under the Conservation Element of the County of Sacramento General Plan. When development requires removal of native oaks, replacement mitigation is required pursuant to County policy. The Conservation Element also requires the preservation of landmark trees, as well as non-oak natives, such as California black walnuts and California sycamores, wherever possible. It should be noted that to be considered a tree, as opposed to a seedling or sapling, the tree must

have a diameter at breast height (dbh) of at least 6 inches or, if it has multiple trunks of less than 6 inches each, a combined dbh of 10 inches.

Native oaks, when young trees, are very tolerant of their environment and make excellent and adaptable landscape assets. The mature native oak is an invaluable part of our environment, but any substantial change in its environment will weaken a healthy specimen and may eventually kill it. Native oak trees have adapted to the long dry summers of the Sacramento Valley, primarily through the development of their root system. The initial root is a taproot extending deep for more dependable moisture. As the oak grows, the taproot is outgrown by an extensive lateral root system that spreads horizontally out from the trunk to, and well beyond, the dripline. For a mature oak, this horizontal root system is the primary supporter of the tree for the rest of its life. It includes the important feeder roots, which absorb moisture and nutrients. Nearly all of the lateral root system occurs within the top five feet of the soil surface. In shallower soils, the root system is concentrated in even a shallower zone, typically 1 to 2 feet below the surface. As oak trees mature, particularly in the summer-dry Sacramento Valley, deep growing vertical roots form off the laterals, usually within ten feet of the trunk. These are called “sinker” roots and they exploit deeper soil moisture and add stability to an increasingly massive tree. By the time the mature tree has established an elaborate root system designed for its environment and particular site conditions, it has lost the vigor of youth. It is less tolerant to change and/or damage and can less easily support its massive living structure.

The amount of soil that can be removed from beneath an oak before permanent root damage occurs varies depending on several factors including the individual tree size, species, location, and health. Although small amounts of soils may sometimes be removed without permanently damaging an oak, it is generally recommended that no soil be removed and the area beneath the tree remains undisturbed. The addition of fill and the operation of heavy equipment beneath an oak tree which compacts the surface soils, prohibits the natural exchange of gases between the feeder roots and the atmosphere, and also restricts water percolation to the root zone.

Experience has found that encroachment of greater than 20 percent of an oak’s dripline can be expected to adversely affect the tree’s health and longevity; as such it is County policy to require partial mitigation when encroachment exceeds 20 percent, but less than 50 percent. More than 50 percent encroachment usually leads to the death of an oak tree, thus more than 50 percent encroachment requires full compensation.

Granite Construction Company received their Army Corps of Engineers Individual Permit (Permit Number: 199400102) on July 25, 2007. Teichert Aggregates received their Army Corps of Engineers Individual Permit (Permit Number: 199400503) on May 13, 2009. An amended Permit will be issued by the Corps for the now proposed Raised Bank Channel on Aspen IV South.

This section will separately analyze the impacts of the two mining companies. Based on the Mitigation Monitoring and Reporting Program (MMRP) file for the Aspen III South site, it has been documented that that there were no trees located on the Aspen III

South site. This section analyzes the impacts to native trees on the Vineyard I and Aspen IV South properties. Impacts on the Vineyard I (Granite) mining site will be presented first, followed by impacts to the Aspen IV South site (Teichert).

Per the Section 404 Individual Permit Special Conditions requirements, Granite and Teichert were required to prepare Mitigation and Monitoring Plans. ECORP prepared a *Wetland, Oak Woodland, and Riparian Mitigation and Monitoring Plan* for Granite's Vineyard I mining site, revised date July 20, 2007. ECORP prepared a *Wetland, Oak Woodland, and Riparian Mitigation and Monitoring Plan* for Teichert's Aspen IV South and Aspen V South mining sites, revised date June 1, 2009. These documents outline the required mitigation of each company and describe the methods by which this mitigation will be accomplished and define how the success of the creation/restoration of the mitigation corridor will be monitored and judged. These documents are hereby incorporated by reference and are available for viewing at 827 7th Street, Room 220, Sacramento, CA, 95814. ECORP also prepared an *Oak Tree Mitigation and Monitoring Plan* for Aspen IV South (November 18, 2011, revision date January 24, 2012) that identifies impacted trees and outlines mitigation and monitoring. This document is included as Appendix D2.

VINEYARD I IMPACTS

Granite submitted an arborist survey conducted by Foothill Associates in February 2001. Based on the arborist report, there were 117 valley oak trees (four inches dbh or greater) and 106 California black walnuts (19 inches dbh or greater) on the Vineyard I site. It was determined that there would be 809 inches dbh of valley oak trees and 2,753 inches dbh of California black walnuts impacted by mining activities, for a total impact of 3,562 inches dbh of native trees removed.

In the Mitigation Monitoring and Reporting Program (MMRP) file of the Vineyard I portion of the prior project is a document titled "Oak Tree Replacement Proposal" submitted by Granite Construction. In this document, it was determined that many of the California black walnuts on the site were non-native (e.g., planted); thus it was agreed that compensation for the California black walnuts could be made on an out-of-kind (rather than in-kind), inch-for-inch basis. Thus, plantings of other native trees (such as California sycamore or Fremont cottonwood) would count towards mitigating impacts to California black walnuts. In addition, it was stated in the letter of understanding that the 15-gallon trees (which would equal 1-inch dbh) for tree compensation could be replaced with 5-gallon size planter trees provided that the trees have grown to the equivalent size of a 15-gallon tree prior to impacts occurring. An establishment rate of 100% during the first three years after planting would be expected by DERA in return for allowing Granite to plant the smaller trees.

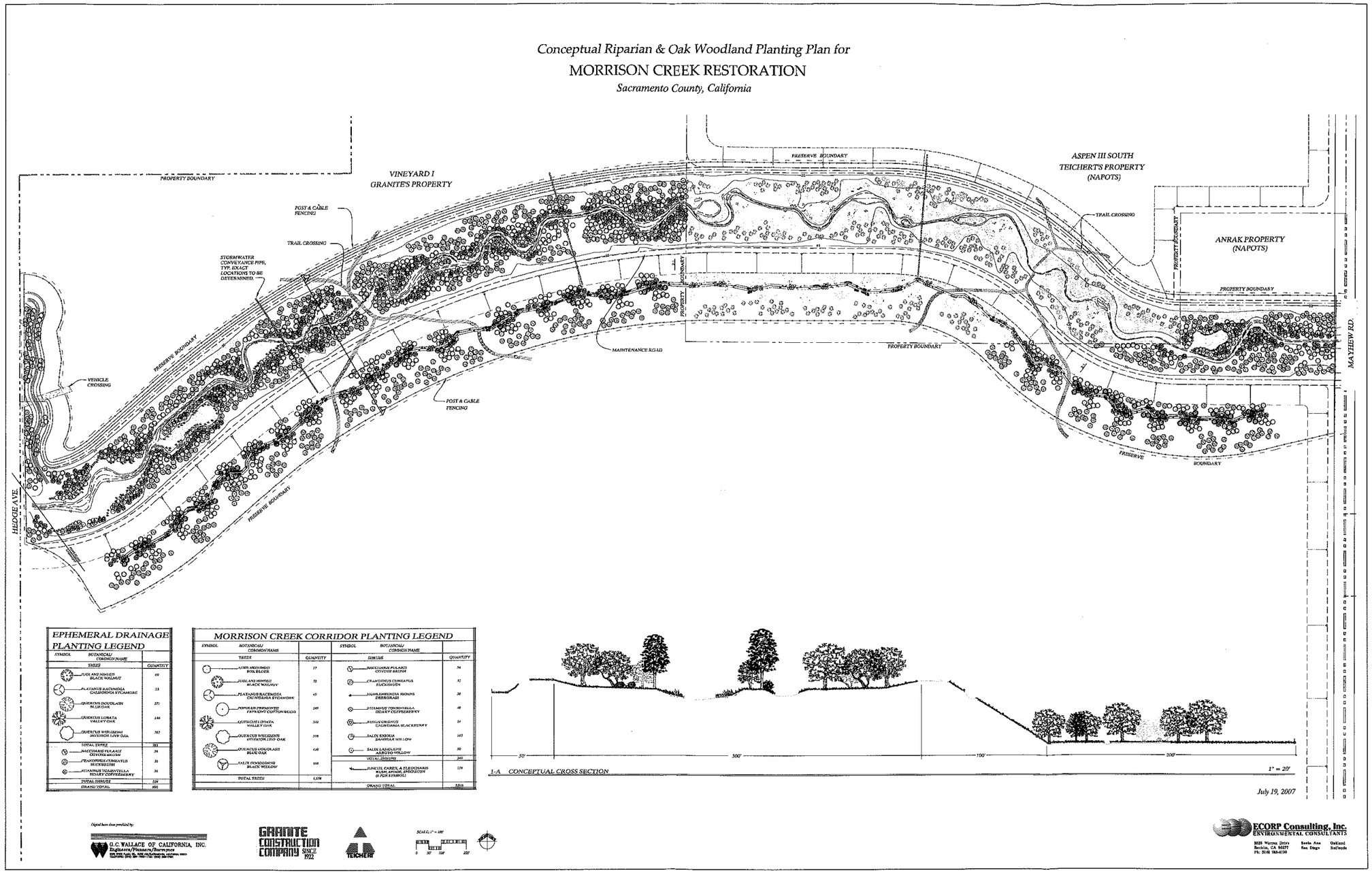
The proposed Morrison Creek Realigned Channel and ephemeral drainage constructed on the Vineyard I and Aspen III South mining sites includes riparian and oak woodland plantings that serve as mitigation for the original impacts of mining the Vineyard I site (refer to Plate BR -9). Based on the planting plan outlined in the *Wetland, Oak Woodland, and Riparian Mitigation and Monitoring Plan*, there will be a total of 2,515

trees planted within the Morrison Creek Realigned Channel and 1,055 trees planted in the ephemeral drainage, for a total of 3,570 trees (refer to Table BR-2 for the type and number of trees to be planted). There would be a total of 2,685 oak trees and 215 black walnuts planted within the mitigation corridors. The remaining 770 trees are riparian trees (box elder, California sycamore, Fremont cottonwoods, and black willow trees). Based on these numbers, the planting plan (which as been approved by the U.S. Corps of Engineers), satisfies the required mitigations for Vineyard I mining impacts.

Table BR-2: Vineyard I Mitigation Planting Plan within the Morrison Creek Realigned Channel and Ephemeral Drainage

Morrison Creek Preserve Corridor	
Total compensation required: 3,562 inches	
Riparian Tree Type	**Number of Plantings**
Box Elder (Acer negundo)	75
Black Walnut (Juglans hindsii)	115
California Sycamore (Platanus racemosa)	75
Fremont Cottonwood (Populus fremontii)	230
Black Willow (Salix Gooddingii)	240
Oak Tree Type	
Blue Oak (Quercus douglasii)	675
Valley Oak (Quercus lobata)	530
Interior Live Oak (Quercus wislizenii)	575
Ephemeral Drainage	
Riparian Tree Type	
Black Walnut (Juglans hindsii)	100
California Sycamore (Platanus racemosa)	50
Oak Tree Type	
Blue Oak (Quercus douglasii)	350
Valley Oak (Quercus lobata)	200
Interior Live Oak (Quercus wislizenii)	355
Total Planted	**3,570**
Source: Wetland, Oak Woodland, and Riparian Mitigation Monitoring Plan for the Granite Vineyard I Project, Sacramento County, California (revised date July 20, 2007) by ECORP Consulting, Inc.	

Plate BR -9: Conceptual Riparian and Oak Woodland Planting Plan for Morrison Creek Realigned Channel



The Morrison Creek Realigned Channel, as proposed, will adequately mitigate the original tree impacts due to mining the Vineyard I site.

Construction of the Morrison Creek Realigned Channel will result in tree impacts located within the Mayhew Road right-of-way. Correspondence between Granite and Teichert indicate that Granite will mitigate for their share of the Mayhew Road right-of-way tree impacts on the Teichert Aspen IV South preserve within the Raised Bank Channel. This will be addressed in the Aspen IV South Impacts discussion to follow.

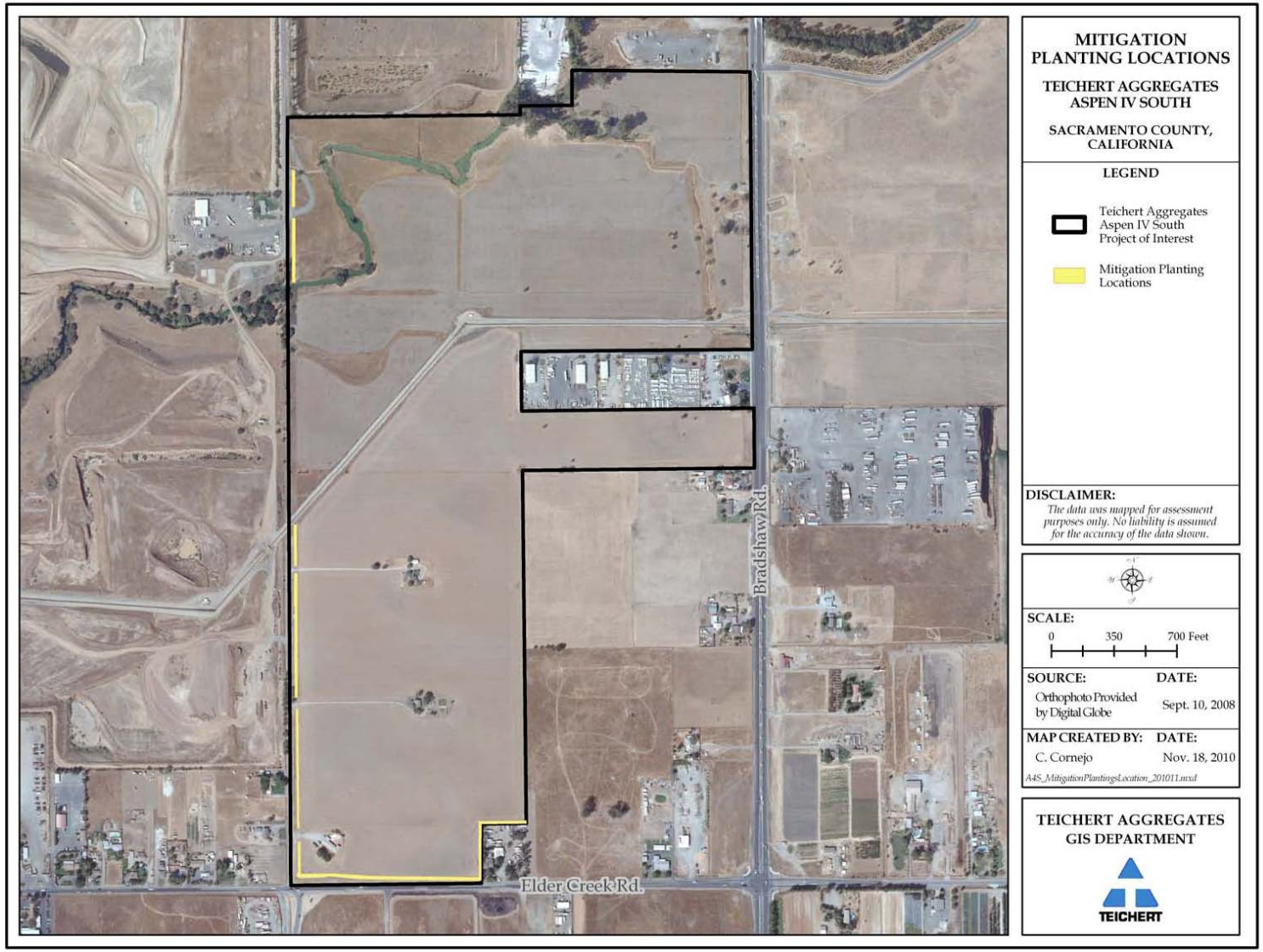
Mining the Vineyard I expansion site will result in additional tree impacts. Based on the Foothill Associates tree inventory (May 2006) of the Vineyard I expansion site, two native trees, greater than 6 inches dbh would be removed as a result of project approval. Tree #224 is a multi-trunk valley oak tree with an aggregate dbh of 13 inches and tree #225 is a multi-trunk Northern California black walnut with an aggregate dbh of 27 inches. Mining the Vineyard I expansion site would result in removal of 40 inches dbh of native trees. Mitigation for native tree compensation has been included for 40 inches dbh of native oak and black walnut trees.

ASPEN IV SOUTH IMPACTS

In the *Wetland, Oak Woodland, and Riparian Mitigation and Monitoring Plan*, it states that according to Teichert biologists, Teichert has planted 45 valley oaks and 95 interior oaks as perimeter plantings at the site. Plate BR-10 shows the locations of these 140 oak trees. These 140 oak tree plantings will count as mitigation towards impacts on the Aspen IV South mining site.

An arborist survey was conducted for the Aspen IV South property in 2005 by ECORP. ECORP and GC Wallace surveyed trees located in the Mayhew Road right-of-way during the winter of 2007. In November 2011, Teichert biologist (B. Baba) re-surveyed the trees on the Aspen IV South property, as well as the trees located in the Mayhew Road right-of-way and updated the respective arborist surveys to account for growth over the past four to six years. All trees grew and some trees that were not included in the prior arborist report because they were saplings (less than 6 inches dbh) in 2005 and 2007 have been recorded since they now meet the County's criteria as a County-regulated oak tree. A total of 875 additional inches dbh was recorded from updating the ECORP 2005 survey of native oak trees. The 2011 arborist survey conducted by Teichert addresses additional oak trees that would be impacted by mining activities associated with changes to the original project footprint

Plate BR-10: Teichert Aspen IV South Landscape and Perimeter Plantings



Based on the revised mining footprint on Aspen IV South, Teichert has provided a list of the trees expected to be impacted from mining activities and from construction of the Raised Bank Channel. Table BR-3 provides a list of the trees to be impacted on the Aspen IV South property.

Table BR-3: Aspen IV South Tree Impacts

Tree Number (From Updated Tree Survey, 2011)	2011 DBH Inches (Rounded to whole number)
801	15
802	16
803	12
804	38
805*	0
806	11
807	17
808	10
809	16
810	23
811	15
812	12
813	21
814	15
815	18
816	8
817	22
818	12
819	10
820	18
821	9
822	13
823	14
824	12
825*	0
826*	0
827	18

*Tree previously mitigated under Aspen IV South Tunnel Project (County Control Number: 90-1607)

Tree Number (From Updated Tree Survey, 2011)	2011 DBH Inches (Rounded to whole number)
828	13
829	24
830	16
831	55
832	32
833	26
834	13
843	12
846	11
847	10
2011-01	15
2011-02	7
2011-03	9
2011-04	7
2011-05	8
2011-06	7
2011-22	9
2011-23	7
2011-24	8
2011-25	8
2011-26	7
2011-29	9
2011-41	11
2011-42	13
2011-50	30
2011-51	29
2011-52	30
Total (51 Trees)	**801**

The list of impacted trees was based on the tree impact graphic and arborist data table provided by Teichert. The tree impact graphic of the Aspen IV South site is provided as Plate BR-11. The trees included in Plate BR-11 include trees that are expected to be directly impacted (i.e., removed), as well as trees that are expected to be indirectly impacted (e.g., cuts and fills within the dripline of the tree). For the purpose of this analysis, all trees are expected to have a direct impact since it is unknown how much fill or cut will occur within the dripline of the trees. As stated in the Background section above, impacts to 50 percent or more of the dripline of a tree could be detrimental to the health and survival ability of the tree. Since it is unknown if indirect impacts will result in less than 20 percent dripline encroachment (no mitigation would be required), or impacts between 20 percent and 50 percent encroachment (partial mitigation would be required), or greater than 50 percent encroachment (full mitigation required), it is assumed that indirect impacts are greater than 50 percent encroachment and full mitigation is required. However, at the time of grading for the construction of the Raised Bank Channel and Morrison Creek Realigned Channel, if grading plans indicate less than 50 percent dripline encroachment, then adjustments for mitigation requirements can be made at that time between staff of the Mitigation Monitoring and Reporting Program (MMRP) section and the applicant. A total of 51 trees would be impacted, resulting in a total of 801 inches dbh of native oak tree impacts.

To determine impacts within the Mayhew Road right-of-way, a centerline was drawn down the center of the right-of-way and trees located on the west side are considered to be a part of Granite's property and the trees located on the east side are considered to be a part of Teichert's property. An impact area was drawn within the right-of-way that corresponds to grading activities due to construction and connection of the Morrison Creek Realigned Channel and Raised Bank Channel (shown on Plate BR-12). The impacts within the Mayhew Road right-of-way have been defined as either a Vineyard I (Granite) or Aspen IV South (Teichert) impact; however, as stated in the Vineyard I impact discussion prior, the tree impacts occurring within the Mayhew Road right-of-way will be mitigated within the preserve of the Raised Bank Channel on the Aspen IV South property.

Plate BR-11: Trees on the Aspen IV South Property

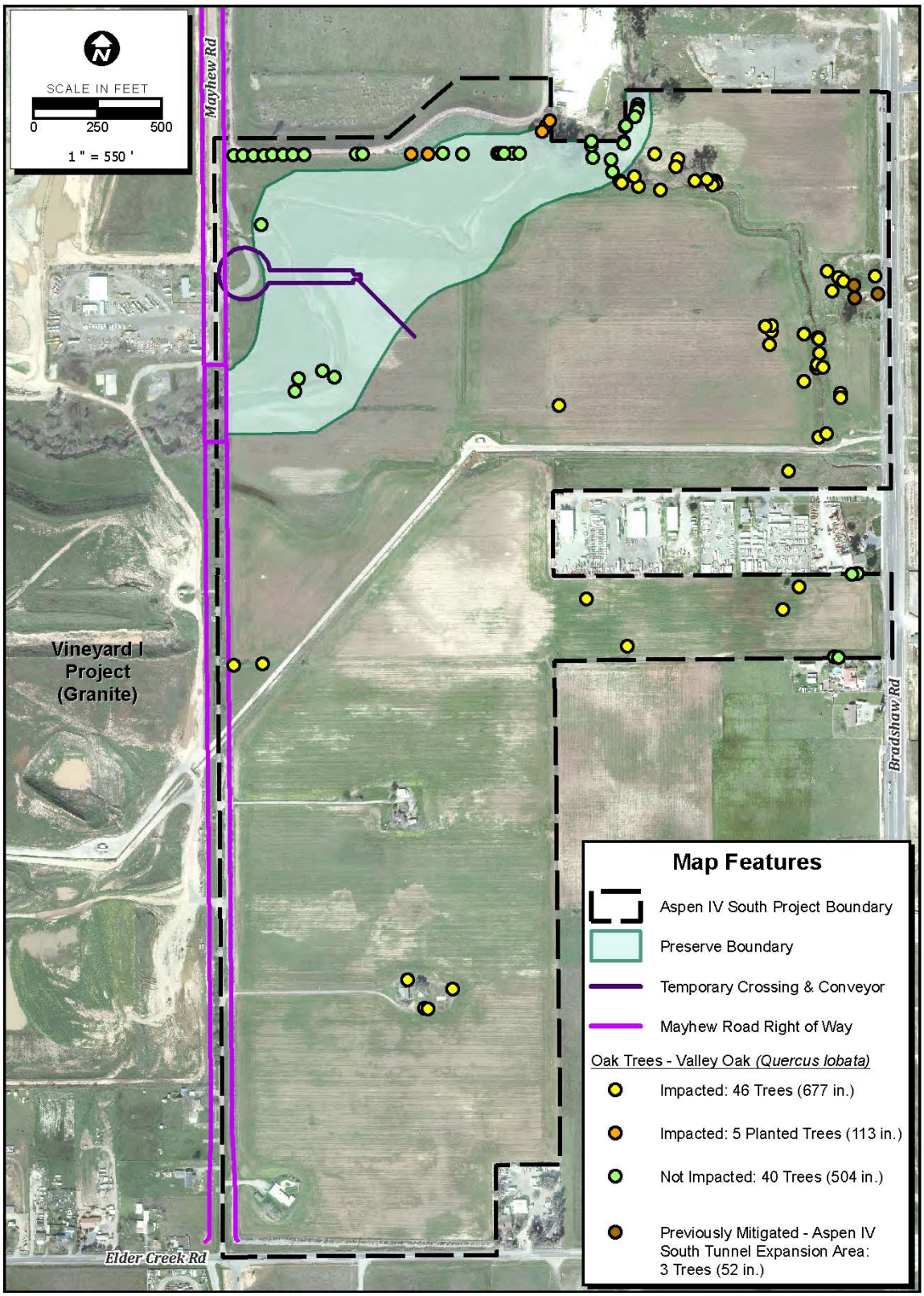
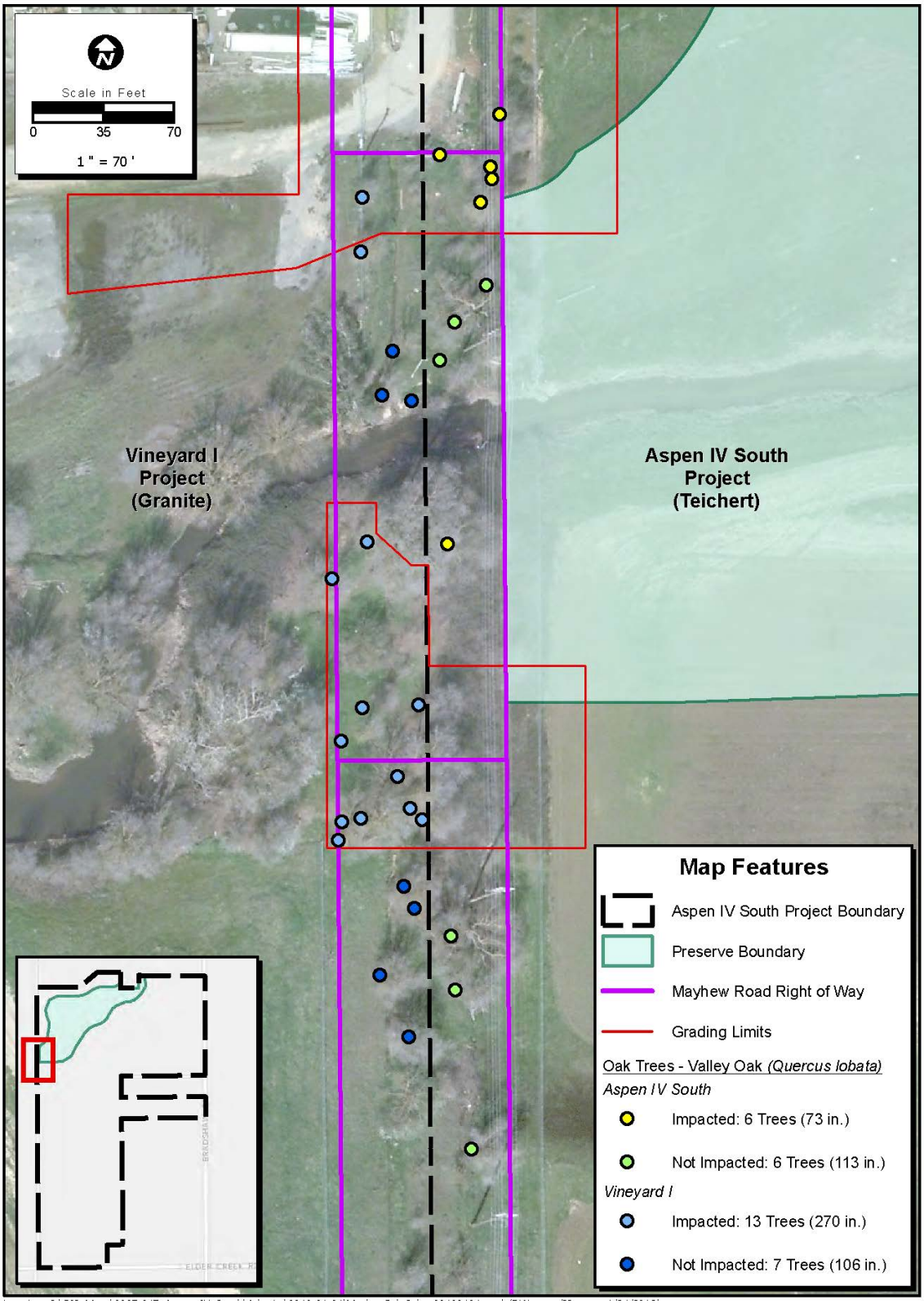


Plate BR-12: Trees Impacted in the Mayhew Road Right-of-Way



As shown on Table BR-4 below, within the Mayhew Road right-of-way impact area, Vineyard I tree impacts consist of 13 trees, for a total of 273 inches and Aspen IV South tree impacts consist of five trees for 74 total inches.

Table BR-4: Mayhew Road Right-of-Way Tree Impacts

Aspen IV South

Tree Number (From Updated Tree Survey, 2011)	2011 DBH Inches (Rounded to whole number)
T-3	16
T-4	10
T-5	20
EC-5	20
2011-53	8
Dead	0
TOTAL	**74**

Vineyard I

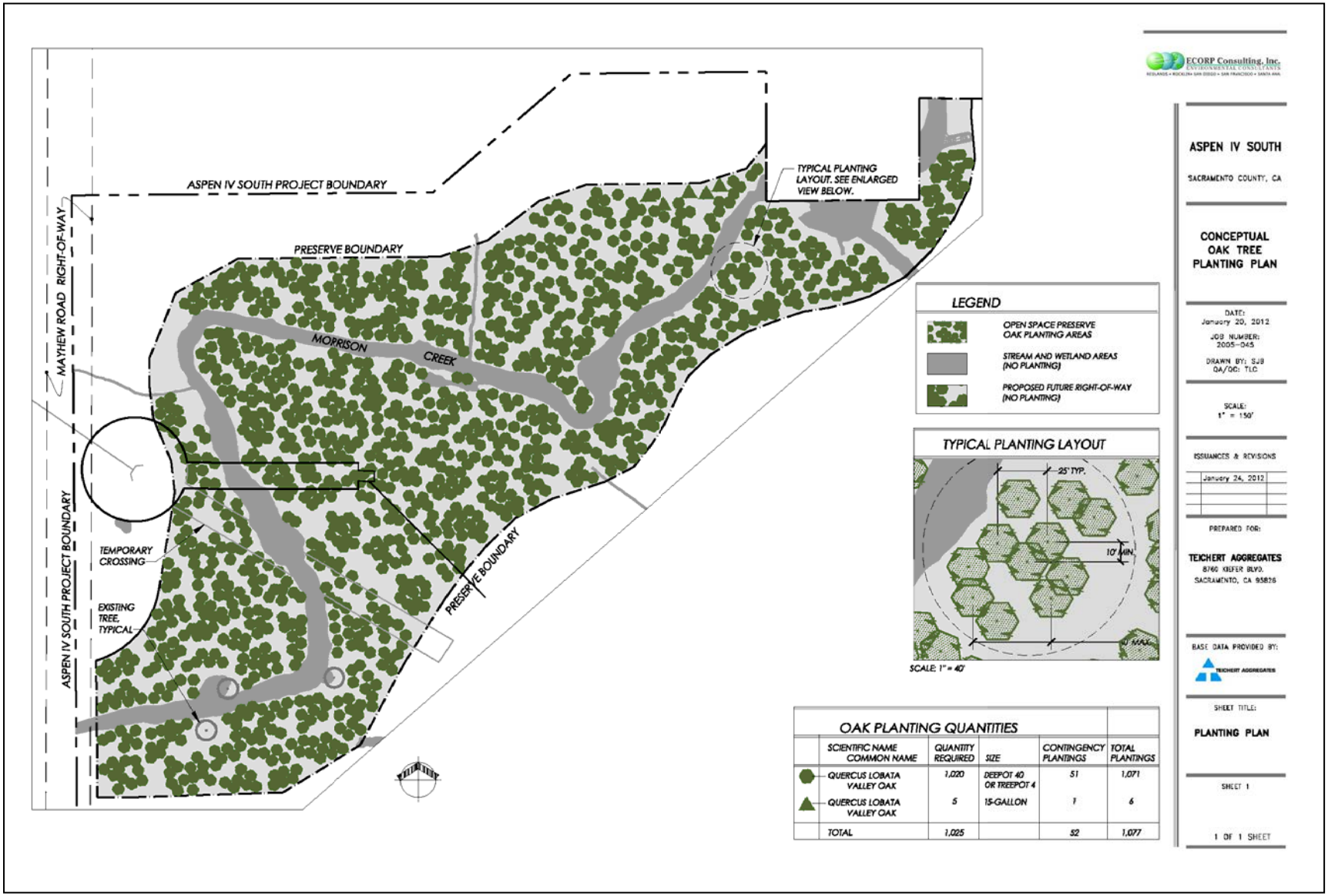
Tree Number (From Updated Tree Survey, 2011)	2011 DBH Inches (Rounded to whole number)
2011-54	8
2011-57	6
1	19
207	50
208	66
209	24
210	13
211	15
212	18
213	13
EC-3	19
EC-4	13
EC-6	9
Total	**273**

Total trees impacted in Mayhew Road Right-of-Way:
18 trees, aggregate 347 inches dbh – 347 inches to be mitigated on Aspen IV South property.

Based on the *Oak Tree Mitigation and Monitoring Plan for Aspen IV South* (revised January 24, 2012), the conceptual oak tree planting plan includes 1,071 deepot valley oak plantings, as well as an additional five (5) 15-gallon valley oak trees within the preserve corridor of the Raised Bank Channel (refer to Plate BR-13). The planting plan also provides for contingency plantings, resulting in a total of 1,077 oak tree plantings.

Total impacts within the Mayhew Road right-of-way (273 inches dbh) and on Aspen IV South (875 inches dbh) total 1,148 inches dbh. As previously stated, Teichert has already provided 140 native oak tree plantings that will apply towards satisfying mitigation requirements on Aspen IV South. Total impacts are now 1,008 inches dbh; the preserve will have 1,077 oak tree plantings which is sufficient to mitigate for tree impacts on Aspen IV South and within the Mayhew Road right-of-way.

Plate BR-13: Aspen IV South Conceptual Oak Tree Planting Plan



CONCLUSION

The revised Morrison Creek Realigned Channel provides for a mitigation preserve for native oak tree impacts due to mining activities on the Granite Vineyard I mining site. The proposed Raised Bank Channel will contain a mitigation preserve for native oak tree impacts associated with Teichert's Aspen IV South mining impacts and impacts within the Mayhew Road right-of-way (both Granite and Teichert impacts). The Morrison Creek Realigned Channel and the Raised Bank Channel adequately compensates for the loss of the riparian areas and oak woodlands that were on the project site prior to mining activities. Mitigation for impacts to vegetation communities requires that the applicant submit annual reports for ten years of monitoring (Mitigation Measure BR-3). This report will include success criteria and ensures no net loss of oak trees. Trees mitigated within the Morrison Creek Realigned Channel and Raised Bank Channel will be subject to this monitoring period.

The perimeter and landscape oak tree plantings that have been completed prior to mining the Aspen IV South mining site mitigates up to 140 inches dbh of oak tree impacts. Of the 1,148 inches expected to be impacted on the Aspen IV South mining site, 140 inches have therefore been compensated within the perimeter plantings. The remaining 1,008 inches dbh of oak trees will be adequately mitigated for within the Morrison Creek Raised Bank Channel preserve. No additional tree compensation will be required of Teichert for the Aspen IV South site.

Impacts to 3,562 inches dbh of native trees on the Vineyard I mining site will be adequately compensated within the proposed Morrison Creek Realigned Channel. The proposed reclamation plan amendment will add an additional 273 inches dbh of oak tree impacts within the Mayhew Road right-of-way, which will be mitigated on Aspen IV South. Mining of the Vineyard I expansion site will result in additional 40 inches dbh of native tree impacts. Granite will be required to compensate for 40 inches of new tree impacts consistent with the County tree ordinance. It should be noted that compensation mitigation for impacts to the additional 40 inches of oak trees by Granite, requires a three-year monitoring plan. The ten-year monitoring plan will apply to trees planted within the Morrison Creek Realigned Channel and Raised Bank Channel.

Upon compliance with the recommended mitigation, impacts will be reduced to less than significant.

Level of Significance Before Mitigation: Significant

Mitigation Measures:

BR-3 Implement Mitigation Measure BR-1 (submittal of recorded conservation easements) and BR-2 (implement the *Wetland, Oak Woodland, and Riparian Mitigation and Monitoring Plan for Vineyard I* [refer to Appendix D1] and the *Oak Tree Mitigation and Monitoring Plan for Aspen IV South* [refer to Appendix D2]*).*

BR-4 The removal of 40 inches by Granite for the Vineyard I expansion site shall be compensated by planting native oak trees (either valley oak/*Quercus lobata*, blue oak/ *Quercus douglasii* and/or interior live oak/*Quercus wislizenii*) equivalent to the dbh inches lost, based on the ratios listed below, at locations that are authorized by the Department of Environmental Review and Assessment. On-site preservation of native oak trees that are less than 6 inches (<6 inches) dbh, may also be used to meet this compensation requirement. A total of 40 inches for Granite will require compensation.

Equivalent compensation based on the following ratio is required:

- One preserved native oak tree < 6 inches dbh on-site = 1 inch dbh
- One D-pot seedling (40 cubic inches or larger) = 1 inch dbh
- One 15-gallon tree = 1 inch dbh
- One 24-inch box tree = 2 inches dbh
- One 36-inch box tree = 3 inches dbh

Replacement tree planting shall be completed prior to tree removal or a bond shall be posted by the applicant in order to provide funding for purchase, planting, irrigation, and 3-year maintenance period, should the applicant default on replacement tree mitigation. The bond shall be in an amount equal to the prevailing rate of the County Tree Preservation Fund and will be due within one year of posting the bond.

Prior to the issuance of a Work Authorization Permit for the Vineyard I expansion site, a Replacement Oak Tree Planting Plan shall be prepared by a certified arborist or licensed landscape architect and shall be submitted to the Environmental Coordinator for approval. The Replacement Oak Tree Planting Plan(s) shall include the following minimum elements:

1. Species, size and locations of all replacement plantings and < 6-inch dbh trees to be preserved;
2. Method of irrigation;
3. If planting in soils with a hardpan/duripan or claypan layer, include the Sacramento County Standard Tree Planting Detail L-1, including the 10-foot deep boring hole to provide for adequate drainage;
4. Planting, irrigation, and maintenance schedules;
5. Identification of the maintenance entity and a written agreement with that entity to provide care and irrigation of the trees for a 3-year establishment

period, and to replace any of the replacement oak trees which do not survive during that period; and

6. Designation of 20 foot root zone radius and landscaping to occur within the radius of oak trees < 6-inches dbh to be preserved on-site.

No replacement tree shall be planted within 15 feet of the driplines of existing oak trees or landmark size trees that are retained on-site. The minimum spacing for replacement oak trees shall be 20 feet on-center.

If oak tree replacement plantings are demonstrated to the satisfaction of the Environmental Coordinator to be infeasible for any or all trees removed, then compensation shall be through payment into the County Tree Preservation Fund. Payment shall be made at a rate of $325.00 per dbh inch removed but not otherwise compensated, or at the prevailing rate at the time payment into the fund is made.

Level of Significance After Mitigation: Less than Significant

WETLANDS

The prior FEIR/EIS concluded that the project would result in the phased destruction of all waters/wetlands on the Vineyard I and Aspen IV South sites. This was considered a Significant Impact.

The proposed project is a reclamation amendment for impacts to Vineyard I, Aspen III South and Aspen IV South mining sites. Table BR-5 below summarizes the impacts to waters of the U.S. associated with the three mining projects. The Aspen III South site does not contain waters of the U.S. Impacts as reported in the prior document to waters of the U.S. from Vineyard I and Aspen IV South sites total 19.0 acres.

Table BR-5: Impact on Waters of the U.S. (from the FEIR/EIS)

Type	Vineyard I	Aspen IV South*
Riparian (Morrison Creek)	12.24	1.09
Tributary	3.84	0.44
Seasonal Wetlands	1.14	0.25
Total	**17.22**	**1.78**

*Updated Aspen IV South wetland impacts are provided in Table BR-6.

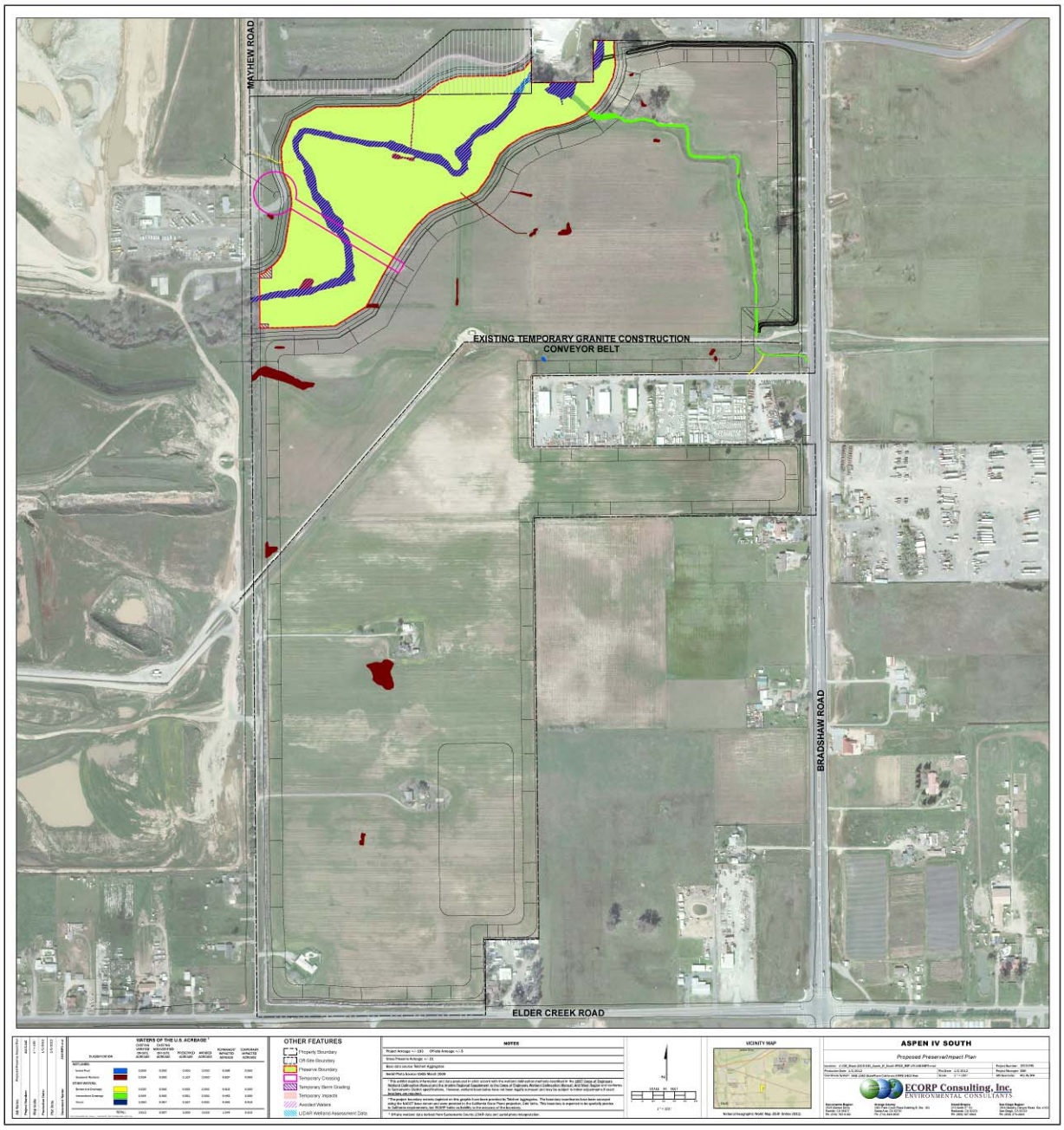
The revisions to the Aspen IV South site results in an overall decrease in impacts to waters of the U.S. An updated wetland delineation was provided by Teichert Aggregates and is provided on Plate BR-14. The wetland delineation shows the preservation area around Morrison Creek, which corresponds to the Morrison Creek floodplain. Table BR-6 provides the current acreages of water features on the Aspen IV South site and provides the impacts to waters of the U.S. of the prior project compared to impacts associated with the proposed project. Although impacts to the creek are eliminated, impacts to wetlands and drainage features have increased under the proposed project. This difference could be attributed to updated acreages of features since the last wetland delineation over 10 years ago. The impact to waters of the U.S. on the Aspen IV South site has decreased by 0.436 acres.

Table BR-6: Comparison of Impact to Waters of the U.S. on Aspen IV South of Prior Project and Proposed Project

Type	Existing Acreage (current acreages)	Prior Impact (in acres)	Proposed Impact (in acres)	Difference in Impact of Proposed Project
Vernal Pool/ Seasonal Wetland	0.942	0.25	0.835	+0.585
Ephemeral/ Intermittent Drainage	1.145	0.44	0.509	+0.069
Creek	2.290	1.09	0	-1.09
Total	3.812	1.78	1.344	-0.436

To mitigate impacts to waters of the U.S. the prior FEIR/EIS required that the project proponents secure a Streambed Alteration Agreement from CDFG and obtain a Section 404 permit pursuant to the federal Clean Water Act. Information from the project proponents indicate that a Streambed Alteration Agreement from CDFG, a Section 404 permit from the U.S. Army Corps of Engineers and a Section 401 Water Quality Certification from the Regional Water Quality Control Board have all been secured. It should be noted that due to the revisions for Aspen IV South, Teichert is in the process of applying for a revision to their issued Section 404 permit.

Plate BR-14: Aspen IV South Wetland Delineation Map



The proposed project is a reclamation plan amendment to change the previously approved corridor and bypass channel to what is now proposed as the Morrison Creek Realigned Channel on Vineyard I and Aspen III South and the Morrison Creek Raised Bank Channel on Aspen IV South. The proposed Morrison Creek Realigned Channel eliminates the bypass channel around the mining site and places the recreated stream corridor "at-grade" rather than at the bottom of the mining pit (as previously proposed). The proposed Morrison Creek Realigned Channel has been approved by the Corps of Engineers as adequate compensation for impacts to waters of the U.S. In addition, the Morrison Creek Realigned Channel has been designed to meet the requirements outlined in the issued Biological Opinion from the USFWS.

Special Condition #2 of the issued Section 404 permit for Vineyard I mining site identified that the there would be a loss of 17.22 acres of waters of the U.S. This condition required that as mitigation for the loss of 17.22 acres of waters of the U.S. the applicant shall construct at minimum 13.33-acre Morrison Creek replacement channel (the proposed Morrison Creek Realigned Channel), including an ox-bow diversion channel, a 1.65-acre ephemeral drainage and 1.11 acres of in-channel and/or emergent seasonal and perennial wetland habitats within an approximately 89-acre and 650-foot wide onsite corridor. This is in addition to the 3.79 acres of seasonal wetland/marsh and 0.53 acres of vernal pool habitat credits already purchased. The off-site mitigation credits were purchased at the Laguna Creek Mitigation Bank in August of 2002.

The issued Section 404 permit for Aspen IV South will be updated to reflect to the current project's avoidance of Morrison Creek. Impacts are now 1.344 acres of direct impacts to waters of the U.S.

In the wetland delineation prepared by Zentner and Zentner (1997) for the prior project, there were no wetlands identified on the Vineyard I expansion site, therefore, the current proposal to mine the Vineyard I expansion site will not have any impacts to wetlands/waters of the U.S.

To ensure that the proposed Morrison Creek Realigned Channel adequately mitigates for impacts to waters of the U.S., mitigation measures BR-1 (submittal of recorded conservation easement) and BR-2 (implementation of ten-year monitoring plan) will be required. Implementation of the recommended mitigation measures will ensure impacts to waters are less than significant.

Level of Significance Before Mitigation: Significant

Mitigation Measures:

BR-5 Implement Mitigation Measures BR-1 and BR-2.

Level of Significance After Mitigation: Less than Significant

WILDLIFE

The project site is habitat to various wildlife species. The prior FEIR/EIS made the following conclusions regarding impacts to wildlife:

1. *The proposed project would result in the loss of most existing wildlife habitat and some individual animals within the project site (Significant Impact).*

2. *The loss of approximately two miles of the existing natural stream channel of Morrison Creek would disrupt the wildlife movement corridor across the project site (Less than Significant Impact).*

3. *Post mining/post reclamation activities such as agricultural practices and operation of the processing plant would likely increase human presence within the project site which may disrupt wildlife feeding and breeding (Less than Significant).*

The prior FEIR/EIS concluded that mining the properties would result in habitat loss and wildlife displacement. Habitat destruction and disturbance would displace species into adjacent areas, which may result in increased mortality due to competition for limited resources.

As mitigation, the applicants were required to implement their proposed reclamation plan as presented in their application for surface mining, including the wetland mitigation plans (Zentner and Zentner, 1994; Sugnet and Associates, 1994b and 1994c) to mitigate for impacts to the riparian forest/riparian scrub communities, wetlands and wildlife habitats within the project site. Included in the mitigation was the requirement for monitoring of the riparian woodland, riparian scrub, and Valley oak savanna habitats for ten years to ensure success of the plantings and development of the habitats anticipated. With mitigation, this impact was found to be less than significant.

Mining the Vineyard I expansion site will not change the prior conclusion that mining activities would result in habitat loss and wildlife displacement. The proposed Morrison Creek Realigned Channel will replace lost habitats. Mitigation Measures BR-1 and BR-2 have been recommended to ensure the recreated habitats function adequately. In the *Wetland, Oak Woodland, and Riparian Mitigation and Monitoring Plans,* a wildlife survey will occur once per year and will be conducted in conjunction with vegetation monitoring. Upon compliance, impacts to wildlife will be considered less than significant.

Level of Significance Before Mitigation: Significant

Mitigation Measures:

BR-6 Implement Mitigation Measures BR-1 and BR-2

Level of Significance After Mitigation: Less than Significant

INVERTEBRATES

> *The prior FEIR/EIS concluded that there would be no significant impacts to general invertebrate populations (i.e., non-special status species populations). This impact was considered less than significant.*

The proposed project is a reclamation plan amendment that places the Morrison Creek Realigned Channel at grade, rather than at the bottom of the mining pit, and eliminates the need for a bypass channel, since the Morrison Creek Realigned Channel and Raised Bank Channel will accept up to 100-year flood flows. This amendment to the reclamation plan does not change the prior conclusion that there would be no significant impacts to general invertebrate populations.

Mining the Vineyard I expansion site would also not result in significant impacts to general invertebrate populations (non-special status species; for an analysis of impacts to special status species, please refer to the Special Status Species section below). The prior conclusion remains applicable to the proposed project; impacts to invertebrate populations are considered less than significant.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measures: None Required

FISHERIES

> *The prior FEIR/EIS concluded the following:*
>
> 1. *The proposed project would result in the loss of existing, warmwater fisheries habitat within approximately two miles of Morrison Creek, including oxbow channel, and some individual fish within the project site (Significant Impact).*
>
> 2. *Loss of approximately two miles of the existing stream channel of Morrison Creek would disrupt fish migration (Significant Impact).*

The prior FEIR/EIS determined that habitat destruction and disturbance as a result of mining activities would displace fish species into upstream and downstream areas, which may result in increased mortality due to competition for limited resources. It was acknowledged that fish may become established in the wetland mitigation/restored creek corridor, but some of these fish may be lost if they are entrained in the pump that will be located at the sump pond at the downstream end of the corridor on Vineyard I project site.

The prior FEIR/EIS included mitigation that required the bypass channel to be designed to incorporate suitable habitat features, which were to be developed in consultation with the USFWS, CDFG, Corps and County and which were to provide opportunities for the native Sacramento blackfish as well as other species of aquatic wildlife, including special status amphibians and reptiles.

The revised Morrison Creek Realigned Channel has been designed to mimic a natural stream (meandering channel), will have riparian vegetation planted throughout, and will connect upstream on the Aspen IV South mining site and to the downstream portion of existing Morrison Creek.

The prior project included a pump on the Vineyard I mining site since the recreated creek channel was to be located at the bottom of the mining pit. The pump was necessary to connect the recreated creek channel to the existing Morrison Creek channel at the western boundary of the Vineyard I mining site. However, the proposed Morrison Creek Realigned Channel is now located "at-grade", rather than at the bottom of the mining pit, which eliminates the need for the pump on the Vineyard I mining site. In addition, Morrison Creek will not be impacted on the Aspen IV South mining site; therefore, the prior significant impact relating to the loss of two miles of existing warm water fishery habitats within Morrison Creek has been lessened.

This proposed change to the reclamation plan would not result in a loss of existing stream channel since existing Morrison Creek will not be diverted into the proposed Morrison Creek Realigned Channel until it is constructed and vegetated. The *Wetland, Oak Woodland, and Riparian Mitigation and Monitoring Plan* contains a section on Sacramento blackfish and finds that

> The realignment of the Morrison Creek channel on the Project site will not pose a threat to the Sacramento blackfish. As noted by Moyle and others, the ability of the Sacramento blackfish to survive in warm, turbid waters allows them to persevere despite changes in their environment. Given the relatively short period of stream alteration, coupled with the blackfish's physiological adaptability to extreme environments, construction of the new and temporary channel should not disrupt the propagation of the Sacramento blackfish.

As proposed, the project will not have a significant impact to fish and aquatic species; impacts are now considered less than significant.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measures: None Required

IMPACTS TO SPECIAL STATUS SPECIES

AMERICAN BADGER

> *The prior FEIR/EIS concluded that the proposed project would result in the loss of approximately 880 acres of existing suitable American badger habitat and may result in the loss of existing potential badger den sites. This impact was determined to be less than significant.*

The prior FEIR/EIS concluded that American badgers, which may utilize the site, would be forced to immigrate to adjacent areas during mining activities, which may result in

increased mortality due to competition; however, it is unlikely that individuals would be killed during mining.

The proposed project includes mining an additional 5.6 acres on the Vineyard I mining site, which is surrounded by active mining activities. Since the site is actively being mined, the American badger has likely fled the project site; therefore, mining on the Vineyard I expansion site will not impact the American badger. In addition, the recreated Morrison Creek Realigned Channel and Raised Bank Channel will provide suitable habitat for the badger at completion of mining. Since the project will only result in temporarily displacing the American badger, impacts to the American badger are considered less than significant.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measures: None Required

Pallid Bat and Townsend's Western Big-Eared Bat

> *The prior FEIR/EIS concluded that the project would result in the temporary loss of potential roosting habitat for the Pallid bat and Townsend's western big-eared bat due to impacts to riparian habitat. The project was also found to result in the loss of other potential bat roosting sites due to demolition of abandoned structures on the site.*

The proposed project does not change the conclusion of the prior FEIR/EIS regarding loss of roosting habitat for bats. The loss of roosting habitat was considered to be temporary for the pallid bat and Townsend's western big-eared bat; however, as the riparian habitat will be replaced via the Morrison Creek Realigned Channel and Raised Bank Channel, it is expected that the pallid bat and Townsend western big-eared bat would return to the site at completion of mining.

The Vineyard I mining site contains an abandoned building which will have to be removed prior to mining. The building is potential roosting habitat for bats in the area; removal of the building would be a loss of potential roosting habitat for bats. However, this is not considered a significant impact. Impacts to the pallid bat, Townsend's western big-eared bat and other bats are considered less than significant.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measures: None Required

Valley Elderberry Longhorn Beetle (VELB)

> *The prior FEIR/EIS concluded that the prior project would result in the loss of nine elderberry bushes, including at least three bushes that were observed to be used by the VELB and thus would result in the loss of individual beetles.*

The prior FEIR/EIS stated that there would be seven elderberry bushes removed from the Vineyard I parcel. Three of these were observed to contain emergence holes typical of the VELB. These seven elderberry bushes contained 448 stems with diameters of one inch or greater. Two elderberry bushes on the Aspen IV South site were to be removed due to mining activities. Mitigation required elderberry bushes to be planted within the mitigation corridor on the Aspen IV South parcel following USFWS *Mitigation Guidelines for the Valley Elderberry Longhorn Beetle* (September 19, 1996).

The proponents for the Aspen IV South mining site were issued a Biological Opinion from the USFWS in May 2009, completing their informal (Section 7) endangered species consultation for impacts to special status species. ECORP conducted surveys on May 3 and June 16, 2006 and B. Baba, a biologist for Teichert Aggregates, conducted a survey on April 27, 2009. Neither survey identified elderberry shrubs on the Aspen IV South mining site. Therefore, the Service concurred with the applicant (Teichert) that mining the Aspen IV South site would not affect the VELB.

The proponents for the Vineyard I mining site completed their Section 7 consultation with the USFWS for their impact to the VELB. The service issued a Biological Opinion on March 18, 2002. The Biological Opinion stated that the proposed project may adversely affect the VELB through the destruction of its habitat, as suitable habitat and evidence of the species was identified on the Vineyard I mining site.

The Service had determined that it was appropriate to append the Granite Construction Vineyard I Aggregate Mining project to the Service's September 19, 1996, *Programmatic Formal Consultation Permitting Projects with Relatively Small Effects on the Valley Elderberry Longhorn Beetle Within the Jurisdiction of the Sacramento Field Office, California* (Programmatic Consultation) (Corps File # 199600065). In the issued Biological Opinion for the Vineyard I mining site, the USFWS determined that the riparian habitat associated with Morrison Creek contained elderberry shrubs, the necessary habitat for the federally threatened valley elderberry longhorn beetle (VELB). The Service made the determination that the proposed project will adversely affect the beetle by removing seven elderberry shrubs with stems greater than one inch diameter at ground level from the project site. The USFWS required Granite Construction to either: (1) purchase beetle credits at a Service-approved conservation bank equivalent to compensate for 410 elderberry plantings and 782 associated native plant plantings or (2) establish a Service-approved beetle conservation area that contains at least 410 elderberry plantings and 782 associated native plant plantings within at least 4.93 acres. Granite purchased 120 VELB units representing 410 elderberry bush seedlings and 782 associated native plants.

Although the prior FEIR/EIS stated that impacts to VELB were significant and unavoidable, incidental take permits from the USFWS are only issued when the Service considers that the impacts of the project will not adversely affect the continued existence of the species, consistent with the Endangered Species Act. Since Granite received their incidental take permit for VELB from the Service for the Vineyard I mining site, and Granite completed compensatory mitigation via purchase of VELB credits at a

Service-approved conservation bank, impacts to VELB are now considered less than significant.

The Vineyard I expansion site does not contain any elderberry bushes. Inclusion of this site for mining activities will not result in the loss of elderberry bushes and will not affect the VELB. Mitigation from the prior project has been completed. No additional mitigation measures are required; impacts to VELB and their habitats are now considered less than significant.

Level of Significance Before Mitigation: Less than significant

Mitigation Measures: None Required – prior mitigation has been completed

Special Status Vernal Pool Invertebrates

> *The prior FEIR/EIS concluded that the proposed project would eliminate some of the existing potential habitat for the federally listed threatened and endangered fairy shrimp and tadpole shrimp and may result in the loss of individuals of these species. This was considered a significant impact.*

In the issued Biological Opinion for Granite Construction's Vineyard I mining site, the USFWS determined that the project would adversely affect the vernal pool fairy shrimp by destroying a 0.53 acre wetland (identified as Wetland #6). Consistent with the Crustacean Programmatic Consultation, Granite was required to purchase 1.06 acre of vernal pool preservation credits and 0.53 acre of vernal pool creation credits from a Service-approved conservation bank. Granite purchased 1.06 acres of vernal pool preservation credits and 0.53 acres of vernal pool creation credits at the Sunrise-Douglas Mitigation Bank in Sacramento County to mitigate for this impact.

For Teichert Aggregate's Aspen IV South mining site, surveys were conducted and no federally-listed vernal pool crustaceans were found to occupy any of the pools on the Aspen IV South site. In the issued Biological Opinion the Service did not concur that mining the Aspen IV South site would not effect vernal pool crustaceans, but instead concluded that the project is not likely to adversely affect vernal pool crustaceans.

In the wetland delineation prepared by Zentner and Zentner (1997) for the prior project, there were no wetlands on the proposed Vineyard I expansion site, therefore, mining the Vineyard I expansion site will not have any impacts to vernal pool fairy shrimp or tadpole shrimp not previously identified. The proposed project will not have an impact to special status vernal pool invertebrates. Although the proposed project does not result in a significant impact to vernal pool invertebrates, the prior conclusion remains applicable.

The project proponents have consulted with the USFWS and have purchased necessary vernal pool preservation and creation credits at an approved mitigation bank. The proposed Morrison Creek Realigned Channel will replace wetland habitats, and the *Wetland, Oak Woodland, and Riparian Mitigation and Monitoring Plan* contains

monitoring efforts to ensure that the mitigation corridor provides the necessary wetland habitats; therefore, implementation of mitigation measures BR-2 has been recommended. In addition, Mitigation Measure BR-1 (submittal of the recorded conservation easement prior to the issuance of a work authorization permit) has been included. These measures will ensure that impacts to vernal pool invertebrates are less than significant.

Level of Significance Before Mitigation: Significant

Mitigation Measures:

BR-7 Implement Mitigation Measures BR-1 and BR-2.

Level of Significance After Mitigation: Less than Significant

Swainson's Hawk and Other Special Status Birds (Burrowing Owl and Tricolored Blackbird)

> *The prior FEIR/EIS concluded that the proposed project would result in the temporary loss of approximately 880 acres of potential foraging habitat, with potential nesting sites, for Swainson's hawk (State threatened species) in those areas that would be reclaimed to agriculture and wetlands. This would also relate to losses in suitable foraging and nesting habitat for other special status birds, including burrowing owls and tricolored blackbirds. This was determined to be a significant impact.*

The loss of habitat for the special status birds was considered temporary since the post-reclamation use of the project site would include a wetland/habitat mitigation corridor with areas of riparian, marsh and oak savannah restoration and agriculture. The revised Morrison Creek Realigned Channel and Raised Bank Channel does not change the overall post-reclamation use of the site and as such, the prior conclusion does not change. The prior FEIR/EIS further stated that because mining would be phased, only 75 to 150 acres of the 966-acre project site would be disturbed at any one time. It was anticipated that the post-reclamation mining areas would provide potential nesting and foraging habitat for the Swainson's hawk and other raptors, assuming the crops planted are suitable for Swainson's hawk foraging (such as alfalfa, dry-land irrigated pasture, cereal grains, beet, tomato or other low-growing row or field crop).

The prior FEIR/EIS indicated that burrowing owls may also nest within the post-reclamation project site, within the mitigation corridor, the banks of the bypass channel and the side slopes of the individual mined sites, assuming that the rodents and small mammals remain to create potential den sites.

For impacts to tricolored blackbirds, it was determined that the project would result in a temporary loss of potential nesting habitat along the Morrison Creek corridor. Tricolored blackbirds utilizing the site would be forced to migrate to adjacent areas during the mining activities which may result in mortality due to competition. The post-reclamation

mitigation corridor is expected to provide suitable tricolored blackbird nesting habitat in the marsh and riparian habitats.

The Vineyard I expansion site is surrounded by mining activities. A portion of Morrison Creek is located along the eastern boundary of the Vineyard I expansion site (on APN: 063-0090-009). Riparian habitat along Morrison Creek provides potential habitat for the tricolored blackbird. This portion of Morrison Creek will eventually be mined; however, not until the recreated Morrison Creek Realigned Channel is in place. The Morrison Creek Realigned Channel is currently being constructed and will contain riparian, marsh and wetland habitats, which is suitable nesting habitat for the tricolored blackbird.

The proposed reclamation plan amendment eliminates the bypass channel and places the recreated Morrison Creek Realigned Channel at-grade, rather than at the bottom of the mining pit. However, the corridor retains the originally proposed riparian, marsh and wetland habitats as previously proposed. Therefore, the proposed reclamation plan amendment does not adversely affect the Swainson's hawk, burrowing owl or tricolored blackbird.

Mitigation to minimize the potential impacts to Swainson's hawk, burrowing owl and other special status birds was required. Mitigation included pre-construction surveys and avoidance measures remain applicable to the Vineyard I expansion site and has been included below; upon compliance, impacts to Swainson's hawk, burrowing owl and other bird species will be considered less than significant.

Level of Significance Before Mitigation: Potentially Significant

Mitigation Measures:

BR-8 Prior to the issuance of a Work Authorization Permit, if mining the Vineyard I expansion site is to occur between March 1 and September 15, a focused survey for Swainson's hawk nests on the site and on nearby trees shall take place within ½ mile for rural sites and ¼ mile for urban sites, and shall be conducted by a qualified biologist within 14 days prior to the start of construction work (including clearing and grubbing). If active nests are found, the California Department of Fish and Game (CDFG) shall be contacted to determine appropriate protective measures. If no active nests are found during the focused survey, no further mitigation will be required.

BR-9 Burrowing Owl Survey: Prior to mining activities, a focused survey shall be conducted by a qualified biologist for burrowing owls where suitable habitat is present in the project area. Suitable habitat includes agricultural field margins, drainage ditches and fallow fields. Surveys shall be conducted no less than 14 days and no more than 30 days prior to commencement of construction activities. Surveys shall be conducted in accordance with CDFG protocol (CDFG, 1995).

a. If no occupied burrows are found in the survey area, a letter report documenting survey methods and findings shall be submitted to the County and no further mitigation is necessary.

b. If an occupied burrow is found, the applicant shall contact DERA and consult with CDFG, prior to construction or mining activities, to determine if avoidance is possible or if burrow relocation will be required.

c. If owls are to remain on-site, a minimum of 6.5 acres of foraging habitat for each occupied burrow needs to be permanently preserved according to CDFG guidelines.

d. In order to avoid direct impacts to owls, no activity shall take place within 160 feet of an active burrow from September 1 to January 31 (wintering season) or 250 feet from February 1 through August 31 (breeding season). Protective fencing shall be placed, at the distances above, around the active burrows and no activity shall occur within the protected buffer areas.

e. Any impact to active owl burrows, relocation of owls or mitigation for habitat loss shall be done in accordance with CDFG guidelines. Written evidence from CDFG staff shall be provided to DERA attesting to the permission to remove burrows, relocated owls, mitigate for lost habitat and provide a method for preservation habitat in perpetuity.

BR-10 Survey for Tricolored Blackbirds: If mining activities occur between March 1 and July 31, a pre-construction survey for nesting tricolored blackbird shall be performed by a qualified biologist. Surveys shall include the project site and areas of appropriate habitat within 300 feet of the site. Surveys shall be conducted no less than 14 days and no more than 30 days prior to commencement of mining activities. The biologist shall supply a brief written report (including date, time of survey, survey method, name of surveyor and survey results) to the Department of Environmental Review and Assessment (DERA) prior to ground disturbing activity. If no tricolored blackbirds are found during the pre-construction survey, no further mitigation will be required. If an active tricolored blackbird colony is found on-site or within 300 feet of the project site, the project proponent shall do the following:

a. Consult with the CDFG to determine if project activity will impact the tricolored blackbird colony(s). Provide DERA with written evidence of the consult or a contact name and number from CDFG.

b. With CDFG permission, the applicant may avoid impacts to tricolored blackbirds by establishing a 300-foot temporary setback with fencing that prevents any project activity within 300 feet of the colony. A qualified biologist shall verify that setbacks and fencing are adequate and will determine when the colonies are no longer dependent on the nesting

habitat (i.e., nestling have fledged and are no longer using habitat). The breeding season typically ends in July.

c. If the tricolored blackbird habitat is permanently destroyed, follow CDFG procedure to mitigate for habitat loss.

Level of Significance After Mitigation: Less than Significant

Special Status Plants

The prior FEIR/EIS concluded that the project would not significantly impact any special status plants since none were known to occur within the project site.

The prior FEIR/EIS stated that there were eleven special status plant species that had the potential to occur within the project site, but none were observed during surveys conducted by the project proponents. Vernal pools and wetlands that were on the site were considered suitable habitat for these special status plants. The proposed project replaces some of the wetland acreage that was lost as a result of mining the site; the proposed project will not impact wetlands or vernal pools since there are no wetlands or vernal pools on the Vineyard I expansion site. The proposed project will not impact special status plants; impacts are considered less than significant.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measures: None Required

Giant Garter Snake

The prior FEIR/EIS stated that the giant garter snake is not expected to use Morrison Creek in the project area; however, in the Aspen IV South issued Biological Opinion, the USFWS presumed the presence of the giant garter snake in the project area. Impacts to the giant garter snake are expected to be less than significant.

The prior FEIR/EIS stated that the giant garter snake is not expected to use Morrison Creek in this area (page 5-51 of FEIR/EIS). The giant garter snake is a federally threatened species. The issued Biological Opinion for the Aspen IV South site included the following discussion:

> In your initiation letter you did not include the snake in your consultation. However, due to a hydrologic connection between the proposed action area and the closest known occurrence approximately 7 miles away, the Service has determined the proposed project may affect the snake. Morrison Creek which lies within the action area may provide dispersal habitat for the snake; however the project proponent has proposed minimization and avoidance measures which will reduce the effects of the proposed project down to a level of insignificance. Therefore, the Service has determined the proposed project is not likely to

adversely affect the snake. The minimization and avoidance measures proposed by the applicant are:

- Prior to the start of construction for each year mining will occur within the creek, exclusion fencing will be installed along the western boundary of the project, extending 50 feet to the south and north of the creek. This fencing will consist of silt fencing trenched in such that snakes will be unable to gain access under the fence. The fencing will be removed at the end of each construction season.

- Prior to the start of construction for each year mining will occur within the creek, a pre-construction survey of the area to be mined will be conducted by a qualified biologist. If giant garter snakes are located, the Service will be contacted.

- Prior to the start of construction for each year mining will occur within the creek, worker awareness training will be conducted to educate workers regarding giant garter snake identification and procedures if a giant garter snake is located.

Revisions to the Aspen IV South mining site will not result in mining activities through or near Morrison Creek. The construction of the Raised Bank Channel will not impact the creek and in most locations will be constructed greater than 50 feet from the creek; therefore, the minimization and avoidance measures provided in the issued Biological Opinion are no longer applicable to this portion of the project on Aspen IV South.

The issued Biological Opinion for the Vineyard I mining site does not address the giant garter snake; therefore, it is assumed that there are no impacts to the giant garter snake on the Vineyard I mining site.

The proposed project will not have adverse impacts to the giant garter snake; impacts are considered less than significant.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measures: None Required

CUMULATIVE IMPACTS

The overall loss of a segment of Morrison Creek across Vineyard I does not result in a cumulative impact since the proposed recreated Morrison Creek Realigned Channel replaces the creek by recreating the lost habitats and has been designed to mirror (function as) a natural creek. At the completion of mining, in the post reclamation condition, wildlife will return to the site since the habitats will be replaced and mining activities will have stopped. The loss of native oak trees would be replaced and fully mitigated. It has been determined through the federal permit process that pursuant to

the Endangered Species Act, the continued existence of special status species would not be adversely affected. For these reasons, cumulative biological resources impacts are considered **less than significant**.

11 TRAFFIC AND CIRCULATION

INTRODUCTION

This chapter describes the project's potential to impact traffic and circulation in the project area.

The mining sites in this project include Vineyard I, Aspen III South and Aspen IV South. The proposed Project includes revisions to the previously approved reclamation plan, consistent with permits received from the County, State and federal regulatory agencies. The previous reclamation plan consisted of a below grade, 600-foot wide riparian corridor/low-flow channel within the bottom of the mining pit in generally the same location as the existing creek and an at-grade trapezoidal bypass channel around the perimeter of the three mining sites. The proposed Project revises the previously approved reclamation plan by completely eliminating the at-grade trapezoidal bypass channel component and changing the below grade, 600-foot wide riparian corridor/low-flow channel to an at-grade mitigation corridor (Morrison Creek Realigned Channel) on the Vineyard I and Aspen III South mining properties. The Morrison Creek Realigned Channel has been designed to contain the 100-year flood flows. On the Aspen IV South property, the existing Morrison Creek channel will now be preserved and a raised bank flood control channel (Raised Bank Channel) is proposed to be constructed outside the effective FEMA floodway. The Morrison Creek Realigned Channel will connect with the preserved Morrison Creek channel on Aspen IV South.

The proposed Project also consists of a request for a rezone and a use permit amendment to allow aggregate mining on an additional 5.61 acres (two parcels) and to incorporate this new area into the previously approved Vineyard I mining plan (referred as Vineyard I mining expansion). In addition, the Vineyard I mining expansion will be incorporated into the previously approved reclamation plan, including revisions consistent with the requested reclamation amendments described above. The Vineyard I mining expansion would be the only aspect of the proposed project that could affect traffic as the reclamation plan amendment will not have an impact on traffic.

ENVIRONMENTAL SETTING

The mining sites (Vineyard I, Aspen III South and Aspen IV South) are located in central Sacramento County, south of Jackson Highway (SR 16) and east of Bradshaw Road. Other major roadways in the vicinity of the project include Watt Avenue (2.5 miles to the west), Kiefer Boulevard (1 mile to the north) and Elder Creek Road (1.1 mile to the south). Highway 50 is 2.5 miles to the north.

Currently, surface mining is occurring on the Vineyard I, Aspen III South and Aspen V South sites. Aspen IV South is not currently being mined and is not expected to be mined until after mining is completed at Aspen V South.

REGULATORY SETTING

STATE

Jackson Highway (SR 16) is in the project area. The standard for Caltrans' (California Department of Transportation) SR 16 (Jackson Highway) is detailed in the SR 16 Route Concept Report. The minimum acceptable operating condition for SR 16 is LOS E.

REGIONAL AND LOCAL

METROPOLITAN TRANSPORTATION PLAN FOR 2035

The Metropolitan Transportation Plan (MTP) 2035 is a long range planning document for identifying and programming roadway improvements throughout the Sacramento region (Sacramento Area Council of Governments [SACOG] 2008). The MTP has a history of being able to fund and deliver Tier 1 projects through State and local funding. In 2002, SACOG adopted the MTP 2035 that involved funding programs, connector projects, and expansion of public transit. SACOG has developed a 2050 Blueprint Preferred Land-Use Alternative to develop a 2030 land use base for the next generation MTP.

METHODOLOGIES

LEVELS OF SERVICE

Roadway operating conditions are described in terms of levels of service (LOS). Level of service is a qualitative measure of the effect of a number of factors, which include speed and travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience and operating costs. LOS is represented by a letter designation, ranging from LOS A to LOS F, with LOS A representing the best operating conditions and LOS F as the worst. The LOS definitions are provided in Table TC-1.

Table TC-1: Level of Service (LOS) Definitions

LOS A	LOS A describes primarily free-flow operations at average travel speeds, usually 90 percent of the free-flow speed for the given street class. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Control delay at signalized intersections is minimal.
LOS B	LOS B describes reasonably free-flow operations at average travel speeds, usually 70 percent of the free-flow speed for the given street class. The ability to maneuver within the traffic stream is only slightly restricted and control delay at signalized intersections are not significant.
LOS C	LOS C describes stable operations; however, ability to maneuver and change lanes in midblock locations may be more restricted than at LOS B and longer queues, adverse signal coordination, or both may contribute to lower average travel speeds of about 50 percent of the free-flow speed for the street class.
LOS D	LOS D borders on a range in which small increases in flow may cause substantial increases in delay and decreases in travel speed. LOS D may be due to adverse signal progression, inappropriate signal timing, high volumes, or a combination of these factors. Average travel speeds are about 40 percent of the free-flow speed.
LOS E	LOS E is characterized by significant delays and average travel speeds of 33 percent or less of the free-flow speed. Such operations are caused by a combination of adverse progression, high signal delay, high volumes, extensive delays at critical intersections and inappropriate signal timing.
LOS F	LOS F is characterized by urban street flow at extremely low speeds, typically one-third to one-fourth of the free-flow speed. Intersection congestion is likely at critical signalized locations, with high delays, high volumes and extensive queuing.

Source: *Highway Capacity Manual*, Transportation Research Board, Special Report No. 209, Washington, D.C., 2000.

Sacramento County identifies LOS E as the minimum acceptable standard for intersection and roadway operations within the Urban Service Boundary (USB), and LOS D outside the USB. The project site is located within the USB; LOS E will be the minimum acceptable standard for the proposed project.

STANDARDS OF SIGNIFICANCE

Appendix G of the California Environmental Quality Act (CEQA) provides guidance for assessing the significance of potential environmental impacts. Relative to traffic and circulation, a project will normally have a significant effect on the environment if it will:

- Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections);
- Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways;
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);
- Result in inadequate emergency access; or
- Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks).

IMPACTS AND ANALYSIS

Following the review of the prior Draft EIR/EIS, project proponents were able to reach agreement on the easements necessary to allow the conveyor access proposed in the "Proposed Project Without Vineyard Processing Plant". In addition, new conditions of approval were recommended. The traffic model that was used in assessing the project's impacts was re-run for the preferred project ("Proposed Project Without Vineyard Processing Plant"), assuming the recommended conditions were in place. This analysis was included in the FEIR/EIS as "scenario 4a". Scenario 4a had its own mitigation measures and it is those measures that will be addressed in this analysis section.

ADDITIONAL HAUL TRUCKS ON THE ROADWAY SYSTEM

> *The prior FEIR/EIS determined that the existing LOS would deteriorate due to trips generated by removal of overburden material and by employees and maintenance vehicle activity. This was found to be a significant impact which could be reduced to less than significant with mitigation*.

It has been estimated by Granite that mining the expansion site would take approximately 6 months time and that removal of overburden would not require the use of on-road haul trucks, as the overburden would be moved around the Vineyard I mining site by mining equipment and transportation of the mined aggregate to the processing plant would be via the existing conveyor. There will be no new haul trucks on the local

roadway as a result of the proposed project. Mining the Vineyard I expansion site would not result in an increase in workers.

Caltrans submitted a comment letter during the NOP comment period for the proposed project and requested a Traffic Impact Study (TIS); however, it is the opinion of the preparers of this supplemental EIR that a TIS is not necessary since there will be no additional haul trucks on the local roadways as a result of project approval.

Sacramento County Department of Transportation (SacDOT) provides maintenance, planning and design services. Staff (T. Urquhart) of the Sacramento County Department of Transportation (DOT) reviewed the proposed project and submitted conditions of approval for the three mining sites (letters dated July 11, 2008 for Vineyard I, July 25, 2008 for Aspen III South and July 28, 2008 for Aspen IV South). DOT submitted the standard conditions of approval, such as right-of-way, public street improvements and driveway standards. These will be addressed in the Planning Department's staff report and they do not result in any significant environmental impacts.

The prior FEIR/EIS concluded that as a result of additional haul trucks on the roadway system, impacts would be considered significant. Mitigation was proposed to reduce this impact to less than significant. One of the recommended mitigation measures from the FEIR/EIS remains applicable to the proposed project. This measure required that transportation of mined aggregate material to the processing plants was to be by conveyor only. A new mitigation measure has been included for the proposed project to ensure that there are no additional trucks are added to the roadway system. This mitigation states that if overburden must be removed from the Vineyard I mining site, overburden must be transported by conveyor or internal vehicles only.

Level of Significance Before Mitigation: Potentially Significant

Mitigation Measures:

TC-1 The proponents shall transport mined aggregate material to the processing plants only by conveyor and not by trucks.

TC-2 If overburden from the Vineyard I mining expansion site is to be removed from the site, overburden transport shall be by conveyor and internal vehicles only and not by on-road haul trucks.

Level of Significance After Mitigation: Less than Significant

IMPACTS ON TRAFFIC SAFETY

The prior FEIR/EIS concluded that the introduction of truck traffic on (1) roads not designed to accommodate truck traffic and (2) at access points to heavily traveled roads, would have a significant adverse impact on traffic safety. With mitigation, this impact was reduced to less than significant.

The proposed project will not result in an increase in haul trucks. Two mitigation measures were recommended in the FEIR/EIS that would reduce this impact to less than significant; both measures have already been completed by the mining proponents. Impacts on traffic safety as a result of project approval are now considered to be less than significant.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measures: None Required

DETERIORATION OF PAVEMENT AND DAMAGE TO ROADWAY STRUCTURAL SECTIONS

> *The prior FEIR/EIS concluded that the increased truck traffic of the project may contribute to additional deterioration of the pavement on roadways near the project site entrances, and have the potential to damage the roadway structural section. This was found to be a significant impact that could be reduced to less than significant with mitigation.*

The proposed project will not result in the introduction of new trucks on the roadway system. Trucks that are currently traveling to and from the project sites will not increase as a result of the proposed project.

Mitigation from the prior FEIR/EIS required that the proponents repair any damages to structural paving material along sections of project site roadway segments upon which loaded trucks are routed; to the extent such damage is caused by traffic which occurs during the period of hauling operations. The mitigation measure required an agreement between DOT and the mining proponents to be formalized prior to the issuance of work authorization. This measure would reduce impacts to less than significant. This agreement went before the Sacramento County Board of Supervisors in December 2001 and was approved as a consent item. With the agreement in place, impacts are now considered less than significant.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measure: None Required

EXCEED LOS STANDARD

> *The prior FEIR/EIS concluded that under scenario 4a, there would not be a significant impact to the level of service for the area roadways. Under cumulative conditions, it was found that under scenario 4a, significant impacts could be reduced to less than significant.*

Since the proposed project will not result in an increase in truck traffic, the level of service for area roadways would not be impacted. The cumulative condition in the prior FEIR/EIS was considered to be the year 2010. Mitigation that could reduce significant

impacts to less than significant in the cumulative condition has been completed. Since the mitigation is in place, and there is not an increase in truck traffic as a result of project approval, impacts to the level of service on area roadways in the existing and cumulative conditions are considered less than significant.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measures: None Required

CUMULATIVE IMPACT

The proposed project would not introduce new haul trucks to the local roadway network since the existing conveyor will be utilized to transport the mined material from the site to the processing plant located offsite. In addition, roadway improvements that were required through the prior FEIR/EIS have been completed; thus, there are no additional impacts as a result of the proposed project. The proposed project does not result in any significant traffic related impacts and the project will not generate any traffic in the cumulative condition as mining will be complete. Therefore, there are no cumulative traffic and circulation impacts as a result of project approval; cumulative traffic impacts are considered **less than significant**.

12 LAND USE

INTRODUCTION

This chapter describes the existing land uses within the vicinity of the project site and analyzes the potential land use impacts of the proposed project as well as the project's consistency with the Mather Field Comprehensive Land Use Plan (CLUP). Where appropriate, mitigation is included to reduce or eliminate land use impacts.

The mining sites in this project include Vineyard I, Aspen III South and Aspen IV South. The proposed project includes revisions to the previously approved reclamation plan, consistent with permits received from the County, State and federal regulatory agencies. The previous reclamation plan consisted of a below grade, 600-foot wide riparian corridor/low-flow channel within the bottom of the mining pit in generally the same location as the existing creek and an at-grade trapezoidal bypass channel around the perimeter of the three mining sites. The proposed project revises the previously approved reclamation plan by completely eliminating the at-grade trapezoidal bypass channel component and changing the below grade, 600-foot wide riparian corridor/low-flow channel to an at-grade mitigation corridor (Morrison Creek Realigned Channel) on the Vineyard I and Aspen III South mining properties. The Morrison Creek Realigned Channel has been designed to contain the 100-year flows. On the Aspen IV South property, the existing Morrison Creek channel will now be preserved and a raised bank flood control channel (Raised Bank Channel) is proposed to be constructed outside the effective FEMA floodway. The Morrison Creek Realigned Channel will connect with the preserved Morrison Creek channel on Aspen IV South.

The proposed project also consists of a request for a rezone and a use permit amendment to allow aggregate mining on an additional 5.61 acres (two parcels) and to incorporate this new area into the previously approved Vineyard I mining plan (referred as Vineyard I mining expansion). In addition, the Vineyard I mining expansion will be incorporated into the previously approved reclamation plan, including revisions consistent with the requested reclamation amendments described above. The location of a retention basin on the Vineyard I mining site has been determined for the proposed project, as well an option for a retention basin on the Aspen IV South mining site.

LOCATION

The proposed project is located within the Vineyard Community Plan Area in the unincorporated area of Sacramento County. The Vineyard I project parcels are located at the northeast corner of Hedge Road and Elder Creek Road. The Aspen III South project parcels are located in the southwest corner of Fruitridge Road and Mayhew

Road. The Aspen IV South project parcels are located at the northeast corner of Mayhew Road and Elder Creek Road. Plate LU-1 presents the regional location and Plate LU-2 presents the location of the project parcels and existing zoning.

ENVIRONMENTAL SETTING

The project parcels are part of a larger aggregate mining area. The project parcels are all zoned Industrial Reserve (IR) with a surface mining land use overlay, with the exception of one of the Vineyard I parcels with an assessor's parcel number, 063-0090-009. This is one of the two parcels that are the subject of a requested rezone and mining use permit request.

The Vineyard I mining expansion site is currently surrounded by active mining on the Vineyard I and Aspen III South mining sites. Mining on the Aspen IV South property has not yet commenced. The perimeter of Vineyard I and Aspen III South mining properties are enclosed by fencing and have vegetated screens in place.

REGULATORY SETTING

SACRAMENTO COUNTY GENERAL PLAN (GP)

The current General Plan Land Use Diagram (adopted November 2011) designates the project area as Agricultural-Urban Reserve with an Aggregate Resource Area combining land use.

The Sacramento County General Plan provides the following descriptions of these land use designations:

Agricultural – Urban Reserve: This land use designation identifies areas for urban expansion after the 20-year planning period. One large area given this designation is reserved for aggregate resource mining. These areas will be evaluated for their development potential when the level of growth in the planned urban areas justifies their need, mining is completed, and the area is restored. Because most of this land is intended for mining it will receive no additional urban services (e.g. water and sewer systems) above the level existing when the land was first designated. Further, land divisions incompatible with orderly and well planned future urban development are not permitted.

Plate LU-1: Regional Project Location

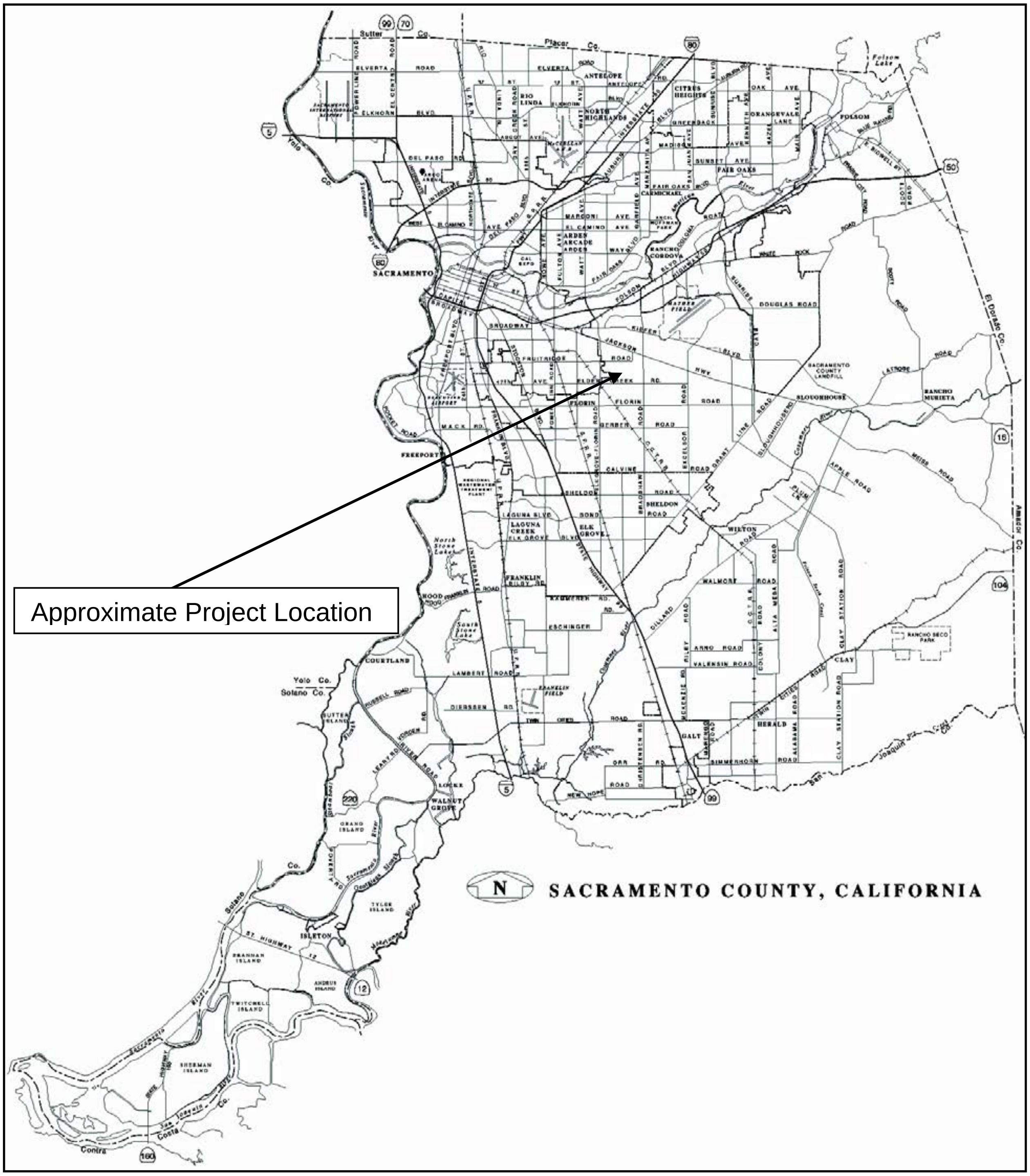
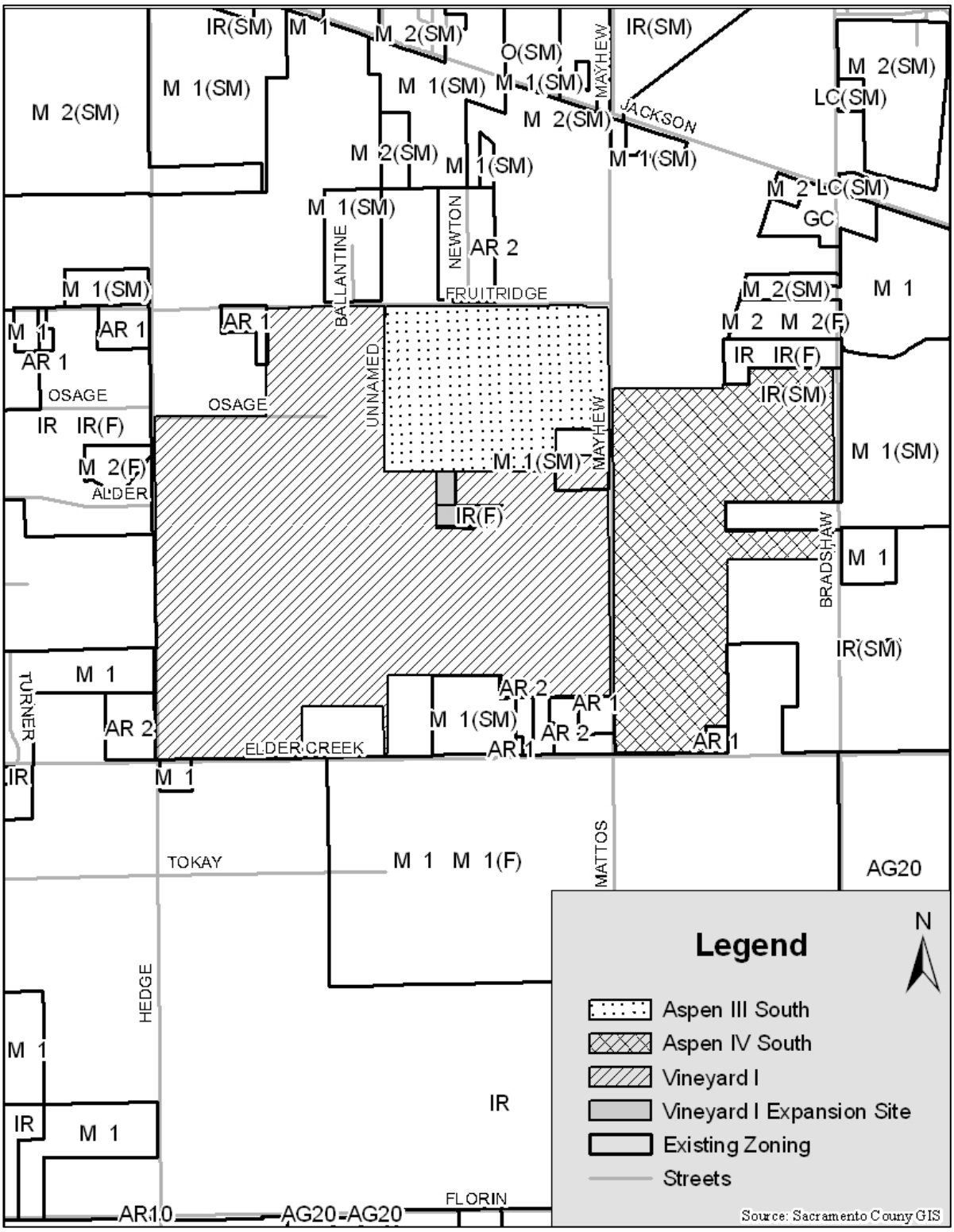


Plate LU-2: Project Location and Zoning Map



Combining Land Use Designations

According to the General Plan Land Use Element, the Combining Land Use designations recognize the underlying zoning as the guide to land uses which are permitted on any particular piece of property. This approach preserves selected natural resources without imposing unnecessary restrictions on the use of the land.

> Aggregate Resource Area: The purpose of the Aggregate Resource Area combining designation is to identify areas with valuable mineral resources and protect those resources as open space until the area is mined. While surface mining is an industrial activity, its locational requirements are dependent upon the physical location of aggregate resources. Specific policies apply to these areas that encourage the conservation and efficient use of mineral resources, while ensuring the maximum feasible protection of the environment. This land use designation is combined with designations such as Industrial Extensive, Agricultural-Urban Reserve, Agricultural Cropland, and General Agriculture (20 and 80 acres). These areas may be ultimately reclaimed for residential, industrial or other uses.

COMMUNITY PLAN

The Vineyard Community Plan designates the approved Vineyard I, Aspen III South and Aspen IV South aggregate mining sites as Industrial Reserve (IR), with a combining zone designation of surface mining (SM). Granite has requested a Community Plan Amendment and corresponding rezone to designate the Vineyard I mining expansion properties as IR (SM) (F).

ZONING

The Vineyard I mining expansion parcels include APN 063-0090-018, previously known as the Cook property and APN 063-0090-009, previously known as the Smith property. The Cook parcel is currently zoned industrial reserve (IR) with a surface mining (SM) land use overlay and the Smith parcel is currently zoned industrial reserve (IR) with a tributary (T) combining land use. The project parcels of the Vineyard I, Aspen III South and Aspen IV South sites are all zoned Industrial Reserve (IR) with a surface mining (SM) land use overlay. In addition, a majority of the parcels have an additional flood combining zone, designated as (F), due to proximity to Morrison Creek.

THE SURFACE MINING COMBINING LAND USE ZONE

The Surface Mining (SM) combining land use zone is provided in Article 4 of Title II of the Zoning Code; Section 235-40 outlines the purpose of the SM Combining Zone as the following: the SM Combining Zone is designed to protect the natural resources of Sacramento County from incompatible land use; to manage these mineral resources; to assure the County of an adequate supply of these resources with due consideration for the environment; and to provide for the restoration of mined lands for future use.

Section 235-43 provides a list of the mining operations permitted in the SM Combining Zone subject to approval of a conditional use permit by the Board after recommendation by the Project Planning Commission and Section 235-45 outlines the requirements for the issuance of a Work Authorization Permit. In addition, aggregate mining application data, standards and guidelines are provided in Section 235-51 of the Zoning Code. These requirements address what information shall be contained in a mining application as they pertain to the following: mining plan; reclamation plan; soils, geologic and hydrologic data; traffic; air pollution control measures; noise data; waste data; drainage plan; hazardous materials; landscaping plan; lighting plan; and a regional analysis of ancillary uses.

The Zoning Code also provides operating standards for aggregate mining operations such as operating and haul out hours, fences, posting of warning and complaint information signs, visual screens, setbacks, noise standards, roadway repairs on loaded truck routes and standards for backfilling, regrading and slope stability.

COMPREHENSIVE LAND USE PLAN (CLUP) AND MATHER AIRPORT POLICY

The project site is located within the Mather Airport Comprehensive Land Use Plan (CLUP). The CLUP contains restrictions on land uses for properties adjacent to Mather Airport in three major areas: safety, noise and height restrictions. Refer to the Impacts and Analysis section below for a discussion regarding consistency with the Mather Airport CLUP.

STANDARDS OF SIGNIFICANCE

Appendix G of the California Environmental Quality Act (CEQA) provides guidance for assessing the significance of potential environmental impacts. Relative to land use, a project will normally have a significant effect on the environment if it will:

- Physically divide an established community;
- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect;
- Conflict with any applicable habitat conservation plan or natural community conservation plan; or
- Be incompatible with existing land use or planned growth in the vicinity of the project.

ENVIRONMENTAL IMPACTS AND ANALYSIS

CONFLICT WITH NEARBY LAND USES

The Morrison Creek Mining Reach Downstream (South) of Jackson Highway prior FEIR/EIS concluded that mining in the area would potentially conflict with on-site and nearby land uses. The addition of the 5.6 acres of mining land associated with the proposed project does not substantially change the prior conclusion.

The prior FEIR/EIS concluded that the "proposed mining operations would potentially conflict with on-site and nearby land uses, especially residences located on agricultural parcels surrounded by the project site, and the adjacent residences, religious temple and health club" (page 5-84 of FEIR/S). It was concluded that the adjacent uses would be directly exposed to several nuisances throughout the life of the project including: increased noise associated with aggregate mining and processing; increased heavy truck traffic and traffic noise during initial overburden removal and throughout the life of the project; windblown dust from mining operations and access roads; and adverse visual or aesthetic impacts resulting from changes in the adjacent landform. The FEIR/EIS concluded that this would be a significant and unavoidable impact.

The proposed project includes a request to add an additional 5.6 acres of mining to the previously approved Vineyard I mining site. The Vineyard I mining expansion site is entirely surrounded by active mining and there are no adjacent residences to these two parcels. Therefore, based on the existing land use setting, mining of the Vineyard I expansion site does not result in a conflict with nearby land uses and is not considered a significant impact. Although, the Vineyard I mining expansion site does not conflict with nearby land uses, it will become part of the previously approved mining project, which was found to have significant and unavoidable impacts related to conflicts with nearby land uses. Therefore, the conclusion of the prior FEIR/EIS still applies and impacts are considered significant and unavoidable.

Level of Significance before Mitigation: Significant

Mitigation Measure:

The following mitigation measure from the prior FEIR/EIS remains applicable to the proposed project:

LU-1 In order to mitigate potential impacts to surrounding land uses, the proponents shall be required to comply fully with mitigation measures identified in the Noise; Traffic and Circulation; Air Quality; and Visual Resources sections of this SEIR. These mitigation measures employ appropriate state-of-the-art techniques for erosion control, reclamation, nuisance prevention, and environmental impact mitigation relative to surface mining and processing operations.

Level of Significance After Mitigation: Significant and Unavoidable

CONVERSION OF PRIME FARMLAND, FARMLAND OF STATEWIDE IMPORTANCE AND FARMLAND OF LOCAL IMPORTANCE

The prior FEIR/EIS identified that the proposed project would disturb 31 acres of Prime Farmland, 435 acres of Farmland of Statewide Importance and 419 acres of Farmland of Local Importance. The FEIR/EIS concluded that this would be a significant impact which could be reduced to less than significant with mitigation. The current project would disturb an additional 2.0 acres of Prime Farmland and 3.6 acres of Farmland of Statewide Importance.

The prior FEIR/EIS concluded that all of the farmland located within the project site would only be temporarily disturbed during mining operations, since the proposed post-reclamation use of the project site would be primarily agriculture. The current proposed project will not change the post-reclamation use of the project site. The Vineyard I mining expansion site totals 5.6 acres and is currently surrounded by active mining and is not currently in agricultural production. The Vineyard I mining expansion site consists of three different soils: Columbia sandy loam, drained 0-2 percent slopes, occasionally flooded; Hedge loam, 0-2 percent slopes and San Joaquin-Xerarents complex, leveled, 0-1 percent slopes. The Columbia sandy loam is classified as Prime Farmland, and Hedge loam and San Joaquin-Xerarents complex are both classified as Farmland of Statewide Importance. Mining on the Vineyard I expansion site would disturb approximately 2 acres of Prime Farmland and 3.6 acres of Farmland of Statewide Importance.

The revised reclamation plan will locate the Morrison Creek Realigned Channel to the north of the existing Morrison Creek channel, the Vineyard I expansion site will not be a part of the recreated creek channel and consistent with the reclamation plan, the Vineyard I expansion site will be reclaimed to agricultural uses.

The prior FEIR/EIS included mitigation that the proponent prepare and implement an Agricultural Management Plan as part of the required work authorization. The plan was intended to describe the methods used to accomplish successful post-reclamation agricultural use of the project site. With the aforementioned mitigation the prior FEIR/EIS concluded that impacts would be reduced to less than significant. The mitigation remains applicable to the current proposed project.

Level of Significance Before Mitigation: Significant

Mitigation Measure:

LU-2 In order to mitigate potential impacts to agricultural uses, prior to issuance of the work authorization permit, Granite shall revise/prepare a plan, that includes the Vineyard I mining expansion site (5.6 acres), for the preservation and salvage of topsoil resources suitable for sustaining economically viable agricultural uses, consistent with the performance standards set forth in Sections 3708 and 3711 of the State Mining and Geology Board Reclamation Regulations.

Level of Significance After Mitigation: Less Than Significant

POST PROJECT DEVELOPMENT

The prior FEIR/EIS found that the proposed mining activities would restrict the possibility of utilizing the project site for future (post-project) development including recreational open space uses and recommended mitigation to reduce the impact to less than significant levels.

The prior FEIR/EIS identified that the post-reclamation use of the project site would be restricted to agriculture, flood control, and/or open space, because the mining pits would be within the 100-year floodplain. The project site would be primarily used for agricultural practices, with limited areas along the bottom of the pit used for stormwater retention ponds, wetlands and other natural habitats, including upland vegetation. No park facilities would be provided, and access to open space areas along the realigned Morrison Creek channel would not occur.

The proposed project includes a revision to the previous realigned Morrison Creek channel. The proposed reclamation plan includes the construction of a new Morrison Creek Realigned Channel that will be approximately 300 feet in width, at or near original grade (rather than at the bottom of the mining pit) and will include adjacent buffer lands for a total width of 650 feet (compared to the previously approved 600-foot wide pit floor riparian corridor). The requested reclamation plan amendment improves on the previously approved reclamation plan and the new design better mirrors natural creek conditions and will not require the need of a pump system.

A mitigation measure of the prior FEIR/EIS required that the project proponents dedicate to the County of Sacramento, a 600-foot wide open space easement that identified the limits of agricultural activity so as to guarantee sufficient area to allow for regeneration of the riparian corridor and allow for the subsequent establishment of a public trail system when deemed appropriate by the County. This mitigation reduced the identified significant impact to less than significant.

The County is no longer requesting an open space easement since the proposed project includes provision of a trail along the Morrison Creek Realigned Channel. This trail requirement was part of the permit received from the U.S. Army Corps of Engineers. Southgate Recreation and Park District reviewed the proposed project and submitted a comment letter to the Vineyard I portion of the proposed project (comment letter dated October 19, 2011). The Southgate Park District commented that the District has met with the project applicant and County staff regarding the open space and bicycle/pedestrian trail conditions. Southgate Park District is coordinating with Teichert for the Aspen III South and Aspen IV South properties in order to provide a continuous bicycle/pedestrian trail though the Morrison Creek Realigned Channel and Raised Bank Channel.

Southgate Park District submitted conditions of approval relating to the Morrison Creek Realigned Channel, the bicycle/pedestrian trail, improvements to the trail and perpetual

funding for the trail. The Southgate Park District states that the District will accept easements for the U.S. Army Corps authorized 14-foot wide trail crossing through the Morrison Creek Realigned Channel and a 20-foot wide trail corridor easement along the entire northern property line and along the southern property line from Mayhew Road to the western most crossing, outside of the preserve, to allow for a 10-12 foot-wide paved trail. The final trail surfaces, width and public access points to the trail will be mutually determined by the Applicant and Southgate Park District. The Southgate Park District has not to date submitted final conditions of approval for the Teichert properties, Aspen III South and Aspen IV South. However, final conditions of approval from Southgate Park District are likely to be similar to the conditions submitted for Vineyard I; therefore, the final conditions regarding the trail easements, location, surface material and access points do not result in any significant environmental impacts. The final conditions of approval from Southgate Park District will be addressed in the Planning Department's staff report.

The prior FEIR/EIS had considered the lack of open space/recreational uses of the prior project a significant impact. Mitigation creating open space dedicated to the County was included in the prior FEIR/EIS. However as the post-reclamation use of the three mining sites now contains a recreational component (trail), this impact is no longer considered a significant impact. It should be noted that the preserve areas of the Morrison Creek Realigned Channel and Raised Bank Channel are not intended to be accessible to the public. Impacts regarding post-project development are now considered less than significant.

Level of Significance Before Mitigation: Less Than Significant

Mitigation Measures:

LU-3 Prior to redirecting Morrison Creek to the Morrison Creek Realigned Channel, the applicants shall provide copies to DERA and the Planning Division of executed trail easements dedicated to the Southgate Recreation and Park District.

Level of Significance After Mitigation: Less Than Significant

CONSISTENCY WITH THE MATHER AIRPORT COMPREHENSIVE LAND USE PLAN (CLUP)

The proposed project is consistent with the Mather Airport Comprehensive Land Use Plan (CLUP). A Bird Airstrike Hazard (BASH) Analysis has been completed and with inclusion of mitigation, the potential for bird airstrikes over the project site is low.

The project site is partially located within the 60-65 and 65-70 CNEL noise contours, as shown on Plate LU-3. The prior FEIR/EIS found that mining and quarry activities, including the proposed post-reclamation use of the site for agriculture, open space and potential trail use as being compatible within these noise contours. The proposed project will not introduce activities incompatible with the Mather CLUP noise contours.

A very small portion of the Aspen IV South site is located within the Overflight Zone (refer to Plate LU-3) of Mather Airport.

The Mather Airport CLUP defines mining and quarry activities as being compatible within the Overflight Zone subject to the following condition:

> (b) Uses compatible only if they do not result in a possibility that a water area may cause ground fog or result in a water hazard.

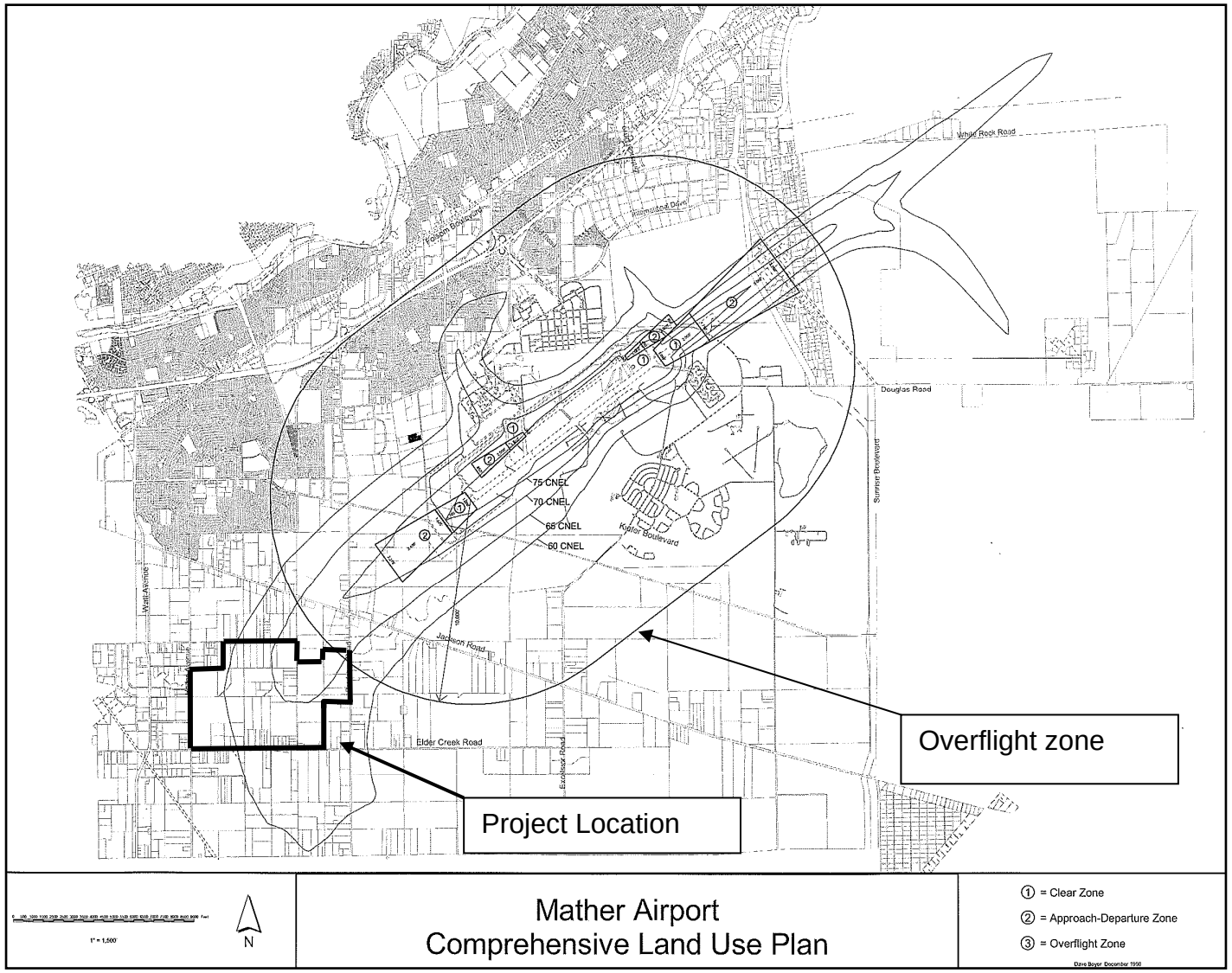
Sacramento County Airport System (Airports) reviewed the proposed project and submitted comments (G. Rickelton, letter dated August 15, 2008). Airports commented that the project site is located within 5 miles of Mather Airport and specific project components could potentially increase the exposure of aircraft operating at Mather Airport to bird strike hazards. Airports recommended the following: (1) BASH (Bird Airstrike Hazard) Analysis should be conducted to address the wildlife attractions and potential of bird-wildlife aircraft strike hazards; and (2) Agriculture activities that include irrigation are considered to pose a greater hazardous wildlife threat to aircraft operations. The Airport system recommended that only non-irrigated agricultural activities be accepted following reclamation.

The prior FEIR/EIS concluded that “the newly created wetland and open water habitat resulting from the proposed project could potentially attract additional birds in the project site. However, because the wetlands would be distant from the Mather Field runway and would not be located in critical airspace, the potential for bird hazards to aircraft utilizing Mather Field is low” (page 5-124 of FEIR/EIS).

The proposed project is substantially the same as the prior project. The proposed Morrison Creek Realigned Channel places a riparian/wetland corridor at-grade, as opposed to the prior approved reclamation plan that placed the riparian/wetland corridor at the bottom of the mining pit. The existing Morrison Creek channel on the Aspen IV South mining site would be preserved and a Raised Bank Channel would be constructed outside the floodplain. The Morrison Creek Realigned Channel will have essentially the same biological functions as the existing Morrison Creek corridor. And the existing Morrison Creek channel on Aspen IV South would remain untouched; therefore, the BASH potential of the proposed Morrison Creek Realigned Channel and Raised Bank Channel do not increase as a result of project implementation. It is expected that the use of the Morrison Creek Realigned Channel post-mining by birds or other mammals will be similar to pre-mining conditions.

The prior project included a permanent retention basin (somewhere on Vineyard I, but the exact location unknown) with a capacity of 309 acre-feet (ac-ft) that would contain runoff from all of the proposed mining sites. Approvals of the prior project allowed for runoff from the Aspen IV South mining property to be conveyed to this basin.

Plate LU-3: Mather CLUP



Under the proposed project, the permanent retention basin is located south of the Morrison Creek Realigned Channel on the Vineyard I mining site. The 2011 Hydrology & Hydraulics Analysis (2011 H & H Analysis) prepared by Wood Rodgers (refer to Appendix B1) evaluated an alternative to the original 309 ac-ft basin. The alternative in the 2011 H&H Analysis is to not convey runoff from Aspen IV South to the Vineyard I basin, but rather retain the runoff on the Aspen IV South property in a retention basin, with a volume of 30 ac-ft. The retention basin on the Vineyard I mining site will retain the onsite isolated local runoff volume of 267 acre-feet (for a 100-year 10-day storm event) from solely the Vineyard I and Aspen III South mining properties. The proposed combined 297 ac-ft retention basins will not increase in total overall surface area over the previously approved 309 acre-foot detention basin; therefore, this component of the project has not changed.

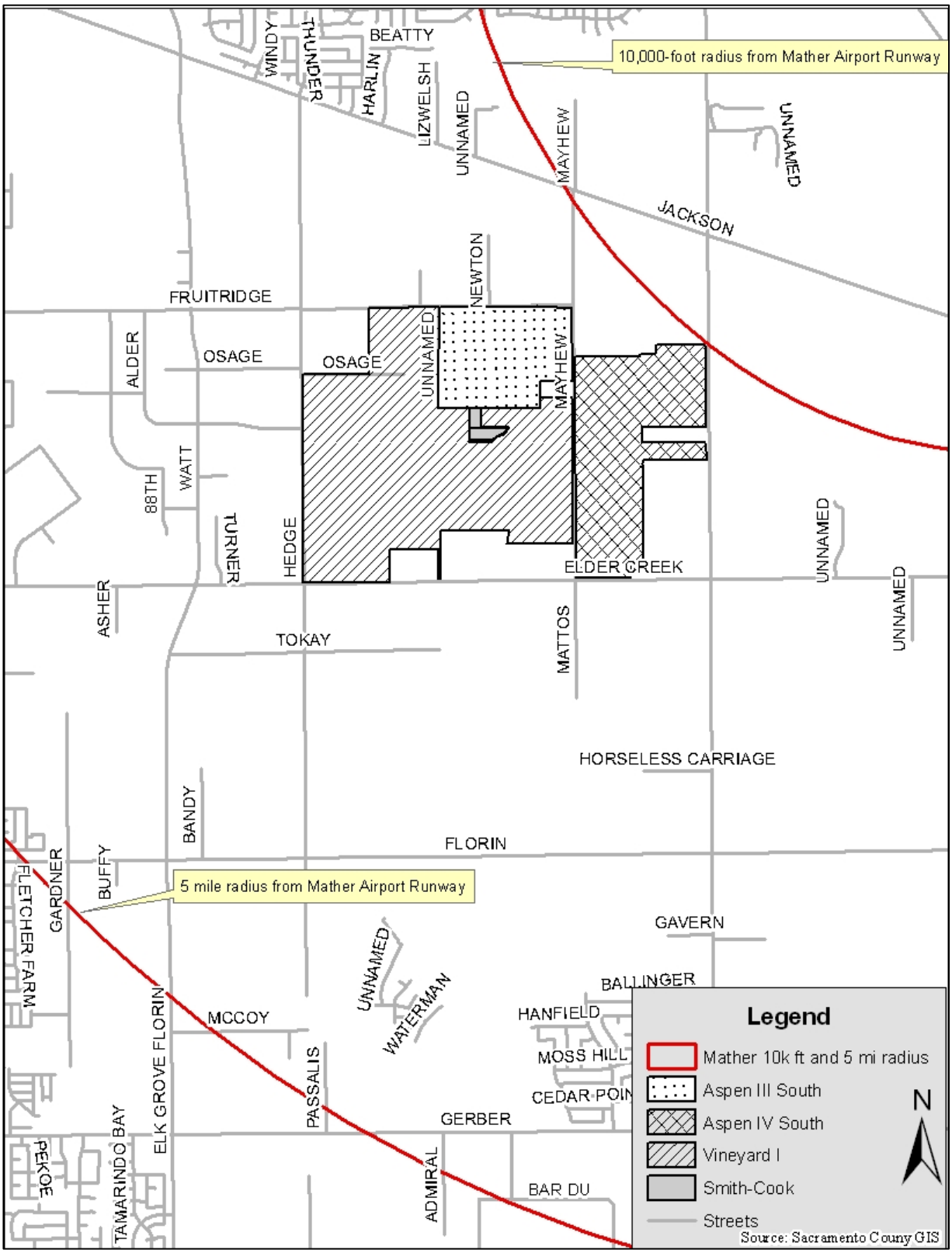
The mean annual precipitation water balance conducted in the 2011 H&H Analysis finds that the two retention basins will be evacuated within 16 days for the Vineyard I basin and 8 days for the Aspen IV South basin. Since the basins will not completely evacuate within 48 hours, and the project site is located within five miles of Mather Airport, there is a potential for bird airstrike hazards (BASH). The retention basins are not substantially different than what was previously approved, and the function of the Morrison Creek Realigned Channel will not be substantially different than the existing Morrison Creek corridor; therefore, the same determination that was made in the prior FEIR/EIS that bird air strike hazards are low remains applicable to the proposed project.

However, due to comments received by Airport staff, the following is a brief analysis of bird strike hazards at the project site as a result of the stormwater retention basins.

The proposed Morrison Creek Realigned Channel, Raised Bank Channel, and proposed retention basins, will be located approximately 2.5 to 3 miles southwest of the Airport Operations Area (AOA) of Mather Airport. According to the *Hazardous Wildlife Attractants on or Near Airports* (Air Circular No: 150/5200-33B, August 28, 2007), “the FAA recommends a distance of 5 statute miles between the farthest edge of the airport’s AOA and the hazardous wildlife attractant if the attractant could cause hazardous wildlife movement into or across the approach or departure airspace”. See Plate LU-4.

Based on the FAA’s circular, the project’s retention basins could potentially attract wildlife hazardous to aircraft operations. In addition to the obvious safety concerns involving the risk of aircraft accidents resulting from wildlife strikes, Mather Airport is an FAA grant assured airport. Any airport that receives grant money from the FAA is required to comply with all guidance documents such as Cert Alerts and Advisory Circulars (ACs) in addition to adopted rules and regulations. Airport staff considers the “project” to fall within the regulation of the FAA; therefore compliance with the AC No. 150/5200-33B stated above will be required. Accordingly, Airport staff has required the applicant to prepare a Wildlife Hazard Assessment (WHA) to analyze the Bird Air Strike Hazard (BASH) associated with the proposed project.

Plate LU-4: 10,000-foot and 5-mile Radius from Mather Airport Runway



The *Hazardous Wildlife Attractants on or Near Airports* (Air Circular No: 150/5200-33B, August 28, 2007) outlines requirements for new stormwater management facilities. This report states that off-airport stormwater management systems located within 5 miles of the AOA should be designed and operated so as not to create above ground standing water. Stormwater detention basins should be designed, engineered, constructed and maintained for a maximum 48-hour detention period after the design storm and should remain completely dry between storms.

The proposed stormwater retention basins will store localized runoff. The 2011 H & H Analysis states that the basins will be evacuated solely by infiltration into the soil and evaporation off the basin water surface. During a 100-year 10-day storm event, Wood Rodgers determined that it would take 16 days for the retention basin on Vineyard I to evacuate and it would take 8 days for the retention basin on Aspen IV South to evacuate. Pumping or draining water out of the stormwater retention basin in order to not hold water for more than 48 hours would not be feasible, as Morrison Creek will not be able to accept the water without having adverse effects downstream. Without the proposed stormwater retention basins there would be localized flooding, which could take at least 30 days to percolate and/or drain off the sites.

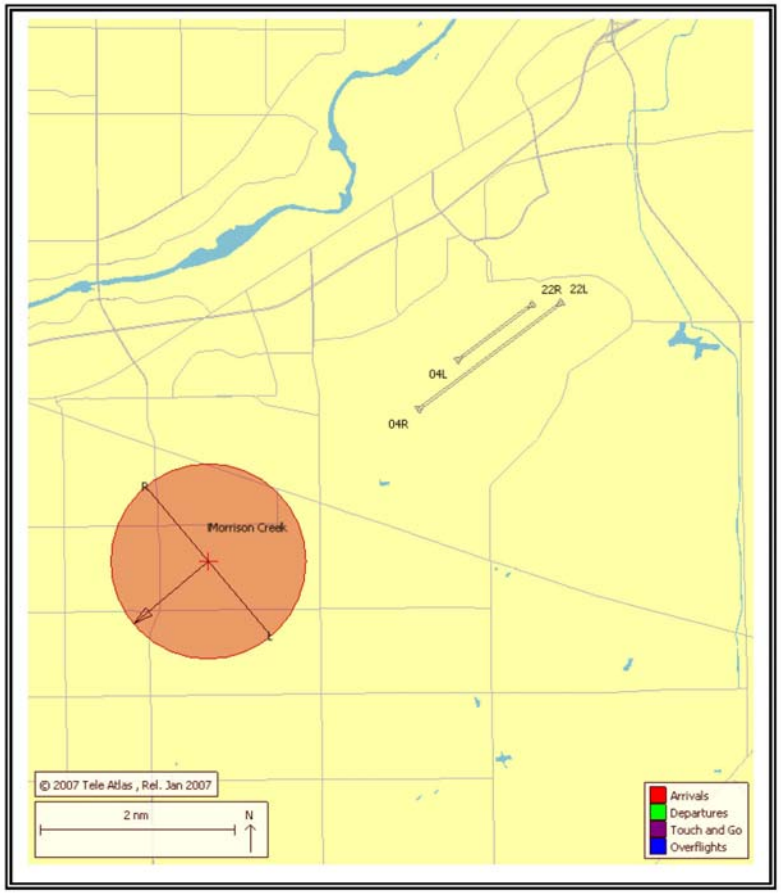
The FAA and United States Department of Agriculture (USDA) report titled *Wildlife Strikes to Civil Aircraft in the United States 1990-2008* (September 2009), finds that wildlife strikes between 1990 and 2008 totaled 89,727. The report finds that about 59 percent of the bird strikes occurred when the aircraft was at a height of 100 feet or less above ground level; 72 percent occurred at 500 feet or less above ground level and 92 percent occurred at or below 3,000 feet above ground level. The majority of bird strikes (59 percent) are occurring at heights of 100 feet or less above ground level, and only 20 percent of the bird strikes are occurring between 500 and 3,000 feet above ground level. The report also finds that most bird strikes (51 percent) occurred between July and October and that 60 percent occurred during the landing (descent, approach or land roll) phase of flight and 37 percent occurred during takeoff and climb.

Information regarding flight track patterns over the project site was obtained from the Aircraft Noise Information Office of the Sacramento County Airport System. The data sets provided flight data for departures, arrivals, touch-and-go and overflights for the month of August 2009 (since most bird strikes occur between July and October). A penetration gate was orientated over the project site, in the general location of the larger stormwater retention basin (on Vineyard I) and the recreated Morrison Creek Realigned Channel. The penetration gate was located on parcel APN: 063-0090-001, which is a part of the Vineyard I mining site. The penetration gate spanned horizontally for 2 nautical miles and was orientated to capture the majority of the flights that directly overfly the parcel (refer to Plate LU-5).

Plate LU-5: Penetration Gate for Flight Path Data (from SCAS)

Sacramento County Airport System
Aircraft Noise Information Office
Sacramento International Airport Flight Altitudes Near Morrison Creek Project
Flight Track Analysis

Basic Penetration Gate



Geographic Representation of the Gate

The penetration gate is located on APN 063-0090-001, spans it horizontally for 2 nautical miles and is oriented to capture the majority of the flights that directly overfly the parcel.

Based on the provided data, there were 1,253 departures from Mather Airport. Of these, 188 flew within a one-nautical mile radius of the parcel and 143 penetrated the gate. These flights typically passed over the site at altitudes between 1,000 and 3,000 feet. For arrival flights, of the 1,225 flights arriving at Mather during August 2009, 73 penetrated the gate over the parcel and passed at altitudes between 500 and 2,500 feet. For touch-and-go flights, the penetration gate was re-orientated to capture the relative proximity of the flight tracks to the parcel center and there were 326 touch-and-go flights, of which 45 penetrated the gate over the parcel. These flights were at altitudes between 1,000 and 3,500 feet.

The flights that are passing over the parcel (through the penetration gate) are between 500 and 3,500 feet above ground level. As previously stated, based on the FAA/USDA report *Wildlife Strikes to Civil Aircraft in the United States 1990-2008* (September 2009), only 20 percent of bird strikes are occurring between 500 and 3,000 feet above ground level, compared to 59 percent occurring at 100 feet or less above ground level. Because the flights that are passing over the site are at higher altitudes where the percentage of bird airstrikes is low, the potential for bird airstrikes over the project site is therefore low.

Current mining activities are likely preventing birds from utilizing portions of the site as habitat (e.g., nesting, breeding. roosting). However, at completion of mining, it is recognized the site would provide potential bird habitat, similar to how the conditions were prior to mining (the proposed Morrison Creek Realigned Channel and Raised Bank Channel will function similar to how the existing Morrison Creek channel functioned prior to mining activities).

To facilitate the control of hazardous wildlife, the Federal Aviation Administration (FAA) recommends the use of steep-sided, rip-rap lined, narrow, linearly shaped water detention basins. In addition, the FAA recommends that all vegetation in or around detention basins that provide food or cover for hazardous wildlife should be eliminated. These design modifications to the proposed retention basins are feasible measures to reduce the use of the retention basins by birds and has been included as mitigation, to the extent practicable. With mitigation, the BASH risk remains low.

The same conclusion was made for a similar project, titled Aspen IV Special Planning Area (SPA) (County Control No. 2006-0396), which is located within 0.8 and 1.5 miles of airport property. A Wildlife Hazard Assessment (WHA) was conducted and prepared by D. Airola of Airola Environmental Consulting (dated August 2, 2007). The Aspen IV SPA site is located closer to the airport than the proposed project site. For the BASH analysis, data from Sacramento County Airports System was collected and it was found that most flights occurred at heights 500-2,000 feet above the Aspen IV SPA project site. The analysis concluded that the overall BASH potential for the site under the proposed project would remain low. The primary factor responsible for keeping BASH risk low is the high altitudes (500+ feet) at which aircraft crosses the site. Therefore, with inclusion of mitigation, the conclusion that the potential for bird airstrikes over the project site is low is a reasonable conclusion.

Level of Significance Before Mitigation: Potentially Significant

Mitigation Measures:

LU-4 The retention basins on Vineyard I and Aspen IV South shall include the following design criteria to the maximum extent practicable, while still adhering to the federal agency regulations:

a. The basin shall incorporate steep side slopes (3:1 or greater)

b. The basin shall be designed to remain clear of vegetation that may provide nesting, roosting or foraging opportunities for birds. Only herbaceous vegetation necessary for erosion control purposes will be allowed.

Level of Significance After Mitigation: Less than Significant

CUMULATIVE IMPACTS

At the completion of mining activities on the three mining sites, portions of the pit floors are expected to be near original grade due to the "drying bed" method (Teichert Aggregates) on Aspen III South and Aspen IV South and the use of overburden as fill on the Vineyard I mining site to bring portions of the pit floor to within five feet of original grade. At the completion of mining, the site will be returned to agricultural production and the Morrison Creek Realigned Channel and Raised Bank Channel will be a riparian corridor with a trail easement.

In the 2010 Bikeway Master Plan, there are Class II bike lanes proposed for Elder Creek Road and Fruitridge Road, located south and north of the project site. In the draft 2025 Sacramento County Bikeway System, Class II bike lanes are proposed for Hedge Avenue and Mayhew Road. A trail system along the Morrison Creek Realigned Channel would eventually connect to a larger system of trails in the vicinity of the project site. This is beneficial for future recreational uses of the site and is a positive outcome of the proposed project.

Since the project site will return to agricultural uses (the land use prior to mining activities) and there will be beneficial recreational opportunities in the future, there are no adverse significant impacts in the cumulative condition. The cumulative land use impacts of the proposed project are considered **less than significant**.

13 NOISE

INTRODUCTION

This chapter describes the existing noise environment at the project site and analyzes the noise generating potential of the project and its potential impacts to surrounding land uses. Where appropriate, mitigation is included to reduce or eliminate noise impacts.

The mining sites in this project include Vineyard I, Aspen III South and Aspen IV South. The proposed project includes revisions to the previously approved reclamation plan, consistent with permits received from the County, State and federal regulatory agencies. The previous reclamation plan consisted of a below grade, 600-foot wide riparian corridor/low-flow channel within the bottom of the mining pit in generally the same location as the existing creek and an at-grade trapezoidal bypass channel around the perimeter of the three mining sites. The proposed project revises the previously approved reclamation plan by completely eliminating the at-grade trapezoidal bypass channel component and changing the below grade, 600-foot wide riparian corridor/low-flow channel to an at-grade mitigation corridor (Morrison Creek Realigned Channel) on the Vineyard I and Aspen III South mining properties. The Morrison Creek Realigned Channel has been designed to contain the 100-year flows. On the Aspen IV South property, the existing Morrison Creek channel will now be preserved and a raised bank flood control channel (Raised Bank Channel) is proposed to be constructed outside the effective FEMA floodway. The Morrison Creek Realigned Channel will connect with the preserved Morrison Creek channel on Aspen IV South.

The proposed project also consists of a request for a rezone and a use permit amendment to allow aggregate mining on an additional 5.61 acres (two parcels) and to incorporate this new area into the previously approved Vineyard I mining plan (referred as Vineyard I mining expansion). In addition, the Vineyard I mining expansion will be incorporated into the previously approved reclamation plan, including revisions consistent with the requested reclamation amendments described above. The location of a retention basin on the Vineyard I mining site has been determined for the proposed project, as well an option for a retention basin on the Aspen IV South mining site.

SETTING

The project site is generally located south of Fruitridge Road, west of Bradshaw Road, east of Hedge Avenue, and north of Elder Creek Road. Mayhew Road is between Vineyard I and Aspen IV South mining sites. Jackson Highway is located approximately

1 mile north of the Vineyard I expansion site and Bradshaw Road is located approximately 4,165 feet (0.7 mile) east of the Vineyard I expansion site.

The project mining sites are actively mined and there are barriers (consistent with the previous project's mitigation measures for noise and aesthetics) in place around the perimeter of the mining properties to shield mining operation noise from sensitive receptors.

When Mather Air Force Base was in operation, the average ambient noise levels within the project as a result of aircraft overflights historically ranged from 70-80+ CNEL (daily average), with single event noise levels when aircraft flew over the project site much higher than this average. Since the closure of the Air Force Base and conversion of the airport to civilian uses, noise levels have substantially reduced.

Another source of noise in the project area is from nearby roadways, such as Jackson Highway and Bradshaw Road.

REGULATORY SETTING

COUNTY GENERAL PLAN NOISE ELEMENT

The Noise Element of the Sacramento General Plan establishes noise exposure criteria to aid in determining land use compatibility. The goal of the Noise Element is to:

> "…protect the citizens of the county from exposure to excessive noise." Further, the Noise Element must protect the economy of the county by preventing encroachment of noise sensitive land uses upon noise producing developments. Both of these tasks are accomplished through policies that limit the noise levels received in residential or other noise sensitive areas, and describe a process for regulating noise."

The policies in the Noise Element of the General Plan define the limits of noise exposure for sensitive land uses. The policies of the Noise Element are organized based on: traffic and railroad noise sources, aircraft noise sources, non-transportation noise sources, construction noise, noise from transportation projects, and general noise policies.

The following policy for non-transportation noise sources from the Noise Element of the General Plan applies to the project:

> NO-6 Where a project would consist of or include non-transportation noise sources, the noise generation of those sources shall be mitigated so as not exceed the interior and exterior noise level standards of Table 2 at existing noise-sensitive areas in the project vicinity.

Table 2
Non-Transportation Noise Standards
Sacramento County Noise Element
Median (L50) / Maximum (Lmax)[1]

	Outdoor Area[2]		Interior[3]	
Receiving Land Use	Daytime	Nighttime	Day & Night	Notes
All Residential	55 / 75	50 / 70	35 / 55	
Transient Lodging	55 / 75	---	35 / 55	4
Hospitals & Nursing Homes	55 / 75	---	35 / 55	5, 6
Theaters & Auditoriums	---	---	30 / 50	6
Churches, Meeting Halls, Schools, Libraries, etc.	55 / 75	---	35 / 60	6
Office Buildings	60 / 75	---	45 / 65	6
Commercial Buildings	---	---	45 / 65	6
Playgrounds, Parks, etc.	65 / 75	---	---	6
Industry	60 / 80	---	50 / 70	6

Notes:

1. The Table 2 standards shall be reduced by 5 dB for sounds consisting primarily of speech or music, and for recurring impulsive sounds. If the existing ambient noise level exceeds the standards of Table 2, then the noise level standards shall be increased at 5 dB increments to encompass the ambient.
2. Sensitive areas are defined in the acoustic terminology section.
3. Interior noise level standards are applied within noise-sensitive areas of the various land uses, with windows and doors in the closed positions.
4. Outdoor activity areas of transient lodging facilities are not commonly used during nighttime hours.
5. Hospitals are often noise-generating uses. The exterior noise level standards for hospitals are applicable only at clearly identified areas designated for outdoor relaxation by either hospital staff or patients.
6. The outdoor activity areas of these uses (if any), are not typically utilized during nighttime hours.
7. Where median (L50) noise level data is not available for a particular noise source, average (Leq) values may be substituted for the standards of this table provided the noise source in question operates for at least 30 minutes of an hour. If the source in question operates less than 30 minutes per hour, then the maximum noise level standards shown would apply.

SACRAMENTO COUNTY ZONING CODE

Section 235-52 of the Sacramento County Zoning Code outlines standards for aggregate mining operations (including sand and gravel mines, hard rock quarries and dredger tailing mining operations). Section 235-52(f) pertains to noise standards and states the following:

> Noise Standards. Unless otherwise provided by the Sacramento County Code the sound level created by the mining use at the boundary line of the authorized mining area shall not exceed 70 dBA except along a boundary contiguous to another area authorized to mine for sand or aggregates. A violation of the noise standard will occur if the noise level at the property line exceeds:
>
> (1) The noise limit for a cumulative period of more than thirty (30) minutes in any hour, or;
>
> (2) The noise limit plus 5 dBA for a cumulative period of more than 1 minute in any hour, or the noise limit plus 20 dBA for any period of time.

MATHER AIRPORT COMPREHENSIVE LAND USE PLAN AND MATHER AIRPORT POLICY AREA

The project site is located approximately 2 miles southwest of the southwest end of Mather Airport's runway, a primary source of noise in the project area.

STANDARDS OF SIGNIFICANCE

Appendix G of the California Environmental Quality Act (CEQA) provides guidance for assessing the significance of potential environmental impacts. Relative to noise, a project will normally have a significant effect on the environment if it will:

- Exposes persons to or generation of noise levels in excess of standards established in the Sacramento County General Plan and Zoning Code,
- Exposes persons to or generation of excessive groundborne vibration or groundborne noise levels,
- Results in a substantial permanent increase in ambient noise levels in the Project vicinity above levels existing without the Project, or
- Results in a substantial temporary or periodic increase in ambient noise levels in the Project vicinity above levels existing without the Project.

ENVIRONMENTAL IMPACTS AND ANALYSIS

The prior FEIR/EIS concluded that the aggregate processing plant would increase noise levels at the project site boundary line and found that this would be considered a significant impact. Mitigation was proposed for this impact; however the mitigation measure did not apply to the Proposed Project Without the Vineyard I Processing Plant Alternative. The prior project did not construct the processing plant on the Vineyard I site; therefore, this impact no longer exists and the mitigation measure is no longer applicable to the proposed project.

NOISE LEVELS IN EXCESS OF THE NOISE STANDARDS OF THE ZONING CODE AND NOISE ELEMENT

> *The prior FEIR/EIS concluded that noise levels in excess of 75 dBA may occur at nearby residences and other sensitive off-site receivers due to scrapers and other mobile mining equipment, and that the noise standard could be exceeded when mining equipment is operating close to the mining site boundary. This was considered a significant impact that could be reduced to less than significant with mitigation measures. The proposed project includes two properties for mining, which are located within the previously approved mining site and are not located adjacent to sensitive receptors.*

The prior FEIR/EIS identified a mitigation measure that required noise barriers along the residential/project property lines, that would reduce significant noise impacts to less than significant. The barriers are in place for the Vineyard I mining site; therefore the inclusion of 5.6 acres for mining on the Vineyard I site would not cause noise levels in excess of standards for sensitive land uses in the vicinity of the project site. The Reclamation Plan amendment portion of the proposed project will not generate noise in excess of the standard. The prior mitigation measure is no longer applicable to the proposed project, since it has been completed through the prior project.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measure: None Required – Prior Mitigation has been completed through the prior project.

POTENTIAL VIOLATION OF THE ZONING CODE NOISE STANDARD DUE TO THE CONVEYOR SYSTEM

> *The prior FEIR/EIS found that the noise impact from the conveyor system would be a less than significant impact. The proposed project would utilize the existing conveyor system.*

The prior FEIR/EIS stated that the conveyor system was proposed to be located at least 250 feet from the nearest residential property line and over 500 feet from the nearest residence. Worst case conveyor system noise level at the nearest residential property

line was determined to be 57 dB, and at the nearest residence the noise level was determined to be 51 dB. It was concluded that the temporal nature of this aspect of the project's operation, coupled with the comparatively low amounts of anticipated noise, makes this a less than significant impact.

The proposed project does not change this conclusion, as there are no changes to the uses or location of the conveyor system. Impacts remain less than significant.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measure: None Required

HEAVY TRUCK TRAFFIC AND OPERATION OF PROCESSING PLANT MAY CONSTITUTE A NOISE SOURCE

> *The prior FEIR/EIS concluded that the project's increased truck traffic along area roadways is not expected to result in significant noise impacts. The proposed project does not involve heavy trucks on roadways (all trucks will remain onsite) and there is not a processing plant associated with the mining project.*

The prior FEIR/EIS concluded that there would be approximately 28,600 truckloads associated with overburden removal and operation of the processing plant would produce an average rate of 600 trips per day and a peak rate of 800 trips per day, generally occurring from 6:00 a.m. to 3:30 p.m. The short term increase in noise levels on Jackson Highway is estimated to be less than 2 dB during the peak hour. Typically, a 3-5 dB change in Ldn is needed before the change in noise level becomes noticeable. In addition, the General Plan Noise Element indicates that residential uses in agricultural areas such as the project vicinity are considered compatible with noise levels of up to 65 dB Ldn.

The processing plant was never built as part of the prior project; there is no longer a potential for noise impacts as a result of the processing plant.

The proposed project includes a reclamation plan amendment and inclusion of 5.6 acres to the previously approved Vineyard I mining site. The reclamation plan amendment does not result in the potential for heavy truck traffic or operational noise impacts.

Since the additional 5.6 acres for mining will not require any truck trips on local roadways (all mined material will be sent to an offsite processing plant via the conveyor system) there is no potential for noise impacts associated with heavy truck traffic; impacts remain less than significant.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measure: None Required

CUMULATIVE IMPACTS

The proposed project will not contribute to any significant noise impact. The project, in combination with other projects in the area will not result in a cumulatively considerable contribution to the noise environment. In addition, in the post reclamation condition of the project site, the project will not contribute to noise in excess of standards. Accordingly, the proposed project will not result in a cumulative noise impact; cumulative impacts are considered **less than significant**.

14 PUBLIC SAFETY

INTRODUCTION

This chapter discusses the public safety impacts associated with the project. The primary public safety issues for the project include slope stability and hazards posed by mining operations should a member of the public inadvertently enter the project site during mining operations. Slope stability is further discussed in the Geology and Slope Stability Chapter of this SEIR.

The mining sites in this project include Vineyard I, Aspen III South and Aspen IV South. The proposed project includes revisions to the previously approved reclamation plan, consistent with permits received from the County, State and federal regulatory agencies. The previous reclamation plan consisted of a below grade, 600-foot wide riparian corridor/low-flow channel within the bottom of the mining pit in generally the same location as the existing creek and an at-grade trapezoidal bypass channel around the perimeter of the three mining sites. The proposed project revises the previously approved reclamation plan by completely eliminating the at-grade trapezoidal bypass channel component and changing the below grade, 600-foot wide riparian corridor/low-flow channel to an at-grade mitigation corridor (Morrison Creek Realigned Channel) on the Vineyard I and Aspen III South mining properties. The Morrison Creek Realigned Channel has been designed to contain the 100-year flood flows. On the Aspen IV South property, the existing Morrison Creek channel will now be preserved and a raised bank flood control channel (Raised Bank Channel) is proposed to be constructed outside the effective FEMA floodway. The Morrison Creek Realigned Channel will connect with the preserved Morrison Creek channel on Aspen IV South.

The proposed project also consists of a request for a rezone and a use permit amendment to allow aggregate mining on an additional 5.61 acres (two parcels) and to incorporate this new area into the previously approved Vineyard I mining plan (referred as Vineyard I mining expansion). In addition, the Vineyard I mining expansion will be incorporated into the previously approved reclamation plan, including revisions consistent with the requested reclamation amendments described above.

SETTING

The project site consists of three active mining sites, Vineyard I, Aspen III South and Aspen IV South. These three mining sites were previously approved for mining in 1999. The Vineyard I mining expansion site is located within the Vineyard I mining site and is surrounded by active mining. The existing Morrison Creek channel has not been mined to date.

The revised Morrison Creek Realigned Channel has been constructed in phases on the Vineyard I and Aspen III South mining sites and consists of a meandering channel and is vegetated with native grasses and trees.

The prior FEIR/EIS identified that public safety would be an issue if there were no fencing to keep the public out of the mining sites. The prior FEIR/EIS reiterated the Zoning Code regulation regarding fences and warning signs.

Mitigation for the project required that there be perimeter fencing in place at the project site until a post-reclamation /future use of the project site occurred.

REGULATORY CONTEXT

The Sacramento County Zoning Code and the Surface Mining and Reclamation Act (SMARA) contain regulations pertaining to surface mining. Many of these regulations focus on the safe operation of the mine. For example Sections 235-54 of the Zoning Code addresses fences and requires that they be at least six feet in height, meet the ground within four inches and be kept in good repair with gates installed to fence height at all entrances. Other requirements are for a reclamation plan and financial bonding mechanism to ensure the future reclamation of the site back to a safe and stable landform.

STANDARDS OF SIGNIFICANCE

Appendix G of CEQA provides guidance for assessing the significance of potential environmental impacts. Appendix G does not contain specific public safety standards; however, impacts to public safety would be similar to those impacts found for geology/slope stability, hazardous materials and hydrology (drainage and flooding). These impacts are analyzed in the respective chapters of this environmental document. In addition, there are many local, State and federal safety regulations pertaining to mine safety that must be in place for mining operations. Therefore, for this chapter, a significant impact to public safety would result if the proposed project did not protect the public from inadvertent entry into the active mining sites.

IMPACTS AND ANALYSIS

HAZARDOUS CONDITIONS DURING MINING OPERATIONS

The prior FEIR/EIS concluded that mining operations at the project site had the potential to create hazardous conditions. This was found to be a significant impact that could be reduced to less than significant with mitigation.

The prior FEIR/EIS stated that due to the use of heavy equipment such as bulldozers, scrapers, and front-end loaders, and the creation of a 25± foot deep, steep-sided pit, inadvertent public entry to the mining site could create a public safety hazard. The inclusion of mitigation that requires retention of perimeter fencing until post-reclamation development or future use of the site occurs, was found to reduce this impact to public safety to less than significant.

The project was required to install fences and warning/trespass signs that comply with Section 235-54 and 235-55 of the Zoning Code. The Smith-Cook properties are located within the boundaries of the existing Vineyard I mining site. Appropriate fencing and warning signs are already in place that prevents the inadvertent entry of the public into the mining areas.

If the Vineyard I expansion site is approved for inclusion to the Vineyard I site for mining, the project would be required to comply with all local, State and federal regulations pertaining to mine safety. Since this is an area of alluvial and not hard rock deposits, no blasting or storage of explosives is expected. The Geology and Slope Stability chapter provides analysis of the slope stability of the active and reclaimed pit walls and stability of the embankment of the revised Morrison Creek Realigned Channel and Raised Bank Channel. Mitigation would ensure that stable slopes are achieved; therefore, no public safety impacts are expected from slope instability. Compliance with existing local, State and federal regulations will ensure that no significant public safety impacts are generated by the proposed project.

The proposed project does not change the prior conclusion that this impact is significant. The prior mitigation remains applicable to the proposed project and has been included below. This mitigation was found to reduce impacts to less than significant.

Level of Significance Before Mitigation: Significant

Mitigation Measures:

PS-1 All perimeter fencing shall be retained until post-reclamation development/ future use of the project site occurs.

Level of Significance After Mitigation: Less than Significant

HAZARDOUS CONDITIONS POST-RECLAMATION

The prior FEIR/EIS concluded under the Part B Alternative, a different ultimate land use potential could be considered, including park areas. Public facilities within the mining pits after the completion of mining would require more stringent construction standards to protect public health, safety, or general welfare. This was found to be a less than significant impact.

The proposed project consists of a revised reclamation plan that creates an open space recreation area opportunity (trail) within the Morrison Creek Realigned Channel and Raised Bank Channel. As proposed, there will be public access and use of the trail after mining operations cease. The Morrison Creek Realigned Channel is constructed at grade; however, just south of the corridor is an open mine pit. At the bottom of this pit, it has been proposed that there would be an ephemeral drainage with a riparian vegetation community. As discussed in the Land Use chapter, Southgate Recreation and Park District requests that a trail easement be dedicated to Southgate for public recreational uses. Slopes of the Morrison Creek Realignment Channel, Raised Bank Channel and mining pits will not have slopes steeper than 2:1 (horizontal:vertical). Slope stability has been analyzed in the Geology and Slope Stability Chapter of this EIR. Furthermore, the Post-Reclamation use of the site would be limited to public recreational uses along the trail and agricultural activities. There are no hazardous conditions post-reclamation. Impacts are considered less than significant.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measure: None Required

CUMULATIVE IMPACTS

The proposed project in combination with other mining projects in the area does not result in a significant public safety impact due to the controls in place to assure that the general public is protected from inadvertent entry into active mining sites. Additionally, the requirement that all mines have a reclamation plan and financial bond assures a stable safe landform after the conclusion of mining. Cumulative public safety impacts are considered **less than significant**.

15 AESTHETICS AND VISUAL RESOURCES

INTRODUCTION

This chapter describes the visual characteristics of the project site and vicinity and analyzes the impact of the project on visual resources. Visual resource impacts include changes to the visual character of the area, the degree of screening by vegetation, and introduction of new sources of light or glare. Mitigation, where appropriate, is included to reduce or eliminate visual resources impacts.

The proposed project includes revisions to the previously approved reclamation plan, consistent with permits received from the County, State and federal regulatory agencies. The mining sites in this project include Vineyard I, Aspen III South and Aspen IV South. The previously approved reclamation plan consisted of a below grade, 600-foot wide riparian corridor/low-flow channel within the bottom of the mining pit, in generally the same location as the existing creek and an at-grade trapezoidal bypass channel around the perimeter of the three mining sites. The proposed project revises the previously approved reclamation plan by eliminating the at-grade trapezoidal bypass channel component and changing the below grade, 600-foot wide riparian corridor/low-flow channel to an at-grade mitigation corridor (Morrison Creek Realigned Channel) on the Vineyard I and Aspen III South mining properties. The Morrison Creek Realigned Channel has been designed to contain the 100-year flood flows. On the Aspen IV South property, the existing Morrison Creek channel will be preserved and a raised bank flood control channel (Raised Bank Channel) is proposed to be constructed outside the effective FEMA floodway. The Morrison Creek Realigned Channel will connect with the preserved Morrison Creek channel on Aspen IV South.

The proposed Project also consists of a request for a rezone and a use permit amendment to allow aggregate mining on an additional 5.61 acres (two parcels) and to incorporate this new area into the previously approved Vineyard I mining plan (referred as Vineyard I mining expansion). These two sites are located between Vineyard I and Aspen III South mining sites.

ENVIRONMENTAL SETTING

The project site consists of the previously approved mining sites known as Vineyard I, Aspen III South and Aspen IV South. These three mining sites are bordered by Jackson Highway and Fruitridge Road to the north, Bradshaw Road to the east, Elder Creek Road to the south, and Hedge Avenue to the west. The mining sites are inset within a rural setting.

The prior FEIR/EIS provided the following discussion of aesthetic and visual resources in the project vicinity.

> *Landscape characteristics of the project area consist of gently sloping rangeland in a rural setting. Single family residences, a religious temple, and commercial properties, including a former health club (*now a church and school)*, are located on properties adjacent to the project site, and would be subjected to views of the mining operations, and eventually the reclaimed pit areas, unless screening occurs. Travelers along Jackson Highway, Bradshaw Road, Eider Creek Road, Hedge Avenue, and Fruitridge Road would also have a view of the operations. Less sensitive receptors, including adjacent surface mining operations and industrial uses also surround the property.*
>
> *The following policies in the Conservation Element of the Sacramento County General Plan provide for orderly extraction of minerals and subsequent reclamation of mined areas with minimal adverse impacts on surrounding residential uses and scenic values:*
>
> *CO-44. Surface mining shall maintain substantial minimum set backs from adjoining rural residential land uses.*
>
> *CO-45. Surface mining shall not be allowed without adequate plans for reclamation of mined areas.*
>
> *These policies are largely implemented through existing Zoning Code provisions and CEQA. The Zoning Code outlines standards for sand and gravel mines that provide minimal buffering for adjacent properties. Unless otherwise provided by condition of the use permit, the Zoning Code requires standard chain link fencing (Section 235-54), a 25-foot minimum setback from unmined land adjacent to public roadways, and a 25-foot setback (Section 235-59) along all other property lines around the mining site (the first five feet to consist of unmined land and the remainder to be reclaimed to original grade within one year of mining). The Board of Supervisors is also allowed to require, as a condition of the use permit, visual screening through the use of berms, screen fences, landscaping, setbacks, or combinations thereof (Section 235-56).*

The prior FEIR/EIS described the following possible reactions by the observer:

> *The aesthetic value assigned to changed landforms resulting from mining activities is very subjective. To some viewers from the perimeter rim roads, the reclaimed pits would be seen as an interesting mosaic of cropland, uplands, wetlands, ponds, and riparian canopy. The visual contrast of water with irregular shoreline, undulating topography, and corresponding variable patterns of natural and agricultural vegetation would create an aesthetically pleasing viewshed from all sides of the pit perimeter. Inclusion of forest canopy throughout the basin would screen and soften the artificially steep sides of the pit. To others, especially those few properties that would remain within the noncontiguous site*

area, the changed landforms resulting from the proposed projects mining activities, pits, and bypass channel may be visually objectionable.

The mining sites are fenced from the public and visual screening is provided either by these screen fences or through vegetation.

STANDARDS OF SIGNIFICANCE

Appendix G of the California Environmental Quality Act (CEQA) provides guidance for assessing the significance of potential environmental impacts. Relative to aesthetics and visual resources, a project will normally have a significant effect on the environment if it will:

- Have a substantial affect on a scenic vista;
- Substantially damage scenic resources, including but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway;
- Substantially degrade the existing visual character or quality of the site and its surroundings; or
- Create a new source of substantial light or glare, which could adversely affect day or nighttime views in the area.

ENVIRONMENTAL IMPACTS AND MITIGATION

DEGRADATION OF THE VISUAL CHARACTER OR QUALITY OF THE SITE AND ITS SURROUNDINGS

The prior FEIR/EIS concluded that unless visual screening is adequate there would be a significant impact associated with the views of the mining operations. The inclusion of the Vineyard I mining expansion site to the Vineyard I mining site does not change this impact. The mitigation from the prior project is in place.

The prior FEIR/EIS noted that the value assigned to changed landforms resulting from mining activities is very subjective. It was noted that the mining project could create an aesthetically pleasing viewshed from all sides of the pit perimeter due to visual contrasts and undulating topography. On the other hand, it was recognized that the mining activities, pits, and bypass channel may be visually objectionable.

The proposed Project revises the previously approved Reclamation Plan, which eliminates the bypass channel and creates a new Morrison Creek Realigned Channel on the Vineyard I and Aspen III South mining properties, which will be constructed at-

grade, with a meandering low flow channel, creating a more natural creek corridor compared to its previously approved location at the bottom of the mined pit area. The creek will meander similar to how a natural creek would. In addition, the new Morrison Creek Realigned Channel will be planted to recreate a riparian and oak woodland habitat. There will be trail crossings over the main preserve and maintenance will occur in perpetuity. The proposed project will increase the habitat value of the Morrison Creek corridor which could be seen by most people as aesthetically positive. In addition, on the Aspen IV South site, the existing Morrison Creek will be preserved and a Raised Bank Channel will be constructed outside of the floodway. The Morrison Creek Realigned Channel will connect with the existing Morrison Creek channel on Aspen IV South. As Teichert Aggregates will not be mining through the existing Morrison Creek channel on the Aspen IV South, there are no adverse aesthetic impacts to this portion of the Morrison Creek channel.

Mining activities on the Vineyard I mining expansion site do not substantially change the prior FEIR/EIS conclusion. There are no homes or roadways adjacent to these two properties that could be affected by the additional mining.

Mitigation was included in the prior document that required the proponents to screen mining operations from public roadways, private property and other sensitive receptors by providing a combination of visual screens. These screens were to include 25-foot minimum buffers, chain link fencing, berming and landscaping with fast-growing, closely spaced shrubs. In addition, landscaping was to be initiated at least one year prior to commencement of mining operations to allow plant establishment and sufficient screening growth. The landscaping plan for Vineyard I (where the additional mining activities are to take place) was signed off as complete and acceptable in January 2001.

The two small parcels proposed for inclusion into the Vineyard I mining site will be screened from the public view by the existing visual screenings installed by the proponents; impacts are considered less than significant.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measures: None Required – Prior Measures have been completed

CREATE A NEW SOURCE OF SUBSTANTIAL LIGHT OR GLARE AFFECTING NIGHTTIME VIEWS IN THE AREA

> *The prior FEIR/EIS concluded that the nighttime landscape in the vicinity of the project would be changed. Urban type lighting will exist on the project site which has not existed in the past and will be visible to existing residents and travelers passing by. This was found to be a significant impact. Mitigation reduced the impact to less than significant. The proposed project does not substantially change this conclusion and impacts can be mitigated to less than significant.*

The prior FEIR/EIS stated that most of the lighting would be located in the vicinity of the proposed processing plant. The light within the mining area would vary in setback and height relative to adjacent uses, depending upon which area of the site is actively being mined at any particular time and the depth to which the mining of that particular area has proceeded. The processing plant was not constructed as part of the prior project. The lighting associated with the mining is the only nighttime lighting impact associated with the project.

The reclamation amendment of the proposed project will not require any lighting and the Vineyard I mining expansion site will be located on the existing Vineyard I mining site, which is currently being mined. There are lights currently associated with the mining activities; therefore, there are no new impacts associated with the inclusion of the 5.6 acres for mining.

Mitigation measures included below were proposed in the prior FEIR/EIS and remain applicable to the proposed project. With mitigation, impacts will be considered less than significant.

Level of Significance Before Mitigation: Significant

Mitigation Measure:

With minor changes, the mitigation measure from the FEIR/EIS below is applicable to the proposed Project.

AV-1 Any lighting shall be arranged and controlled so as not to illuminate public rights-of-way or adjacent properties. In order to reduce direct and reflected light pollution, lighting at the project site shall be equipped with shields that concentrate the illumination downward such that no direct light is cast off the site. Energy efficient lights shall be used, similar to the types used as residential outdoor security lights. The candle power of the illumination at ground level shall not exceed what is required by any safety or security regulations of any government agency with regulatory oversight of the mining operation.

Level of Significance After Mitigation: Less Than Significant

CUMULATIVE IMPACTS

The project, in combination with other projects in the vicinity of the project site, would not create an adverse aesthetic impact. At the completion of mining, the three mining sites (Vineyard I, Aspen III South and Aspen IV South) would return to agricultural production, which is the approved Post-Reclamation use of the site.

At the completion of mining, the Morrison Creek Realigned Channel on Vineyard I and Aspen III South would be completed and planted with riparian and oak vegetation. The Morrison Creek Realigned Channel would connect to the preserved Morrison Creek and proposed Raised Bank Channel on Aspen IV South. Vegetation and oak tree mitigation

plantings would be within this Raised Bank Channel. The proposed Morrison Creek Realigned Channel and Raised Bank Channel would have a higher aesthetic value compared to the No Project condition since the new channel will mirror a natural creek more than the previously approved bypass channel and pit bottom riparian corridor/low-flow channel. In addition, a pedestrian trail is proposed within the Morrison Creek Realigned Channel and Raised Bank Channel, which ultimately is planned to connect a larger network on recreational trails in the area. This also increases the aesthetic value of the proposed project.

16 PUBLIC SERVICES

INTRODUCTION

This chapter discusses the public services available at the project site and identifies any impact associated with the provision of public services.

The proposed project includes revisions to the previously approved reclamation plan, consistent with permits received from the County, State and federal regulatory agencies. The previous reclamation plan consisted of a below grade, 600-foot wide riparian corridor/low-flow channel within the bottom of the mining pit in generally the same location as the existing creek and an at-grade trapezoidal bypass channel around the perimeter of the three mining sites. The proposed project revises the previously approved reclamation plan by completely eliminating the at-grade trapezoidal bypass component and changing the below grade, 600-foot wide riparian corridor/low-flow channel to an at-grade mitigation corridor (Morrison Creek Realigned Channel) on the Vineyard I and Aspen III South mining properties. The Morrison Creek Realigned Channel has been designed to contain the 100-year flood flows. On the Aspen IV South property, the existing Morrison Creek channel will now be preserved and a raised bank flood control channel (Raised Bank Channel) is proposed to be constructed outside the effective FEMA floodway. The Morrison Creek Realigned Channel will connect with the preserved Morrison Creek channel on Aspen IV South.

The proposed project also includes a request for Granite to incorporate two small properties, totaling 5.6 acres, to their Vineyard I site for mining activities. The Vineyard I mining expansion site is located within the Vineyard I mining site and is surrounded by mining activities.

SETTING

The project site is located within the Sacramento County Urban Services Boundary (USB) and is within the active service area of a variety of public utility and service districts. Service providers were provided an opportunity to review and comment on the proposed project through the NOP process and through application distribution by the Planning Department. The following agencies commented on the proposed project and have been addressed below:

- Sacramento Metropolitan Fire District (letter dated July 8, 2008)
- Southgate Recreation and Park District (letter dated October 19, 2011)
- Sacramento Area Sewer District (letter dated July 7, 2008)

- Sacramento Regional County Sanitation District (letter dated June 20, 2008)
- Environmental Management Department (letter dated January 3, 2008)

FIRE PROTECTION

The project site is serviced by the Sacramento Metropolitan Fire District. Staff (M. Keehn) submitted comments and recommended conditions of approval for the Vineyard I portion of the proposed project. These requested appropriate Fire District access to all unimproved and recreational areas, firebreaks and fencing for wetland, open space and unimproved and recreational areas as wells as a recommendation that fencing be constructed on non-combustible materials. All conditions of approval will be included within the staff report prepared by the Planning Department.

PARKS AND RECREATION

Staff of the Southgate Recreation and Park District (M. Casey) reviewed the proposed Project and submitted comments and conditions of approval (letter dated October 19, 2011) for the Vineyard I portion of the project. The Southgate Park District commented that the District has met with the project applicant and County staff regarding the open space and bicycle/pedestrian trail conditions. Southgate Park District is coordinating with Teichert for the Aspen III South and Aspen IV South properties in order to provide a continuous bicycle/pedestrian trail though the Morrison Creek Realigned Channel and Raised Bank Channel.

Southgate Park District submitted conditions of approval relating to the Morrison Creek Realigned Channel, the bicycle/pedestrian trail, improvements to the trail and perpetual funding for the trail. The Southgate Park District states that the District will accept easements for the U.S. Army Corps authorized 14-foot wide trail crossing through the Morrison Creek Realigned Channel and a 20-foot wide trail corridor easement along the entire northern property line and along the southern property line from Mayhew Road to the western most crossing, outside of the preserve, to allow for a 10-12 foot-wide paved trail. The final trail surfaces, width and public access points to the trail will be mutually determined by the Applicant and Southgate Park District. The Southgate Park District has not to date submitted final conditions of approval for the Teichert properties, Aspen III South and Aspen IV South. However, final conditions of approval from Southgate Park District is likely to be similar to the conditions submitted for Vineyard I; therefore, the final conditions regarding the trail easements, location, surface material and access points do not result in any significant environmental impacts. The final conditions of approval from Southgate Park District will be addressed in the Planning Department's staff report.

The Land Use chapter includes mitigation that requires that the Morrison Creek Realigned Channel be dedicated to a third party entity and that funding be provided for the maintenance and monitoring in perpetuity.

SOLID WASTE SERVICE

Public sewer service within Sacramento County is provided by the Sacramento Regional County Sanitation District (SRCSD) and the Sacramento Area Sewer District (SASD), formally County Sanitation District No. 1 (CSD-1). The project site lies within the existing boundaries of both service districts. Each of the districts provides a distinct service.

SASD operates, maintains and constructs sewage trunks and collection lines that carry between 1 and 10 million gallons per day. SASD provides collection and transport of sanitary sewage and industrial wastes from its facilities to the major transmission, treatment, and disposal facilities operated by SRCSD.

The SRCSD provides sewage transport via interceptor lines with capacities exceeding 10 million gallons per day. Sewage collected locally by the SASD (along with other public agencies) is transported by SRCSD via one of four interceptor sewers to the Regional Treatment Plant near the town of Freeport. The Regional Plant provides secondary sewage treatment through a pure oxygen activated sludge process and then discharges treated effluent into the Sacramento River downstream from domestic water supply intake facilities.

Both agencies, SASD and SRCSD, reviewed the proposed Vineyard I expansion of the proposed project and submitted comments and conditions which are included in the Impacts and Analysis section below.

ENERGY SERVICE

Existing electrical service is provided from the Sacramento Municipal Utility District (SMUD). No comment letter has been received to date from SMUD.

STANDARDS OF SIGNIFICANCE

The criteria used to evaluate the significance of public services and utility impacts resulting from the proposed project were developed based on CEQA Guidelines and on professional standards. Impacts of the proposed project on public service and utilities were considered significant if implementation of the project would:

- Result in inadequate wastewater treatment and disposal facilities for full buildout of the project;
- Result in substantial adverse physical impacts associated with the provision of electric or natural gas service;

- Result in substantial adverse physical impacts associated with the provision of emergency services such as to substantially increase emergency response times;
- Result in substantial adverse physical impacts associated with the provision of park and recreation services

IMPACTS AND ANALYSIS

IMPACTS TO SRCSD AND SASD (FORMALLY CSD-1) SEWAGE LINES

The prior FEIR/EIS concluded that the proposed mining operations would eliminate possible routes for gravity sewers being considered by SRCSD and CSD-1, which was considered a significant impact that could be reduced to less than significant with mitigation.

The prior FEIR/EIS noted that SRCSD and CSD-1 completed a *Sewerage Expansion Study* and a *1994 Update Expansion Study*, in part to investigate the most feasible trunk and interceptor alignment to serve areas within the USB. The 1994 Update provided for an interceptor alignment through the project site. This was identified as the Bradshaw Interceptor alignment, which was proposed adjacent to Bradshaw Road. The Bradshaw Interceptor was proposed to be constructed through the area by 2005. It was noted in the prior FEIR/EIS that the mining operations would most likely not be started prior to the construction of the planned sewer lines. Therefore, it was concluded that excavation activities associated with mining would have the potential to effect and/or eliminate possible routes for gravity sewers being considered by SRCSD and CSD-1.

The Bradshaw Interceptor has been installed and completed in the project area. The proposed project would not have an impact to this sewer facility.

In 2002, CSD-1 prepared a Master Plan (approved in 2004), and in 2006 CSD-1 conducted a Master Plan Update to the 2002 Master Plan. The Master Plan Update sought to establish the future capital needs of the CSD-1 trunk sewer system, addressing capacity relief projects for the existing system, as well as expansion projects to serve newly developed areas. Based on the 2006 Master Plan Update, a trunk expansion is proposed at the intersection of Elder Creek Road and South Watt Avenue, where it travels east along Elder Creek Road and appears to travel north up Mayhew Road. This trunk expansion is proposed for the years 2011 to 2020.

Elder Creek is the southern limit of the project site. The CSD-1 Master Plan and Master Plan Update have identified future trunk and interceptor locations. Based on the Master Plan Update, the proposed project will not adversely impact any planned sewer facilities.

SRCSD Staff (R. Armstrong) reviewed the proposed project and commented (letter dated June 20, 2008) that the SRCSD Northwest Interceptor, Section 1, which is an 84-inch line located on the north side of Fruitridge Road, is located within the proposed project boundaries. SRCSD further commented that improvements associated with the proposed project do not appear to conflict with this facility.

Staff (S. Khan) of SASD commented (letter dated July 7, 2008) that the subject property is outside the boundaries of SASD and would be subject to the Environmental Management Department (EMD) approval for on-site waste disposal facilities. The proposed project would not require an on-site waste disposal facility.

As there are no new sewer facilities planned through the project site and new facilities are located along existing roadways, mining and excavation of the project sites will not affect planned sewer facilities. This impact is now considered less than significant.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measures: None Required

IMPACTS TO EXISTING SEPTIC SYSTEMS

> *The prior FEIR/EIS concluded that seepage from septic systems could cause adverse impacts when excavation occurs near a septic system site, especially in areas with gravelly soils. This was found to be a significant impact that could be reduced to less than significant. In addition, the prior FEIR/EIS determined that proposed mining operations would require the removal of onsite septic systems, which was found to be a less than significant impact.*

The prior FEIR/EIS identified the locations of known septic systems on the project site. It was concluded that excavation near an existing septic system site could have adverse impacts (especially where excavation occurs in areas of gravelly soils) and this was considered a significant impact. However, compliance with the Zoning Code regarding mining setbacks for sewerage systems was found to reduce this impact to less than significant.

Mining setbacks for sewerage systems are provided in the Sacramento County Zoning Code, Section 235-52(e)(5) [old Zoning Code Section 235-59(d), as stated in the prior FEIR/EIS], which states:

> In the event there are individual sewage disposal systems near or within the mining site, the mining setbacks shall conform to the provisions of the Sacramento County Code, Chapter 6.32 and shall be subject to the approval of the Sacramento County Environmental Management Department and the Regional Water Quality Control Board. Approval of these agencies must be obtained on the minimum mining setbacks before a Work Authorization Permit can be obtained, per Section 235-45(a)(2). If setbacks of the mining use permit are established which exceed the setbacks prescribed in this Section, the Board

> shall specify in writing reasons for requiring the additional setback and the setbacks shall become conditions of the use permit.

The applicant for Vineyard I mining site has submitted an exhibit that shows the location of dust control wells, landscape irrigation wells and the approximate location of other wells/septic. The proposed Vineyard I expansion site contain a dust control well and a well/septic. There are no septic systems located near the Morrison Creek Realigned Channel.

The prior FEIR/EIS concluded that the mining operations would require the removal of onsite septic systems in compliance with Sacramento County EMD and Building Department guidelines. This was found to be a less than significant impact. Conditions from the prior FEIR/EIS required that the proponents submit a site plan for review to the Sacramento County EMD showing the exact locations of existing wells and septic systems within 300 feet of the project site. Wells proposed to be used during mining operations, wells and/or septic systems proposed for abandonment and any proposed well(s) must be indicated on the plans. Furthermore, the project proponents were required to abandon any existing septic systems according to EMD procedures and standards.

Compliance with the Sacramento County Code and Zoning Code will ensure that mining and excavation activities would not have an adverse impact to septic systems. Impacts on septic systems as a result the Vineyard I expansion mining site are considered less than significant.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measures: None Required

USE OF ONSITE WATER

> *The prior FEIR/EIS concluded that mining activities would require water to be used for dust control and landscaping. The rate of use would depend upon dust control and plant needs. Aggregate processing incorporates both well water from new wells constructed within the project site and recycled settling pond water. This was found to be a less than significant impact.*

The prior FEIR/EIS included a condition that required the proponents to submit for review by EMD, a site plan showing the exact location of existing wells and septic systems within 300 feet of the project site. The plan is to also indicate the wells proposed for use during the mining operation, wells and/or septic systems proposed for abandonment and the proposed location of any new wells.

Although it was determined that this impact was less than significant, mitigation was included that required all new wells constructed within the project site be located and designed to minimize interference with existing wells within and outside the project site, to the satisfaction of EMD.

The prior FEIR/EIS concluded that there are no plans to provide public water to the project site or surrounding area during or following mining operations. The proposed project does not change the prior conclusion. Impacts remain less than significant.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measure: None Required

REMOVAL OF WATER WELLS

> *The prior FEIR/EIS concluded that mining operations would require the removal of water wells. However, since removal of wells would have to be in compliance with regulations of EMD and the Building Department guidelines, this was found to be a less than significant impact*.

There is one dust control water well located within the Vineyard I expansion site. There are also existing wells located on Aspen III South and Aspen IV South mining sites.

Staff (C. Hawkins) of EMD reviewed the proposed project and submitted a comment letter (letter dated January 3, 2008) requesting that "any existing well that will not be operational must be destroyed under permit from EMD" be included as a condition for the proposed project. Removal of water wells prior to excavation would be in compliance with EMD regulations, which will ensure impacts associated with removal of water wells are less than significant.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measures: None Required

ELECTRIC FACILITIES

> *The prior FEIR/EIS concluded that electrical facilities would need to be installed to serve the proposed project, including those for the aggregate processing facility. This was considered a less than significant impact.*

The processing facility was not included as part of the prior project. The mined material was to be sent to existing processing facilities via the conveyor system. It was determined in the prior FEIR/EIS that electricity needed for the project site would be supplied from SMUD's Sunrise/Jackson substation. Even with the inclusion of the processing facility, it was determined that the electric power demand would not constitute a significant increase in demand.

Although this impact was considered less than significant, there were two mitigation measures included for this impact. One mitigation measure pertained to the proposed processing facility on the Vineyard I mining site. That mitigation measure is not applicable to the project. The other mitigation measure required that any existing overhead power lines shall remain, and if necessary be relocated at the proponents'

expense as the operation proceeds. The Vineyard I expansion site does not have any overhead power lines located on the site. This mitigation measure is not applicable to the proposed project.

The Morrison Creek Realigned Channel, Raised Bank Channel and the Vineyard I expansion site will not require additional electric facility use over what was originally permitted. This impact remains less than significant.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measures: None Required

NATURAL GAS FACILITIES

> *The prior FEIR/EIS concluded that the installation of natural gas facilities would need to be installed to serve the proposed project, including the hot asphalt plant. This was considered to be a less than significant impact.*

The processing plant that was previously proposed for Vineyard I was not built as part of the previous project, since Granite was able to obtain the necessary easements for a conveyor system to their existing off-site plant. The proposed project will not require the use of natural gas; therefore, natural gas facilities will not need to be installed. This is no longer an impact.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measures: None Required

PARK SERVICES

> *The project site is within the boundaries of Southgate Recreation and Park District. The proposed project will provide trails through the mitigation corridor for public use.*

The revised reclamation plan creates a wetland/riparian stream corridor and includes trails for public use/ open space. Southgate Recreation and Park District reviewed the proposed project and submitted comments and recommended conditions of approval. The District requests for a trail easement within the Morrison Creek Realigned Channel and Raised Bank Channel.

The provision of trails and open space on the project site is addressed in the Land Use Chapter. The use of the project site as open space was found to not have a significant impact on the post development and use of the project site. The provision of park services to the project site is considered a less than significant impact. Although impacts are considered less than significant, mitigation consistent with the Land Use Chapter has been included.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measures: Implement Mitigation Measure LU-3

EMERGENCY SERVICES

> *The proposed project will provide public use of the mitigation corridor. The Sacramento Metropolitan Fire District provides fire protection service to the project area and provided conditions of approval. The project will not adversely affect the provision of fire services.*

The project proposes to have trails through the proposed Morrison Creek Realigned Channel and Raised Bank Channel. These trails will eventually connect to future bike trails, as shown on the 2010 Bikeway Master Plan. The trails will be considered open space, to be used by the general public. The Sacramento Metropolitan Fire District reviewed the proposed project and submitted comments and recommended conditions of approval. Upon compliance with recommendations of the Fire District, the project as proposed is not expected to adversely affect the provision of fire services. Impacts are considered less than significant.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measures: None Required

CUMULATIVE IMPACTS

Service providers were given the opportunity to comment on the proposed project and none identified existing deficiencies in capacity or ability to provide service to which the proposed project would contribute. Based on this information, the proposed project would not result in a cumulatively considerable incremental contribution to a public service impact; cumulative impacts are considered **less than significant**.

17 CLIMATE CHANGE

INTRODUCTION TO CLIMATE CHANGE AND GLOBAL WARMING

The average surface temperature of the Earth has risen by about 1 degree Fahrenheit in the past century, with most of that occurring during the past two decades (World Meteorological Organization, 2005). To the layperson, this apparently small amount of warming may appear insignificant. Correspondingly, the probable increases in average temperatures of between 3 to 8 degrees Fahrenheit (Cayan, et al., 2006a) may appear noticeable, but still insignificant. The word *average* is of critical importance to understanding climate change and global warming. In July, the average high temperature in Sacramento is 94 degrees Fahrenheit (The Weather Channel website, 2007). This number is created by averaging temperatures over decades, not just for one particular year. Although the average is 94 degrees Fahrenheit, residents know that the individual days and weeks making up that average are as much as 20 degrees warmer or cooler in the extreme cases and up to 10 degrees warmer or cooler on a more regular basis. Therefore, applying an average increase of 8 degrees in a strictly linear way (omitting forcing effects) would mean that the *average* July temperature in Sacramento would be 102 degrees, and that temperatures could get as hot as 122 degrees in an extreme event (the current record is 114) and could regularly reach 112 degrees. This kind of temperature shift would have significant consequences to citizens and the environment alike.

The principal greenhouse gases (GHGs) that enter the atmosphere because of human activities are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and fluorinated gases. From 1750 to 2004, concentrations of CO_2, CH_4, and N_2O have increased globally by 35, 143, and 18 percent, respectively. Other greenhouse gases, such as fluorinated gases, are created and emitted solely through human activities. (EPA 2006) Carbon dioxide is the gas that is most commonly referenced when discussing climate change because it is the most commonly emitted gas. While some of the less common gases do make up less of the total greenhouse gases emitted to the atmosphere, some have a greater climate-forcing effect per molecule and/or are more toxic than carbon dioxide.

“In order to stabilize the concentration of GHGs in the atmosphere, emissions would need to peak and decline thereafter. The lower the stabilization level, the more quickly this peak and decline would need to occur. Mitigation efforts over the next two to three decades will have a large impact on opportunities to achieve lower stabilization levels.” (IPCC 2007c)

CARBON DIOXIDE

Carbon dioxide emissions are mainly associated with combustion of carbon-bearing fossil fuels such as gasoline, diesel, and natural gas used in mobile sources and energy-generation-related activities. The U.S. EPA estimates that CO_2 emissions accounted for 84.6% of greenhouse gas emissions in the United States in 2004 (EPA 2006). The California Energy Commission (CEC) estimates that CO_2 emissions account for 84% of California's anthropogenic (manmade) greenhouse gas emissions, nearly all of which is associated with fossil fuel combustion (CEC 2005). Total CO_2 emissions in the United States increased by 20% from 1990 to 2004 (EPA 2006).

METHANE

CH_4 has both natural and anthropogenic sources. Landfills, natural gas distribution systems, agricultural activities, fireplaces and wood stoves, stationary and mobile fuel combustion, and gas and oil production fields categories are the major sources of these emissions. The U.S. EPA estimates that CH_4 emissions accounted for 7.9% of total greenhouse gas emissions in the United States in 2004. (EPA 2006) The CEC estimates that CH_4 emissions from various sources represent 6.2% of California's total greenhouse gas emissions (CEC 2005). Total CH_4 emissions in the United States decreased by 10% from 1990 to 2004 (EPA 2006).

NITROUS OXIDE

N_2O is produced by microbial processes in soil and water, including those reactions which occur in fertilizers that contain nitrogen. Global concentration for N_2O in 1998 was 314 ppb, and in addition to agricultural sources for the gas, some industrial processes (fossil fuel fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load. (EPA 2006)

The U.S. EPA estimates that N_2O emissions accounted for 5.5% of total greenhouse gas emissions in the United States in 2004 (EPA 2006). The CEC estimates that nitrous oxide emissions from various sources represent 6.6% of California's total greenhouse gas emissions (CEC 2005). Total N_2O emissions in the United States decreased by 2% from 1990 to 2004 (EPA 2006).

FLUORINATED GASES (HFCS, PFCS, AND SF_6)

Fluorinated gases, such as hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulfur hexafluoride (SF_6), are powerful greenhouse gases that are emitted from a variety of industrial processes. The primary sources of fluorinated gas emissions in the United States include the production of HCFC-22, electrical transmission and distribution systems, semiconductor manufacturing, aluminum production, magnesium production and processing, and substitution for ozone-depleting substances. The U.S. EPA estimates that fluorinated gas (HFC, PFC, and SF_6) emissions accounted for 2.0% of total greenhouse gas emissions in the United States in 2004. (EPA 2006) The CEC estimates that fluorinated gas emissions from various sources represent 3.4% of

California's total greenhouse gas emissions (CEC 2005). Total fluorinated gas emissions in the United States increased by 58% from 1990 to 2004 (EPA 2006).

WORLDWIDE, NATIONAL AND STATEWIDE EMISSIONS

Table CC-1 presents estimated GHG emissions from California, the United States, and from worldwide sources. The results are presented in units of million metric tons per year of CO_2 equivalents ($MMTCO_2Eq$).

Table CC-1:
Greenhouse Gases Emissions Worldwide, United States, and California

Geographic Region	CO_2	CH_4	N_2O
	$MMTCO_2Eq$[a]	$MMTCO_2Eq$[b]	$MMTCO_2Eq$[c]
Worldwide GHG Emissions for calendar year 2000[1]	38,000	5,434	3,002
United States GHG Emissions for calendar year 2004[2]	5,973.0	639.5	353.7
California GHG Emissions for calendar year 2004[3]	427.4	25.9	15.1

Notes:

[a]$MMTCO_2Eq$ means million metric tons per year of CO_2 equivalent, using Global Warming Potential (GWP) values provided by IPCC in its Fourth Assessment Report (TAR) (IPCC 2007a). The GWP for CO_2 is 1.

[b]The GWP from IPCC's TAR for CH_4 is 21.

[c]The GWP from IPCC's TAR for N_2O is 310.

CO_2 = carbon dioxide; N_2O = Nitrous oxide; CH_4 = Methane.

[1] Worldwide GHG emissions taken from Intergovernmental Panel on Climate Change 4th Assessment Report, Climate Change 2007: Synthesis Report, page 36.

[2]United States GHG emissions taken from *Emissions of Greenhouse Gases in the United States 2004*, Energy Information Administration, U.S. Department of Energy, Washington, DC, December 2005.

[3]California GHG emissions taken from *Inventory of California Greenhouse Gas Emissions and Sinks: 1990 to 2004*, California Air Resources Board, November 2007.

SACRAMENTO COUNTY EMISSIONS

The ICLEI (Local Governments for Sustainability) Clean Air and Climate Protection Model (CACP) was used to estimate unincorporated Sacramento County emissions, along with the emissions of all of the incorporated cities in the County. This complete inventory was done to provide a regional picture, but the County does not have control over incorporated city emissions (http://www.sustainability.saccounty.net/ReportsPublications/default.htm, click on the

Reports and Publications link to download the full Greenhouse Gas Emissions Inventory for Sacramento County). The baseline year 2005 was chosen based on availability of information. In cases where 2005 data was unavailable, 2006 or other recent-year data was substituted. The software inventories community GHG emissions for all operations, with a separate government analysis tab that determines GHG emissions of local government operations as a subset of the community analysis. The community analysis divides GHG emissions among residential (energy usage), commercial and industrial (energy usage), transportation (exhaust emissions), off-road vehicle use (exhaust emissions), waste (landfill emissions), wastewater treatment (energy usage), agriculture (fertilizers, enteric fermentation, etc), High GWP (high global warming potential, such are refrigerants), and airport (emissions from County buildings and fleets – does not include fleet owned by airlines) sectors. The government analysis divides emissions among buildings, vehicle fleet, employee commute, streetlights, water/sewage, and waste sectors.

For the community analysis, energy use was obtained for the Sacramento Municipal Utility District (SMUD) and the Pacific Gas and Electric Company (PG&E). Community waste generation for Sacramento County was collected through the California Integrated Waste Management Board (CIWMB) web site and through consultation with staff of Sacramento County Municipal Services Agency. The SMUD reported its 2005 GHG emissions and an emissions factor for all electricity sold to customers that was verified and certified by the California Climate Action Registry. This emissions factor was input into the model as a replacement for the statewide emissions factor for electricity consumption to generate more accurate GHG emissions estimates for Sacramento County electricity consumption. The analysis also uses localized vehicle miles traveled information using the outputs from the Sacramento Regional Travel Demand Model (SACMET) and the emissions factors from the Emission Factors Model 2007 (EMFAC 2007). The software default emissions factors for other GHGs, which are based on statewide averages, were used in all other instances.

As shown in Table CC-2, the County 2005 emission baseline is approximately 5.2 MMT per year, with the transportation sector as the largest contributor at 40% of the total. The emissions per sector drop precipitously from there, with the residential sector emitting only half of the transportation sector total. However, the residential and commercial sectors can be combined to give a more overarching view, because though these sectors operate differently, the source of emissions are the same: private building and interior equipment energy usage. Combining these sectors, transportation accounts for 40% of emissions, and operation of residential, commercial, and industrial buildings accounts for 35% of emissions. The off-road vehicle, waste, wastewater, agriculture, and high global warming potential greenhouse gases (High GWP GHG) sectors combined are responsible for only 21% of the County emissions, with the airport as an additional 4%.

Table CC-2: 2005 Community Emissions by Sector

Sector	CO_2e (metric tons)	Percent
Residential	1,033,142	19.9
Commercial and Industrial	772,129	14.8
Transportation	2,046,617	39.3
Off-Road Vehicle Use	236,466	4.5
Waste	435,348	8.3
Wastewater Treatment	70,662	1.4
Agriculture	197,132	3.8
High GWP GHGs	203,528	3.9
Airport	200,404	3.9
Total	**5,201,313**	**100**

EMISSIONS THRESHOLDS

The United Nations Intergovernmental Panel on Climate Change (IPCC) constructed several emission trajectories of carbon dioxide needed to stabilize global temperatures and climate change impacts. It concluded that a stabilization of greenhouse gases at 400 – 450 ppm carbon dioxide-equivalent concentration is required to keep global mean warming below 2°C, which in turn is assumed to be necessary to avoid dangerous climate change (IPCC 2007a). The California Climate Change Center (CCCC) at UC Berkeley has determined that an 11 percent reduction of greenhouse gases from 2005 levels is required by year 2010, a 25 percent reduction is required by 2020, and an 80 reduction by 2050 in order to stabilize greenhouse gases at 400 – 450 ppm carbon dioxide-equivalent concentrations and avoid potentially dangerous climate change impacts (CCCC 2006). The California Legislature required these reduction levels by enacting Assembly Bill 32.

Though reduction rates were established in California law (AB 32), as of the writing of this document there are no established statewide CEQA thresholds for greenhouse gases. AB 32 requires ARB to adopt a statewide greenhouse gas emissions limit equivalent to the statewide greenhouse gas emissions levels in 1990 to be achieved by 2020, as specified.

AB 1493 – GREENHOUSE GAS EMISSION STANDARDS FOR AUTOMOBILES

California Assembly Bill (AB) 1493 in 2002 required the California Air Resources Board (ARB) to develop and adopt the nation's first GHG emission standards for automobiles. The legislature declared in AB 1493 that global warming was a matter of increasing concern for public health and environment in the state. It cited several risks that

California faces from climate change, including reduction in the state's water supply, increased air pollution creation by higher temperatures, harm to agriculture, and increase in wildfires, damage to the coastline, and economic losses caused by higher food, water energy, and insurance prices. Further the legislature stated that technological solutions to reduce GHG emissions would stimulate California economy and provide jobs.

The State of California in 2004 submitted a request for a waiver from federal clean air regulations (as the State is authorized to do under the Clean Air Act) to allow the State to require reduced tailpipe emissions of CO_2. In late 2007, the EPA denied California's waiver request and declined to promulgate adequate federal regulations limiting GHG emissions. In early 2008, the State brought suit against EPA related to this denial.

A recent ARB study (ARB 2008a) showed that in calendar year 2016, AB 1493 (also referred to as the Pavley standard or the Pavley rules) would reduce California's GHG annual emissions by 16.4 million metric tons (MMT) of carbon dioxide equivalents (CO_2e). This is almost 50% more than the 11.1 MMT reduction produced by currently proposed federal fleet average standards for model years 2011 – 2015.

Further, by 2020, California is committed to implement revised, more stringent GHG emission limits, the Pavley Phase 2 rules (See discussion of scoping plan below). California's requirements would reduce California GHG emissions by 31.7 $MMTCO_2e$ in calendar year 2020, 45 percent more than the 21.9 MMTs reductions under the proposed federal rules in that year. Since the California rules are significantly more effective at reducing GHGs than the federal CAFE (fuel economy) program, they also result in better fuel efficiency – roughly 43 miles per gallon (mpg) in 2020 for the California vehicle fleet as compared to the new CAFE standard of 35 mpg.

EXECUTIVE ORDER S-3-05

Executive Order S-3-05 was the precursor to Assembly Bill 32 (AB 32 is described in the next section) and was signed by Governor Schwarzenegger in June 2005. This Executive Order was significant because of its clear declarative statements that climate change poses a threat to the State of California. The Executive Order states that California is "particularly vulnerable" to the impacts of climate change, and that climate change has the potential to reduce Sierra snowpack (a primary source of drinking water), exacerbate existing air quality problems, adversely impact human health, threaten coastal real estate and habitat by causing sea level rise, and impact crop production. The Executive Order also states that "mitigation efforts will be necessary to reduce greenhouse gas emissions".

To address the issues described above, the Executive Order established emission reduction targets for the state: reduce GHG emissions to 2000 levels by 2010, to 1990 levels by 2020 and to 80% below 1990 levels by 2050. The Secretary of the California Environmental Protection Agency was named as coordinator for this effort, and the Executive Order required a progress report by January 2006 and biannually thereafter. As a result, the Climate Act Team was created by the California Environmental

Protection Agency. The first report from the Climate Act Team was released in March of 2006, which proposed to meet the emissions targets through voluntary compliance and state incentive and regulatory programs.

Currently only the 2020 target has been adopted by the state through legislation (see Assembly Bill 32, below). As a result, all of the impact discussions, mitigation, and strategies are based on meeting the 2020 target, not the longer-term 2050 target.

ASSEMBLY BILL 32

In September 2006, Assembly Bill (AB) 32 was signed by Governor Schwarzenegger of California. AB 32 requires that California GHG emissions be reduced to 1990 levels by the year 2020, just like Executive Order S-3-05. However, AB 32 is a comprehensive bill that requires ARB to adopt regulations requiring the reporting and verification of statewide greenhouse gas emissions, and it establishes a schedule of action measures. AB 32 also requires that a list of emission reduction strategies be published to achieve emissions reduction goals.

As of this writing, the first six critical path items have occurred. AB 32 is in effect and the list of early action measures was adopted by the ARB on June 21, 2007 (Resolution 07-25), and many other measures were added at a hearing on October 25, 2007. The Scoping Plan was adopted on December 11, 2008. Regulations to implement various early action measures have been adopted (such as the Low Carbon Fuel Standard).

SENATE BILL 375

On September 30, 2008, Senate Bill (SB) 375 was signed by Governor Schwarzenegger of California. SB 375 combines regional transportation planning with sustainability strategies in order to reduce greenhouse gas emissions in California's urbanized areas. Existing law requires each regional transportation planning agency, which in Sacramento County's case is the Sacramento Area Council of Governments (SACOG), to adopt a Metropolitan Transportation Plan. SB 375 required the California Air Resources Board (CARB) to set performance targets for reduction of passenger vehicle emissions per capita in each of 16 Metropolitan Planning Organizations (MPOs) in the state for 2020 and 2035. For the SACOG MPO, these targets were set at 7% below 2005 per capita emissions for 2020 and 16% below 2005 per capita emissions for 2035. MPOs are not required to meet the greenhouse gas emission targets established by ARB, but if they conclude it is not feasible to do so, they must prepare an Alternative Planning Scenario to demonstrate what further land use and/or transportation actions would be required to meet the targets. SB 375 also requires that the Metropolitan Transportation Plan for each MPO include a Sustainable Communities Strategy (SCS) that integrates the land use and transportation components, and amends CEQA to provide incentives for housing and mixed use projects that help to implement an MTP/SCS that meets the ARB targets.

SENATE BILL 97 CHAPTER 185, STATUTES OF 2007

Senate Bill 97 (SB 97) requires that the Office of Planning and Research (OPR) prepare guidelines to submit to the California Resources Agency regarding feasible mitigation of greenhouse gas emissions or the effects of GHG emissions as required by CEQA. The California Resources Agency is required to certify and adopt these revisions to the State CEQA Guidelines by January 1, 2010. The Natural Resources Agency adopted the amendments on December 30, 2009. On February 16, 2010, the Office of Administrative Law approved the Amendments, and filed them with the Secretary of State for inclusion in the California Code of Regulations. The Amendments became effective on March 18, 2010.

ENDANGERMENT FINDING

On December 7, 2009, the U.S. EPA made an Endangerment Finding and a Cause or Contribute Finding related to greenhouse gases. The U.S. EPA Administrator found that the current and projected concentrations of the six key well-mixed greenhouse gases – carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6) – in the atmosphere threaten the public health and welfare of current and future generations (endangerment). The Administrator also found that the combined emissions of these well-mixed greenhouse gases from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas pollution which threatens public health and welfare (Cause or Contribute).

STATE OF CALIFORNIA EMISSION REDUCTION/ADAPTATION STRATEGIES

Several strategies to reduce vehicle emissions have been identified by the California Environmental Protection Agency's Climate Action Team. These include, but are not limited to, the following:

VEHICLE CLIMATE CHANGE STANDARDS

With the passage of AB 1493, Pavley, Chapter 200, Statutes of 2002, California moved to the forefront of reducing vehicle climate change emissions. This bill required the state to develop and adopt regulations that achieve the maximum feasible and cost-effective reduction of climate change emissions emitted by passenger vehicles and light duty trucks. Regulations were adopted by the ARB in September 2004. The ARB analysis of this regulation indicates emissions savings of 1 million tons CO_2 equivalent ($MMTCO_2e$) by 2010 and 30 million tons CO_2 equivalent by 2020.

DIESEL ANTI-IDLING

Reduced idling times and the electrification of truck stops can reduce diesel use in trucks by about 4 percent, with major air quality benefits. In July 2004 the ARB adopted a measure to limit diesel-fueled commercial motor vehicle idling. AB 32 analysis indicates that anti-idling measures could reduce climate change emissions by 1.2 $MMTCO_2e$ in 2020.

OTHER NEW LIGHT DUTY VEHICLE TECHNOLOGY IMPROVEMENTS

In September 2004 the California Air Resources Board approved regulations to reduce climate change emissions from new motor vehicles. The regulations apply to new passenger vehicles and light duty trucks beginning with the 2009 model year. The standards adopted by the Board phase in during the 2009 through 2016 model years. When fully phased in, the near term (2009 – 2012) standards will result in about a 22 percent reduction as compared to the 2002 fleet, and the mid-term (2013 – 2016) standards will result in about a 30 percent reduction.

New standards would be adopted to phase in beginning in the 2017 model year (following up on the existing mid-term standards that reach maximum stringency in 2016). Assuming that the new standards call for about a 50 percent reduction, phased in beginning in 2017, this measure would achieve about a 4 MMT reduction in 2020. The reduction achieved by this measure would significantly increase in subsequent years as clean new vehicles replace older vehicles in the fleet – staff estimates a 2030 reduction of about 27 MMT.

EXECUTIVE ORDER S-01-07

This Executive Order was signed by Governor Schwarzenegger on January 18, 2007 and directed the Climate Action Team to determine whether the items in the Order could be established as an early action measure pursuant to AB 32 – which the Climate Action Team has now done. The Executive Order states that the State of California relies on petroleum-based fuels for 96% of its transportation needs, there were more than 24 million motor vehicles registered in California, and statewide gasoline consumption was almost 16 billion gallons in 2005. To address the carbon emitted by this use of fuel, the Executive Order states that a statewide goal must be established to reduce the “carbon intensity of California’s transportation fuels” by at least 10% by the year 2020 and that a Low Carbon Fuel Standard for transportation fuels be established. The Low Carbon Fuel Standard applies to all “refiners, blenders, producers or importers of transportation fuels in California”.

CALIFORNIA CLIMATE ADAPTATION STRATEGY

In December 2009, the California Resources Agency, in coordination and partnership with multiple other state agencies, released their California Climate Adaptation Strategy. This document summarizes the best known science on climate change impacts in

seven specific sectors, including: public health, biodiversity-habitat, ocean & coastal resources, water management, agriculture, forestry, and transportation and energy infrastructure. The strategy provides recommendations on how to manage against threats to these sectors. The strategy is in direct response to Gov. Schwarzenegger's November 2008 Executive Order S-13-08 that specifically asked the Natural Resources Agency to identify how state agencies can respond to rising temperatures, changing precipitation patterns, sea level rise, and extreme natural events.

SACRAMENTO COUNTY EMISSION REDUCTION EFFORTS

CLIMATE ACTION PLAN

In May of 2009 Sacramento County published a Phase I Draft Climate Action Plan (Phase I CAP). The Phase I CAP provides a framework and overall policy strategy for reducing greenhouse gas emissions and managing our resources in order to comply with AB 32. It also highlights actions already taken to become more efficient, and targets future mitigation and adaptation strategies. This document is available at http://www.sustainability.saccounty.net/ClimateActionPlan/default.htm. The draft Phase I CAP contains policies/goals related to agriculture, energy, transportation/land use, waste, and water.

Goals in the section on agriculture focus on promoting the consumption of locally-grown produce, protection of local farmlands, educating the community about the intersection of agriculture and climate change, educating the community about the importance of open space, pursuing sequestration opportunities, and promoting water conservation in agriculture. Actions related to these goals cover topics related to urban forest management, water conservation programs, open space planning, and sustainable agriculture programs.

Goals in the section on energy focus on increasing energy efficiency and increasing the usage of renewable sources. Actions include implementing green building ordinances and programs, community outreach, renewable energy policies, and partnerships with local energy producers.

Goals in the section on transportation/land use cover a wide range of topics but are principally related to reductions in vehicle miles traveled, usage of alternative fuel types, and increases in vehicle efficiency. Actions include programs to increase the efficiency of the County vehicle fleet, and an emphasis on mixed use and higher density development, implementation of technologies and planning strategies that improve non-vehicular mobility.

Goals in the section on waste include reductions in waste generation, maximizing waste diversion, and reducing methane emissions at Kiefer landfill. Actions include solid waste reduction and recycling programs, a regional composting facility, changes in the

waste vehicle fleet to use non-petroleum fuels, carbon sequestration at the landfill, and methane capture at the landfill.

Goals in the section on water include reducing water consumption, emphasizing water efficiency, reducing uncertainties in water supply by increasing the flexibility of the water allocation/distribution system, and emphasizing the importance of floodplain and open space protection as a means of providing groundwater recharge. Actions include metering, water recycling programs, water use efficiency policy, water efficiency audits, greywater programs/policies, river-friendly landscape demonstration gardens, participation in the water forum, and many other related measures.

Publication of a Phase II CAP is anticipated to occur one year from the adoption of the 2030 Sacramento County General Plan. This Phase II CAP is intended to flesh out the strategies involved in the Phase I CAP, and will include economic analysis, intensive vetting with all internal departments, community outreach/information sharing, timelines, and detailed performance measures.

CHICAGO CLIMATE EXCHANGE

In February 2007, the County joined the Chicago Climate Exchange. The Chicago Climate Exchange is the world's first and North America's only voluntary, legally binding rules-based greenhouse gas (GHG) emission reduction and trading system. Chicago Climate Exchange Phase I members commit to reduce GHG emissions 1% per year over the years 2003 through 2006 relative to a 1998 through 2001 average baseline. Members agree to reduce GHG emissions by a total of 4% below the baseline by 2006. Chicago Climate Exchange Phase II members commit to reduce GHG emissions from 1¼% to ½% per year through the years 2007 through 2010 for grand total of 6% below the baseline.

ENERGY CONSERVATION/ENERGY EFFICIENCY PROGRAM

The Board of Supervisors approved an Energy Conservation/Energy Efficiency Program in 2001. The essence of the program is to reduce electrical energy usage during peak periods of the day. The program contains ten measures such as participating in Sacramento Municipal Utility District's Voluntary Emergency Curtailment Program, setting building temperatures to 78° F to decrease cooling demand and dual switching of lights. The preliminary baseline for direct and indirect emissions for the County is 226,700 metric tons of CO_2.

CALIFORNIA CLIMATE ACTION REGISTRY

The County joined the California Climate Action Registry (Registry) in December 2006. The Registry is a non-profit public/private partnership that serves as a voluntary GHG registry to protect, encourage and promote early actions to reduce GHG emissions. Registry participants agree to calculate, certify and publicly report GHG emissions. The Registry provides a reporting tool, standards and protocol for reporting GHG emissions.

AB32 recognizes participation in the Registry in a number of ways. First, AB 32 requires the ARB to incorporate the standards and protocols developed by the Registry in the rulemaking process. Second, AB 32 provides that entities that join the Registry prior to December 31, 2006 and report their emissions according to the Registry protocols will not be required to significantly alter their reporting program.

LOCAL GOVERNMENTS FOR SUSTAINABILITY (ICLEI)

The Local Governments for Sustainability is administered under the International Council for Local Environmental Initiatives (ICLEI), which the County joined in 2007. Cities for Climate Protection™ (CCP) is ICLEI's flagship campaign. The program is designed to educate and empower local governments worldwide to take action on climate change. CCP is a performance-oriented campaign that offers a framework for local governments to reduce greenhouse gas emissions and improve livability within their municipalities. This campaign would give Sacramento County a framework and tools to develop a plan for greenhouse emissions. The basic framework is called the 5 Milestones and consists of the following steps: completion of a baseline emissions inventory and forecast, adoption of an emissions reduction target, development of a Local Action Plan, implementation of policies and measures, and monitoring and verification of results.

The County has completed the emissions inventory and it is available on the Department of Environmental Review and Assessment website at www.dera.saccounty.net (see the home page under special studies).

GREEN FLEETS

The City and County of Sacramento have adopted a heavy-duty low-emission vehicle (LEV) acquisition policy. The policy goal is to reduce oxides of nitrogen (NOx) emissions from heavy-duty fleet vehicles to meet the year 2005 standard for ozone in the Sacramento Federal Ozone Non-attainment area. The efforts will focus on the conversion of the on-road, heavy-duty equipment fleets to certified low-emission vehicles as these vehicles are replaced as part of regular systematic replacement programs. As of 2004 the County has committed to replace 50% off the fleet to low-emission vehicles.

COOL COUNTIES INITIATIVE

On July 16, 2007 at the National Association of Counties Annual Conference in Richmond, Virginia, 12 pioneering counties representing 17 million people launched “Cool Counties.” The Cool Counties initiative seeks to marshal the resources of all 3,066 counties across the nation to address the challenges climate change poses to our communities. On May 27, 2008 the Sacramento County Board of Supervisors approved a resolution to become a Cool County and participate in the initiative.

Participating counties commit to four smart actions:

1. reducing our own contributions to climate change through our internal operations;
2. demonstrating regional leadership to achieve climate stabilization and protect our communities;
3. helping our community become climate resilient;
4. urging the federal government to support our efforts.

These actions are consistent with the state requirements under Assembly Bill (AB) 32 and Executive Order S-3-05, including:

- Assessing local operations that impact greenhouse gas emissions;
- Working to reduce greenhouse gas emissions 80% below current levels by 2050;
- Identifying local vulnerabilities to climate change and creating a plan to address them;
- Working with counties nationally to urge the federal government to adopt legislation to reduce greenhouse gas emissions 80% below current levels by 2050.

SIGNIFICANCE CRITERIA

CEQA Guidelines section 16064.4 states that an agency should make a "good faith effort . . . to describe, calculate, or estimate the amount of greenhouse gas emissions resulting from a project". It is left to the lead agency's discretion to use a quantitative or qualitative approach. Factors that should be considered when determining significance are:

1. The extent to which the project may increase or decrease greenhouse gas emissions compared to the baseline;
2. whether the project exceeds any applicable significance threshold; and
3. the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions.

The guidelines do not include a numeric significance threshold, but instead defer to the lead agency to determine whether there are thresholds which apply to the project. With regard to the third item, statewide plans include AB 32 and SB 375, as described in the Regulatory setting. The underlying strategy and assumptions of the AB 32 Scoping Plan were used to develop County thresholds. AB 32 requires emissions be reduced to 1990 levels by the year 2020, which is estimated in the AB 32 Scoping Plan to be 15% below *existing (2005) emissions*. The text is emphasized to note that the goal is not

15% below what is known as "business-as-usual" conditions or unmitigated project emissions; it is 15% below the emissions which were existing in California as of the year 2005.

As previously discussed, Sacramento County prepared a GHG emissions inventory for the County, and as an offshoot of that process has published a Draft Climate Action Plan. Thresholds have been developed based on the County inventory (see Table CC-3). As shown below, separate thresholds have been included for each sector. The purpose of this division is to provide additional information about the source of emissions. When making a final determination of significance, these thresholds can be combined to generate a total emissions threshold; it is this total threshold that will ultimately determine whether impacts are found to be significant.

Table CC-3: Greenhouse Gas Significance Thresholds, in Metric Tons

Sector	2005 Baseline	2020 Target	Thresholds
Residential Energy	1,033,142	877,883	1.33 per capita
Commercial & Industrial Energy	772,129	656,660	7.87 per Kft^2
Transportation	2,046,617	1,740,000	2.64 per capita
Trucks	*488,806*	*415,218*	*0.10 per 100 VMT*

Also note that the transportation sector is expressed in per capita, which is not applicable to non-residential projects. The determination was made that, in general, non-residential projects redistribute existing trips made by passenger vehicles – they do not generate new trips. The majority of trips to and from a commercial project are generated by residential uses. Residential projects are already being required to account for transportation emissions, so including them for commercial projects as well would result in double-counting. Therefore, only the truck-trips generated by a commercial project itself will be subject to analysis. An exception to this rule is any commercial project which is a regional draw or unique draw, and thus may cause the redistribution of existing trips in a manner that will increase total existing VMT.

Thresholds applicable to construction activities have not been developed. Emissions resulting from the usage of off-road vehicles is only 4.5% of the total inventoried emissions in Sacramento County, which includes recreational and other vehicles, not just construction fleets. Furthermore, while emissions from the actual use of newly constructed buildings adds to existing building stock and thus results in a cumulative year-on-year increase in emissions, the amount of construction in a region does not result in cumulative additions. Though construction may increase or decrease in a given year due to market demand, the average amount of construction undertaken does

not tend to increase over time. For this reason, even without mitigation the amount of annual emissions resulting from construction is expected to decrease over time as a result of the implementation of existing regulations (such as the low carbon fuel standard) and fleet turnover. An analysis of the data for construction equipment within the EMFAC (Emissions Factor Model) 2011 indicates that construction fleet emissions will reduce by approximately 11% between 2005 and 2020. Standard mitigation applied for the purpose of reducing other air pollutants (see the Air Quality chapter) will further reduce emissions. For the foregoing reasons, it was determined that construction emissions would not contribute to a significant climate change impact, and no threshold is necessary.

METHODOLOGY

The applicant provided estimated fuel usage over the life of the Project. Carbon dioxide emissions were directly calculated from the fuel data by using Environmental Protection Agency estimates of CO_2 emissions per unit of fuel consumed. According to "Direct Emissions from Mobile Pollutant Sources" (May 2008)[1], a total of 22.38 pounds of CO_2 is emitted for each gallon of diesel fuel consumed.

IMPACTS AND ANALYSIS

According to data provided by the applicant, the project will result in the consumption of 19,628.62 gallons of diesel fuel for the mining of 5.6 additional acres. Multiplied by the emissions factor of 22.38, this results in approximately 199 metric tons of CO_2 emissions. Though these emissions result from the operation of a quasi-industrial enterprise, the emissions will only occur over a time period of six months and will then cease. The purpose of the significance thresholds is to reduce the cumulative effect of a year-on-year buildup of emissions, which is not what the Project will cause. Project emissions are more alike to construction emissions in this way, which result in only a temporary source of emissions. Given that the project will not cause an increase in year 2020 emissions – the emissions will have ceased long before then – no mitigation or further analysis is necessary. Project impacts are short-term, like construction impacts, and will not impede the ability of the County or the State to achieve 2020 target year emissions; impacts are *less than significant*.

CUMULATIVE IMPACTS

As stated above, since mining of the Vineyard I mining expansion site is short-term in nature and will not impede the ability of the County or the State to achieve 2020 target

[1] http://www.epa.gov/climateleaders/documents/resources/mobilesource_guidance.pdf

year emissions, the project will not have a cumulative greenhouse gas emission impact; the cumulative greenhouse gas emission impacts are considered **less than significant**.

18 SUMMARY OF IMPACTS AND THEIR DISPOSITION

SIGNIFICANT EFFECTS WHICH CANNOT BE AVOIDED

Approval of the project will result in significant effects in the areas of air quality, geology and slope stability and land use that cannot be avoided. These effects are as follows:

AIR QUALITY

Mining the Vineyard I expansion site would not increase exhaust emissions as a result of overburden removal. However, the use of heavy equipment would increase NOx emissions above established thresholds. Mitigation has been recommended to reduce impacts; however, not below significant levels.

GEOLOGY AND SLOPE STABILITY

The prior project was found to have a significant and unavoidable impact due to the permanent alteration of the project site's landform. Mining the Vineyard I expansion site would increase the amount of land permanently altered by mining. The proposed project does not lessen the prior impact. There is no feasible mitigation to reduce this impact.

LAND USE

The prior FEIR/EIS concluded that that mining area would potentially conflict with onsite and nearby land uses and this was considered a significant and unavoidable impact. The Vineyard I expansion request does not result in a conflict with onsite and nearby land uses since the expansion site is currently surrounded by mining operations; however, as the Vineyard I mining expansion site will be included to the approved Vineyard I mining site, the prior conclusion remains. Although mitigation was recommended in the prior FEIR/EIS and is applicable to the proposed project; the mitigation measure does not reduce impacts to less than significant.

SIGNIFICANT EFFECTS WHICH COULD BE AVOIDED WITH IMPLEMENTATION OF MITIGATION MEASURES

Approval of the project would result in the following significant effects in the areas of aesthetics and visual resources, airport compatibility, cultural resources, groundwater hydrology and quality, land use, public safety and traffic and circulation, which could be avoided with implementation of mitigation measures:

AESTHETICS AND VISUAL RESOURCES

The project was found to have a significant impact as a result of creating a new source of substantial light or glare affecting nighttime views in the area. The proposed project does not create any new impacts to nighttime lighting or glare; however this impact remains significant. Mitigation from the prior project remains applicable and includes controlling the lighting so as not to create unnecessary light pollution.

BIOLOGICAL RESOURCES

The project would have a significant effect as a result of the loss of natural vegetative communities on the site from prior mining activities. Mining of the Vineyard I mining expansion site does not change this conclusion. Mitigation requiring implementation of the *Wetland, Oak Woodland and Riparian Mitigation Monitoring Plan* will ensure the success of replacement habitats and will reduce this impact.

Prior approval of mining the Vineyard I site resulted in the loss of 3,562 inches of native oak and black walnut trees. This impact is fully mitigated with the incorporation of the oak tree planting plan within the Morrison Creek Realigned Channel across the Vineyard I and Aspen III South mining sites. The Vineyard I mining expansion site would result in an additional 40 inches of native oak and black walnut trees to be removed. Mitigation requiring planting of oak trees on an inch-for-inch basis has been included and reduces this impact.

The revision to the Aspen IV South site results in the loss of 801 inches of native oak trees. Impacts due to the connection and construction of the Morrison Creek Realigned Channel and Raised Bank Channel within the Mayhew Road right-of-way would result in 74 inches of oak tree impacts on Aspen IV South and 273 inches on Vineyard I. The total 875 inches of impacts on the Aspen IV South mining site and the 273 inches on the Vineyard I site will be mitigated within the preserve of the Raised Bank Channel located on Aspen IV South.

The project will result in the loss of Morrison Creek on the Vineyard I mining site; however, the reclamation plan revision to recreate a Morrison Creek Realigned Channel mitigates for the loss of Morrison Creek. Mining will not occur through Morrison Creek on the Aspen IV South site; the project revision eliminates prior impacts to the creek.

The prior project resulted in the loss of wildlife habitat due to mining activities. The proposed project does not change this impact; however, with the reclamation plan amendment to construct the Morrison Creek Realigned Channel, impacts will be reduced to less than significant.

The prior project was found to have a significant impact to vernal pool invertebrates. Although the Vineyard I expansion site does not contain any wetlands and there are no impacts to vernal pool invertebrates under the proposed project; the prior conclusion remains applicable. However, vernal pool preservation credits have been purchased,

and the Morrison Creek Realigned Channel will replace lost vernal pool habitats. Impacts are reduced to less than significant.

Impacts to Swainson's Hawk and other special status birds (burrowing owl and tricolored blackbird) were found to be a potentially significant impact under the prior project. The proposed project does not change this impact; however, the recreated Morrison Creek Realigned Channel will recreate suitable habitats for these birds/raptors in the post reclamation condition and will therefore not result in an adverse impact to these birds/raptors. Mitigation requiring pre-construction surveys remain applicable to the proposed project and impacts are reduced to less than significant.

CULTURAL RESOURCES

Mining the Vineyard I expansion site could uncover subsurface archaeological materials. This was found to be a potentially significant impact. Mitigation has been included that requires construction work to stop and notification to a professional archeologist if a subsurface deposit believed to be cultural or human in origin is discovered during construction. An additional mitigation measure is recommended that requires the applicant to contact the County Coroner in the event human remains are discovered. These measures reduce the cultural resources impacts to less than significant.

GROUNDWATER HYDROLOGY AND QUALITY

The prior FEIR/EIS concluded that gravel extraction may alter drainage and groundwater flow and quality which could affect surrounding properties and domestic septic leachfield systems on adjacent surrounding properties. Mitigation from the prior FEIR/EIS remains applicable that requires the storing of contaminants in a manner that will contain any spills and that any spills in the operating areas should be cleaned up immediately.

GEOLOGY AND SLOPE STABILITY

The prior FEIR/EIS concluded that the project's reclaimed slopes would be subject to slope instability. The proposed project does not change this prior significant impact. Mitigation has been included requiring side slopes at a minimum of 1.5:1 and proper soil compaction. In addition, mining on Aspen IV South will be within 25 feet of the Mayhew Road right-of-way and it is anticipated that the subsurface materials on the Aspen IV South site are stable under long-term static and seismic conditions. However, soil testing is recommended for this potentially significant impact to ensure that mining within the right-of-way does not result in a significant impact. Implementation of the recommended mitigation measures will reduce the level of significance.

The slopes of the mining pit and recreated channel of the proposed project would be subject to erosion and slope instability if not properly vegetated and maintained. Mitigation to ensure that the slopes of the pit are vegetated to reduce excessive erosion and enhance slope stability has been recommended. An additional measure, requiring

a ten-year monitoring plan that outlines monitoring requirements and identifies mitigating steps for any significant erosion should it occur in a specific location along the flow channel, has also been recommended. Implementation of the recommended mitigation measures will reduce impacts to less than significant.

LAND USE

The prior project was found to disturb 31 acres of Prime Farmland, 435 acres of Farmland of Statewide Importance and 419 acres of Farmland of Local Importance. The proposed Vineyard I expansion site will disturb an additional 5.6 acres of Prime Farmland and Farmland of Statewide Importance. Mitigation to prepare/revise a plan for the preservation and salvage of topsoil resources suitable for sustaining economically viable agricultural uses has been recommended, consistent with the State Mining and Geology Board's Reclamation Regulations. This mitigation will reduce impacts to less than significant.

AIRPORT COMPATIBILITY

The proposed project is consistent with the Mather Airport Comprehensive Land Use Plan (CLUP). A Bird Airstrike Hazard (BASH) Analysis has been completed for the proposed project and the potential for bird airstrikes over the project site is low. Impacts were found to be potentially significant. Mitigation that outlines design standards for the stormwater detention basin has been recommended to reduce this impact to less than significant.

PUBLIC SAFETY

The use of heavy equipment, the creation of a 25± foot deep, steep-sided pit and inadvertent public entry to the mining site could create a public safety hazard. Mitigation from the prior project requiring fences and warning/trespass signs around the perimeter of the mining sites has been completed. Mitigation requiring perimeter fencing until post-reclamation development or future use of the site occurs remain applicable to the proposed project and would reduce this impact to less than significant.

TRAFFIC AND CIRCULATION

The prior FEIR/EIS concluded that the additional haul trucks on the roadway system would significantly degrade the existing level of service. Removal of the overburden from the Vineyard I expansion site would not result in additional haul trucks on the roadway system and would not result in a significant increase in worker trips. In order to ensure that there is not an increase in haul trucks on the roadways related to overburden removal and mined aggregate material, mitigation is recommended requiring that the mined material be transported to the processing plant by conveyor only. With implementation, this impact will be reduced to less than significant.

EFFECTS FOUND NOT TO BE SIGNIFICANT

AESTHETICS AND VISUAL RESOURCES

The prior FEIR/EIS concluded that unless there is adequate visual screening, the mining project would have a significant impact associated with views of the mining operations. The prior required mitigation for visual screening is in place and mining of the Vineyard I expansion site does not change this conclusion.

BIOLOGICAL RESOURCES

The prior project was found to not have significant impacts to general invertebrate populations, fisheries and special status species such as the American Badger, Pallid bat, Townsend's Western big-eared bat, giant garter snake and special status plants. This conclusion remains applicable under the proposed project.

The prior project was found to have a significant impact to the valley elderberry longhorn beetle (VELB) due to removal of seven elderberry bushes on the Vineyard I mining site. Mitigation requiring consultation with the U.S. Fish and Wildlife Service for impacts to VELB has been completed and compensatory mitigation has been purchased for this impact. In addition, there are no elderberry bushes located on the Vineyard I expansion site. Impacts to VELB are now less than significant.

SURFACE WATER HYDROLOGY AND DRAINAGE

The proposed revisions to the previously approved reclamation plan would not result in increasing the Morrison Creek floodplain upstream of the site; will not result in an increase in the peak flows downstream of the site; will not result in flooding onsite; and will not result in damage to the Jackson Highway bridge due to high Morrison Creek flows. In addition, the embankments/levees of the proposed Morrison Creek Realigned Channel and Raised Bank Channel are not likely to fail; however, in the extreme unlikely event that the embankments/levees do fail, the downstream flows would not be reduced significantly and there would not be offsite flooding. A safety and evacuation plan will address embankment failure and will be in effect during mining operations to ensure safety to workers and visitors.

GROUNDWATER HYDROLOGY AND WATER QUALITY

The prior FEIR/EIS determined that mining operations could alter or disrupt future monitoring of contamination plumes at Mather Airport. This was found to be a significant impact that could be reduced with mitigation. The contamination plume of question has not migrated beyond Jackson Road. As the project site is located approximately one mile south of Jackson Road, mining operations on the Vineyard I mining expansion site will not affect future monitoring efforts at Mather Airport. This impact is now considered less than significant.

CULTURAL RESOURCES

There are no significant or historical resources on the Vineyard I mining expansion site. Impacts to known cultural resources are less than significant.'

AIR QUALITY

The prior FEIR/EIS concluded that mining operations would create new sources of air pollutants. The use of heavy equipment would result in dust generation on the project site, which would increase particulate emissions. However, Basic Construction Emission Control Practices will be implemented and the mining activities on the Vineyard I mining expansion site would not exceed 15 acres which, according to the Sacramento Metropolitan Air Quality Management District, the project will not have the potential to exceed the District's concentration-based threshold of significance for PM_{10} (and $PM_{2.5}$) at an offsite location.

CLIMATE CHANGE

The purpose of the significance threshold for greenhouse gas emissions is to reduce the cumulative effect of a year-on-year buildup of emissions, which is not what the proposed project will create since the duration of mining the Vineyard I expansion site will take up to six months timeframe. The emissions associated with the project are considered temporary and does not impede the ability of the County or State to achieve 2020 target year emissions.

GEOLOGY AND SLOPE STABILITY

The loss of the availability of a mineral resource is not an impact of the proposed project since the project is provides for the continued extraction of mineral resources.

TRAFFIC AND CIRCULATION

The prior FEIR/EIS found significant impacts to traffic safety due to increased truck traffic on roads not designed to accommodate truck traffic. The proposed project will not result in an increase in haul trucks. Prior mitigation for this impact has been completed; this impact is now considered less than significant.

The proposed project will not result in the introduction of new trucks on the roadway system and will not result in the deterioration of pavement or damage to roadway structural sections.

The level of service (LOS) in the prior FEIR/EIS was found to be significant and reduced to less than significant with mitigation. The proposed project will not result in a degradation of the LOS since the improvements to roadways from the prior project have been constructed and there is not an increase in truck traffic associated with the proposed project. This impact is now considered less than significant.

LAND USE

The prior project was found to have a significant impact as the post-project development of the site was limited and lacked open space/ recreational uses of the site. The proposed project now includes for a trail to be used by the public; this impact is now considered less than significant.

PUBLIC SAFETY

The prior project was found to not create hazardous conditions post reclamation. The proposed project does result in hazardous conditions post reclamation and the prior conclusion remains.

PUBLIC SERVICES

The proposed project will not have a significant impact to the following public services:

- Sewer services
- Existing septic systems
- Water supply (use of onsite well water and removal of water wells)
- Electric facilities
- Natural gas facilities
- Park services
- Emergency services

IRREVERSIBLE ENVIRONMENTAL CHANGES

An irretrievable commitment of natural resources, including aggregate harvested for urban uses, the use of petrochemicals during mining and the overall change of the landform are considered irreversible changes.

GROWTH INDUCING IMPACTS

The project site is located in close proximity to urban growth areas and resources harvested from the Vineyard I expansion site would be used to supply development consistent with adopted land use plans and policies within Sacramento County, adjacent cities and possibly beyond. The contribution of growth to the region resulting from the project is considered minimal and since extension of urban infrastructure would not be necessary to facilitate the project, growth-inducing impacts would be considered less

than significant. In addition, there would not be a growth-inducing impact associated with the Reclamation Plan amendment component of the proposed project.

CUMULATIVE IMPACTS

Title 14, CCR § 15355 defines cumulative impacts as the following:

> "Cumulative impacts" refers to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.
>
> (a) The individual effects may be changes resulting from a single Project or a number of separate projects.
>
> (b) The cumulative impact from several projects is the change in the environment which results from the incremental impacts of the Project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

Cumulative impacts are discussed in each respective individual chapter and there were no significant cumulative impacts identified. A summary of the cumulative impact discussion from each chapter is provided below.

- Aesthetics and Visual Resources
  - The project, in combination with other projects in the vicinity of the project site, would not create an adverse aesthetic impact. During mining operations, the mining site is screened from the public and at the completion of mining, the three mining sites will be returned to agricultural production. The Morrison Creek Realigned Channel will be planted with riparian and oak trees (as part of mitigation) and the Raised Bank Channel will contain oak tree mitigation plantings. The Morrison Creek Realigned Channel and Raised Bank Channel will have a higher aesthetic value compared to the prior approved reclamation plan (approved bypass channel and pit bottom riparian corridor/ low-flow channel).
- Surface Water Hydrology and Drainage
  - The design of the Morrison Creek Realigned Channel and the Raised Bank Channel, as well as the weir on Granite I operating and functioning in the "As-Built Condition" results in no adverse drainage or surface water hydrological impacts. The proposed project does not contribute incrementally to any flow related impacts; therefore the proposed project does not have a cumulative hydrological impact.

- Groundwater Hydrology and Water Quality
    - Mining the Vineyard I expansion site will reduce the depth to the groundwater in the project area. This reduction, in combination with the prior project's four mining sites and other mining sites in the vicinity of the project site would not result in a cumulatively considerable incremental contribution to a cumulatively significant groundwater hydrology or groundwater quality impact.
- Cultural Resources
    - The proposed project does not result in an impact to known significant cultural resources; therefore the project does not contribute to the degradation of the overall cultural landscape. The proposed project would not result in a cumulatively considerable incremental contribution to cultural resources.
- Geology and Slope Stability
    - The proposed project will not have a long-term adverse impact due to slope stability. The mining pits, if not brought back to within two feet of original grade at the completion of mining, would not be accessible by the public. The project will not have a cumulative impact as it relates to soil stability or erosion.
- Biological Resources
    - The overall loss of a segment of Morrison Creek across Vineyard I does not result in a cumulative impact since the proposed created Morrison Creek Realigned Channel replaces the creek by recreating the lost habitats and has been designed to mirror, and function as, a natural creek. At the completion of mining, in the post-reclamation condition, wildlife will return to the site since the habitats will be replaced and mining would have ceased. The loss of native oak trees would be replaced and fully mitigated. It has been determined through the federal permit process that pursuant to the Endangered Species Act, the continued existence of special status species would not be adversely affected. For these reasons, the identified biological resources impacts of the proposed project do not contribute to a cumulatively significant biological resource impact.
- Traffic and Circulation
    - The proposed project does not result in an increase of truck traffic or other significant traffic related impacts. The project will not generate any traffic in the cumulative condition as mining will be complete. The proposed project will not have cumulative traffic and circulation impacts.

- Air Quality
    - The Vineyard I mining expansion site would result in the continuation of mining activities for three months, up to six months time after completion of the approved portion of the Vineyard I property. Although the continuation of mining for an additional six months time was found to have a significant exhaust emissions impact, there is not a long term operational impact of mining the Vineyard I mining expansion site since the cumulative condition (e.g., 2020), mining activities on the Vineyard I expansion site will be complete and the site would be returned to agricultural activities. In addition, the reclamation plan amendment component of the proposed project would not contribute emissions. The approval for the use permit for the Vineyard I mining expansion site and reclamation plan amendment would not result in a cumulatively incremental increase in emissions to the Sacramento Valley air basin.
- Land Use
    - The project site will be returned to agricultural uses (the land use prior to mining activities) and the proposed trail will provide for beneficial recreational opportunities in the future. There are no adverse cumulative land use impacts of the proposed project.
- Noise
    - The project, in combination with other projects in the area, will not result in a cumulatively considerable contribution to the noise environment. In addition, in the post-reclamation condition of the project site, the project will not contribute to noise in excess of standards. Accordingly, the proposed project will not result in a cumulative noise impact.
- Public Safety
    - The proposed project, in combination with other mining projects in the area, does not result in a significant public safety impact due to the controls in place to assure that the general public is protected from inadvertent entry into active mining sites.
- Public Services
    - The proposed project will not result in a cumulatively considerable incremental contribution to a public service impact.
- Climate Change
    - Mining of the Vineyard I expansion site is short-term in nature and will not impede the ability of the County or the State to achieve 2020 target year

emissions. The project will not have a cumulative greenhouse gas emission impact.

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ACKNOWLEDGMENTS

EIR PREPARERS

Catherine Hack, *Environmental Coordinator*

Tim Hawkins, *Assistant Environmental Coordinator*

John Lundgren & Todd Smith, *Application Processing Division Managers*

Michelle Nagao, *Project Manager*

SUPPORT STAFF

Linda Johnston, *Administrative Services Officer II*

Justin Maulit, *Office Assistant II*

APPLICANTS

Teichert Aggregates
3500 American River Drive
Sacramento, CA 95864

Granite Construction Company
P.O. Box 15287
Sacramento, CA 95851

Oak Tree Mitigation and Monitoring Plan

For

Aspen IV South

Sacramento County, California

18 November 2011
Revised 24 January 2012

Prepared For:
Teichert Aggregates

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

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1.0 INTRODUCTION

This Oak Tree Mitigation Monitoring Plan (Plan) has been prepared for the Aspen IV South Project (Project). The approximately 183-acre Aspen IV South Project is located in the County of Sacramento, California (Figure 1. *Project Site and Vicinity*). The site is generally bordered by Mayhew Road to the west, Bradshaw Road to the east, Elder Creek Road to the south and Jackson Road to the north (see Figure 1). Coordinates of the site are Lat.: 38° 31' 00" N, Long.: 121° 20' 20" W, which corresponds to a portion of Section 29, Township 8 North, Range 6 East, MDBM in Sacramento County of the "Carmichael, California" 7.5 minute quadrangles (U.S. Department of the Interior, Geological Survey 1992). As mitigation for the Aspen IV South Project native oak tree impacts, replacement plantings will be installed. This Plan describes the methods by which this mitigation will be accomplished and defines how the success of the native oak tree plantings will be monitored and judged.

1.1 Project Description

The purpose of the Aspen IV South Project is to mine aggregate resources on a majority of the site 30 to 50 feet below existing grade. The portion of the Project which contains Morrison Creek will be avoided/left in its current state and within an on-site open space preserve (preserve), anticipated to be a requirement of the revised U.S. Army Corps of Engineers permit (see Figure 1). Within the anticipated on-site open space preserve, native oak tree plantings will be installed to compensate for losses to the limited oak trees found within the Project that are impacted during mining activities and to restore an oak woodland corridor that existed before the property was used for agriculture. Some of the required native oak tree mitigation plantings may also be installed within a nearby off-site property, Aspen VI (see Attachment A – *Aspen IV South Proposed Additional Oak Planting Area*), should the restoration specialist for the project determine during implementation that it would be of benefit to reduce the number of trees planted within the on-site preserve.

1.2 Project History

A *Wetland, Oak Woodland, and Riparian Mitigation and Monitoring Plan for Aspen IV South and Aspen V South* (2009 Plan) was previously developed by ECORP Consulting, Inc. on 8 May 2009. The 2009 Plan proposed various types of mitigation for both the Aspen IV South and Aspen V South Projects, including oak and riparian mitigation. Since the 2009 Plan was developed, significant changes to the Aspen IV Project have been made. Therefore, although the 2009 Plan will still be implemented for the Aspen V South Project, this Plan supersedes the native oak tree mitigation proposed in the 2009 Plan for the Aspen IV South Project. This document also supersedes the 18 November 2011 version of this plan, as the Aspen V South Project design has been refined since that date, resulting in a reduction to total number of trees impacted.

2.0 OAK TREE IMPACTS

An arborist survey of the Aspen IV South Project was conducted in 2005 by ECORP Consulting, Inc. These data were updated in 2011 by Teichert Aggregates biologists. During the 2011

effort, the diameter at breast height[1] (DBH) and dripline radius of previously recorded trees planned for impact were updated to reflect growth that occurred since 2005. Additionally, data were collected on any trees that were not previously documented due to their small size (i.e., they were previously too small but that now have a DBH of 6 inches or greater).

A total of 51 County-regulated native oak trees will be impacted during the implementation of the Aspen IV South Project (Figure 2. *Aspen IV South Oak Trees*). These impacts consist of direct impacts to 46 naturally occurring Valley oaks (*Quercus lobata*) totaling 677 inches DBH, direct impacts to 1 planted Valley oak totaling 11 inches DBH, and indirect impacts to 4 planted Valley oaks totaling 102 inches DBH. The planted Valley oaks were installed approximately 10 years ago along a fence line located in the northern part of the Project (see Figure 2). Of these, 1 planted Valley oak (DBH 11 inches) will be directly impacted. The remaining 4 planted Valley oaks (DBH totaling 102 inches) considered indirectly impacted will not be removed but will have more than 1 foot of fill soil placed within their driplines.

Three (3) Valley oak trees totaling 52 inches DBH located along the eastern boundary of the Aspen IV South Project were impacted and mitigated for as part of an Aspen IV South Tunnel Excavation Area project as detailed in the *Aspen V South Oak Mitigation Plan for Aspen V-South (Mining Area) and IV-South (Tunnel Excavation Area)* (Teichert 2005) and amendment (Teichert 2008). These documents were approved by the County on 19 January 2006 and 23 September 2008, respectively (Control Number 90-CZB-UPB-1607). As such, these 3 trees are not included in the overall impacts for the Aspen IV South Project (see Figure 2).

In addition to trees surveyed on the Aspen IV South Project site, trees within the Mayhew Road right-of-way were assessed. The Mayhew Road right-of-way is located along the western boundary of the Aspen IV South Project and the eastern boundary of the adjacent Granite Vineyard I Project (owned by Granite Construction Company) and Teichert Aspen III South project (see Figure 2). The impacts within the right-of-way are anticipated to connect these projects together through the right of way. Impacts within this area are included in this Plan. An arborist survey of the Mayhew Road right-of-way was conduced in 2007 and updated in 2011. Impacts within the Mayhew Road right of way consist of direct impacts to 17 naturally occurring Valley oaks totaling 305 inches DBH, and indirect impacts to 2 naturally occurring Valley oaks totaling 38 inches DBH. The 2 Valley oaks considered indirectly impacted will not be removed but will have more than 1 foot of fill or cut soil within their driplines.

Combining the oak tree impacts for the Aspen IV South Project and the impacts for the Mayhew Road right of way, a total of 65 naturally occurring Valley oak trees totaling 1,020 inches DBH will be directly or indirectly impacted, and 5 planted Valley oaks totaling 113 inches DBH will be directly or indirectly impacted. These impacts are summarized in Table 1 below.

[1] Defined as the trunk diameter at 4.5 feet above grade. Occasional deviations from this height occurred for trees with branching at this level, or with unusual structural configurations (e.g., horizontal trunks). On multi-trunked trees (trees with multiple vertical trunks in contact at or near ground level) the DBH recorded equaled the aggregate diameter at 4.5 feet above grade for each of trunks that were measured.

Table 1 – Oak Impact Summary					
	Direct Impacts (Trees/Inches)	**Indirect Impacts (Trees/Inches)**	**Avoided (Trees/Inches)**	**Previously Mitigated (Trees/Inches)**	**Total Trees Present (Trees/ Inches)**
Aspen IV South					
Valley oaks (naturally occurring):	46 (677”)	--	23 (306”)	3 (52”)	72 (1,035”)
Valley oaks (planted):	1 (11”)	4 (102”)	17 (198”)	--	22 (311”)
Mayhew Road					
Valley oaks (naturally occurring):	17 (305”)	2 (38”)	13 (219)”	--	32 (562”)
TOTAL:	**64 (993”)**	**6 (140”)**	**53 (723”)**	**3 (52”)**	**126 (1,908”)**

It should be noted that if, during Project implementation, a tree that is expected to be impacted is not impacted, then mitigation for the non-impacted tree is no longer required, even if included in this Plan. Changes to impacts and mitigation requirements from what is outlined in this Plan will be detailed in the annual letter reports/final year monitoring report that are to be prepared as detailed in Section 5.0 below.

3.0 MITIGATION REQUIREMENTS

Pursuant to the Sacramento County Tree Preservation Ordinance (Sacramento County Code 480, Chapter 19.12, Sections 19.12.010 through 19.12.240) and the Sacramento County General Plan (Policy CO-130, Section 5), mitigation is required for impacts to native oak species, including interior live oak, Valley oak, blue oak (*Quercus douglasii)*, and oracle oak (*Quercus* x *morehus*), that measure ≥ 6 inches DBH, and ≥ 10 inches DBH for multi-trunked trees (measured as an aggregate diameter). The Sacramento County General Plan protects non-oak native trees (excluding cottonwoods and willows) and landmark trees (defined as non-native oak trees measuring 19 inches DBH).

Tree mitigation requirements for the Aspen IV South Project were calculated for direct and indirect impacts to naturally occurring and planted Valley oak trees. For direct and indirect impacts for naturally occurring Valley oak trees, 1 inch DBH of impact equates to 1 Deepot or TreePot-sized native oak tree planting installed. For direct or indirect impacts to planted Valley oak trees, 1 tree impacted equates 1, 15-gallon-sized Valley oak tree planting installed. As a total of 1,020 inches DBH of naturally occurring Valley oak trees are planned for direct or indirect impact, 1,020 Deepot or TreePot-sized Valley oak plantings are required to be installed as mitigation. As a total of 5 planted Valley oak trees are planned for direct or indirect impact, 5, 15-gallon sized Valley oak plantings are required to be installed as mitigation for impacts. Therefore, a total of 1,025 Valley oak tree plantings are required.

In addition to the 1,025 Valley oak trees installed as mitigation, and additional 51 Deepot or TreePot-sized Valley oaks and 1, 15-gallon sized Valley oak will be also installed within the preserve. The intent of these additional plantings is to act as contingency trees to help ensure the Project successfully meets the minimum oak tree mitigation requirements.

As noted above, some of the required native oak tree mitigation plantings may also be installed within a nearby off-site property, Aspen VI, should the restoration specialist for the project determine during implementation that it would be of benefit to reduce the number of trees planted within the on-site preserve.

3.1 Planting Design

A conceptual oak tree planting plan has been developed to show the approximate locations of the 1,077 trees that will be planted within the open space preserve (Attachment B), including the 1,025 required mitigation trees and 53 contingency trees. It is anticipated that all of the mitigation and contingency trees can be planted within the preserve, as mentioned previously The trees will be installed by a qualified landscape contractor (Contractor) in later fall or early winter after seasonal rains have started and soils are somewhat moist. As outlined in Attachment C, each planting will receive an application of a natural-based slow release fertilizer. Sterile bark mulch or weed free rice straw may also be applied around each planting to control weeds and conserve soil moisture and should be augmented annually to a depth of 6 inches. The planting locations should be weeded[2], at minimum, once annually in early spring, for at least the first 2 years. This will reduce competition between the plantings and weeds for water and nutrients.

4.0 IRRIGATION AND MAINTENANCE

The plantings will be irrigated with a drip irrigation system to ensure that the plantings are successful. Irrigation will be decreased and finally eliminated during the monitoring period to help determine that the plantings will survive in the long-term without irrigation. Irrigation should deliver deep, infrequent watering and should normally take place between April 15st and September 30th of each year. This can be adjusted for seasonal variations if a year is particularly hot earlier or later in the year. A recommended irrigation schedule is outlined in Table 1, but should be adjusted as needed after plantings are installed to account for site-specific soil conditions.

Table 2 – Irrigation Schedule

Duration	Year 1	Year 2	Year 3
April 15th – September 30th	8 gallons, once/10 days	10 gallons, once/18 days	10 gallons, once/25 days
October 1st – April 15th	Irrigation off	Irrigation off	Irrigation off

[2] Use of herbicide to control weeds if necessary is approved per the *Operations and Management Plan for the Morrison Creek Nature Preserve Phase II* (ECORP 2009b).

After the 3rd year it will be decided if the trees should be watered for the 4th summer. The irrigation system will remain in place until the end of the monitoring period. At the end of the monitoring period, the Contractor can remove above ground irrigation equipment, if necessary. No irrigation is proposed for year 4 and beyond. This will allow, at a minimum, 1 year of monitoring after irrigation has ceased.

Maintenance of the plantings should occur regularly during the 5 year monitoring period. Maintenance will include monthly check of the irrigation system during the dry system and irrigation system repairs as necessary. The plantings will receive, at a minimum, quarterly maintenance as needed which will include applications of supplemental mulch and fertilizer, weeding around the plantings, and incidental litter removal.

5.0 MONITORING AND SUCCESS CRITERIA

In order to help ensure that the required 1,025 mitigation trees will eventually grow to replace the trees that were impacted, the planted mitigation trees will be monitored over a 5-year period. To be counted as successful, a planting must be surviving in at least fair condition by the end of year 5. If the success rate (discussed below) of the plantings has fallen below 100% in any of the first 2 monitoring years, additional native oak trees will be planted to bring the numbers up to the amount required.

Tree monitoring will be conducted once annually toward the end of the dry season (i.e., July or August) after the trees have experienced high stress conditions. This time frame will ensure greater accuracy in determining plant condition and survivorship. During monitoring, each planting will be located and its condition will be recorded. Plant condition will recorded as follows:

<u>Plant Condition Class</u>

- Dead;
- Poor (alive but with a few green leaves and no apical growth);
- Fair (alive with healthy foliage but minimal apical growth); and
- Good (alive and growing vigorously).

This data will be entered into a spreadsheet for analysis. Results calculated will include the total number of plantings monitored (all condition classes), total plantings found in each condition class, and the success rates for both individual species and for the plantings as a whole, as calculated below.

The success rate will be calculated according to the following formula:

$$\text{Success Rate (\%)} = \frac{\text{total \# in good or excellent condition during survey}}{\text{total \# required to be planted for mitigation (1,025 trees)}} \times 100$$

In year 5, success may instead be determined by actually measuring the DBH of the planted trees. The DBH measurement will be taken to the tenth of an inch as the trees being impacted

were measured to the tenth of an inch. Less that 100% success rate is allowed in these years if the collective DBH of the trees is equal or exceeds the inches required (1,025 inches DBH).

In conjunction with the above-described monitoring activities, representative site photographs of the tree plantings will be taken.

A letter report will be submitted to the County by December 31st of monitoring years 1 through 4. This letter report will include the County's Control Number, a summary of the mitigation requirements, and the annual monitoring results. At the end of year 5, a comprehensive Final Year monitoring report will be prepared and submitted to the City by December 31st. This Final Year report will include the County's Control Number, maps showing the location of the planting areas, a summary of the data collected over the 5-year monitoring period, a comparison of the results against the established success criteria, and a selection of the representative site photos taken during monitoring.

6.0 CONTINGENCY PLAN

If the mitigation obligation has not been met at the end of the 5-year monitoring period, the project proponent (Teichert) will meet and confer with the County regarding the mitigation shortfall. Potential options include replanting at another appropriate Teichert property or paying the County's in-lieu mitigation fee per inch for each DBH inch that the mitigation falls short. This amount will be measured either by the number of trees which are not surviving in at least good condition, or by measuring the number of inches lacking as determined by measuring the DBH inches of the mitigation trees, whichever shortfall is less.

7.0 REFERENCES

ECORP Consulting, Inc. 2009a. Wetland, Oak Woodland, and Riparian Mitigation and Monitoring Plan for Aspen IV South and Aspen V South. Revised 8 May 2009. Prepared for Teichert Aggregates. 40 pp.

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Teichert Aggregates. 2005. Aspen V South Oak Mitigation Plan for Aspen V-South (Mining Area) and IV-South (Tunnel Excavation Area). October 2005. 8 pp.

Teichert Aggregates. 2008. Amendment Letter to DERA for the Aspen V South Oak Mitigation Plan for Aspen V-South (Mining Area) and IV-South (Tunnel Excavation Area). 9 September 2008. 3 pp.

United States Department of the Interior, Geological Survey. 1992. Sacramento County. 7.5 Minute Series Topographic. U.S. Geological Survey.

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Figure 3. Mayhew Road Oak Trees

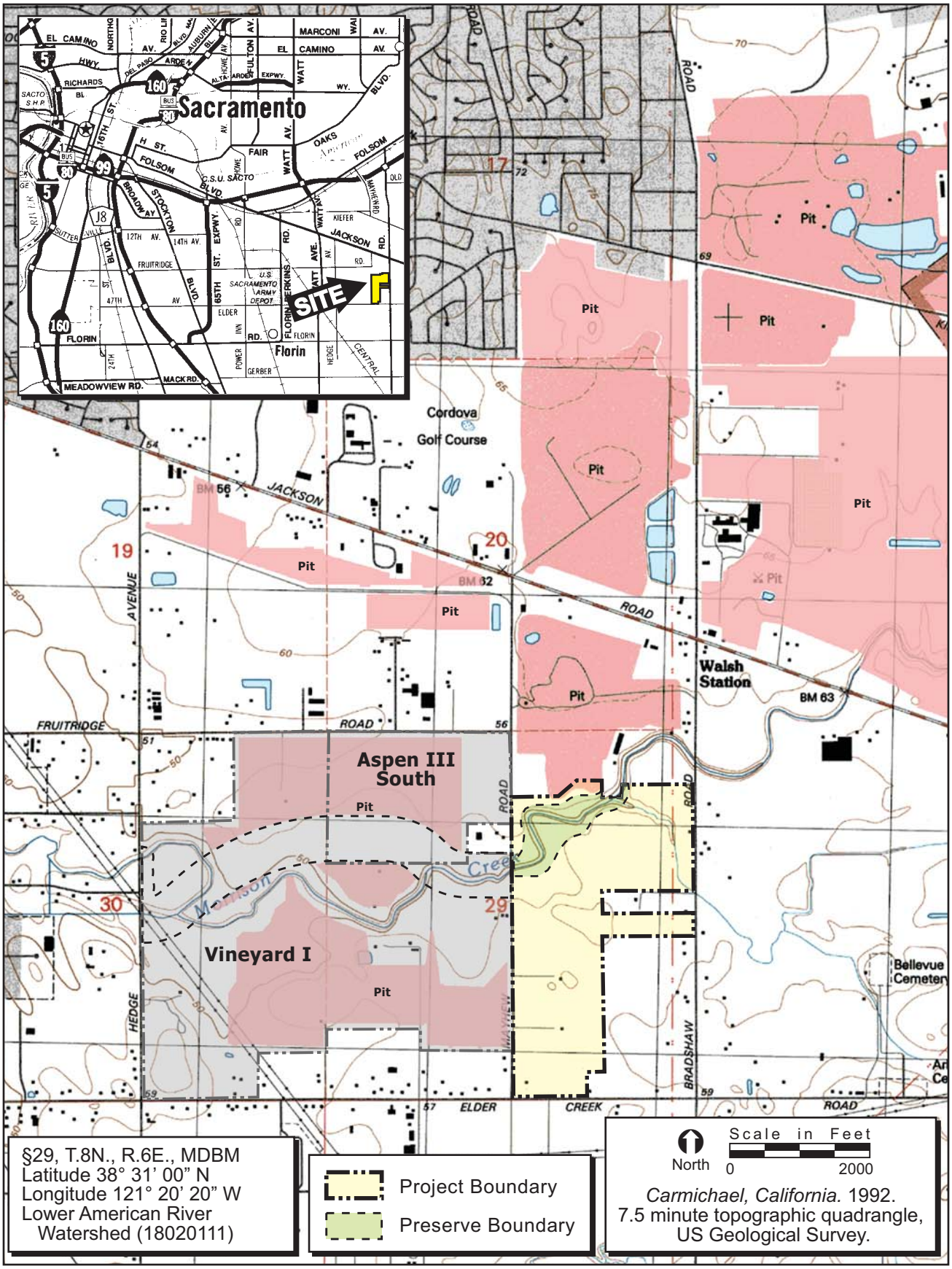
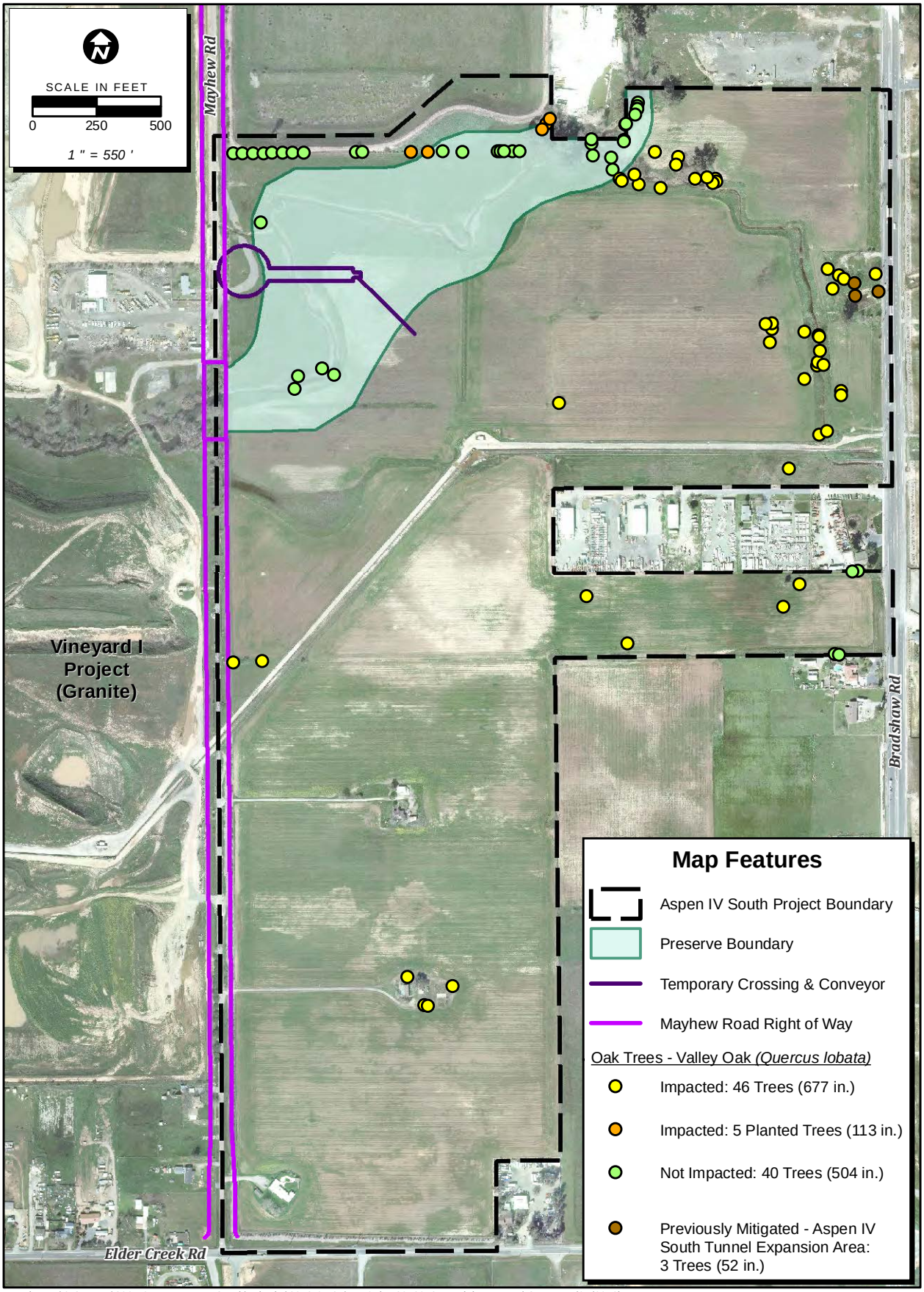


FIGURE 1. Project Site and Vicinity

2005-045 Aspen IV South

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS



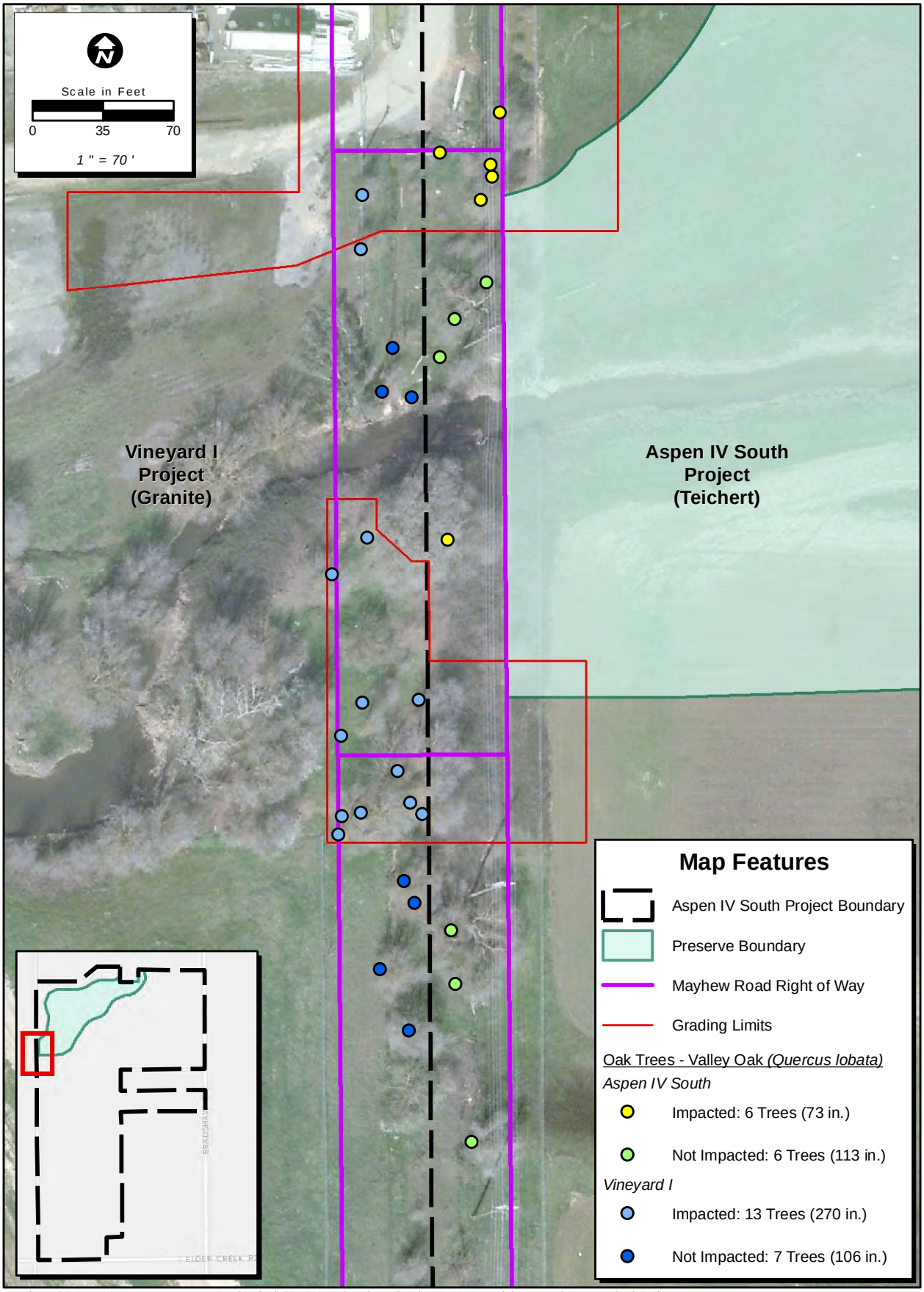
Location: J:\GIS_Maps\2005-045_Aspen_IV_South\Arborist\2012-01-24\A4_Oaks_20120124.mxd (DWagnon/JSwager, 1/24/2012)

Map Date: 1/24/2012
Photo: USGS/SACOG (2009)

Figure 2. Aspen IV South Oak Trees

2005-045 Aspen IV South

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS



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Map Date: 1/24/2012
Photo: USGS/SACOG (2009)

Figure 3. Mayhew Road Oak Trees

2005-045 Aspen IV South

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

LIST OF ATTACHMENTS

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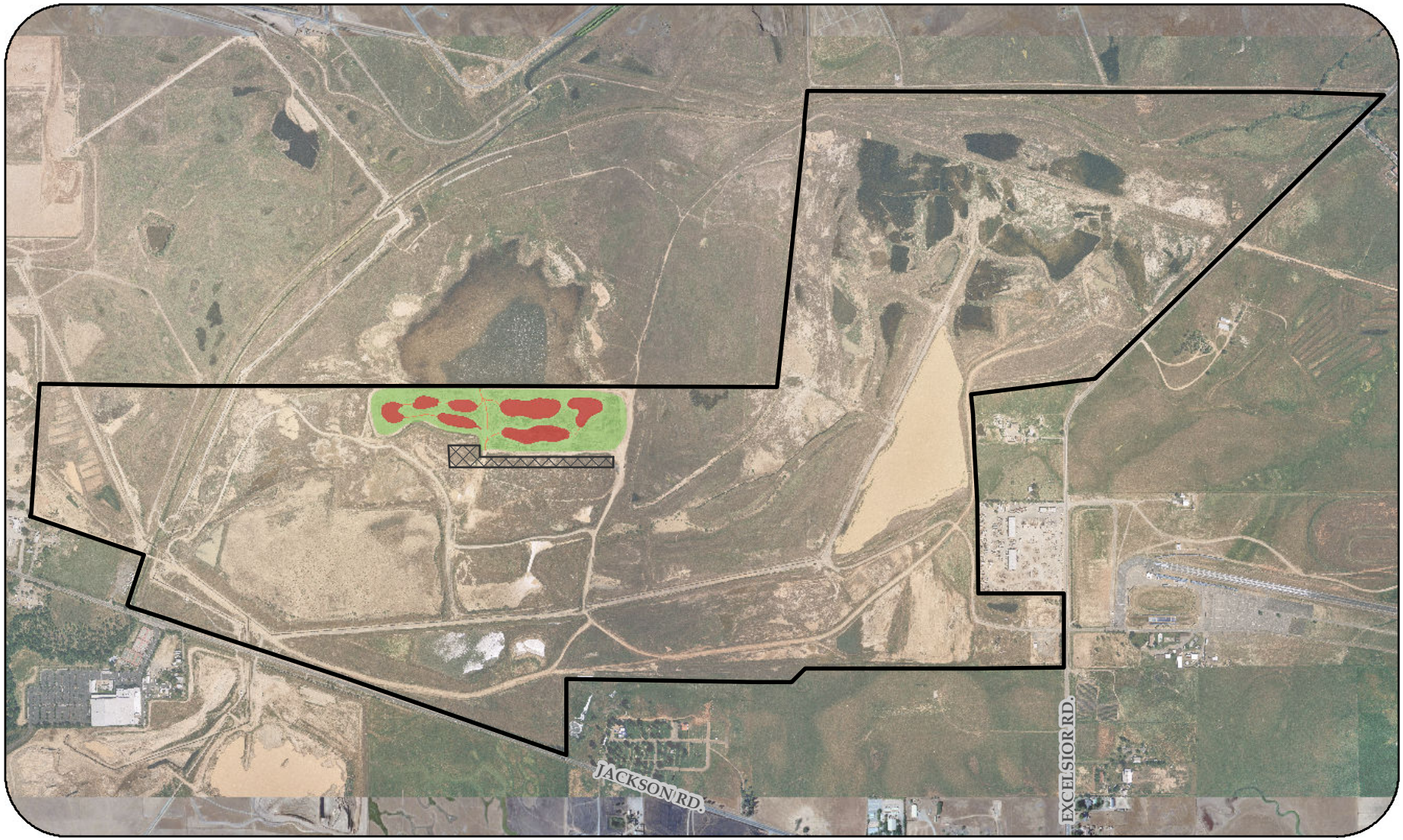
Attachment B – Conceptual Oak Tree Planting Plan

Attachment C – Oak Seedling Planting Detail

ATTACHMENT A

Proposed Additional Oak Planting Area



TEICHERT

LEGEND:

- Aspen IV South Proposed Additional Oak Planting Area
- Aspen VI Property Boundary
- Aspen VI Existing Oak Woodland Area

Aspen V South Off-Site Wetland Mitigation:

- Seasonal Wetland
- Seasonal Swale

SOURCE:

- Wetland Design Provided by ECORP Consulting, Inc. (2010)
- Constructed Wetlands GPS by Teichert Habitat Restoration (2010)
- Orthophoto Provided by Point Co. (May 02, 2011)

N W E S

0 0.125 0.25 Miles

DISCLAIMER:

The data was mapped for assessment purposes only. No liability is assumed for the accuracy of the data shown.

ATTACHMENT A

ASPEN IV SOUTH PROPOSED ADDITIONAL OAK PLANTING AREA

ASPEN VI PROPERTY TEICHERT MATERIALS

SACRAMENTO COUNTY, CALIFORNIA

C. Cornejo 12/12/2011 A4S_OakMit_AttachmentA_201112_v2.mxd

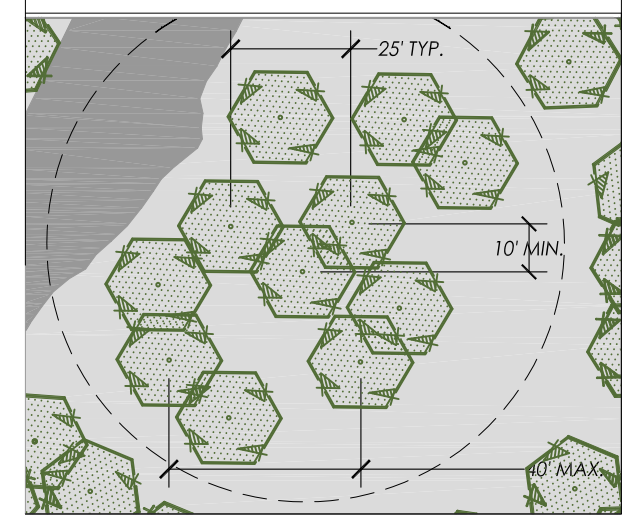
ATTACHMENT B

Conceptual Oak Tree Planting Plan

LEGEND

- OPEN SPACE PRESERVE OAK PLANTING AREAS
- STREAM AND WETLAND AREAS (NO PLANTING)
- PROPOSED FUTURE RIGHT-OF-WAY (NO PLANTING)

TYPICAL PLANTING LAYOUT



SCALE: 1" = 40'

OAK PLANTING QUANTITIES

	SCIENTIFIC NAME COMMON NAME	QUANTITY REQUIRED	SIZE	CONTINGENCY PLANTINGS	TOTAL PLANTINGS
	QUERCUS LOBATA VALLEY OAK	1,020	DEEPOT 40 OR TREEPOT 4	51	1,071
	QUERCUS LOBATA VALLEY OAK	5	15-GALLON	1	6
	TOTAL	1,025		52	1,077

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS
REDLANDS • ROCKLIN • SAN DIEGO • SAN FRANCISCO • SANTA ANA

ASPEN IV SOUTH

SACRAMENTO COUNTY, CA

CONCEPTUAL OAK TREE PLANTING PLAN

DATE: January 20, 2012

JOB NUMBER: 2005-045

DRAWN BY: SJB
QA/QC: TLC

SCALE: 1" = 150'

ISSUANCES & REVISIONS

January 24, 2012	

PREPARED FOR:

TEICHERT AGGREGATES
8760 KIEFER BLVD.
SACRAMENTO, CA 95826

BASE DATA PROVIDED BY:

TEICHERT AGGREGATES

SHEET TITLE:

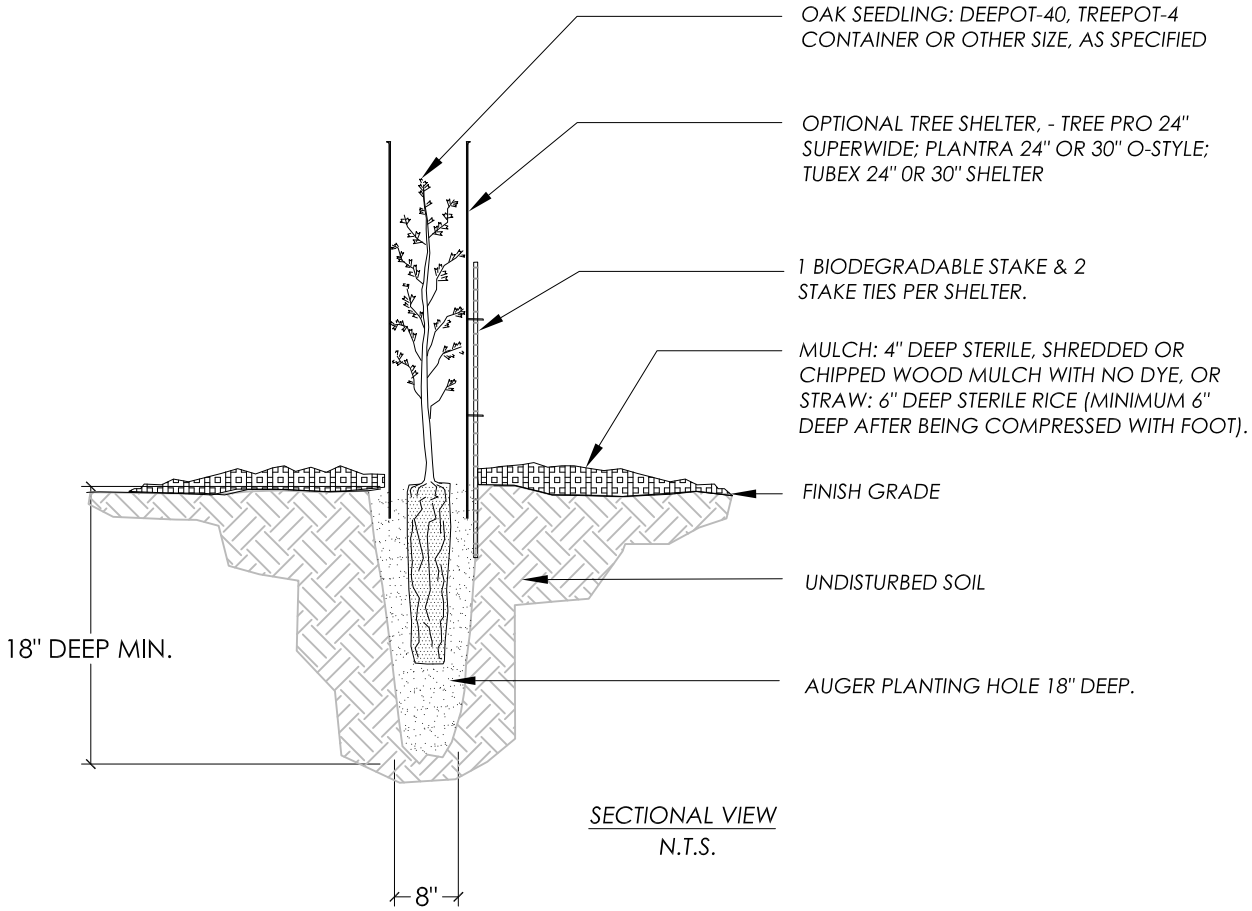
PLANTING PLAN

SHEET 1

1 OF 1 SHEET

ATTACHMENT C

Oak Seedling Planting Detail



1. PLANTING SHALL BE COMPLETED BETWEEN OCTOBER & JANUARY OF EACH PLANTING YEAR.
2. PLANTING HOLE SHALL BE AUGURED OR DUG TO A MINIMUM OF 18" DEEP X 8" WIDE .
3. FILL AUGURED HOLE WITH WATER TO TOP & ALLOW TO DRAIN. DO NOT PLANT IN & BACKFILL ANY HOLE THAT DOES NOT DRAIN WITHIN 1 HOUR.
4. ADD SPECIFIED FERTILIZER TO PLANTING HOLE. FERTILIZER SHALL BE BALANCED IN N-P-K, NATURAL-BASED, AND SLOW-RELEASE.
5. PLANT SEEDLING SO ITS ROOT CROWN IS LEVEL OR JUST ABOVE SURROUNDING GRADE. COMPACT SOIL WITH FOOT.
6. IMMEDIATELY WATER SEEDLING, THOROUGHLY MOISTENING SOIL.
7. IF UTILIZED, PLACE SPECIFIED TREE SHELTER OVER SEEDLING. IF EVIDENCE OF VOLES OBSERVED, PLACE BOTTOM OF SHELTERS 4" BELOW GRADE TO LESSEN POTENTIAL DAMAGE FROM VOLES.
8. PLACE MULCH OR STRAW AROUND SHELTER TO COVER 4 FOOT WIDE CIRCLE AT EACH PLANTING SITE.

OAK SEEDLING PLANTING & PROTECTION

Oak Seedling Planting Detail

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Aspen IV South
Updated Tree Survey Data

TREE TAG NO.	2005 DBH (in.)	2011 DBH (in.)	2005-2011 DBH DIFFERENCE (in.)	Impact Status
1	16.0	18.5	2.5	County Ordinance - Impact
2	6.5	8.0	1.5	Not Impacted
207	16.0	50.0	34.0	County Ordinance - Impact
208	55.0	66.0	11.0	County Ordinance - Impact
209	19.0	23.5	4.5	County Ordinance - Impact
210	11.0	13.0	2.0	County Ordinance - Impact
211	12.5	14.5	2.0	County Ordinance - Impact
212	13.5	17.5	4.0	County Ordinance - Impact
213	10.5	12.5	2.0	County Ordinance - Impact
215	21.5	27.5	6.0	Not Impacted
216	11.0	14.0	3.0	Not Impacted
801	13.2	14.5	1.3	County Ordinance - Impact
802	12.4	15.5	3.1	County Ordinance - Impact
803	6.8	11.5	4.7	County Ordinance - Impact
804	33.9	38.0	4.1	County Ordinance - Impact
805	14.0	Tree Has Been Removed	0.0	Previously Mitigated - Aspen IV South Tunnel
806	8.2	11.0	2.8	County Ordinance - Impact
807	15.0	17.0	2.0	County Ordinance - Impact
808	6.9	9.5	2.6	County Ordinance - Impact
809	11.0	15.5	4.5	County Ordinance - Impact
810	18.5	22.5	4.0	County Ordinance - Impact
811	13.3	15.0	1.7	County Ordinance - Impact
812	11.5	12.0	0.5	County Ordinance - Impact
813	19.1	21.0	1.9	County Ordinance - Impact
814	13.0	14.5	1.5	County Ordinance - Impact
815	15.8	17.5	1.7	County Ordinance - Impact
816	6.5	7.5	1.0	County Ordinance - Impact
817	18.4	22.0	3.6	County Ordinance - Impact
818	10.0	12.0	2.0	County Ordinance - Impact
819	7.6	10.0	2.4	County Ordinance - Impact
820	14.3	18.0	3.7	County Ordinance - Impact
821	8.3	9.0	0.7	County Ordinance - Impact
822	8.7	13.0	4.3	County Ordinance - Impact
823	11.2	13.5	2.3	County Ordinance - Impact
824	9.8	12.0	2.2	County Ordinance - Impact
825	21.0	24.5	3.5	Previously Mitigated - Aspen IV South Tunnel
826	13.3	Tree Has Been Removed	0.0	Previously Mitigated - Aspen IV South Tunnel
827	12.5	18.0	5.5	County Ordinance - Impact
828	11.0	12.5	1.5	County Ordinance - Impact
829	17.8	23.5	5.7	County Ordinance - Impact
830	8.0	16.0	8.0	County Ordinance - Impact
831	51.0	54.5	3.5	County Ordinance - Impact
832	30.1	32.0	1.9	County Ordinance - Impact
833	24.3	26.0	1.7	County Ordinance - Impact
834	11.7	12.5	0.8	County Ordinance - Impact
835	9.7	Not Taken[2]	0.0	Not Impacted
836	8.0	Not Taken[2]	0.0	Not Impacted

TREE TAG NO.	2005 DBH (in.)	2011 DBH (in.)	2005-2011 DBH DIFFERENCE (in.)	Impact Status
837	16.0	Not Taken[2]	0.0	Not Impacted
838	9.0	Not Taken[2]	0.0	Not Impacted
839	10.0	Not Taken[2]	0.0	Not Impacted
841	34.0	Not Taken[2]	0.0	Not Impacted
842	36.4	Not Taken[2]	0.0	Not Impacted
843	10.0	12.0	2.0	County Ordinance - Impact
844	7.0	8.5	1.5	Not Impacted
845	14.3	22.5	8.2	Not Impacted
846	6.0	11.0	5.0	County Ordinance - Impact
847	5.5	10.0	4.5	County Ordinance - Impact
848	19.6	29.5	9.9	Not Impacted
849	9.0	Not Taken[2]	0.0	Not Impacted
850	9.0	Not Taken[2]	0.0	Not Impacted
2011-01	N/A[1]	14.5	14.5	County Ordinance - Impact
2011-02	N/A[1]	7.0	7.0	County Ordinance - Impact
2011-03	N/A[1]	9.0	9.0	County Ordinance - Impact
2011-04	N/A[1]	6.5	6.5	County Ordinance - Impact
2011-05	N/A[1]	8.0	8.0	County Ordinance - Impact
2011-06	N/A[1]	6.5	6.5	County Ordinance - Impact
2011-07	N/A[1]	7.0	7.0	Not Impacted
2011-08	N/A[1]	9.0	9.0	Not Impacted
2011-09	N/A[1]	8.5	8.5	Not Impacted
2011-10	N/A[1]	14.5	14.5	Not Impacted
2011-11	N/A[1]	6.0	6.0	Not Impacted
2011-12	N/A[1]	8.0	8.0	Not Impacted
2011-13	N/A[1]	6.0	6.0	Not Impacted
2011-20	N/A[1]	9.0	9.0	Not Impacted
2011-21	N/A[1]	14.0	14.0	Not Impacted
2011-22	N/A[1]	8.5	8.5	County Ordinance - Impact
2011-23	N/A[1]	6.5	6.5	County Ordinance - Impact
2011-24	N/A[1]	7.5	7.5	County Ordinance - Impact
2011-25	N/A[1]	7.5	7.5	County Ordinance - Impact
2011-26	N/A[1]	6.5	6.5	County Ordinance - Impact
2011-28	N/A[1]	9.0	9.0	Not Impacted
2011-29	N/A[1]	9.0	9.0	County Ordinance - Impact
2011-30	N/A[1]	12.0	12.0	Not Impacted
2011-31	N/A[1]	9.0	9.0	Not Impacted
2011-32	N/A[1]	12.0	12.0	Not Impacted
2011-33	N/A[1]	10.0	10.0	Not Impacted
2011-34	N/A[1]	11.0	11.0	Not Impacted
2011-35	N/A[1]	8.5	8.5	Not Impacted
2011-36	N/A[1]	7.5	7.5	Not Impacted
2011-37	N/A[1]	8.0	8.0	Not Impacted
2011-38	N/A[1]	12.5	12.5	Not Impacted

Aspen IV South
Updated Tree Survey Data

TREE TAG NO.	2005 DBH (in.)	2011 DBH (in.)	2005-2011 DBH DIFFERENCE (in.)	Impact Status
2011-39	N/A[1]	20.0	20.0	Not Impacted
2011-40	N/A[1]	10.5	10.5	Not Impacted
2011-41	N/A[1]	11.0	11.0	County Ordinance - Impact (Planted)
2011-42	N/A[1]	12.5	12.5	County Ordinance - Impact (Planted)
2011-43	N/A[1]	15.5	15.5	Not Impacted
2011-44	N/A[1]	11.0	11.0	Not Impacted
2011-45	N/A[1]	15.5	15.5	Not Impacted
2011-46	N/A[1]	9.5	9.5	Not Impacted
2011-47	N/A[1]	15.0	15.0	Not Impacted
2011-48	N/A[1]	13.5	13.5	Not Impacted
2011-49	N/A[1]	9.5	9.5	Not Impacted
2011-50	N/A[1]	30.0	30.0	County Ordinance - Impact (Planted)
2011-51	N/A[1]	29.0	29.0	County Ordinance - Impact (Planted)
2011-52	N/A[1]	30.0	30.0	County Ordinance - Impact (Planted)
2011-53	N/A[1]	7.5	7.5	County Ordinance - Impact
2011-54	N/A[1]	8.0	8.0	County Ordinance - Impact
2011-55	N/A[1]	15.5	15.5	Not Impacted
2011-56	N/A[1]	6.5	6.5	Not Impacted
2011-57	N/A[1]	6.0	6.0	County Ordinance - Impact
2011-58	N/A[1]	29.0	29.0	Not Impacted
2011-59	N/A[1]	12.5	12.5	Not Impacted
2011-60	N/A[1]	21.5	21.5	Not Impacted
2011-61	N/A[1]	17.0	17.0	Not Impacted
2011-62	N/A[1]	20.0	20.0	Not Impacted
DEAD	0.0	0.0	0.0	County Ordinance - Impact
EC-1	6.5	11.0	4.5	Not Impacted
EC-3	15.0	19.0	4.0	County Ordinance - Impact
EC-4	10.0	13.0	3.0	County Ordinance - Impact
EC-5	18.0	19.5	1.5	County Ordinance - Impact
EC-6	6.0	8.5	2.5	County Ordinance - Impact
T-1	25.0	26.0	1.0	Not Impacted
T-2	6.0	9.5	3.5	Not Impacted
T-3	18.0	16.0	-2.0	County Ordinance - Impact
T-4	7.0	9.5	2.5	County Ordinance - Impact
T-5	14.0	20.0	6.0	County Ordinance - Impact

[1] No 2005 data exists becase these trees were too small in 2005 to be included in survey.

[2] DBH data was not updated for trees that would not be impacted.

Wetland, Oak Woodland, and Riparian Mitigation and Monitoring Plan

For

Aspen IV South and Aspen V South

Sacramento County, California

Submitted: 2 May 2008
Revised: 8 May 2009

Prepared For:
Teichert Aggregates

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

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Attachment B – Department of the Army Permit
Attachment C – Aspen V South Wetland Creation Area
Attachment D – Conceptual Riparian and Oak Woodland Planting Plan for Morrison Creek Restoration
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Attachment F – Tree and Shrub Planting Detail Sheets

Note: This document discusses a mitigation bank option for Aspen V South Phase II impacts. The U.S. Army Corps of Engineers determined during the issuance of the individual permit that this option will require a permit modification if it is used. The permit calls for the off-site mitigation option at Aspen VI as discussed in this document.

SUMMARY

This Wetland, Oak Woodland, and Riparian Mitigation Monitoring Plan ("Plan") has been prepared for the Aspen IV South and Aspen V South mining projects ("Projects") in anticipation of the requirements of the Projects' U.S. Army Corps of Engineers ("Corps") Individual Permit. In addition, this Plan is being submitted in anticipation of the requirements of the County of Sacramento and the requirements of the California Department of Fish and Game ("CDFG") 1602 permit.

As mitigation for the Aspen IV South Project impacts, a portion of Morrison Creek on the site will be realigned and restored, seasonal and perennial wetlands will be constructed, and riparian and oak woodland plantings will be installed ("realignment channel") (Figure 1. *Project Site and Vicinity*).

Prior to mining operations, approximately 3.81 acres of Waters of the United States ("Waters") are located within the Aspen IV South property, including 2.29 acres of perennial creek (Morrison Creek), 0.03 acre of ephemeral drainage, 0.55 acre of intermittent drainage, 0.93 acre of seasonal wetland and 0.01 acre of vernal pool. As mitigation for the Aspen IV South Project impacts, 2.00 acres of creek and 1.86 acres of perennial/seasonal wetlands will be restored/constructed within a 215-505 foot, at grade, corridor. Pursuant to anticipated County tree mitigation requirements, approximately 650 oak woodland and riparian trees, and approximately 500 associated shrubs will be planted along the realignment channel. The Aspen IV South on-site mitigation Waters and riparian/oak woodland plantings will be monitored for a ten-year period.

Prior to mining operations, approximately 8.46 acres of Waters are located within the Aspen V South property, including 5.47 acres of seasonal wetland, 0.97 acre of vernal pool, 0.06 acre of seasonal marsh, 0.27 acre of seasonal swale, 1.15 acres of perennial creek (Morrison Creek), 0.52 acre of jurisdictional ditch, and 0.05 acres of pond.

Impacts at the Aspen V South project will occur in two phases (Attachment A). The Phase I impacts total 0.48 acre and will be mitigated through the purchase of 0.864 acre of wetland credits at an agency-approved mitigation bank. For Phase II of Aspen V South, the impacts total 2.94 acres. For these impacts, either an approximately 5.292 acre compensation wetland(s) will be constructed at the Aspen VI property, owned by Teichert (Figure 2. *Aspen V South Off-Site Mitigation Area Site and Vicinity*) or Teichert will purchase 5.292 acres of wetland credits at an agency-approved mitigation bank.

This Plan describes the methods by which this mitigation will be accomplished and defines how the success of the creation/restoration will be monitored and judged for both the Aspen IV South and Aspen V South projects.

1.0 PROJECT DESCRIPTION

1.1 Responsible Parties

Applicant:
Attention: Mr. John Lane
Teichert Aggregates
3500 American River Drive
Sacramento, California 95864
Phone: (916) 484-3011
Fax: (916) 484-7012

Agent:
Attention: Ms. Sarah Egan
ECORP Consulting, Inc.
2525 Warren Drive
Rocklin, California 95677
Phone: (916) 782-9100
Fax: (916) 782-9134

1.1.1 Parties Having Financial Responsibility

Teichert Aggregates (Project applicant/mining entity, "Teichert") and Teichert Land Co. ("TLC") have financial responsibility for the Aspen IV South Morrison Creek realignment channel and the Aspen V South off-site mitigation area.

1.1.2 Present Owner of the Mitigation Areas

Teichert Land Co. has ownership responsibility for the Morrison Creek realignment channel and the Aspen V South off-site mitigation.

1.1.3 Expected Long-Term Owner of the Mitigation Areas

Teichert Land Co. has long-term ownership responsibility for the Morrison Creek realignment channel and the Aspen V South off-site mitigation area.

1.1.4 Parties Responsible for Long-Term Maintenance of the Mitigation Areas

Teichert Land Co.
3500 American River Drive
Sacramento, California 95864, and

the Morrison Creek Conservancy ("MCC") or Corps-approved conservation easement holder contact information will be submitted when determined.

1.2 Location and Description of the Projects and Mitigation Areas

1.2.1 Aspen IV South/Mitigation Area Locations and Description

The approximately 183-acre Aspen IV South project is located in the County of Sacramento ("County") (Figure 1). The site is generally bordered by Mayhew Road to the west, Bradshaw Road to the east, Elder Creek Road to the south and Jackson Road to the north (see Figure 1). Coordinates of the site are Lat.: 38° 31′ 00″ N, Long.: 121° 20′ 20″ W, which corresponds to a portion of Section 29, Township 8 North, Range 6 East, MDBM in Sacramento County of the

"Carmichael, California" 7.5 minute quadrangles (U.S. Department of the Interior, Geological Survey 1992).

As mitigation for Aspen IV South project impacts, the portion of Morrison Creek on the Aspen IV South project site, with the exception of a part of the creek that will be preserved, will be replaced with an at-grade realignment channel, including the construction of wetlands and installation of native plantings. The realignment channel will retain as many of the "natural" characteristics of the existing stream channel as possible (e.g., at-grade, main channel, stream length, sinuosity) while significantly increasing the quality of wildlife habitat. A variety of features have been incorporated in to the realigned channel in order to provide areas for different plant communities and wetland types. Backwaters, benches, as well as deeper pools, are included in the design.

The purpose of the Aspen IV South project is to mine aggregate resources on the site to a depth as deep as approximately 50 to 60 feet below existing site grade. At the completion of each phase of mining, the site will be reclaimed in accordance with the State Surface Mining and Reclamation Act ("SMARA"). For the majority of the site, the overburden (soils overlying the aggregate) will be replaced and the area outside the realignment channel will be reclaimed for agriculture. The realignment channel will encompass approximately 17.48 acres, including approximately 5.17 acres of riparian woodland and marsh in the lowest portions of the channel, approximately 3.39 acres of Valley oak woodland on the floodplain adjacent to the creek, approximately 2.36 acres of grassland, and approximately 2.70 acres of preserved Morrison Creek and associated upland habitat. The oak woodland and riparian plantings will compensate for losses to the limited woody vegetation found at the site. Approximately 3.86 acres of Waters, including wetlands and the realigned/restored Morrison Creek, will also exist within the realignment channel. The realignment channel will eventually connect with the previously permitted at-grade realignment channel and Preserve on the Granite Vineyard I and Aspen III South sites which was approved pursuant to Granite Construction Company's ("Granite") 404 Permit (Corps Regulatory Branch No. 199400102, 25 July 2007).

1.2.2 Aspen V South/Off-Site Mitigation Area Locations and Descriptions

The approximately 286-acre Aspen V South site is located adjacent to and east of Bradshaw Road, south of Jackson Road (see Figure 1). Coordinates of the Aspen V South site are Lat.: 38° 31' 43" N, Long.: 121° 19' 56" W, which corresponds to a portion of Section 29, Township 8 North, Range 6 East, MDBM in Sacramento County of the "Carmichael, California" 7.5 minute quadrangles (U.S. Department of the Interior, Geological Survey 1992).

The purpose of the Aspen V South project is similar to Aspen IV South. Mitigation for the Aspen V South project will occur in two phases (Attachment A). The Phase I impacts total 0.48 acre and will be mitigated through the purchase of 0.864 acre of wetland credits at an agency-approved mitigation bank. For Phase II, the impacts total 2.94 acres. For these impacts, either an approximately 5.292 acre compensation wetland(s) will be constructed at the Aspen VI property owned by TLC (Figure 2) or Teichert will purchase 5.292 acres of wetland credits at an agency-approved mitigation bank.

1.3 Regulatory History of the Project

1.3.1 Previous 404 Permit Application

In July 1994 Teichert submitted a wetland delineation of the Projects to the Corps for verification. On 14 November 1994, the Corps verified that the Aspen IV South property contained 1.78 acres of waters of the United States ("Waters") and the Aspen V South property contained 4.91 acres of Waters. This verification was valid for ten years. In January 1996, Teichert submitted to the Corps an application for an Individual Permit under section 404 of the Clean Water Act. Through this application, Teichert sought authorization for impacts to 1.09 acres of Morrison Creek, 0.44 acre of drainage channel, and 0.25 acre of seasonal wetland on Aspen IV South, and 0.83 acre of irrigated seasonal wetland on Aspen V South.

On 25 April 2000, Teichert withdrew its 404 permit application in response to a federal court decision: *National Mining Ass'n v. U.S. Army Corps of Engineers*, 145 F.3d 1399 (D.C. Cir. 1998), which held that incidental fallback as a result of excavation could not be regulated as a "discharge of dredged material" under the Clean Water Act. Subsequent to Teichert's application withdrawal, the Corps revised its regulations to clarify that, in most cases, excavation in Waters may be regulated by the Corps. Accordingly, Teichert is currently seeking a 404 permit from the Corps prior to initiating mining of the Projects. When received, this Permit will be included as Attachment B.

1.3.1.1 Environmental Impact Report/Environmental Impact Statement

Mining of the Projects, as well as other properties owned by TLC and Granite's Vineyard I property, was analyzed in a joint EIR/EIS prepared by the County and Corps and published in 1999. The County certified the EIR/EIS and issued use permits for mining and reclamation for the Projects in 1999. Mitigation for impacts to Waters on the two properties (Aspen IV South and Aspen V South) were addressed separately, as follows:

- Because the approved mining plan for Aspen IV South anticipated mining through a portion of Morrison Creek, Teichert's reclamation plans proposed to mitigate for this impact, as well as impacts to other Waters on-site, through a two-pronged approach: (1) construction of an at-grade bypass channel and (2) construction of a below-grade, 600 foot-wide riparian corridor/low-flow channel. The proposed bypass channel consisted of an unlined, trapezoidal channel that would have conveyed the bulk of the flows of Morrison Creek around the reclaimed aggregate mining areas. This channel was proposed to be built at-grade and would have connected up with the existing Morrison Creek drainage on the northern border of the Project site. The riparian corridor was to be located within the mining pit in the same general area as the existing creek. As approved, the 600-foot wide corridor would have contained a low-flow channel, perennial marsh, riparian woodlands, seasonal marsh and Valley oak woodland in a series of terraces. The riparian corridor required sufficient water flows to support the various habitat types planned. These flows would have been maintained by releases from the bypass channel via a pumping mechanism.

- Teichert proposed to mitigate for impacts to 0.83 acres of Waters on Aspen V South by creating 1.5 acres of emergent marsh on-site.

1.3.1.2 Mitigation Plan Revisions

In the ensuing years since these approvals were granted, Teichert re-evaluated its previous mitigation proposals for the Projects and identified measures which it believed better addressed both the current Corps' regulations as well as its own business plans. The revised mitigation proposals for each property are discussed below:

Aspen IV South

In the years following their County approvals, Teichert and Granite met and studied options for improving the approved mitigation measures discussed above. These two companies initiated this process after identifying limitations with the approved bypass channel and riparian corridor concept. For example, the approved bypass channel design incorporates several 90-degree turns with a relatively straight and confined channel and armoring, such as rip-rap, would need to be used to protect the channel from erosion. These features are not ideal from an environmental and hydrological standpoint. Additionally, a pumping system would need to be installed to provide water to support riparian habitat during the dry season, and, in the wet season, to prevent inundation of the created wetland areas. Due to the implementation of more stringent water quality standards since the project was originally approved, it is not apparent whether this pump could still be reliably operated.

As a result of these discussions and study, Teichert and Granite realized that a single, at grade "realignment channel" which combines the flood control benefits of a bypass channel with the habitat benefits of a riparian corridor could provide superior hydrological and habitat value, while simultaneously minimizing operational impediments. Accordingly, Teichert designed an at-grade realignment channel, varying in internal width between 215 and 505 feet, which will accommodate 100-year flood flows of Morrison Creek while incorporating the majority of the habitat mitigation required pursuant to the Final EIR/EIS.

Aspen V South

Teichert's original mining plan for Aspen V South, approved in 1999, did not anticipate any mining in the northwest portion of the property. At that time, much of the northwest portion of the site was owned by other parties, thereby rendering the small parcels held by TLC in that area impractical to mine. Teichert determined that, since the northwestern portion of Aspen V South would not be mined, it represented a suitable location for the construction of a mitigation wetland. In the years following its County approvals, TLC was able to purchase two of the parcels in this area, known as the Mohyer and Slavic Church properties. The purchase of these properties enabled Teichert access to portions of its property which were previously considered impractical to mine due to their inaccessibility, including the area in which the emergent marsh mitigation feature was to be constructed. In addition, Teichert determined that the emergent marsh proposal in the 1994 Plan did not provide the most ecologically beneficial mitigation for the project's impacts, since the constructed feature would be isolated and located adjacent to mining.

Taking the above information into account, considering its revised wetland delineation, which identified a greater amount of Waters on the site, and the low availability of wetland mitigation credits, the mitigation for the Aspen V South project will occur in two phases (Attachment A). The Phase I impacts total 0.48 acre and will be mitigated through the purchase of 0.864 acre of wetland credits at an agency-approved mitigation bank. For Phase II, the impacts total 2.94 acres. For these impacts, either an approximately 5.292 acre compensation wetland(s) will be constructed at an off-site area owned by TLC (see Figure 2) or Teichert will purchase 5.292 acres of wetland credits at an agency-approved mitigation bank.

Teichert's proposal for mining Aspen V South calls for the avoidance of Morrison Creek, which runs through the northwestern corner of the property. Accordingly, Teichert is proposing to preserve Morrison Creek, including an approximately 150-foot buffer on either side. The future development of the area will be restricted through the use of a deed restriction/conservation easement.

1.4 Jurisdictional Areas Affected by the Projects

An updated wetland delineation for Aspen IV South was prepared by ECORP Consulting, Inc. (ECORP) and submitted to the Corps on 5 July 2006. The wetland delineation was verified on 2 May 2007 (Regulatory # 199400504). A total of 3.81 acres of jurisdictional Waters were mapped on-site, including 2.29 acres of perennial creek (Morrison Creek), 0.55 acre of intermittent drainage, 0.03 acre of ephemeral drainage, 0.01 acre of vernal pool, and 0.93 acre of seasonal wetland (Figure 3. *Aspen IV South Wetland Delineation*).

Likewise, an updated wetland delineation was prepared for Aspen V South by EIP and Foothill Associates and was submitted to the Corps on 13 April 2007. The wetland delineation was verified on 2 May 2007. A total of 8.46 acres of jurisdictional Waters were mapped on the property, including 5.47 acres of seasonal wetland, 0.97 acre of vernal pool, 0.06 acre of seasonal marsh, 0.27 acre of seasonal swale, 1.15 acre of perennial creek (Morrison Creek), 0.52 acre of jurisdictional ditch, and 0.05 acre of pond (Figure 4. *Aspen V South Wetland Delineation*).

Table 1 below details the existing, impacted, and mitigation acreages for the Projects.

Table 1 – Wetlands/Waters Impact and Preserve Acreages

Type	Existing	Proposed Impact	Preserved/ Avoided	On-Site Created/ Restored
Aspen IV South				
Wetlands				
Seasonal Wetland	0.93	0.93	---	1.86* perennial/seasonal wetlands creation/restoration will act as mitigation for all impacted seasonal wetlands, vernal pool, ephemeral drainage, and intermittent drainage.
Vernal pool	0.01	0.01	---	---
Other Waters				
Ephemeral Drainage	0.03	0.03	---	---

Table 1 – Wetlands/Waters Impact and Preserve Acreages (Continued)				
Type	**Existing**	**Proposed Impact**	**Preserved/ Avoided**	**On-Site Created/ Restored**
Intermittent Drainage	0.55	0.55	---	---
Perennial Creek	2.29	1.98	0.31**	2.00
Total for Aspen IV South:	**3.81**	**3.50**	**0.31**	**3.86**
Aspen V South				
Wetlands				
Seasonal Wetland	5.47	3.07	2.40	5.292 (Aspen VI or Mitigation Bank)
Vernal pool	0.96	0.02	0.95	0.864 (Mitigation Bank)
Seasonal Marsh	0.05	---	0.06	---
Other Waters				
Seasonal Swale	0.27	0.20	0.07	---
Creek	1.15	---	1.15	---
Jurisdictional Ditch	0.52	0.13	0.39	---
Pond	0.04	---	0.05	---
Total for Aspen V South:	**8.46**	**3.42**	**5.05**	**6.156**
TOTAL FOR PROJECTS:	**12.28**	**6.92**	**5.36*** **	**10.016**

* There is an additional 0.34-acre of perennial/seasonal wetland being created/restored on-site.
**0.02-acre of the 0.31-acre of Preserved Morrison Creek will be temporarily impacted as a result of the tie-in from the Bradshaw Road intermittent drainage.
***1.03 acres of Morrison Creek will be preserved on-site (the remainder falls within road rights of way). The remainder of the wetlands fall within the Aspen V South property but are not a part of the Aspen V South project.

1.5 Hydrology and Topography

The Projects are currently comprised of pasture/agricultural land that occurs on flat to gently rolling topography at elevations ranging from 50 to 60 feet above mean sea level. On the Aspen IV South site, a low area containing Morrison Creek is located in the northern portion of the Project. Morrison Creek is the predominant drainage feature on site, crossing Aspen IV South in an east-west direction. In addition, on Aspen IV South, a small intermittent drainage feature enters the existing Morrison Creek near the northeastern upstream connection within the site. On the Aspen V South site, Morrison Creek enters the property near the center of its northern border and crosses the northwestern portion of that site in an east-west direction.

1.6 Geology and Soils

The Riverbank Formation and the Laguna Formation are the only two geologic units within the Projects' boundary (Figure 5. *Regional Geology*). According to the *Soil Survey of Sacramento County, California* (U.S. Department of Agriculture, Soil Conservation Service 1993), six soil units, or types, have been mapped between the Projects (Figure 6. *Natural Resources Conservation Service Soil Types*). These are: (118) Columbia sandy loam, drained (0 to 2% slopes), (157) Hedge loam (0 to 2% slopes), (164) Kimball silt loam (0 to 2% slopes), (165) Kimball silt loam (2-8% slopes), (213) San Joaquin silt loam, leveled (0-1% slopes), and (215) San Joaquin silt loam (3-8% slopes).

1.7 Waters of the United States

The following paragraphs describe the Waters types to be impacted by mining operations.

1.7.1 Seasonal Wetland

Seasonal wetlands are ephemerally wet areas where surface runoff and rainwater accumulate within low-lying areas. Inundation periods are usually shorter than those of vernal pools, and they tend to be dominated by non-native annual, and sometimes perennial, hydrophytic species. Most of the seasonal wetland depressions within the Aspen IV South are located within the grassland pasture and two seasonal wetlands are located adjacent to Morrison Creek. Within the Aspen V South site, the seasonal wetlands are associated with the pasture areas. The vegetative composition of the seasonal wetlands is comprised of non-native wetland generalist plants such as ryegrass (*Lolium multiflorum*), Mediterranean barley (*Hordeum murinum*), curly dock (*Rumex crispus*), Bermuda grass (*Cynodon dactylon*), and hyssop loosestrife (*Lythrum hyssopifolium*). Scattered native plants within seasonal wetlands include creeping sprikerush (*Eleocharis macrostachya*), Carter's buttercup (*Ranunculus bonariensis*), slender popcorn flower (*Plagiobothrys stipitatus*), and Vasey's coyote thistle (*Eryngium vaseyi*).

1.7.2 Vernal Pool

Vernal pools are topographic basins within the grassland community that are typically underlain with an impermeable or semi-permeable hardpan or duripan layer. They are inundated throughout the wet season and are dry by late spring through the following wet season. The plant species within vernal pools are predominantly native annual species that include creeping spikerush, slender popcorn-flower, Carter's buttercup, and Vasey's coyote-thistle.

1.7.3 Ephemeral Drainage

On Aspen IV South, one ephemeral drainage was mapped in the northwestern portion of the site. This feature exhibits an ordinary high water mark as evidenced by the presence of water marks and drift lines. This drainage was excavated to provide a drainage conduit from the property immediately west of the site into Morrison Creek. A second ephemeral drainage is tributary to the intermittent drainage on the eastern portion of the site. It is unlikely that these drainages are influenced by groundwater at any time during the year, as they are relatively narrow and have been excavated with a relative small watershed. Vegetation is absent from the bed of the drainages.

1.7.4 Intermittent Drainage

One intermittent drainage is located in the northeastern portion of the Aspen IV South site. The drainage is characterized by an existing ordinary high water mark, which was determined based upon the presence of water lines, vegetation breaks, and drift lines. The drainage appears to be influenced by groundwater during a portion of the year, as there were significant flows present several weeks after a rain event. Vegetation is largely absent from the bed of the drainage, but hydrophytic species have become established on the banks. This drainage is tributary to Morrison Creek.

1.7.5 Perennial Creek (Morrison Creek)

Morrison Creek flows through the northern portion of both sites in a westerly direction. The creek is perennial according to the USGS Quad map. Vegetation is largely absent form the bed of the creek, but hydrophytic species such as Baltic rush (*Juncus balticans*) and tall flatsedge (*Cyperus eragrostis*) are situated on the banks. There is a relative lack of woody vegetation along the portion of the Creek that will be impacted on the Aspen IV South site. On the Aspen V South site there is a significant oak/riparian community associated with the Creek; however, Morrison Creek will not be impacted by mining activity on the Aspen V South site.

1.7.6 Jurisdictional Ditch

On the Aspen V South site, the ditches are recent or historic linear features clearly anthropogenic in origin and appear to be dry-dug in association with previous agricultural activities at the site. The predominant plant species found along the ditches is Himalayan blackberry (*Rubus discolor*) (EIP 2006).

1.7.7 Seasonal Swale

The seasonal swales on the Aspen V South site do not pond water, but appear to remain saturated for extended periods during the rainy season (EIP 2006).

2.0 GOAL OF MITIGATION

The overall goal of mitigation for the Projects is no net loss of Waters, riparian, and oak woodland functions and values resulting from the Projects. This goal will be accomplished through the realignment and restoration of Morrison Creek, the construction of associated wetlands, and the planting of native riparian and oak woodland habitat within a 215-505 foot-wide corridor on Aspen IV South and the purchase of wetland mitigation credits and/or the creation of a compensation wetland(s) at Teichert's Aspen VI South site

2.1 Impact Types

As discussed in Section 1.4, a total of 3.81 acres of jurisdictional Waters were mapped within the Aspen IV South site including 2.29 acres of perennial creek (Morrison Creek), 0.03 acre of ephemeral drainage, 0.55 acre of intermittent drainage, 0.93 acre of seasonal wetland and 0.01 acre of vernal pool. All of the Waters/wetlands on-site with the exception of 0.31 acre of Morrison Creek will be impacted. In addition, 40 County-regulated Valley oak trees (*Quercus lobata*), will be impacted at the site, and 19 Valley and live oaks (*Quercus wislizenii*) located within the Mayhew Road right of way will be impacted as part of the Aspen IV South project.

A total of 8.46 acres of jurisdictional Waters were mapped within the Aspen V South site including: 5.47 acres of seasonal wetland, 0.97 acre of vernal pool, 0.06 acre of seasonal marsh, 0.27 acre of seasonal swale, 1.15 acres of perennial creek (Morrison Creek), 0.52 acre of jurisdictional ditch, and 0.05 acre of pond. A total of 3.42 acres of Waters on the Aspen V South property will be impacted as part of the project.

2.2 Characteristics, Functions, and Values of Habitat Prior to Impact

2.2.1 Aspen IV South

In a summary of the *Draft Regional Guidebook for Assessing the Functions of Second Order Streams in the Central Valley of California* by Zentner and Zentner and Gill Water Resources Engineering (1999), the functional capabilities of Morrison Creek at the adjacent Vineyard I site were assessed. Using the Hydrogeomorphic (HGM) methodology, the reach of Morrison Creek that intersects the adjacent downstream property was considered a 'moderate value riparian wetland', scoring a 0.55 out of a possible 1.0. According to Zentner and Zentner's letter summary, Morrison Creek at the adjacent site has been partially channelized, reducing the creek systems capability to provide geomorphologic and hydrologic functions.

The Aspen IV South site has been historically farmed, grazed, or otherwise disturbed up to the edge of the channel, eliminating many of the native riparian trees and decreasing the native biological functions of the site. A sparse riparian canopy is currently found at the site and aquatic vegetation is dominated by Baltic rush. The past agricultural uses have impacted the overall functions and values of the remaining Waters on the site.

2.2.2 Aspen V South

The majority of the Waters being impacted due to the implementation of the Aspen V South project are of low value or were created (e.g., ditches). The majority of the impacts are to marginal seasonal wetlands resulting from past agricultural practices.

2.3 Characteristics, Functions, and Values of Habitat to be Created/Enhanced

2.3.1 Waters/Wetland Habitat to be Created

2.3.1.1 Aspen IV South

Morrison Creek within the Aspen IV South property will be enhanced from its current state. As mentioned above, Morrison Creek prior to mining supported a mostly sparse non-native riparian habitat. To create improved wildlife, creek and wetland habitat (i.e., increased functions and values) and a more aesthetic feature, the creek will be re-contoured and planted with native trees and shrubs both as mitigation for the removal of native oak trees, and to enhance the overall habitat quality of the riparian system.

As shown in Table 1 (Section 1.4), the Aspen IV South Project impacts include a total of 3.5 acres of jurisdictional Waters, including 1.98 acres of perennial creek (Morrison Creek), 0.03 acre of ephemeral drainage, 0.55 acre of intermittent drainage, 0.93 acre of seasonal wetland and 0.01 acre of vernal pool. The acreage to be created/restored as part of the realignment channel are 2.00 acres of Creek and 1.86 acres of seasonal/perennial wetland.

The proposed realignment channel has been designed to provide increased and more diverse habitat value compared with this segment of Morrison Creek prior to impact. The design of the realignment channel includes depressions/backwater areas within the at-grade channel. Wetlands have been created both in-channel (perennial) and off-channel (seasonal). The created wetland vegetation may provide nesting habitat (e.g., cattails) for birds such as the red-winged blackbird (*Agelaius phoenicus*). Amphibians may breed within this habitat, including Pacific chorus frog (*Pseudacris regilla*) and western toad (*Bufo boreas*). Mammals that may associate within the realignment channel include raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), and coyote (*Canis latrans*).

2.3.1.2 Aspen V South

As shown in Table 1 (Section 1.4), the Aspen V South Project impacts include a total of 3.42 acres of jurisdictional Waters, including 3.07 acre of seasonal wetland, 0.02 acre of vernal pool, 0.20 acre of seasonal swale, and 0.13 acre of jurisdictional ditch. For the Aspen V South Phase I impacts, 0.864 acre of wetland habitat will be purchased at an agency-approved mitigation bank. In addition, an approximately 5.292-acre compensation wetland(s) will be created at Teichert's Aspen VI property or 5.292 acres of wetland credits will be purchased as an agency-approved mitigation bank for the Phase II impacts.

2.3.2 Oak Woodland/Riparian Habitat to be Created

The riparian and oak woodland habitats to be created as mitigation for the Aspen IV South project include a variety of native trees and shrubs that will eventually provide shade for realigned Morrison Creek and habitat for the resident wildlife. Due to historical removal of habitat to support grazing and agriculture, the current riparian canopy is very sparse. As mitigation for Aspen IV South impacts, 650 oak woodland trees and associated riparian trees will be planted along the realignment channel. In addition, 500 native shrubs will be planted. A total of 1,260 oak woodland trees and associated riparian trees/shrubs, and wetland plugs will be planted along the realignment channel. Please refer to Section 4.3 for a detailed discussion of the oak tree impacts and mitigation occurring within the realignment channel on Aspen IV South.

2.4 Evaluation of Temporal Loss

It is expected that the realigned and restored reaches of Morrison Creek on Aspen IV South will begin functioning hydrologically during the first rainy season after completion of phase of mining, completion of channel section construction, excavation and contouring of the wetlands/creek, and subsequent re-connection of Morrison Creek. Temporal loss of the creek will be reduced because the phased implementation schedule allows the creek to be diverted for three consecutive dry seasons while the existing Morrison Creek channel is mined and the realigned reaches are restored. Each wet season, the creek will flow through a combination of the newly restored and existing channel as outlined in Section 4.2.3. The creek cannot be restored to its original tie-in locations without temporary diversions.

Although temporal loss of trees will occur as a result of the Aspen IV South project, significantly more trees are being planted than are being impacted to compensate for this temporal loss (59 trees within County regulations being impacted and 650 mitigation trees planted). This increase in tree numbers for mitigation will greatly improve the habitat adjacent to the realignment channel by providing shade, shelter, and ultimately a food source for wildlife species. The wetland vegetative cover is also expected to increase annually and reach the established performance standards within three to five years. Refer to Section 4.2.3 for a more detailed implementation schedule.

Temporal loss associated with the mitigation for Aspen V South will be minimized as Teichert is purchasing mitigation from an agency-approved mitigation bank at a ratio of 1.8 acres to every acre impacted. The construction of the Aspen V South compensation wetland(s) at Aspen VI will occur concurrent with the impacts to the Phase II wetlands, if this mitigation option is selected. Therefore, temporal loss will be minimized. Additionally, the acreage to be constructed off-site is also at a 1.8 to 1 ratio, further minimizing temporal loss and resulting in an increase in overall wetland acreage.

3.0 PROPOSED ON-SITE AND OFF-SITE MITIGATION

3.1 Aspen IV South On-Site Wetland and Riparian/Oak Woodland Mitigation

The realignment channel for the Aspen IV South project includes creek, wetland, riparian, and oak woodland mitigation.

3.2 Aspen V South Off-Site Wetland Mitigation

The compensation wetland(s) will be created off-site within Teichert's Aspen VI property or will be mitigated at an agency-approved mitigation bank.

3.3 Mitigation Areas Ownership Status

3.3.1 Present Owner of the On-Site and Off-Site Mitigation Areas

Teichert Land Co.

3.3.2 Expected Long-Term Owner of the On-Site and Off-Site Mitigation Areas

Teichert Land Co.

3.3.3 Parties Responsible for Long-Term Maintenance of the Mitigation Areas

Teichert Land Co., and the Morrison Creek Conservancy (or other approved third-party entity).

3.3.4 Point of Contact for Corps Access to the Sites

Attn: Mr. John Lane
Teichert Aggregates
3500 American River Drive
Sacramento, California 95864
Phone: (916) 484-3256
Fax: (916) 484-7012

3.3.5 Conservation Easements

Conservation easements will be recorded with Sacramento County that will maintain the Projects' mitigation areas and preserve areas as wetland and wildlife habitat in perpetuity. Copies of the proposed conservation easements have been submitted to the Corps for approval as part of the *Operations and Management Plan for the Morrison Creek Nature Preserve Phase II* (submitted under separate cover).

3.4 Existing Functions, Values, and Baseline Information for the Aspen IV South On-Site Mitigation Area

The Aspen IV South Mitigation Area is the same as the impact site. Please refer to Sections 1.0, 2.2, and 2.3.

3.5 Existing Functions, Values, Baseline Information for the Aspen V South Off-Site Mitigation Area

Mitigation for the Aspen V South project will occur at Teichert's Aspen VI property. This property has been mined and is in the process of being reclaimed. Therefore, there is no existing functions and values information for this site.

3.5.1 Location and Size of the Aspen V South Off-Site Mitigation Area

The Aspen V South off-site mitigation area is located in eastern Sacramento County, north of Jackson Highway and east of Bradshaw Road (see Figure 2). The Aspen V South off-site mitigation area will consist of a portion of the overall Aspen VI property (Attachment C). The ultimate size of the mitigation area to be protected by a conservation easement will be the compensation wetlands plus a 100 foot buffer. The mitigation area was selected based on existing site characteristics including its location within the Morrison Creek watershed, site topography, and proximity to other planned wetland mitigation areas.

3.5.2 Aspen V South Off-Site Mitigation Area Ownership Status

The off-site area is owned by TLC.

3.5.3 Waters of the U.S. Within the Aspen V South Off-Site Mitigation Area

The off-site mitigation area does not currently support Waters as it is a mine pit in the process of being reclaimed.

3.5.4 Hydrology and Topography of the Aspen V South Off-Site Mitigation Area

The overall Aspen VI site is fairly level; however, it is in the process of being reclaimed. The topography of the off-site mitigation area will be modified during the construction of the compensation wetland(s). The compensation wetland(s) will be supported by water from direct precipitation and the adjacent watershed, as well as water directed into the mitigation area from the Mather Drain (after flowing through the Granite I/Aspen VI emergent marsh to the north).

3.5.5 Geology and Soils of the Aspen V South Off-Site Mitigation Area

As the mitigation area has been previously mined, the geology and the soils of the area are no longer applicable.

3.5.6 Vegetation Present Within the Aspen V South Off-Site Mitigation Area

Currently, the area is grassland.

3.5.7 Wildlife Habitat and Use Within the Aspen V South Off-Site Mitigation Area

Wildlife habitat and use is likely low at this time; however, with the completion of reclamation and the creation of mitigation planned for the Aspen VI site, wildlife habitat will be present. Therefore use of the site by wildlife will increase as a result of the mitigation project.

3.5.8 Historical, Present, and Proposed Uses of the Aspen V South Off-Site Mitigation Area

The most recent use of the mitigation area was aggregate mining. The proposed uses are construction of the compensation wetland(s) and potentially a bike trail as required by the County. The location of the trail is unknown at this time and will not be built by Teichert.

3.5.9 Present and Proposed Uses of Adjacent Areas

Currently, the area adjacent to the off-site mitigation area is in the process of being reclaimed. Ultimately, adjacent uses will be wetland and riparian mitigation, open space, agriculture, flood detention/retention, and passive recreation.

3.5.10 Aspen V South Off-Site Mitigation Area Zoning

The zoning for the off-site mitigation area is M-2(SM)(F) - industrial with a surfacing mining overlay and a flood overlay or IR(SM)(F) - industrial reserve with a surfacing mining overlay and a flood overlay; however, the site will be protected with a conservation easement.

4.0 MITIGATION DESIGN/IMPLEMENTATION PLAN

The following sections discuss the design methodology and implementation of the realigned/restored creek, wetlands and riparian/oak woodland habitats for impacts associated with Aspen IV South. Section 4.1 discusses the rationale for mitigation success, Section 4.2 outlines the creek and wetland design methodology and implementation schedule, and Section 4.3 outlines the riparian/oak woodland design methodology and implementation schedule. The mitigation design and implementation plan outlined in the following section supersedes previous requirements outlined by the County (for native tree impacts).

Information for the design and implementation of the Aspen V South off-site mitigation has been included in this document where available. A complete design for this mitigation will be provided to the Corps for review and approval prior to implementation.

4.1 Rationale for Expecting Implementation Success

ECORP has successfully designed and overseen the construction of numerous wetland creation/restoration and riparian/oak woodland mitigation projects in Sacramento and Placer Counties, including those in locations with similar attributes to the Project. This experience has been used in the design and construction of the mitigation wetlands at the Project. Refer to section 4.2.1 for a discussion of the wetland and creek realignment design methodology, the primary reason for expecting implementation success. Also refer to Section 4.3 for a discussion of the riparian and oak woodland planting plan implementation and maintenance. Section 6.0 discusses the final success criteria and monitoring methodology for the wetlands, realigned creek and plantings.

4.2 Creek and Wetland Mitigation

The realignment channel involves the creation/restoration of 2.00 acres of creek and 1.86 acres of in-channel perennial wetlands and off-channel seasonal wetlands as shown in Figure 7. *Wetland Detail.*

4.2.1 Design Methodology for Aspen IV South Mitigation

4.2.1.1 Morrison Creek

The realigned/restored Morrison Creek channel design was based on interpretation of aerial photographs, detailed topography, and data gathered during several field visits. The intent of the new channel design was to retain as many of the characteristics of the existing channel as possible, since these characteristics are the result of the creek's current "natural" dynamic equilibrium. Neither the flow regime of the creek nor the channel shape upstream and downstream of the Project site are "natural" per se, due to development in the area and prior channelization of the creek. The lack of notable fresh deposition areas or erosion cuts, however, seems to indicate that the creek is in a state of equilibrium and is neither aggrading nor degrading.

Aerial-photo interpretation and topographic map analysis included determinations of slope (valley slope and channel slope), sinuosity (creek length/valley length), and meander radius of curvature. A cursory assessment of the creek's natural features, course of the channel, and where the channel appeared to be artificially controlled or altered was also performed using these methods.

A preliminary soils review was performed using the Natural Resources Conservation Service (NRCS) soils maps. The channel runs primarily through Hedge loam, and portions of the channel run through Columbia sandy loam. The at-grade realignment channel will be relocated in more or less the creek's existing location and placed on re-compacted soils from the area. The overburden and topsoil will be removed and preserved, gravel underneath mined, and the overburden and topsoil will be replaced and compacted before the grading of the new channel is performed. A slope stability and permeability analysis was conducted through soils collected at the Aspen III South realigned channel structure (Geocon, Feb 2008). The findings of the analysis showed that soils collected on-site were suitable both for structural integrity and for long-term permeability based on the proposed design.

Flows have been recorded by a gauge maintained by the USGS on Morrison Creek near Sacramento, a few miles downstream of the Project. Records of past flows showed a maximum daily mean flow of 1,940 cubic feet per second (cfs) in 1982, with normal flows during the year under non-storm conditions ranging from 1 to 10 cfs. (USGS California Hydrologic Data Report, Monthly Mean data for water years 1959-2001, "Morrison Creek near Sacramento", gage number 11336580).

In 2005, ECORP performed detailed site visits to assess vegetation and soils, estimate flows, and determine other creek characteristics such as: average water depth at the time (summer low-flow water depth), bankfull stage, width-depth ratio, entrenchment ratio, channel shape, types of wetlands that occur naturally, and any notable erosion or deposition features.

After the data from the site visits were analyzed, the general alignment of the creek provided by Teichert was printed out at 1"=20' scale. The channel design was sketched onto the plans and then digitized so a water-surface profile analysis could be performed.

Based on the low flow widths documented during the site visit, the bottom of the newly designed low-flow channel varies in width from just a few feet to over ten feet wide. Since the slope of the existing channel is essentially constant over the length of the Project area, the proposed slope of the realignment channel through the new floodway is also uniform. A variety of features were added to the floodway in order to provide areas for several different plant communities and wetland types. Backwaters, off-channel wetlands, benches (or terraces) of varying heights and deeper pools were included. For safety purposes, the slopes into the corridor and low flow channel-bank slopes do not exceed 3:1 in steepness. To create a more natural corridor and variety in habitats, the slopes leading up from the bottom of the corridor range from 3:1 to 7:1.

The sinuosity of the existing Morrison Creek channel was evaluated in the design of the realigned creek corridor. Channel sinuosity (k) is defined as the ratio of channel length to valley length (k = [(channel length/valley length))]. Sinuosity indicates how the channel has

adjusted its slope to the slope of the valley. Sinuosity is inversely related to channel slope; highly sinuous channels have low slope values whereas low sinuosity channels have higher slopes. Channels naturally develop a sinuous pattern to provide for the dissipation of the kinetic energy of the moving water and also to effectively transport sediment.

The length of Morrison Creek impacted at the Project site is approximately 2,555 feet. The realigned/restored channel design is approximately 2,556 feet. Therefore, there is no net loss of channel length.

In general, the banks of the realigned/restored channel are steeper on the outside of a curve (cut banks) than on the inside of the curve (point bars). This is a characteristic of the existing channel, and is common to many creeks and rivers with characteristics similar to those of Morrison Creek. The shallower bank slopes are also intended to allow wetland vegetation to become established. Pools were included to prevent vegetation from establishing itself in some locations, permitting sections of open water to exist.

After construction, the realigned/restored channel may change shape to some extent, but replicating many characteristics of the current channel in the designed channel should minimize the likelihood of flows to change the channel shape drastically. Until vegetation is well established, BMPs and erosion control measures will be taken to reduce the potential for erosion and sediment problems.

After ECORP created the initial realigned/restored channel design, G.C. Wallace of California, Inc. (G.C. Wallace), the Project engineers, digitized the design and ran the needed models to ensure the new channel would be able to pass the expected high flows. The Corps HEC-RAS River Analysis System computer program was utilized to compute water surface elevations throughout the length of the channel. The HEC-RAS model was based on an HEC-2 model provided by Sacramento County. The 100-year storm event was modeled to determine channel and freeboard requirements. The 100-year flow rates analyzed were taken from the County HEC-2 model. The model also took into account channel roughness, including thick vegetation in the channel on the riparian bench areas and oak woodland habitat on the remaining realignment channel bottom.

The realigned Morrison Creek channel, like all other stream systems, will be dynamic. Although significant change in the channel location in the short term is not expected, minor variations within the limits of the corridor are expected over an extended period of time.

4.2.1.2 Seasonal/Perennial Wetlands

The in-channel and off-channel seasonal/perennial wetlands proposed in the realignment channel have been designed to have hydrology typical of seasonal/perennial wetlands in the Central Valley. The depth of the wetlands will range between 8 and 36 inches and the side slopes for the wetlands will be no steeper than 3:1 with an average slope of 7:1. The design for the off-site mitigation for Aspen V South will be similar. Direct precipitation, overland flow, and storm flows in Morrison Creek will provide source water for the wetlands.

4.2.1.3 Buffers

Using GIS software, the distance between all created wetland features/creek and the edge of the realignment channel was calculated at each vertex (figure available upon request). Within the realignment channel it was determined that the buffer ranges from 51 feet to 375 feet with an average buffer of 145 feet between wetland/Water features and the edge of the realignment channel. The realigned Morrison Creek channel, like all other stream systems, will be dynamic. Although significant change is not expected in the channel location in the short term, minor variations within the limits of the corridor are expected over an extended period of time.

The buffer for the compensation wetlands for Aspen V South will be a minimum of 100 feet.

4.2.2 Design Methodology for Aspen V South Mitigation

An approximately 5.292 acre compensation wetland(s) will be constructed within the off-site area (Attachment C). Specific design of the compensation wetland(s) will be provided to the Corps for approval prior to implementation.

4.2.3 Implementation Schedule

4.2.3.1 Aspen IV South

The mining and restoration implementation is projected to take three years, as outlined in Figure 8. *Conceptual Construction Schedule*. During the start of the dry season in year one, a temporary diversion channel will be constructed along the northern and western property boundaries (shown as orange arrows). The purpose of this temporary diversion channel will be to divert summer flows around the perimeter of the mining and realignment channel construction area while mining and construction of the channel is occurring. Necessary Best Management Practices (BMPs) will then be installed (e.g., hydroseeding, erosion control blanketing, turf reinforcement mat) to the exposed temporary diversion channel. Supplemental water (e.g., overhead sprinklers) will be utilized to encourage vegetation growth.

For the purposes of this section, mass grading is defined as the construction of the corridor and stream channel within six (6) inches of final grade and fine grading is the more detailed construction of the channel and associated wetlands at grade.

During the first dry season, Morrison Creek flows will be diverted into the temporary diversion channel. Then, the area of the existing Morrison Creek shown in green will be mined, mass graded, the new channel will be constructed, and the channel and wetlands will be fine graded. Upland trees and shrubs, and select riparian plantings for this section will be planted at this time. Once complete, necessary BMPs (as listed above) will be installed and water will be redirected from the temporary diversion channel into the existing Morrison Creek channel/restored channel for the rainy season.

During the second dry season water will be diverted and the portion of the existing Morrison Creek in pink will be mined, mass graded, the new channel constructed, the channel and wetlands will be fine graded, and necessary BMPs will be installed. Upland trees and shrubs,

and select riparian plantings for this section will be planted at this time. Water will then be routed through the existing Morrison Creek channel/restored channel during the second-year wet season.

During the final year-three dry season, water will be sent through the temporary diversion channel while the remaining portion of Morrison Creek in orange is mined and mass graded, the final section of channel is built, and the channel and wetlands are fine graded. All remaining plantings will be installed at this time. Any necessary BMPs will then be installed and water will begin flowing through the entire restored/realigned channel. The creek cannot be restored to its original connection portions without these temporary diversions. Once the construction of the realignment channel is complete, portions of the temporary diversion channel may be filled.

The next section outlines the riparian and oak woodland mitigation and implementation schedule.

4.2.3.2 Aspen V South

The compensation wetland(s) at the Aspen VI site will begin prior to Aspen V South Phase II impacts and will be completed in the same year (i.e., begin in Spring, completed by Fall).

4.3 Riparian/Oak Woodland Mitigation for Aspen IV South

An arborist survey report dated December 9, 2005 was prepared for the Aspen IV South Project. According to this report, 50 Valley oak trees were inventoried totaling 722.6 inches. This survey included trees that met the criteria listed below and were found within the Aspen IV South Project boundary.

The current County Tree Preservation Ordinance (Sacramento County Code 480, Chapter 19.12, Sections 19.12.010 through 19.12.240), protects native oak species, including interior live oak (*Quercus wislizenii)*, Valley oak, blue oak (*Quercus douglasii)*, and oracle oak (*Quercus* x *morehus*), that measure ≥ 6 inches in diameter at breast height (DBH), and ≥ 10 inches DBH for multi-trunked trees (measured as an aggregate diameter). The Sacramento County General Plan protects non-oak native trees (excluding cottonwoods and willows) and landmark trees (defined as non-native oak trees measuring 19 inches DBH or greater).

As listed above, a total of 50 Valley oak trees were identified at the Project. Nine of the trees fall within set backs and will be preserved, and one of the trees was less that 6" DBH. Therefore, 40 trees will be impacted that are protected by County regulations. These 40 trees equate to 566.4" DBH of Valley oak.

In addition to trees surveyed on the Aspen IV South site, trees within the Mayhew Road right of way were also assessed and surveyed by ECORP and GC Wallace during the winter of 2007. Within the right of way, 19 Valley and live oak trees were identified totaling 286"DBH. Teichert and Granite are splitting the required mitigation since the two properties are adjacent, and share the right of way. Therefore, Teichert is responsible for mitigating an additional 143"DBH, for a total of 710"DBH (143"DBH as a result of half of the right of way impacts, and 567"DBH as a result of impacts on the Project site). According to Teichert biologists, Teichert has

already planted 45 Valley oaks and 95 interior live oaks as perimeter plantings at the site. Thus, the required trees to be planted (1"DBH of impact equates to 1 depot-sized native tree) within the realignment channel are 570 trees.

An additional 80 trees, or 14% more trees, will be planted along the realignment channel as a contingency for a total of 650 trees and an additional 500 native shrubs as well as 110 wetland plugs will be planted to increase the quality of the habitat. Please note however that only those plantings required pursuant to County regulations (570) will be required to meet the success criteria outlined in Section 6.3.1.

4.3.1 Revegetation Plan

A riparian and oak woodland planting plan has been developed in order to show the location of the 650 trees that will be planted on-site within the realignment channel (Attachment D). Table 2 below lists the species and number of plantings.

Table 2 – Oak Woodland/Riparian/Shrub Planting Numbers

Riparian Tree Type	Number of Plantings	Shrub Type	Number of Plantings
Box Elder (*Acer negundo*)	30	Coyote Brush (*Baccharis Pularis*)	60
Black Walnut (*Juglans hindsii*)	50	Hoary Coffeeberry (*Rhamnus Tomentella*)	60
Fremont Cottonwood (*Populus fremontii*)	60	California Blackberry (*Rubus Ursinus*)	75
Black Willow (*Salix gooddingii*)	65	Deergrass (*Muhlenbergia rigens*)	75
California Sycamore (*Platanus racemosa*)	25	Arroyo Willow (*Salix Lasiolepis*)	40
Subtotal:	**230**	California Grape (*Vitis californica*)	50
		California Wild Rose (*Rosa californica*)	75
		Sandbar Willow (*Salix Exigua*)	65
		Subtotal:	**500**
Oak Tree Type	**Number of Plantings**	**Wetland Plugs**	**Number of Plantings**
Blue Oak (*Quercus douglasii*)	185	Slender Sedge (*Carex praegracilis*)	60
Valley Oak (*Quercus lobata*)	180	Flat-bladed Rush (*Juncus xiphoides*)	30
Interior Live Oak (*Quercus wislizenii*)	55	Broadleaf Cattail (*Salix lasiolepis*)	20
Subtotal:	**420**	**Subtotal:**	**110**
TOTAL:	**650**	**TOTAL:**	**610**

All areas within the realignment channel that are planned for planting will be hydroseeded with a blend of a minimum of three locally native grass species. These seed mixes are included in Attachment E.

As outlined in Attachment F, a porous and fibrous weed mat will be installed around the base of the plantings (minimum of 3' x 3'). Sterile bark mulch may also be used for each planting and should be augmented annually to a depth of 6 inches. The planting locations should be weeded (use of herbicide to control weeds if necessary is approved per the *Operations and Management Plan for the Morrison Creek Nature Preserve Phase II*), at minimum, once annually in early spring, for at least the first two years. This will reduce competition between the plantings and the weeds for water and nutrients.

4.3.2 Planting Location/Density

The planting locations were determined by what species are known to naturally grow at varying distances from perennial creeks. For example, certain species such as cottonwood require a year round water source and therefore are planted closest to the creek. Other tree species, like the blue oak, thrive in upland areas furthest from the creek.

Information from the Aspen IV South Project engineers was also utilized to determine appropriate planting locations. The draft hydraulic study by G.C. Wallace (2005) was used to input information into a Geographic Information System (GIS). This in turn created a model that estimated the elevation of various Morrison Creek flow levels. This data assisted in determining at what flow levels certain areas would be inundated. The revegetation plan was adjusted accordingly. To ensure the success of the plants that require year-round water, the riparian species will be not be planted until the restored channel is completed and fine grading has occurred.

Including a portion of the creek in a 2-year flood level, there are approximately 11 acres of planting potential within the realignment channel. Thus, for the 650 trees planted along the realignment channel, there will be approximately 59 trees per acre.

4.3.3 Irrigation

The plantings will be irrigated with a drip irrigation system provided by on-site wells to ensure that the plantings are successful. Irrigation will be decreased and finally eliminated during the monitoring period to ensure that the plantings will survive in the long-term without irrigation. Irrigation should deliver deep, infrequent watering and should normally take place between April 1st and October 15th of each year. This can be adjusted if a year is particularly hot earlier or later in the year. A recommended irrigation schedule is outlined in Table 3.

Table 3 – Seedling Irrigation Schedule

Duration	Year 1	Year 2	Year 3
April 1st – June 15th	8 gallons, once/2 weeks	8 gallons, once/3 weeks	8 gallons, once/ 4 weeks
June 16th – September 15th	10 gallons, once/2 weeks	12 gallons, once/4 weeks	10 gallons, once/ 4 weeks
September 16th – October 15th	6 gallons, once/3 weeks	8 gallons, once/4 weeks	8 gallons, once/6 weeks
October 16th – March 31st	Irrigation off	Irrigation off	Irrigation off

4.3.4 Maintenance

Maintenance of the replacement trees should include a check, adjustment, and replacement as necessary of the seedling tree shelters and weed mats, applications of supplemental mulch, weeding around the seedlings, and incidental litter removal. As general maintenance, litter removal will be conducted throughout the realignment channel.

In order to ensure that the tree and shrub plantings survive to maturity, the irrigation system should be checked regularly during the irrigation period. Additionally, all at-grade equipment and all equipment within the valve boxes should be inspected once per month during the months the irrigation system is on and repaired as necessary.

See Section 6.3 for monitoring and success criteria of the plantings.

4.3.5 Protection of Existing Trees During Planting Activities

Planting and irrigation contractors are to be made aware of existing/preserved trees (located in right-of-ways and perimeter setbacks) and shrubs to be preserved and take precautions to protect such vegetation from damage. Irrigation lines shall not be trenched under the drip lines of existing trees and shrubs. Equipment, construction materials, or tools shall not be stored within the drip line of the trees or shrubs to be preserved. No heavy equipment shall be allowed within the drip line of trees or shrubs to be preserved.

4.3.6 Topsoil Stockpile

As the existing Morrison Creek is mined, the top one foot of topsoil will be collected and stockpiled on-site. The topsoil will be spread within the realignment channel in phases during fine grading activities. If it is determined that the soil is not appropriate for planting (i.e., soil compaction or soil quality), additional measures or amendments will be taken/used to increase the chance of success for the plantings.

4.3.7 Implementation Schedule

As outlined in Figure 8, upland and select riparian plantings will be phased in relation to mass grading. The actual water level of the newly restored creek will be assessed over two wet seasons to ensure the success of the plants that require year-round water. Thus, select riparian species will not be planted until the restored channel is completed.

5.0 MAINTENANCE DURING MONITORING PERIOD

5.1 Maintenance Activities

During the five-year (Aspen V South off-site mitigation) and ten-year (Aspen IV South on-site mitigation) success-monitoring periods, Teichert will be responsible for the maintenance activities within the realignment channel area and the off-site mitigation area. The ten-year monitoring period will commence following the completion of the restoration of the creek, associated wetlands, and plantings. The five-year monitoring period will commence following the completion of the construction of the compensation wetland(s). After the success monitoring obligations have been met, the Morrison Creek Conservancy, or approved third-party entity will be responsible for the maintenance activities in these areas in perpetuity.

5.2 Responsible Parties

Applicant:

Attention: Mr. John Lane
Teichert Aggregates
3500 American River Drive
Sacramento, California 95864
Phone: (916) 484-3011
Fax: (916) 484-7012

5.3 Schedule

5.3.1 Aspen IV South

Annual maintenance inspections of the mitigation will occur concurrent with the success monitoring activities for the first ten years or until mitigation monitoring obligations have been met. Monitoring/maintenance will also occur after the ten-year success monitoring period in perpetuity in accordance with the *Operations and Management Plan for the Morrison Creek Nature Preserve Phase II* (submitted under separate cover). Inspections will be performed by qualified personnel who will assess potential maintenance issues, such as: habitat function, preserve function, thatch accumulation, and newly introduced non-native species. These topics will be covered in the annual monitoring report. Refer to the *Operations and Management Plan for the Morrison Creek Nature Preserve Phase II* for a more detailed description of the long-term monitoring of the Preserve.

5.3.2 Aspen V South Off-Site Mitigation Area

Annual maintenance inspections of the mitigation area will occur concurrent with the success monitoring activities for the five year monitoring period or until mitigation monitoring obligations have been met. After success criteria have been met the area will be monitored once annually. More specific monitoring will be described a detailed operations and management plan will be developed prior to implementation of this mitigation effort as required by the Corps.

6.0 MONITORING PLAN

The overall goal of the realignment channel is no net loss of wetland, riparian and oak woodland functions and values resulting from the Aspen IV South Project. The overall goal of the off-site constructed compensation wetland(s) is no net loss of wetland function and values resulting from the Aspen V South Project. In order to judge whether or not this goal has been met, a set of final success criteria have been developed for the constructed seasonal/perennial wetlands, creek, and the riparian/oak woodland plantings.

6.1 Seasonal/Perennial Wetland

6.1.1 Final Success Criteria

Both in-channel perennial and off-channel seasonal wetlands will be created within the realignment channel along the newly restored Morrison Creek (see Figure 7) within the Aspen IV South Property. Additionally, a compensation wetland(s) will be constructed at the Aspen VI property to serve as mitigation for the Aspen V South Project. In both cases, the constructed wetland habitat must meet the specific success criteria listed in Table 4 to be considered successful.

Table 4 – Seasonal/Perennial Wetland Success Criteria

Hydrology	Vegetation
1. Wetland habitat will be inundated or saturated for sufficient periods to support a predominance of wetland plant species (those listed as FAC, FACW, or OBL in *The National List of Plant Species that Occur in Wetlands: California (Region 0)* (Reed 1997)[1].	1. Species richness will equal or exceed 10 species.
2. 95% of the wetland acreage must be inundated or saturated for period of sufficient duration to support wetland vascular plants or open water as the most prevalent and dominant component.	2. Prevalence Index will be less than 3.0.
	3. Aerial coverage of vegetation must be greater than or equal to 85% in the seasonal wetlands and must be greater than or equal to 50% in the perennial wetlands, with the remaining 50% attributable to open water*.

*A determination of seasonal/perennial wetlands will be made after the first wet season.
Categories found in the *National List of Plant Species That Occur in Wetlands: California (Region 0)* (Reed 1997):
Obligate Wetland (OBL) = occur almost always in wetlands (>99% probability).
Facultative Wetland (FACW = usually occur in wetlands (67%-99% probability).
Facultative (FAC) = equally likely to occur in wetlands and non-wetlands (34%-66% probability).
Facultative Upland (FACU) = usually occur in non-wetlands (67%-99% probability).
Obligate Upland (UPL) = occur almost always in non-wetlands (>99% probability).

6.1.1.1 Target Jurisdictional Acreage to be Created for Aspen IV South

The target acreage is 1.86 acres of in-channel and off-channel seasonal/perennial wetlands.

6.1.1.2 Target Jurisdictional Acreage to be Created for Aspen V South

The target acreage is 5.292 acres of compensation wetland(s).

6.1.2 Monitoring Methods

In order to determine if the created on and off-channel wetlands and off-site compensation wetland(s) are functioning properly, the following specific hydrology and vegetation monitoring methods have been established. Monitoring of the Aspen IV South wetland hydrology and vegetation will take place in years 1, 2, 3, 5, 8, and 10 as outlined in Table 5. Monitoring of the Aspen V South wetland hydrology and vegetation will take place in years 1, 2, 3, and 5 as outlined in Table 6. Monitoring will be conducted along with other habitat monitoring as outlined in the following sections.

6.1.2.1 Wetland Hydrology

To assess the hydrology of the constructed wetlands, an estimate of the percent of ponded area will be made once during the peak period of inundation, typically during January or February, once during the flowering period, typically April or May, and once in June or July of each monitoring year. Aerial photographs or site visits to the constructed wetlands will be used to estimate the extent of inundation. For each photo/visit taken, each wetland will be ranked according to its approximate percent of inundation: 4 = basin is 100% inundated, 3 = basin $\geq$ 80% inundated, 2 = basin <80% and $\geq$ 50% inundated, 1 = basin <50% inundated, and 0 = basin not inundated.

6.1.2.2 Wetland Vegetation

Field surveys of constructed wetlands will be conducted each spring during peak flowering periods. Timing of floristic surveys will be adjusted according to annual site specific conditions. Data collected from each constructed wetland will include an estimate of percent aerial vegetative cover, a detailed species list, and an estimate of the cover of each species. A cumulative vascular plant species list will then be generated for each wetland. Data from each monitored wetland will be entered into a database. From this data, a list of the dominant/co-dominant species (those with at least a coverage of 6% relative cover) will be generated and the Prevalence Index (PI) will be calculated.

The PI is a standard method used to determine whether a floristic data set can be categorized as being that of a wetland or an upland community. Plant species categories used to calculate the PI will be based upon those described by Reed (1997) and weighted according to Table 7.

Table 5 - Aspen IV South - Morrison Creek/Wetland/Oak Woodland and Riparian Monitoring Schedule - Years 1-10

	Wetlands	Morrison Creek	Oak Woodland/Riparian Plantings	Photo Documentation	General Preserve Monitoring
First Year (following completion of channel)	Yes	Yes	Yes	Yes	Yes
Second Year	Yes	Yes	Yes	Yes	Yes
Third Year	Yes	Yes	Yes	Yes	Yes
Fourth Year	None	Yes	None	Yes	Yes
Fifth Year	Yes	None	None	Yes	Yes
Sixth Year	None	Yes	Yes	Yes	Yes
Seventh Year	None	None	None	Yes	Yes
Eighth Year	Yes	Yes	None	Yes	Yes
Ninth Year	None	None	None	None	Yes
Tenth Year	Yes	Yes	Yes	Yes	Yes

Table 6 - Aspen V South Off-Site Emergent/Seasonal Wetland Monitoring Schedule - Years 1-5

	Hydrology	Vegetation	Photo Documentation	General Preserve Monitoring
First Year (following completion of construction)	Yes	None	Yes	Yes
Second Year	Yes	Yes	Yes	Yes
Third Year	Yes	Yes	Yes	Yes
Fourth Year	None	None	Yes	Yes
Fifth Year	Yes	Yes	Yes	Yes

Table 7 – Plant Species Category Weighting	
Wetland Status	**Weighting**
Obligate Wetland (OBL)	1
Facultative Wetland (FACW)	2
Facultative (FAC)	3
Facultative Upland (FACU)	4
Obligate Upland (UPL)	5

The PI for each wetland is calculated using the following formula:

$$PI = \frac{1*f(OBL) + 2*f(FACW) + 3*f(FAC) + 4*f(FACU) + 5*f(UPL)}{f(OBL) + f(FACW) + f(FAC) + f(FACU) + f(UPL)}$$

Where: f(OBL) = a measure of abundance for OBL species,
f(FACW) = a measure of abundance for FACW species, etc.

The PI is a standard method of determining whether a wetland data set is categorized as a wetland or upland plant community. To be considered a wetland, the area must have a PI value less than 3.0. However, PI values within disturbed areas (i.e., establishing wetlands) can range higher, depending on plant species.

6.2 Morrison Creek

The monitoring plan for Morrison Creek will observe the physical characteristics of the realigned channel over a period of ten (10) years. The plan follows established procedures outlined in the field of fluvial geomorphology and requires the installation of permanent survey monuments. These permanent monuments will be re-visited over the course of the monitoring period to ascertain changes in the channel morphology of the realigned Morrison Creek. The target acreage is 2.00 acres representing 2,776 linear feet of restored creek.

6.2.1 Final Success Criteria

Monitoring of success criteria will be based on both design specifications and as-built measurements. As-built measurements correspond with the completion of the project. Design specifications for the realigned Morrison Creek specify a slightly entrenched, meandering channel with moderate sinuosity (See Table 8 below). Currently Morrison Creek is a moderately entrenched meandering alluvial channel with a channel width ≥ 12 times channel depth at bankfull flow (Width/Depth [W/D] ≥ 12). Design criteria for the realigned Morrison Creek call for a slightly entrenched meandering channel with a moderate W/D ratio (W/D ≥ 12).

Alluvial channels operate in a dynamic state of equilibrium. Success criteria for the realigned Morrison Creek should account for the constantly adjusting (dynamic) channel geometry. Channel geometry data collected at each monitoring site should indicate a natural channel "type", at the Rosgen Level II classification.

Table 8 – Design Criteria at Four (4) Monitoring Cross-sections for Morrison Creek

Cross Section	W_{bkf}* (ft)	D_{bkf} (ft)	D_{max} (ft)	$Area_{bkf}$ (ft^2)	W_{fp} (ft)	ER	W/D	Stream Type	Sinuosity
A-A'	30.8	1.7	4.5	52.8	283.9	9.22	18	C	1.3
B-B'	23.7	2.1	4.5	49.5	260.4	10.99	11	C	
C-C'	23.4	1.8	3.5	42.3	75.1	3.21	13	C	
D-D'	36.9	3.3	6.5	122	340.6	9.23	11	C	
Mean	25.97	1.87	4.17	48.2	206.47	7.81	14	NA	

*bkf denotes a measurement taken at the bankfull elevation.

Stable channel design is based on principles outlined by David Rosgen, PhD (Rosgen, 1996). The Rosgen classification is a hierarchical continuum of physical variables beginning with single vs. multiple tread channels and continuing down through channel materials (Figure 9. *Classification of Natural Rivers [from Rosgen, 1996]*). Field data collected at four monitoring sites should indicate the presence or absence of stable channel geometry. Stable streams like their "type". Or in other words, their field data indicate the presence of a stream type according to Rosgen's Classification. If a stream is unstable, the field data will not fit the criteria stream type. For example, a single tread channel with an entrenchment ratio (ER) between 1.4 - 2.2 and a W/D of 8.0 is an unstable channel because it will not fit the criteria according to the classification. Therefore, the success criterion for Morrison Creek is based on the presence of stable channel geometry as measured at four monitoring sites (Figure 10. *Cross-Section and Photo Point Locations*). Absence of stable channel geometry at the same monitoring site, for two consecutive monitoring periods, will indicate that the creek has not met the success criterion. This success criterion will be assessed two years after the monitoring period begins, as the creek may need one or two years to achieve equilibrium.

6.2.2 Creek Monitoring/Channel Morphology

Monitoring channel morphology allows for the assessment of the overall physical characteristics of the channel, and to determine any significant changes in the dimension, pattern, or profile of the channel. The monitoring will occur at four (4) permanently monumented cross-sections. Cross-sections will be aligned perpendicular to the direction of stream flow (see Figure 10). Each cross-section will consist of:

- Two (2) 18 inch pieces of ½ inch rebar cemented into place and located on the levee tops, one marking each end of the cross-section.
- Latitude and longitude coordinates for each cross-section monument using a hand-held Trimble GPS unit.
- Monument identification consisting of an aluminum cap that uniquely identifies the cross-section (1-1/2" flat top for 1/2" rebar). Each cross-section cap will be stamped with the appropriate identification corresponding to the cross-section name (i.e., XS-A, XS-B, XS-C, and XS-D).

Cross-sectional and longitudinal data will be collected immediately following completion of the realigned channel structure. Monitoring data will be collected in years one through four, six, eight and ten during the dry season months of July, August, or September.

The cross-section is the basis for delineating channel geometry, measuring current velocity, and calculating discharge. While the cross-section measures a single vertical plane across the stream channel, the longitudinal profile measures points up and down the stream channel. Observations indicate the relative composition of morphological bed features such as pools and riffles. The longitudinal profile also delineates the gradient of the water surface, channel bed along the thalweg, bankfull stage, floodplain, and any terraces. Combined, these measurements establish the at-a-station hydraulic geometry and long-term records of stream flow (Harrelson et al., 1994). Channel cross-sections will delineate the channel bed morphological features and breaks in slope.

Four (4) longitudinal profiles will be collected along the channel thalweg over a distance equal to 20x the bankfull width (see Figure 10). Each cross-section will be located approximately mid-way in the longitudinal profile. Location of channel cross-sections will be noted and indicated in the graphical presentation of the longitudinal profile.

Bankfull elevation will be determined by a qualified fluvial geomorphologist following the successful completion of the channel reconstruction. Field data will be entered into an appropriate software program (Excel, QuattroPro, etc) in tabular form. Using criteria outlined in the Rosgen Classification of Natural Channels (Rosgen 1996), the stream "type" will be determined for each cross-section. Changes in channel morphology will be evaluated for degradation and/or aggradation. Results for each cross-section will be compared to the natural channel type of the as-built channel. The success criteria outlined in Section 6.2.1 is based on the presence of a natural channel design. A "C" stream type is the likely channel type expected to form in Morrison Creek. The C stream type is a slightly entrenched, meandering channel with a well developed floodplain (Rosgen 1996).

Photo documentation for each cross-section will consist of four (4) photographs. One across-channel view from each monument end-point, one upstream view taken 60-feet downstream of the cross-section, and one downstream photo taken 60-feet upstream of the cross section.

6.2.3 Particle Size Distribution

The composition of the streambed and banks is an important variable that influences channel form and hydraulics, erosion rates, and sediment supply. The nature and distribution of channel materials is critical for interpreting channel stability. A change in particle size distribution can produce a change in stream type.

A reach-averaged particle size distribution will be quantified for each monumented cross-section using the Wolman Pebble Count procedure (Wolman 1954) and the Reach Averaged procedure (Rosgen 1994). The Wolman procedure quantifies the bed and bank material up to the bankfull elevation. The reach-averaged procedure provides quantitative analysis of the bed material in each of these features.

6.2.4 Stream Discharge

Channel discharge will be measured once a year at cross-section A-A' (see Figure 10). Discharge measurements will be collected during the later part of the Spring run-off, preferably

March or April. Stream discharge will provide insight and help explain significant changes in channel morphology (if they occur). Field collected discharge data will be compared to the estimated discharge values computed with Manning's equation. Monitoring of channel discharge will provide information relating to unanticipated changes in channel hydrology due to changes in upstream watershed land-use practices. Land-use changes that effect (increase) channel discharge may initiate changes in downstream channel morphology.

6.2.5 Design Threshold Values

The realigned Morrison Creek is designed within a set of threshold values for dimension, pattern and profile based on stable channel geometry. Yearly monitoring will provide data to determine changes in the dimension, pattern and profile. This in turn will provide information on any tendencies for Morrison Creek to change its geometry. Annual data collection will consist of:

- width
- depth (mean and max)
- cross-sectional area
- channel slope
- water surface slope
- water depth
- bankfull elevation
- reach-averaged particle size distribution
- at-a-station stage/discharge (cfs) relationship (at one-foot intervals)

6.3 Oak/Riparian Plantings

6.3.1 Final Success Criteria

In order to ensure that the required replacement trees will eventually grow to replace the trees that were removed, the required replacement trees (570 trees) will be monitored over a ten-year period. To be counted as successful, a tree must be surviving in at least good condition. Table 9 below outlines the planting success criteria.

Table 9 – Riparian and Oak Woodland Planting Success Criteria		
Vegetation:	1)	No less than 100% success rate for the riparian plantings.
	2)	No less 100% success rate for the oak woodland plantings.

During monitoring, each planting will be located and its condition will be recorded. Plant condition will be scored on a scale of 0 to 3, where:

Score	Plant Condition
0	dead
1	poor health (alive but with a few green leaves and no apical growth)
2	good health (alive with healthy foliage but minimal apical growth)
3	excellent health (alive and growing vigorously)

This data will be entered into a spreadsheet for analysis. Results calculated will include the total number of plantings monitored (all condition classes), total plantings found in each condition class, and the success rates for both individual species and for the plantings as a whole, as calculated below.

The success rate will be calculated according to the following formula:

$$\text{Success Rate (\%)} = \frac{\text{total \# in good or excellent condition during survey}}{\text{total \# originally planted}} \times 100$$

If the success rate of 100% has not been met by year 10 for the 570 required mitigation plantings, then the DBH of the trees will be counted and used as a comparison with the inches required. The diameter measurement will be rounded to a whole number as the trees being impacted were measured in whole numbers.

6.3.2 Monitoring Timeline

Tree monitoring will be conducted once annually toward the end of the dry season (i.e., July or August) after the trees have experienced high stress conditions. This time frame will ensure greater accuracy in determining plant condition and survivorship. See Table 6 for the ten-year monitoring timeline.

6.4 Wildlife

A wildlife survey will occur once per year. A biologist will walk a meandering transect through the realignment channel to generate a cumulative list of the type and number of all species observed utilizing the area. Wildlife signs, such as scat, pellets, or bones, will also be noted. This wildlife survey will be conducted in conjunction with vegetation monitoring. An annual cumulative list of wildlife found within the realignment channel will be included in the annual monitoring report.

6.4.1 Sacramento Blackfish

Sacramento Blackfish native habitat includes low-elevation reaches of the San Joaquin and Sacramento rivers and their major tributaries (Moyle, 2002). They prefer warm, turbid waters of the Central Valley and are common in oxbow lakes. They have been found in deep, turbid pools with soft (i.e., clay, mud) bottoms (Smith, 1977). They exhibit an extraordinary ability to adapt to extreme changes in their environment (Cech et al. 1979, Campagna and Cech, 1981). Adults have been found in waters with temperatures > 30°C and low dissolved oxygen levels. The realignment of the Morrison Creek channel on the Project site will not pose a threat to the Sacramento Blackfish. As noted by Moyle and others, the ability of the Sacramento Blackfish to survive in warm, turbid waters, allows them to persevere despite changes in their environment. Given the relatively short period of stream alteration, coupled with the Blackfish's physiological adaptability to extreme environments, construction of the new and temporary channels should not disrupt the propagation of the Sacramento Blackfish.

6.5 Photo-Documentation

In conjunction with the above-described monitoring activities, photographs of the creek and created/restored wetlands within the realignment channel will be taken at sixteen (16) permanent photo point locations (see Figure 10). Four permanent photo point locations will be established for the off-site constructed compensation wetland(s) as well. Location of these photo points will be determined upon final design of the wetland habitat. The photo points are intended to provide a photographic history of both preserved and restored areas within the realignment channel (See Tables 5 and 6 for the years when photos will be taken). During the first year following restoration, additional photo points may be established, if desired. Additionally during the first year, photo point locations of the plantings will be established.

6.6 Schedule

Monitoring for the Aspen IV South habitat will occur over a ten-year period to ensure continuous success of the constructed habitat. Refer to Table 5 for the 10-year monitoring schedule. Monitoring will begin the rainy season after construction and planting is complete.

Monitoring for the Aspen V South off-site habitat will occur over a five-year period to ensure success of the constructed habitat. Refer to Table 6 for the five-year monitoring schedule. Monitoring will begin the rainy season after construction is complete.

7.0 ANNUAL REPORTS

7.1 As-Built Maps

The applicant will submit a report to the Corps within 60 days of the completion of the realignment channel activities and/or construction of the off-site habitat. If there are changes from the original plans, these will be indicated in indelible red and submitted to the Corps.

An aerial photo will be taken in the first winter following the completion of the realignment channel and off-site compensation wetland(s). The ponded wetland and creek areas will be digitized and an acreage will be calculated. This "as-built" will be included in the first annual monitoring report and will verify that the wetland/creek mitigation acreage specified in the permit has been constructed. In addition, the aerial photo will be used to calculate the length of the newly created low flow channel. If it is determined that the first wet season following the realignment channel construction is an abnormally dry wet season, the as-built acreage calculation may be postponed until an average rainfall year is experienced.

7.2 Annual Reports

7.2.1 Aspen IV South

A monitoring report for the Aspen IV South area will be submitted to the Corps, County and CDFG for each year the constructed creek, wetlands and riparian/oak woodland habitat are monitored. The report will present the status of the creek, wetlands, oak woodland and riparian habitats, including individual wetland data, photo-documentation, status of the riparian and oak woodland plantings, and any recommended remediation. In addition, the report will include an assessment of the monitoring results against the success criteria described above. At the end of the ten-year monitoring period, monitoring will cease if the realignment channel is found by the Corps, County, and CDFG to be in substantial compliance with established success criteria. Monitoring will be extended beyond the ten-year period only for those habitats that are not meeting success criteria.

A monitoring report will be prepared and submitted to the Corps, County and CDFG for each of the monitoring years by December 31st of each monitoring year. The report will refer to the Corps regulatory branch number for the Project, which is 199400504. The reports will be sent to the attention of Chief, California Delta Branch, Regulatory Branch, at the Corps. Monitoring reports will include:

- A map showing the Preserve including wetland locations, location of various monitoring activities, and photo points;
- Hydrology, vegetation, and photographic monitoring results as described above;
- An assessment of the monitoring results against the established success criteria;
- A description of the overall site condition and any management actions taken during that year; and

- Any recommended management or remediation actions to be conducted (if necessary, a contingency plan, as described in Section 8.2, will be prepared).

The Corps-approved easement holder will provide the Corps with a record of annual endowment deposit (as outlined in Section 2.4 of the *Operations and Management Plan for the Morrison Creek Nature Preserve Phase II* - submitted under separate cover) with each annual monitoring report or until the success criteria are met [whichever is longer]).

7.2.2 Aspen V South

A monitoring report for the Aspen V South off-site mitigation will be submitted to the Corps and County for each year the constructed compensation wetland(s) is monitored. The report will present the status of the compensation wetland(s), including wetland data, photo-documentation, and any recommended remediation. In addition, the report will include an assessment of the monitoring results against the success criteria described above. At the end of the five-year monitoring period, monitoring will cease if the compensation wetland(s) is found by the Corps and County to be in substantial compliance with established success criteria. Monitoring will be extended beyond the five-year period only for those habitats that are not meeting success criteria.

A monitoring report will be prepared and submitted to the Corps and County for each of the monitoring years by December 31st of each monitoring year. The report will refer to the Corps regulatory branch number for the Project, which is 199400504. The reports will be sent to the attention of Chief, California Delta Branch, Regulatory Branch, at the Corps. Monitoring reports will include:

- A map showing the Preserve including wetland locations, location of various monitoring activities, and photo points;
- Hydrology, vegetation, and photographic monitoring results as described above;
- An assessment of the monitoring results against the established success criteria;
- A description of the overall site condition and any management actions taken during that year; and
- Any recommended management or remediation actions to be conducted (if necessary, a contingency plan, as described in Section 8.2, will be prepared).

8.0 CONTINGENCY MEASURES

8.1 Initiating Procedures

If any annual performance criterion is not met for all or any portion of the realignment channel or for any portion of the compensation wetland(s) in any year, or if the final success criteria are not met, the applicant shall prepare an analysis of the cause or causes of failure and propose remedial (corrective) action for approval (e.g., re-grading). If the realignment channel or the compensation wetland(s) have not met the performance criterion, the responsible party's maintenance and monitoring obligations continue until the appropriate agency gives final confirmation.

Additionally, if desired by the Corps, the Corps and the applicant will meet to review the status of mitigation in Year 3 (for the Aspen V South off-site mitigation) and in Year 5 (for the Aspen IV South mitigation. This meeting will allow the Corps and the applicant to discuss contingency or remediation measures if monitoring indicates that the mitigation is not moving toward meeting the established success criteria.

8.2 Contingency Measures

8.2.1 Mitigation Contingency

If a portion of the acreage designated for either Project does not function properly. remediation will be proposed. If remediation is not feasible or is unsuccessful, Corps approved mitigation may take place off-site or through credit purchase.

8.2.2 Creek Corridor Contingency – Engineering/Design Justification

A failure of the Morrison Creek realignment channel is not anticipated. The existing creek is currently underlain with sand and gravels. Therefore, if Morrison Creek was left in its current position and the remainder of the Project was mined (no mining would occur within a 150 feet setback of the existing Morrison Creek), Morrison Creek would be perched and thus more susceptible to lateral blow out. Additionally any drainage above bankfull would flow across the 150-foot floodplain (buffer) into the pit bottom. Flow velocities at the buffer boundary would reach super-critical values and may cause severe erosion and possible blow out.

In contrast, with the proposed plan, the Morrison Creek realignment channel, including levees, would be engineered to a minimum of 90% compaction and will be constructed to federal and local standards. Compaction testing will be performed throughout the course of construction to ensure adequate compaction is obtained. These compaction records will be reviewed by the design engineer and will remain on file. They will also be forwarded to the Corps for their records. In addition, detailed fieldwork and analysis took place prior to the design (See Section 4.2.1). The restored creek channel was designed with a similar sinuosity and length to that of the existing active Morrison Creek channel. The project engineer ran the needed models to ensure that the channel would be able to pass the expected high flows associated with a 100-year storm event without overtopping. For these reasons, a failure associated with the realignment channel is not anticipated.

8.2.3 Creek Corridor Contingency – Corridor Failure

Once constructed, if the realignment channel levees were subject to a failure, Teichert Aggregates and Teichert Land Co. would be responsible to coordinate, fund, and implement any necessary remediation activities.

If a catastrophic event (e.g., flood event exceeding a 100 year event; a natural disaster such as an earthquake; war; riot; falling aircraft) were to occur, Teichert Aggregates and Teichert Land Co. would not be held liable for the costs involved in the remediation of the realignment channel; however, Teichert would make a good faith effort to remediate to the extent possible.

8.3 Funding Mechanism

During the 5-year and 10-year success monitoring periods, funding for the construction, monitoring, maintenance, and remediation of the created habitats will be provided by Teichert Aggregates. Funding for the long-term management and operations of the realignment channel is described in the *Operations & Management Plan for the Morrison Creek Nature Preserve Phase II* (submitted under separate cover).

9.0 COMPLETION OF MITIGATION RESPONSIBILITIES

9.1 Notification

With the submission of the final monitoring report to the Corps, County and CDFG, Teichert will notify the agencies that the final success criteria have been met and that no further monitoring will occur.

9.2 Agency Confirmation

Following receipt of the report, the Corps and the County may require a site visit to confirm the completion of the mitigation monitoring. At the end of the ten-year monitoring period for the creek, wetlands and oak woodland/riparian habitats, and the end of the five-year monitoring period for the compensation wetland(s), monitoring will cease if the realignment channel is found by the Corps and the County to be in substantial compliance with established success criteria. Once the initial success monitoring period is complete, all of the provisions of the *Operations and Management Plan for the Morrison Creek Nature Preserve Phase II* will be implemented for long-term management of the realignment channel.

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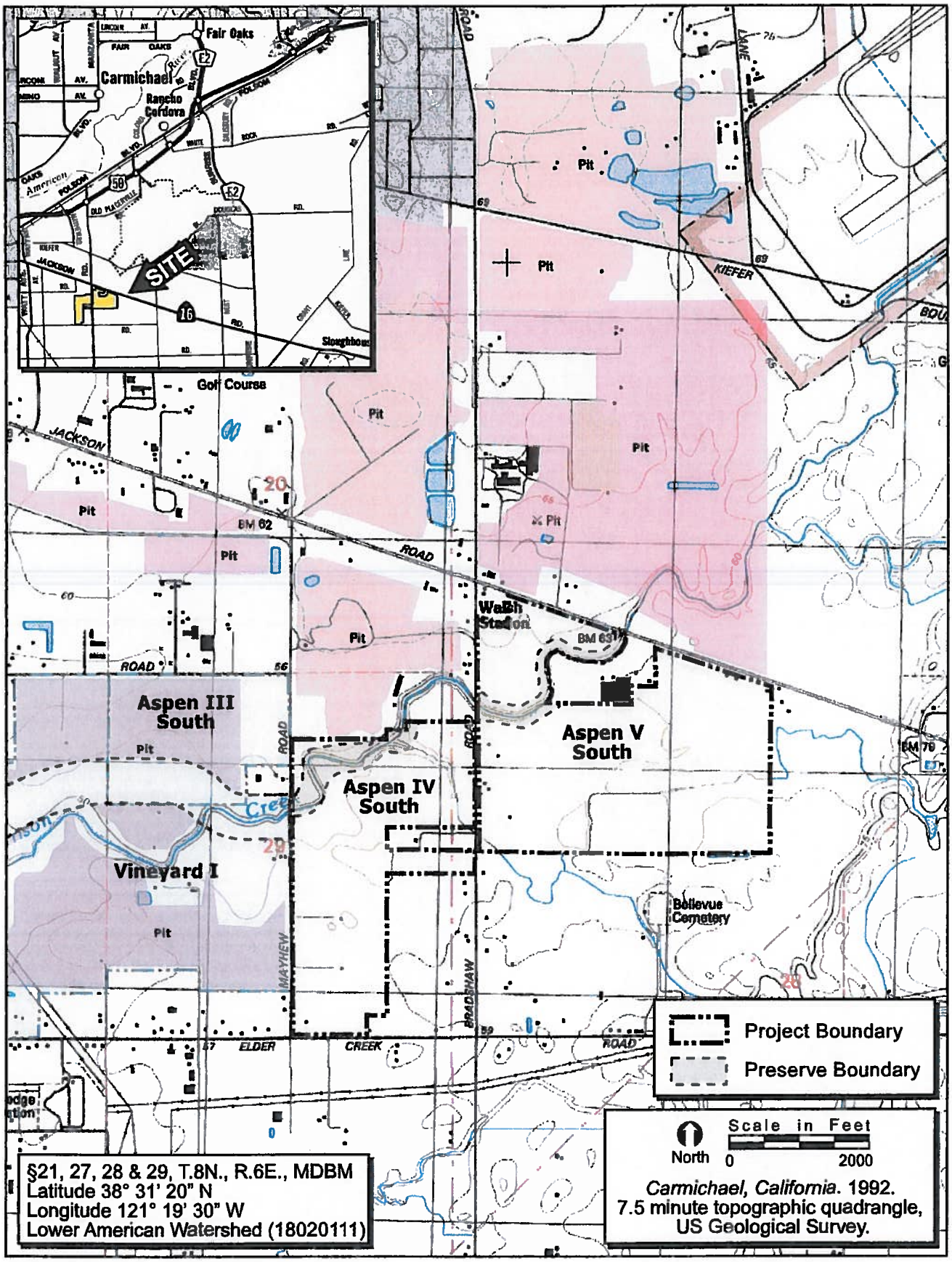

FIGURE 1. Project Site and Vicinity

2005-045 Aspen IV/V South

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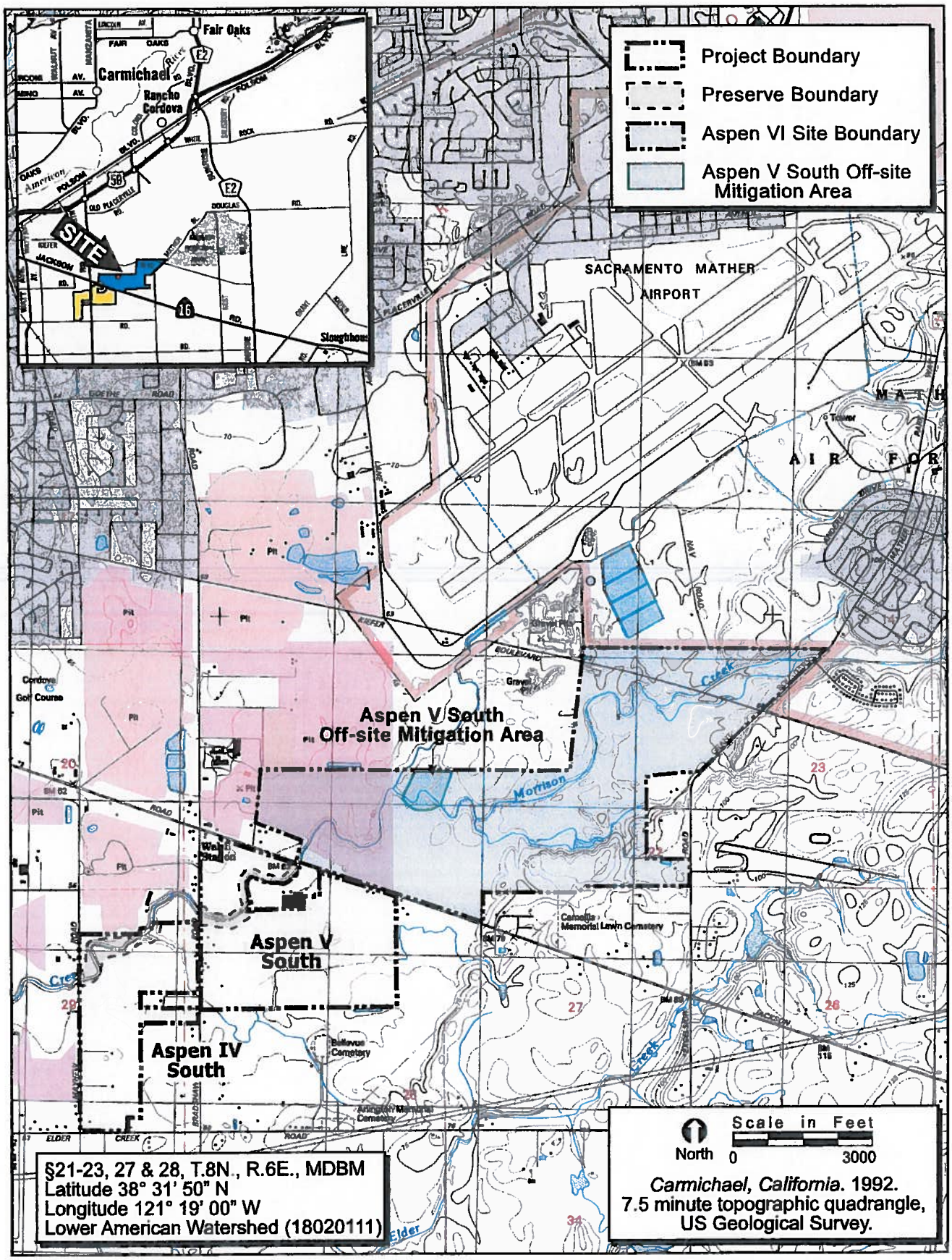

FIGURE 2. Aspen V South Off-site Mitigation Location

ECORP Consulting, ENVIRONMENTAL CONSULTANTS

2005-045 Aspen IV/V South

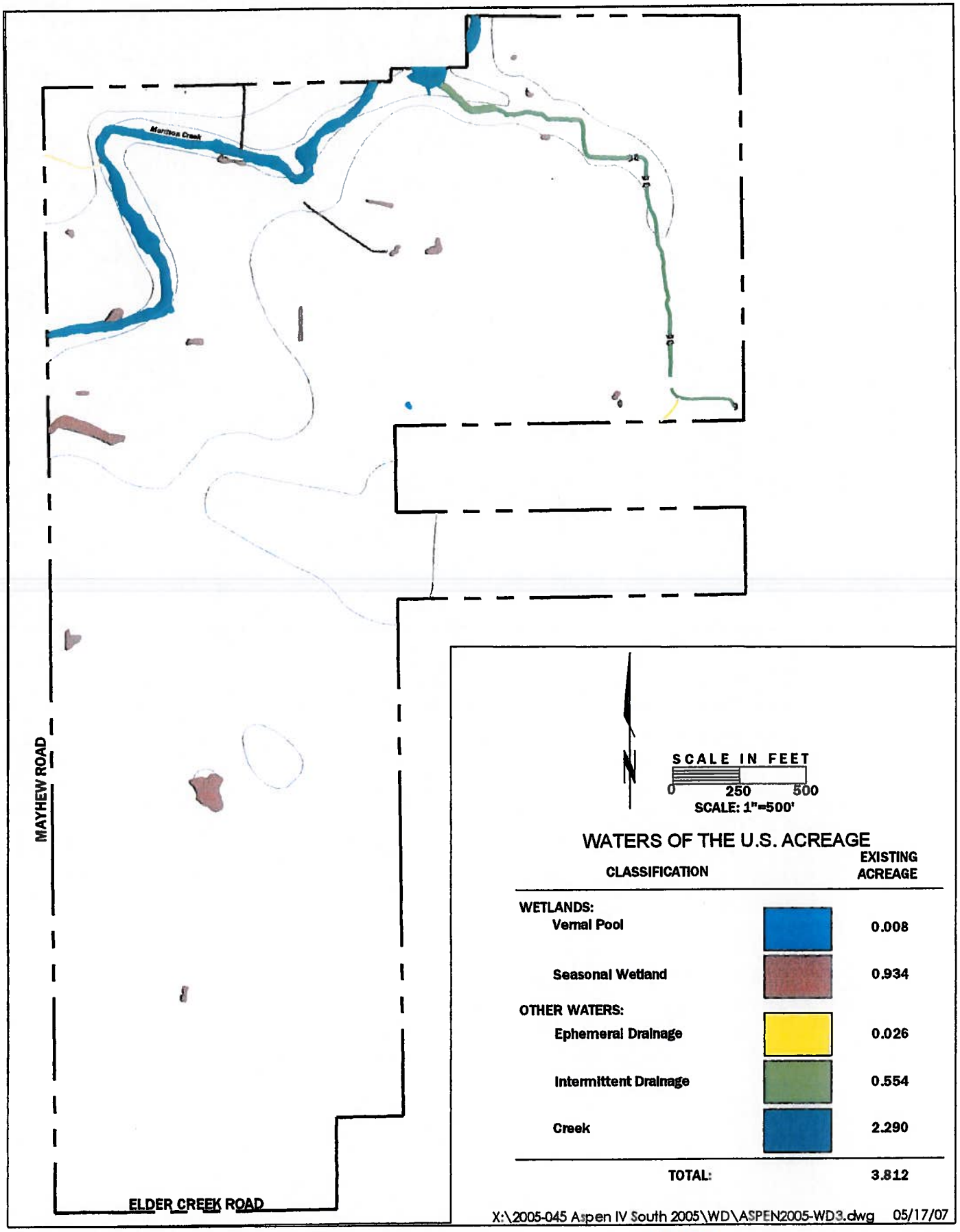

FIGURE 3. Aspen IV South Wetland Delineation

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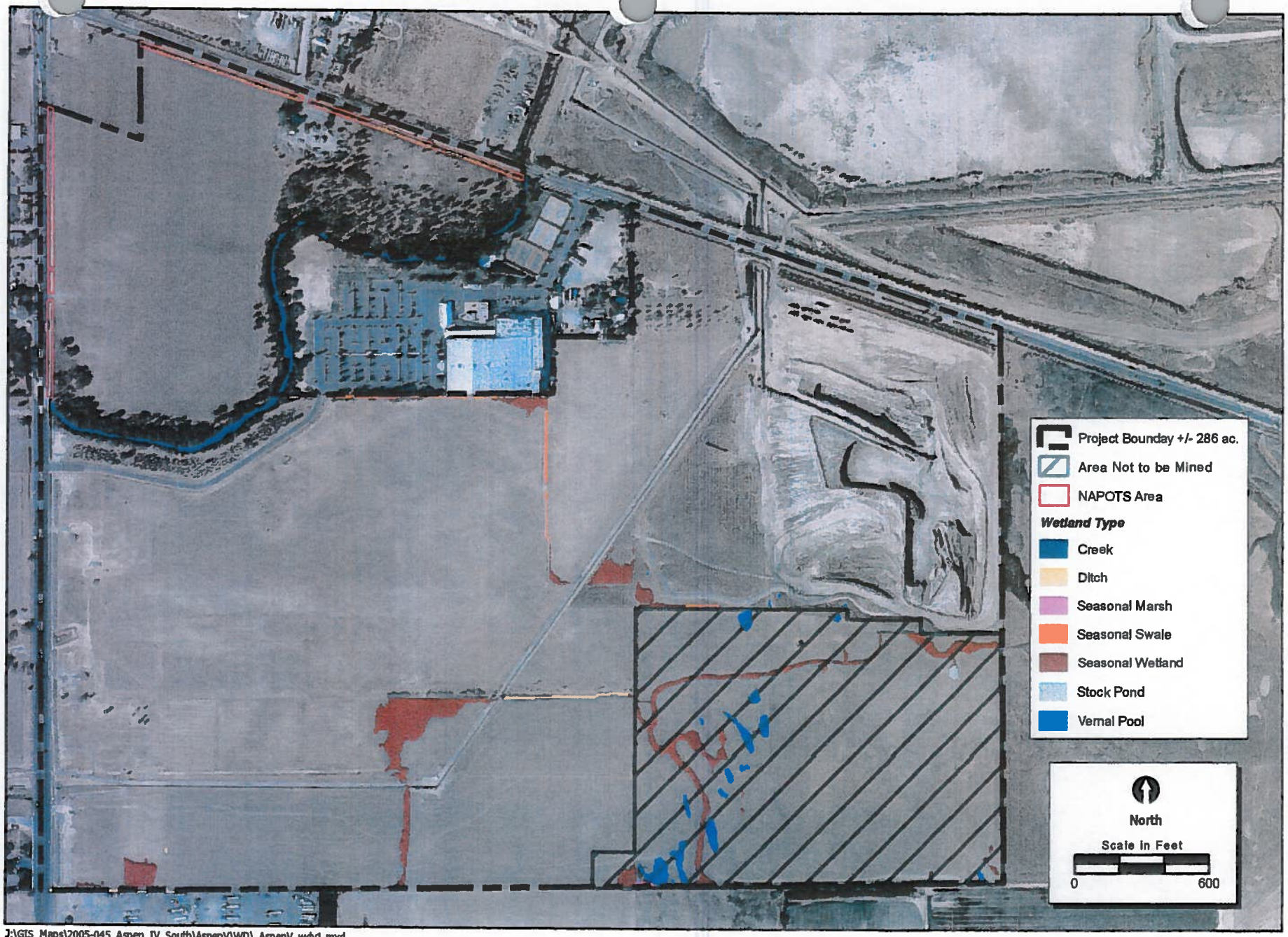
2005-045 ASPEN IV SOUTH



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Map Date: 04/21/2009

Figure 4. Aspen V South - Wetland Delineation

2005-045 Aspen V South

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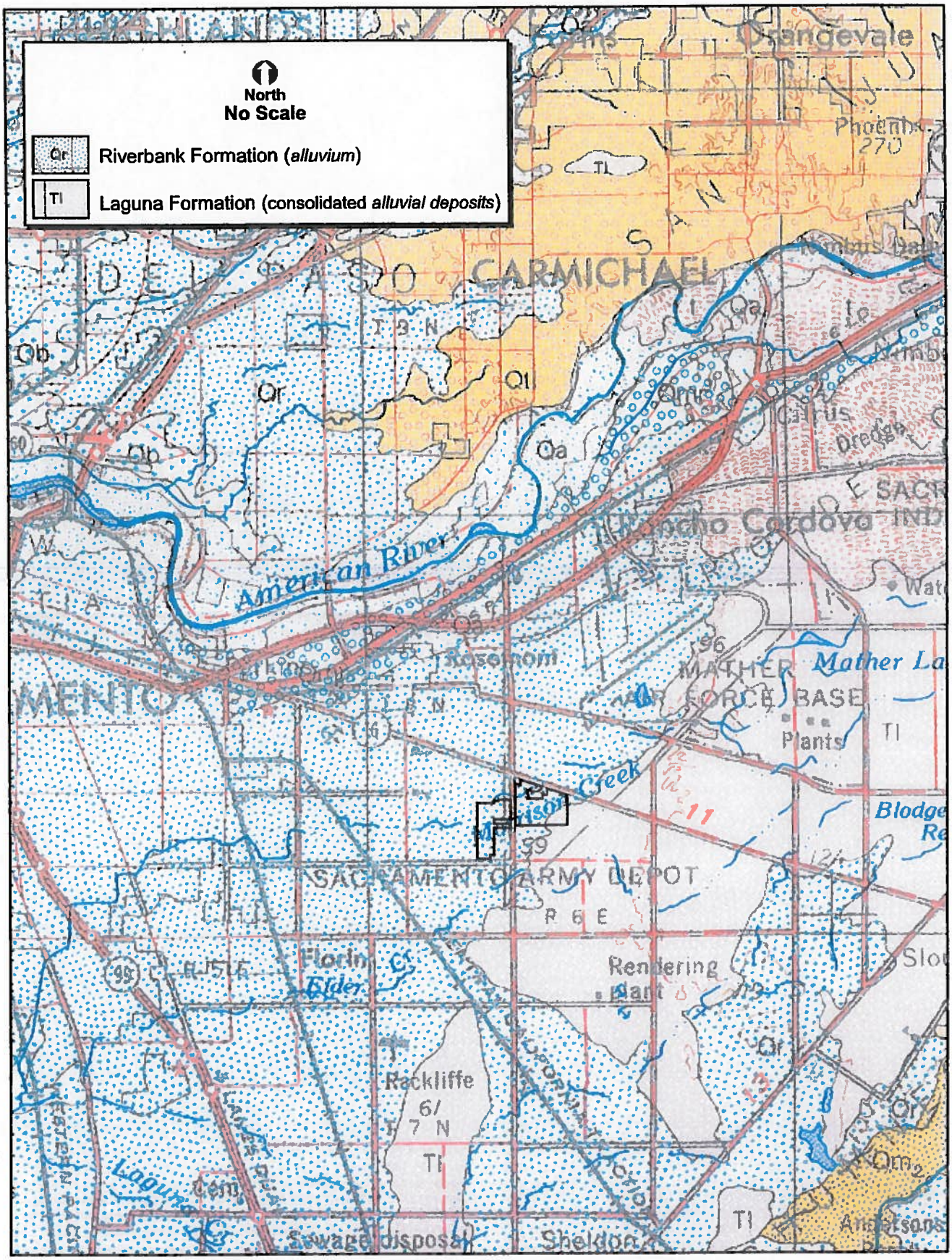

FIGURE 5. Regional Geology

2005-045 Aspen IV/V South

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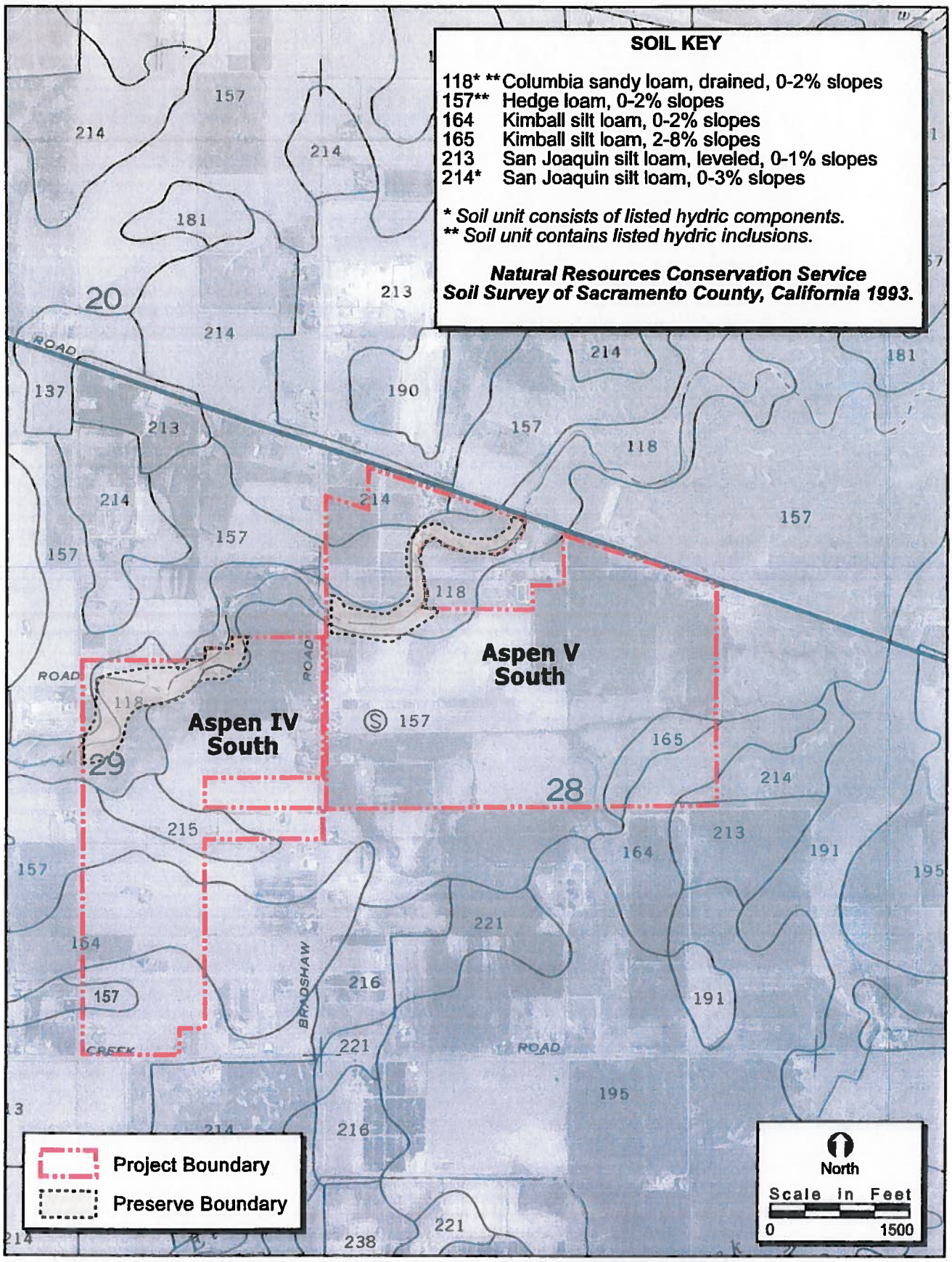

FIGURE 6. Natural Resources Conservation Service Soil Types

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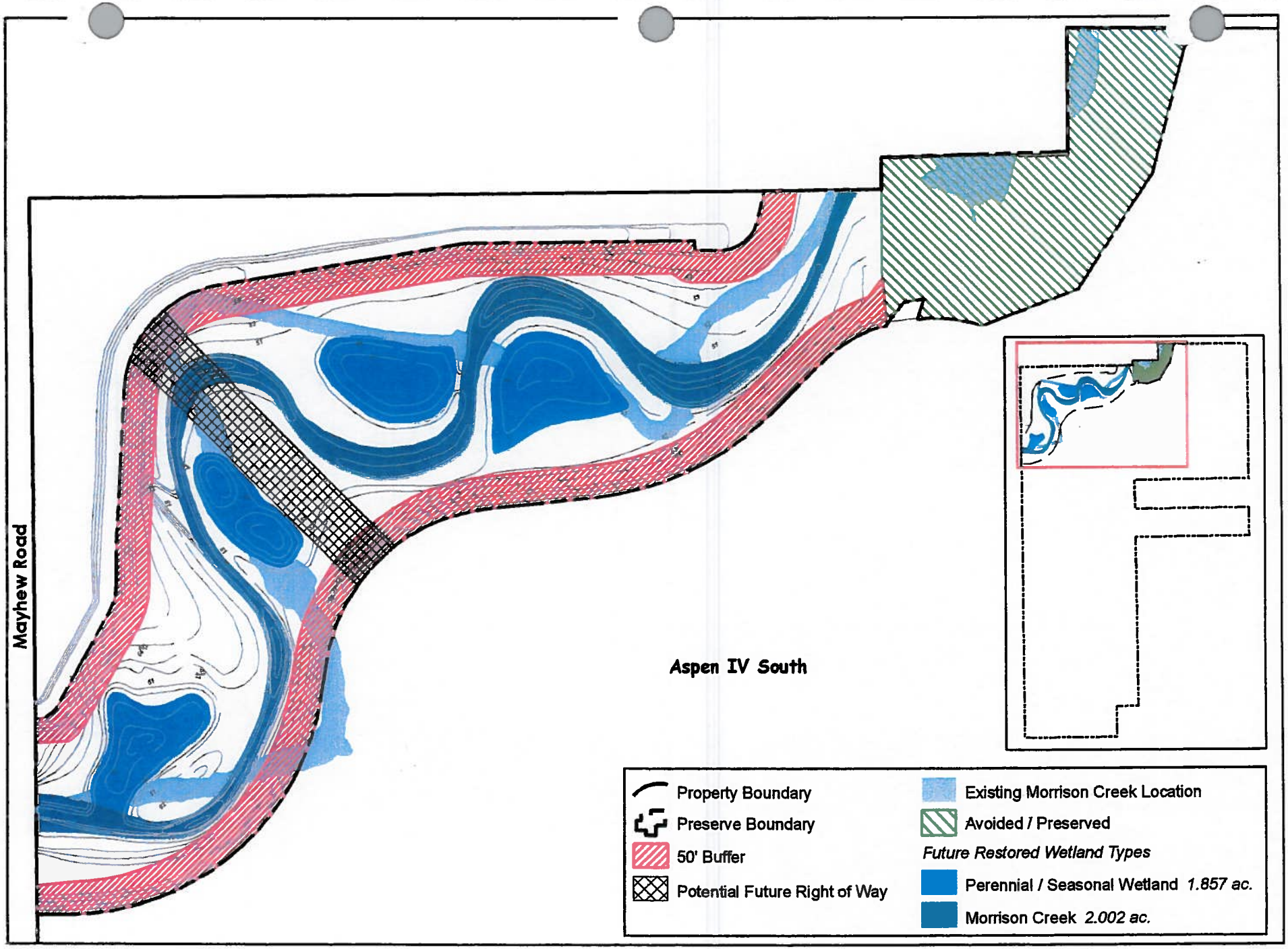

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Map Projection Information: California State Plane Zone II NAD27

Figure 7. Wetland Detail

2005-045 Aspen IV South

Scale: 1 " = 200 '

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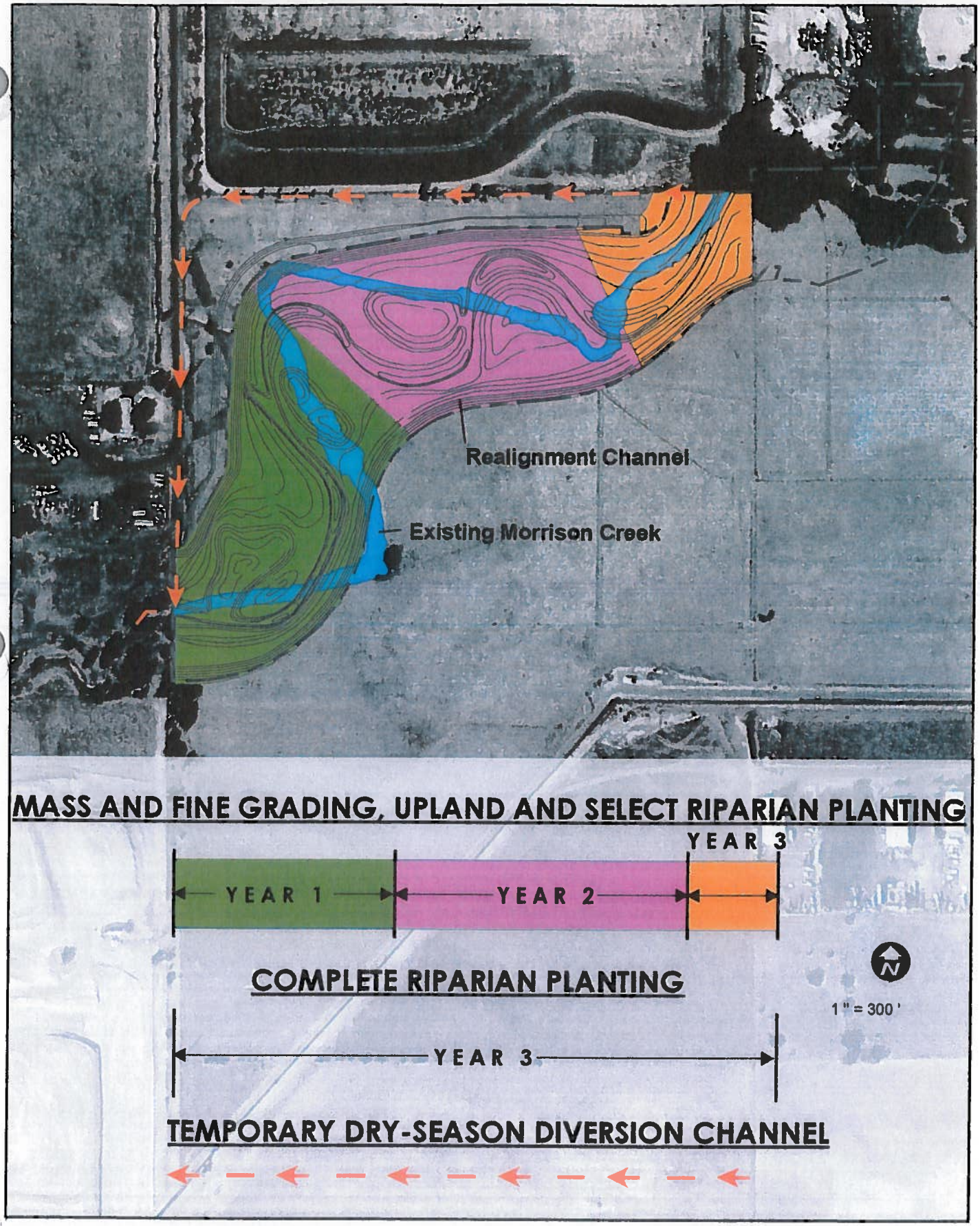

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Map Projection Information: California State Plane Zone II NAD27

Figure 8. Conceptual Construction Schedule

2005-045 Aspen IV South

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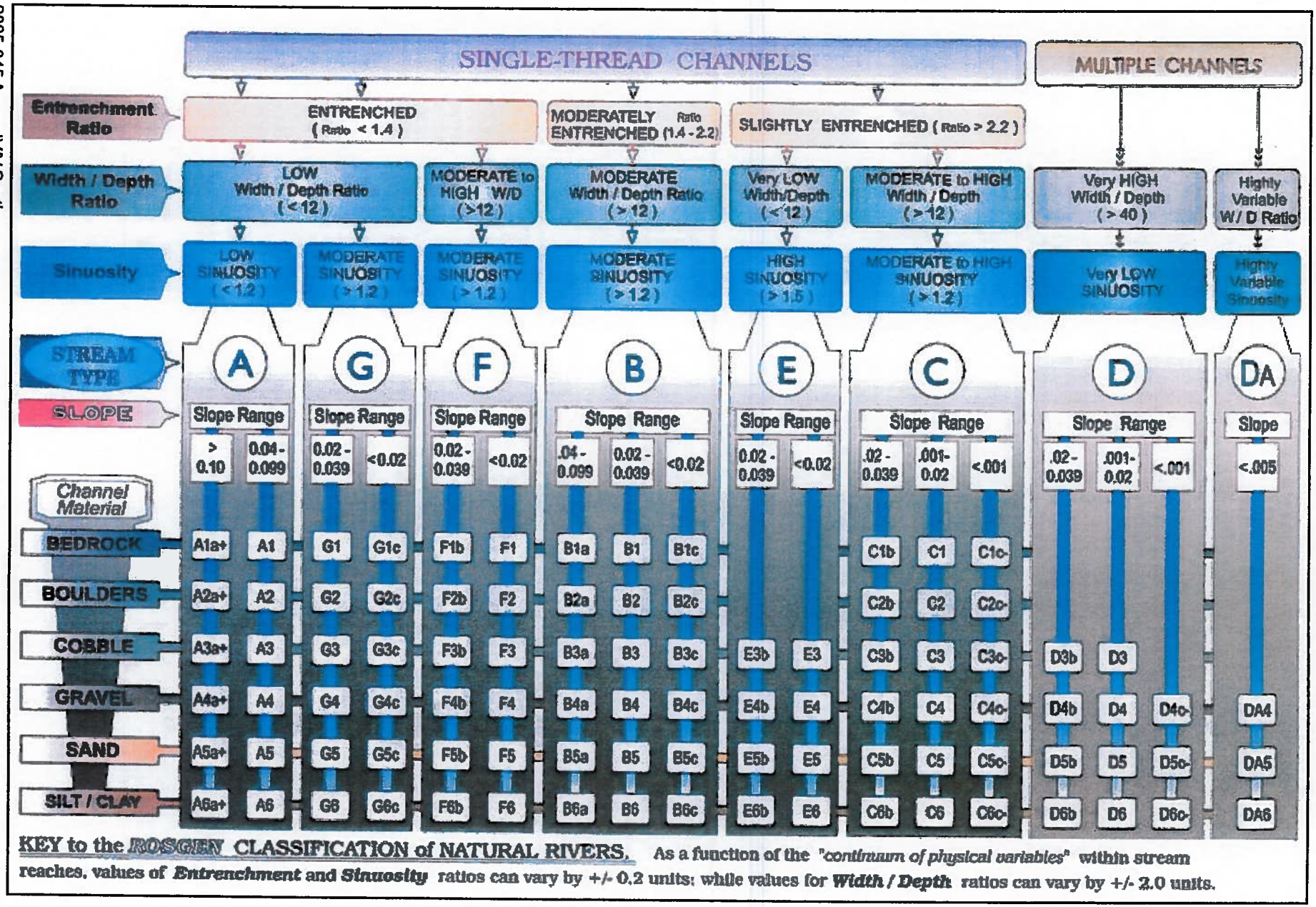

FIGURE 9. Classification of Natural Rivers (from Rosgen 1996)

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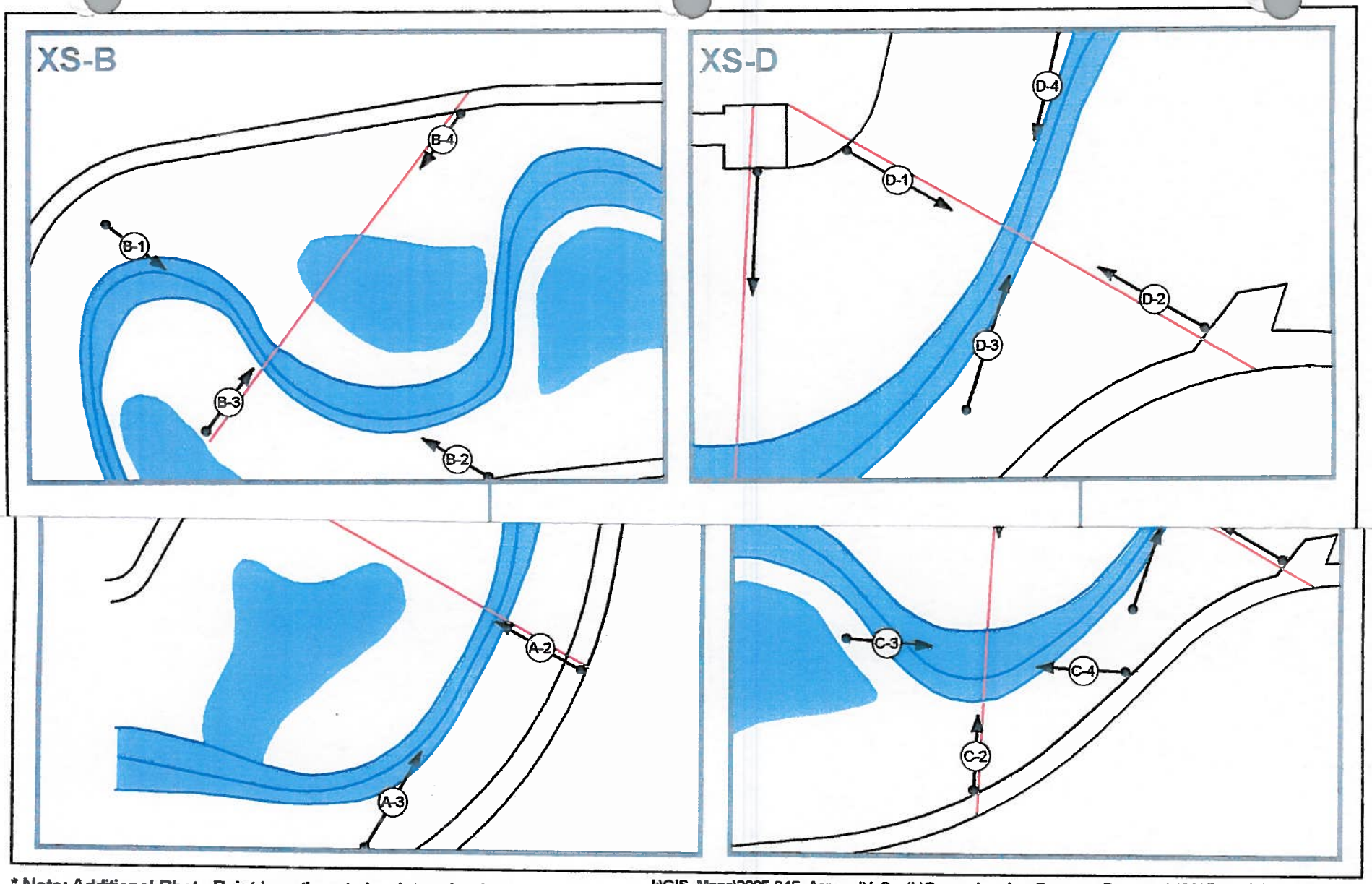

* Note: Additional Photo Point Locations to be determined.

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Figure 10. Cross-section and Photo Point Locations

2005-045 Aspen IV South

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LIST OF ATTACHMENTS

Attachment A – Impact Phasing Plan

Attachment B – Department of the Army Permit (Regulatory Branch Number 199400504)

Attachment C – Aspen V South Wetland Creation Area

Attachment D – Conceptual Riparian and Oak Woodland Planting Plan for Morrison Creek Restoration

Attachment E – Seed Mixes

Attachment F – Tree and Shrub Planting Detail Sheets

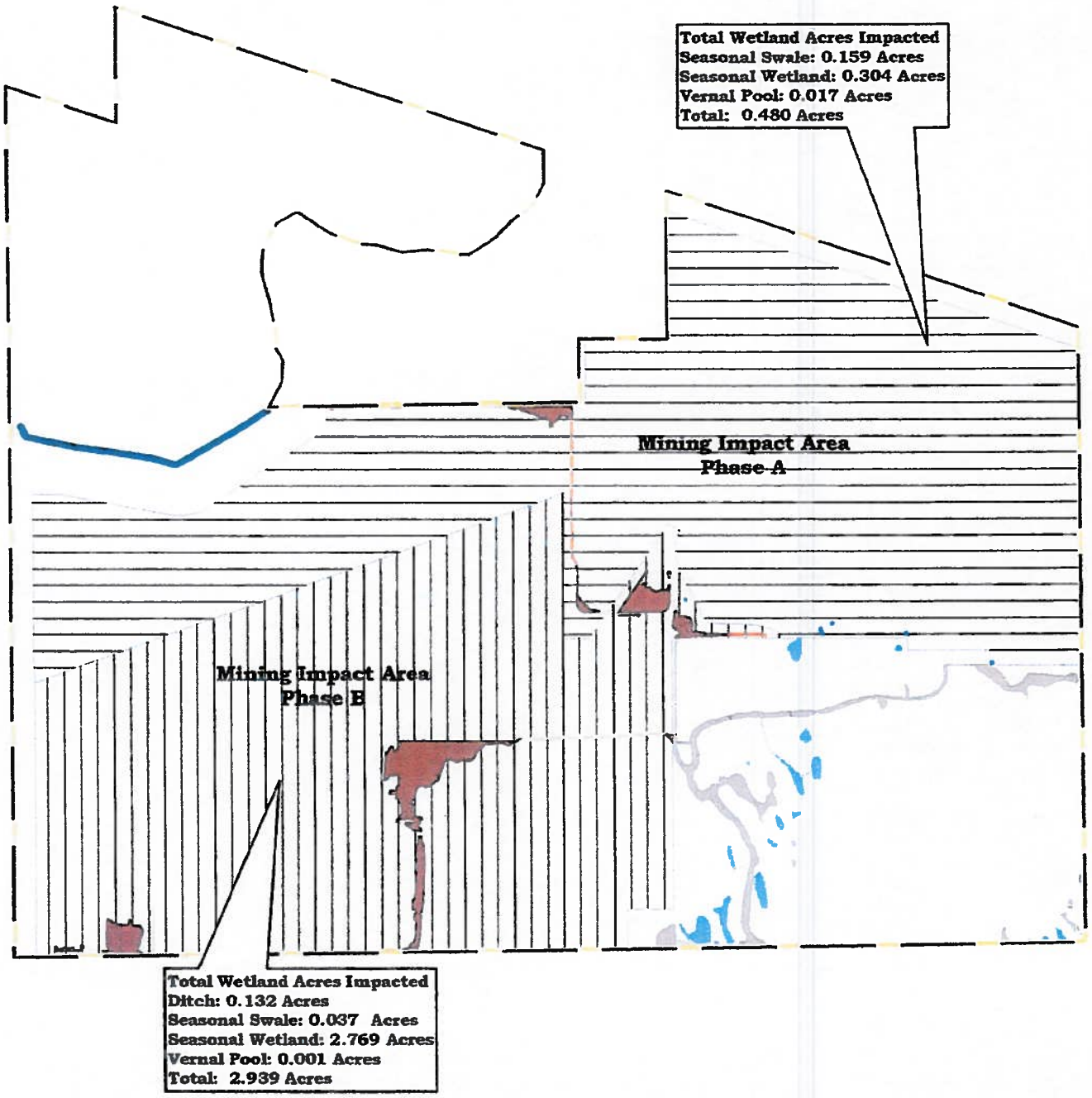
ATTACHMENT A

Impact Phasing Plan

Teichert Aggregates
Aspen 5 South

Sacramento County, California

Wetlands Directly Impacted by Mining



Legend

Project Boundary

Wetland Impact Areas

Phase I

Phase II

Verified Waters of the United States

Ditch

Seasonal Marsh

Seasonal Swale

Seasonal Wetland

Stock Pond

Vernal Pool

Wetland delineation was completed by Foothill & Asssociates and EIP. This delineation was verified the ACOE in May 2007.

The map data and other information contained in this document are subject to change

TEICHERT AGGREGATES

Scale 1" = 600'

600 300 0 600 Feet

T. Crawford 04/02/09 e:\data\properties\Aspen5SouthMaps\
A55_WetlandImpacts_20090402.mxd

ATTACHMENT B

Department of the Army Permit (Regulatory Branch Number 199400504)

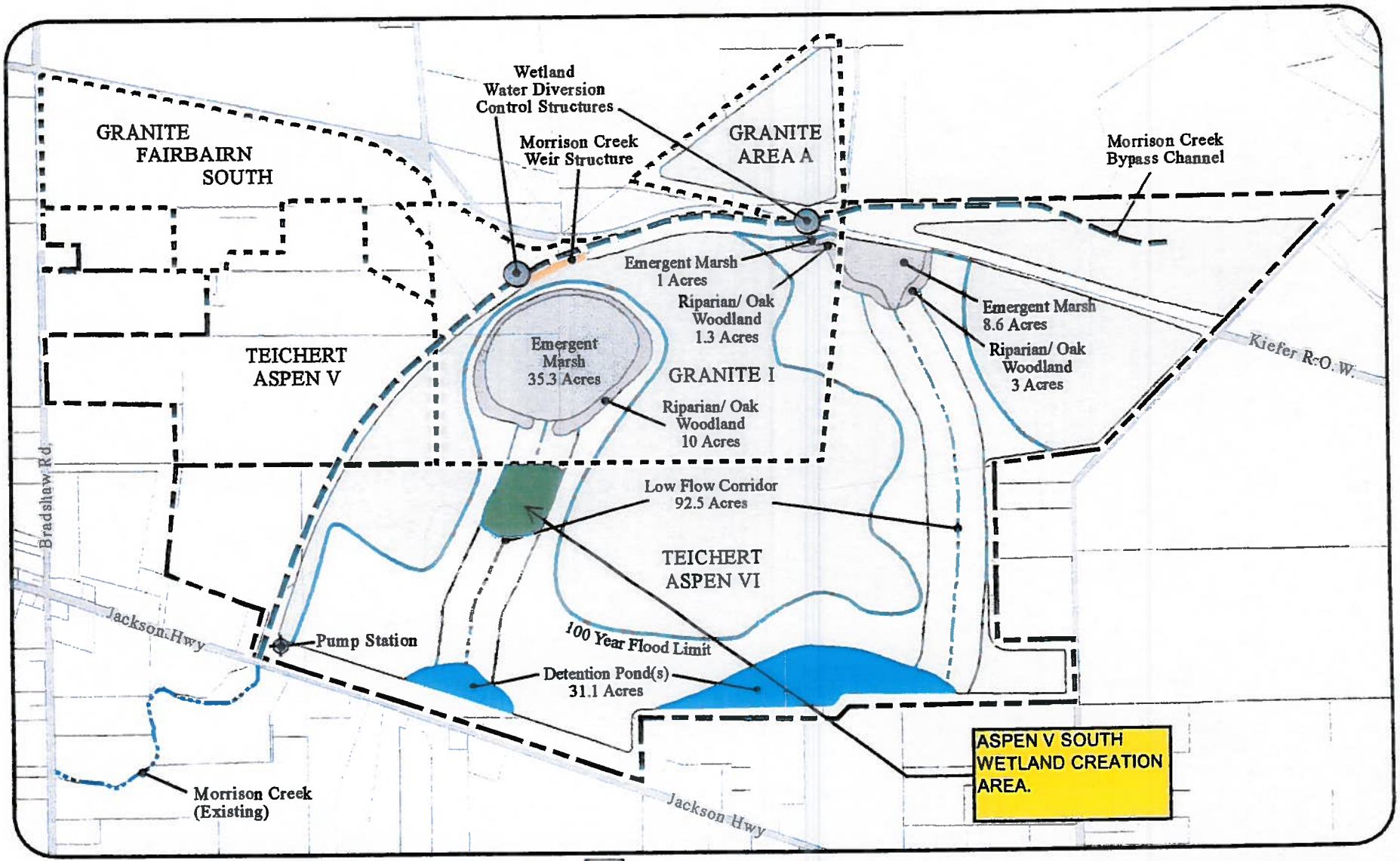
To be attached when received.

ATTACHMENT C

Aspen V South Wetland Creation Area

TEICHERT/ GRANITE RECLAMATION SUMMARY

SACRAMENTO COUNTY, CALIFORNIA



Conceptual Wetland Mitigation Plan
Granite/ Teichert (Provided by Sugnet & Associates)

- Emergent Marsh
- Riparian/ Oak Woodland
- Detention Pond(s)
- 100 Year Floodplain
- Approx. 100 Year Flood Elevation
- Seasonal Water Course

Agriculture Total: 449.9 Acres

Granite Area A: 38.3 Acres

Granite I: 120 Acres

Teichert Aspen VI: 291.6 Acres

N

0 750 1,500 Feet

The parcels & conceptual wetland mitigation plan were developed for planning purposes only. No liabilityis assumed for the accuracy of the data shown.

C. Cornejo 03/30/2009 A86_ReclamationSummary8x11_200903.mxd

ATTACHMENT D

Conceptual Riparian and Oak Woodland Planting Plan for Morrison Creek Restoration

Attachment D
Full Size Map
In File

ATTACHMENT E

Seed Mixes

HYDROSEEDING NOTES:

1. SEED SHALL BE APPLIED WITH HYDROSEEDING EQUIPMENT TOGETHER WITH FERTILIZER, MULCH FIBER, TACK (BINDER), AND INOCULATE PER SPECIFIED QUANTITIES. MULCH FIBER SHALL BE PRODUCED FROM WOOD PULP AND SHALL BE OF SUCH CHARACTER THAT IT WILL DISPERSE INTO AN UNIFORM SLURRY WHEN MIXED WITH WATER. MULCH FIBER SHALL BE COLORED TO CONTRAST WITH THE AREA ON WHICH THE SEED MIXTURE IS TO BE APPLIED, SHALL BE NONTOXIC TO PLANT OR ANIMAL LIFE, AND SHALL NOT STAIN CONCRETE OR PAINTED SURFACES.

2. MIXING OF MATERIALS FOR APPLICATION WITH HYDROSEEDING EQUIPMENT SHALL BE PERFORMED IN A TANK WITH A BUILT-IN CONTINUOUS AGITATION SYSTEM OF SUFFICIENT OPERATING CAPACITY TO PRODUCE A HOMOGENEOUS SLURRY AND A DISCHARGE SYSTEM WHICH WILL APPLY THE SLURRY TO THE SLOPES AT A CONTINUOUS AND UNIFORM RATE. THE TANK SHALL HAVE A MINIMUM CAPACITY OF 1,500 GALLONS.

3. NO DISPERSING AGENT WILL BE ADDED TO THE SLURRY. ANY MATERIAL CONSIDERED HARMFUL, AS DETERMINED BY THE OWNERS OR THEIR REPRESENTATIVES, SHALL NOT BE USED.

4. BEFORE SEEDING, THE CONTRACTOR SHALL SUBMIT COPIES OF ALL SEED INVOICES TO THE OWNERS OR THEIR REPRESENTATIVES , PROVIDING WRITTEN EVIDENCE THAT SEED CONFORMS TO THE APPLICATION RATES, PURITY AND GERMINATION REQUIREMENTS IN THESE SPECIFICATIONS. SAMPLES OF THE APPLICATION MIXTURE WILL BE PROVIDED UPON REQUEST. AT TIME OF SEEDING, THE CONTRACTOR SHALL SUBMIT ALL SEED TAGS TO THE OWNERS OR THEIR REPRESENTATIVES.

5. SEED DESIGNATED WITHOUT A PURITY OR GERMINATION REQUIREMENT SHALL BE LABELED TO INCLUDE THE NAME, DATE (MONTH AND YEAR) COLLECTED, AND THE NAME AND ADDRESS OF THE SEED SUPPLIER. SEED AT THE TIME OF SOWING SHALL BE FROM THE PREVIOUS OR CURRENT YEAR'S HARVEST.

6. ANY LEGUME SEED SHALL BE INOCULATED AS PER TRADE SPECIFICATIONS AND RATE SPECIFIED.

7. SEED SHALL BE PREMIXED BY A LICENSED SUPPLIER AND A COPY OF THE LICENSE SHALL BE PROVIDED TO THE OWNERS OR THEIR REPRESENTATIVES UPON REQUEST.

8. WATER SHALL BE OF SUCH QUALITY THAT IT WILL PROMOTE GERMINATION AND GROWTH OF SEEDS AND PLANTS.

9. THE MATERIAL SHALL BE REGISTERED WITH AND LICENSED BY THE STATE OF CALIFORNIA, DEPARTMENT OF FOOD AND AGRICULTURE, AS AN "AUXILIARY SOIL CHEMICAL".

10. MULCH FIBER SHALL NOT BE APPLIED DURING RAINY WEATHER OR WHEN SOIL TEMPERATURES ARE BELOW 40°F. MULCH FIBER SHALL BE APPLIED WITH A BINDER SUFFICIENT TO ASSURE COMPLETENESS OF COVERAGE. VEHICLES, PEDESTRIANS OR EQUIPMENT SHALL NOT ENTER HYDROSEEDING AREAS AFTER THE SEED MIXTURE HAS BEEN APPLIED FOR 24 HOURS.

11. THE CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE AT LEAST 48 HOURS IN ADVANCE OF ANY HYDROSEEDING ACTIVITY, AND SHALL NOT PERFORM ANY WORK WITHOUT AUTHORIZATION OF THE OWNERS OR THEIR REPRESENTATIVES. THE CONTRACTOR SHALL APPLY THE HYDROSEED MATERIALS AT LEAST 24 HOURS IN ADVANCE OF ANY REASONABLY PREDICTABLE PERIOD OF RAINY WEATHER.

12. THE PROPORTION OF EROSION CONTROL MATERIALS MAY BE CHANGED BY THE OWNERS OR THEIR REPRESENTATIVES TO MEET FIELD CONDITIONS.

13. REFER TO TWO-STEP SPECIFICATIONS FOR HYDROSEEDING UNDER TURF REINFORCEMENT MAT OR EROSION CONTROL BLANKETING. IF IN DOUBT, CONSULT OWNER'S REPRESENTATIVE.

14. THE OWNERS OR THEIR REPRESENTATIVES MAY AUTHORIZE ALTERNATIVE METHODS OR EQUIPMENT IF IT IS DEMONSTRATED THAT METHODS AND EQUIPMENT ARE CAPABLE OF PERFORMING ALL OPERATIONS SATISFACTORILY.

S:\LANDSCAPE TOOLS\Grass Seed Mixes\SEED mixes 02-08.dwg, 2/6/2 9:09 AM

HYDROSEEDING APPLICATIONS

3-STEP SEED APPLICATION PROCESS

USE 3-STEP APPLICATION PROCESS IN AREAS RECEIVING HYDROSEED WITHOUT EROSION CONTROL BLANKETING (ECB) OR TURF REINFORCEMENT MAT (TRM).

USE 3-STEP APPLICATION PROCESS IN AREAS RECEIVING HYDROSEED OVER SOIL FILLED TRM OR ECB.

STEP 1: APPLY FIBER, SEED, FERTILIZER, BINDER & INNOCULANT AS SPECIFIED BELOW:

CELLULOSE WOOD FIBER	600 LBS./ACRE
SEED	AS SPECIFIED
FERTILIZER	1000 LBS/ACRE
MYCORRHIZAL INOCULATE	30 LBS./ACRE
BINDER	100 LBS./ACRE

STEP 2: APPLY STRAW MULCH:

WEED FREE RICE SUBSTITUTE MUST BE APPROVED	4,000 lbs. /acre

STEP 3: APPLY FIBER & BINDER:

CELLULOSE WOOD FIBER	500 LBS./ACRE
ORGANIC BINDER	100 LBS./ACRE

2-STEP SEED APPLICATION PROCESS

USE 2-STEP APPLICATION PROCESS IN AREAS RECEIVING HYDROSEED UNDER TRM OR ECB.

APPLY TRM OR ECB AS SPECIFIED IN PLANS.

STEP 1: APPLY FIBER, SEED, FERTILIZER, BINDER & INNOCULANT AS SPECIFIED BELOW:

CELLULOSE WOOD FIBER	600 LBS./ACRE
SEED	AS SPECIFIED
FERTILIZER	1000 LBS/ACRE
MYCORRHIZAL INOCULATE	30 LBS./ACRE
BINDER	100 LBS./ACRE

STEP 2: APPLY FIBER & BINDER (INCREASED QUANTITIES):

CELLULOSE WOOD FIBER	1500 LBS./ACRE
ORGANIC BINDER	200 LBS./ACRE

STEP 3: APPLY TRM OR ECB AS SPECIFIED IN PLANS.

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SEED MIX - UPLAND

FOR UPLAND AREAS DOWN TO 2' ABOVE WETLAND OR STREAM AREA

SPECIES	PLS LBS./ACRE
ELYMUS GLAUCUS (BLUE WILDRYE)	10.0
NASSELLA PULCHRA (PURPLE NEEDLEGRASS)	9.0
NASSELLA CARNUA (NODDING NEEDLEGRASS)	6.0
MELICA CALIFORNICA (CALIFORNIA MELIC)	4.0
VULPIA MICROSTACHYS (SMALL FESCUE)	3.0
POA SECUNDA (NATIVE PINE BLUEGRASS)	3.0
BROMUS CARINATUS (CALIFORNIA BROME)	3.0
TOTAL	38 LBS. PER ACRE (PLS)

SEED MIX - CHANNEL / WETLAND EDGES

FOR CHANNEL AREAS TO 2' ABOVE TOE OF SLOPE
FOR WETLANDS TO TOP OF SLOPE

SPECIES	PLS LBS./ACRE
ELYMUS TRACHYCAULUS (SLENDER WHEATGRASS)	12.0
HORDEUM BRACHYANTHERUM (MEADOW BARLEY)	10.0
LEYMUS TRICTICOIDES 'YOLO' (CREEPING WILDRYE)	8.0
AGROSTIS EXARATA / BENTGRASS	3.0
ELYMUS GLAUCUS / BLUE WILDRYE	5.0
TOTAL	38 LBS. PER ACRE (PLS)

SEED MIX - WILDFLOWERS

MAY BE ADDED TO UPLAND SEED MIX FOR SEASONAL COLOR

	LBS./ACRE
CLARKIA AMOENA (FAREWELL TO SPRING)	0.5
ESCHSCHOLZIA CALIFORNICA (CALIFORNIA POPPY)	2.0
LUPINUS NANUS (SKY LUPINE)	3.5
NEMOPHILA MENZIESII (BABY BLUE EYES)	1.5
LASTHENIA CALIFORNICA (COMMON GOLDFIELDS)	1.5
TOTAL	9 LBS. PER ACRE

FERTILIZER COMPONENT	INGREDIENT %	
NITROGEN	7	OR APPROVED EQUIVALENT
PHOSPHORUS	2	
POTASSIUM	3	

FERTILIZER SHALL BE NATURAL-BASED, SLOW RELEASE, & BALANCED IN N, P, & K. .
ADD MYCORRHIZAL INNOCULANT AT 30 LBS/ACRE

ANY CHANGES TO THE ABOVE SEED MIXES MUST BE APPROVED BY ECORP CONSULTING BEFORE APPLICATION.

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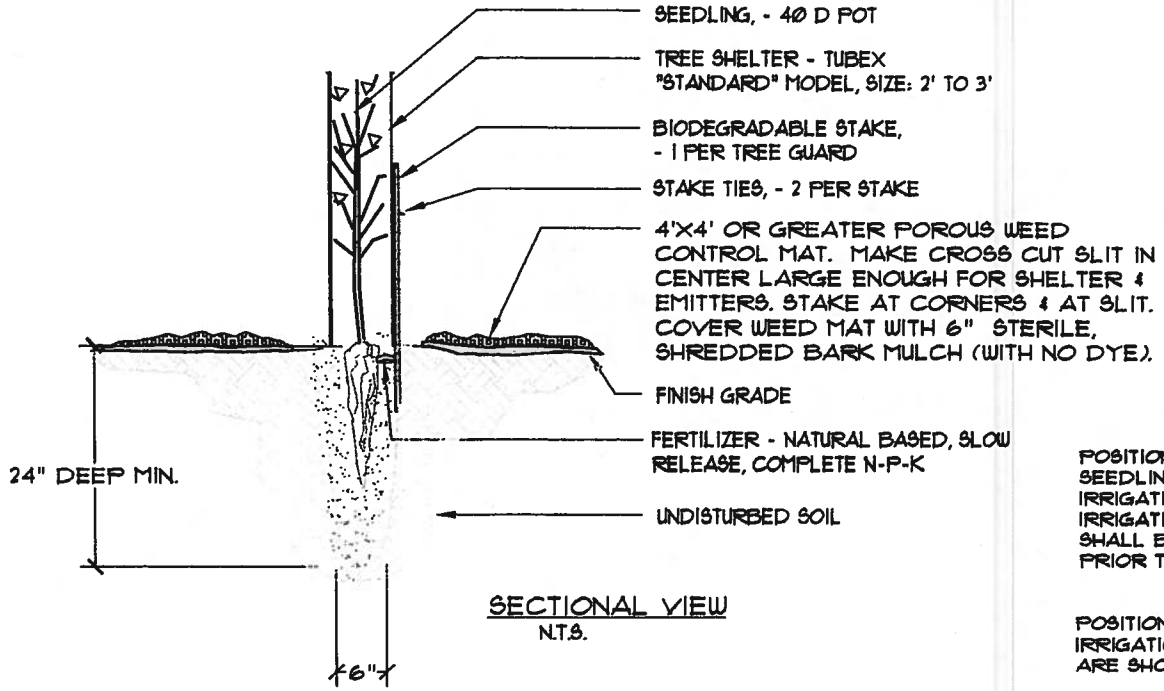
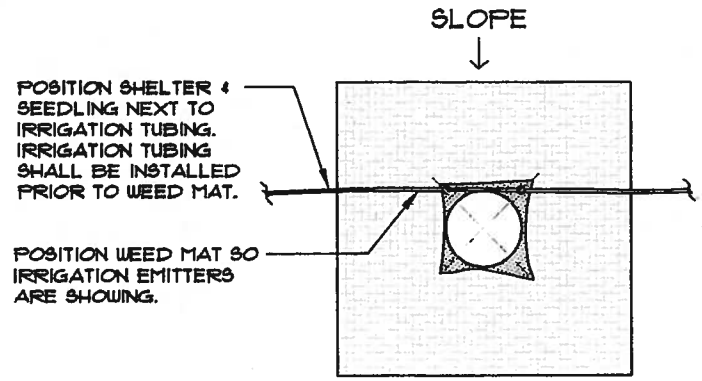
ATTACHMENT F

Tree and Shrub Planting Detail Sheets



SECTIONAL VIEW
N.T.S.



PLAN VIEW
N.T.S.

1. PLANTING HOLES SHALL BE AUGURED 6" WIDE X 24" DEEP (MINIMUM).
2. ALL TREES TO RECEIVE SPECIFIED TREE SHELTER.
3. IF VOLE HERBIVORY NOTICED IN IMMEDIATE OR SURROUNDING AREAS INCREASE SHELTER SIZE TO 3' & PLACE BOTTOM OF SHELTERS 6" UNDERGROUND .

1 SEEDLING TREE PLANTING WITH SHELTER

X:\2005-045 Aspen IV South 2005\LANDSCAPE\Seedling tree det.dwg, 12/5/2006 9:53:04 AM

Seedling Tree Detail

Aspen IV South / 2005-045

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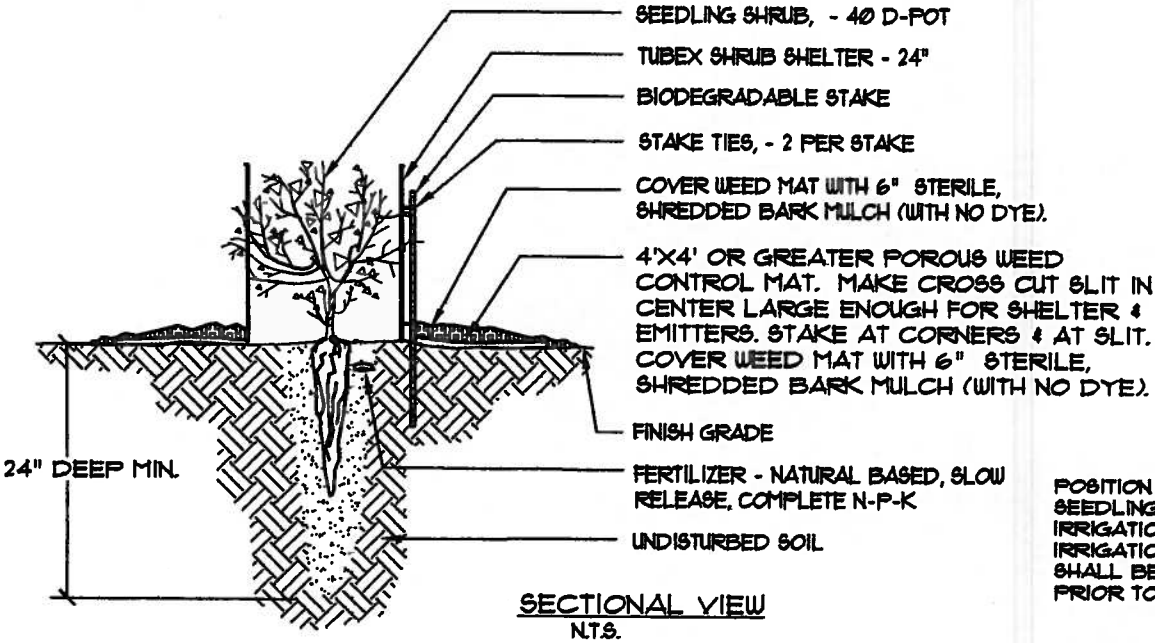

SECTIONAL VIEW
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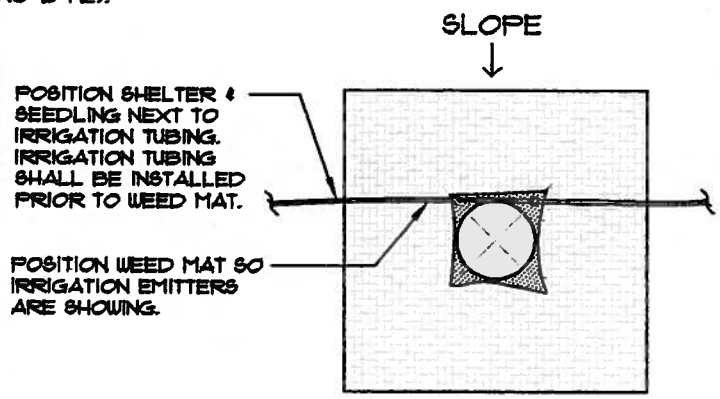

PLAN VIEW
N.T.S.

1. PLANTING HOLES SHALL BE AUGURED 24" DEEP (MINIMUM) X 6" WIDE (12" IF BURYING BOTTOM OF SHELTER).

2. PROVIDE SHRUB SHELTER FOR RHAMNUS, RUBUS, & ROSA SHRUBS. DO NOT PROVIDE SHELTER FOR BACCHARIS & MUHLENBERGIA.

3. IF VOLE HERBIVORY NOTICED INCREASE SHELTER HEIGHT TO 30" & PLACE 6" OF SHELTER UNDERGROUND.

2 SEEDLING SHRUB PLANTING WITH SHELTER

X:\2005-045 Aspen IV South 2005\LANDSCAPE\Seedling tree det.dwg, 12/5/2006 10:29:53 AM

Seedling Shrub Detail

Aspen IV South / 2005-045

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Wetland, Oak Woodland, and Riparian Mitigation Monitoring Plan

For The

Granite Vineyard I Project

Sacramento County, California

Regulatory Branch Number 199400102

Submitted Date:
21 April 2006
5 June 2007
21 June 2007

Revised Date:
20 July 2007

Prepared for:
Granite Construction Company
Teichert Aggregates

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

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Attachment C – Ephemeral Drainage Design
Attachment D – Conceptual Construction Schedule
Attachment E – Conceptual Riparian and Oak Woodland Planting Plan for Morrison Creek Restoration
Attachment F – Seed Mixes
Attachment G – Tree and Shrub Planting Detail Sheets
Attachment H – 2006-2007 Planting Detail

SUMMARY

This Wetland, Oak Woodland, and Riparian Mitigation Monitoring Plan ("Plan") has been prepared for the Granite Vineyard I project ("Project") to satisfy Special Condition 1 of the U.S. Army Corps of Engineers ("Corps") Individual Permit (Regulatory Branch Number 199400102) included as Attachment A. In addition, this Plan is being submitted pursuant to requirements of the County of Sacramento ("County"), and in anticipation of the requirements by the California Department of Fish and Game (CDFG) 1602 permit.

As mitigation for Project impacts, the portion of Morrison Creek between Hedge Avenue and Mayhew Road will be completely realigned and restored and an ephemeral drainage will be constructed ("Mitigation Project"). The Mitigation Project bisects the Granite Vineyard I project site owned by Granite Construction Company ("Granite") as well as a portion of the Aspen III South site, owned by Teichert Aggregates ("Teichert") (Figure 1. *Project Site and Vicinity*). The Mitigation Project boundary is outlined on the graphic in green.

Prior to mining operations, 17.22 acres of Waters of the United States were located on the Project, including 12.24 acres of perennial creek (Morrison Creek), 3.84 acres of tributaries (including seasonal wetland swale and ephemeral drainage), and 1.14 acres of seasonal marsh. As mitigation for Project impacts 4.32 acres of seasonal wetland/marsh and vernal pool credits were purchased; in addition, 16.09 acres of creek, wetlands and ephemeral drainage will be constructed within the Mitigation Project. This acreage is made up of 14.44 acres of creek and wetlands constructed within a 300-foot at grade creek corridor, and 1.65 acres of ephemeral drainage constructed in the southern portion of the Mitigation Project, south of the corridor as mitigation for loss of Morrison Creek channel length. Pursuant to County tree mitigation requirements, 2,515 oak woodland trees and associated riparian trees/shrubs will be planted along the creek, within the 300-foot corridor. Pursuant to County and Corps requirements, an additional 1,055 riparian trees, and associated shrubs will be planted adjacent to the constructed ephemeral drainage.

The on-site mitigation wetlands and riparian/oak woodland plantings will be monitored for a ten-year period. This Plan describes the methods by which this mitigation will be accomplished and defines how the success of the creation/restoration will be monitored and judged.

1.0 PROJECT DESCRIPTION

1.1 Responsible Parties

Applicant:

Attn: Mr. Grant Williams
Granite Construction Company
4001 Bradshaw Road
Sacramento, California 95827

Phone: (916) 855-4400
Fax: (916) 855-4590

Additional Mitigation Project Participant

Attn: Mr. John Lane
Teichert Aggregates
3500 American River Drive
Sacramento, California 95864

Phone: (916) 484-3256
Fax: (916) 484-7012

Agent:

Attn: Ms. Sarah Egan
ECORP Consulting, Inc.
2525 Warren Drive
Rocklin, California 95678

Phone: (916) 782-9100
Fax: (916) 782-9134

1.1.1 Parties Having Financial Responsibility

Both Granite Construction and Teichert Aggregates have financial responsibility for the Mitigation Project.

1.1.2 Present Owner of the Mitigation Site

Both Granite Construction and Teichert Aggregates have ownership responsibility for the portion of the Mitigation Project that falls on their respective property.

1.1.3 Expected Long-Term Owner of the On-Site Mitigation Area

Granite and Teichert will each own the portions of the Mitigation Project that fall on their respective properties.

1.1.4 Parties Responsible for Long-Term Maintenance of the On-Site Mitigation Area

Granite Construction Company
4001 Bradshaw Road
Sacramento, California 95827

Teichert Land Company
3500 American River Drive
Sacramento, California 95864

Corps-approved Conservation Easement Holder
Contact information to be submitted when determined.

1.2 Location and Description of the Project and Mitigation Project

The Granite Vineyard I project ("Project") is located in the County of Sacramento ("County") (see Figure 1). The site is generally bordered by Mayhew Road to the east, Hedge Avenue to the west, Fruitridge Road to the north, and Elder Creek Road to the south. Coordinates of the site are Lat.: 38° 31′ 00″ N, Long.: 121° 21′ 10″ W, which corresponds to portions of Sections 29 and 30, Township 8 North, Range 6 East, MDBM in Sacramento County of the "Carmichael, California" 7.5 minute quadrangles (U.S. Department of the Interior, Geological Survey 1992).

As mitigation for Project impacts, the portion of Morrison Creek between Hedge Avenue and Mayhew Road will be completely realigned and restored, an ephemeral drainage will be constructed, native plantings will be installed, and associated buffers will be established ("Mitigation Project"). The Mitigation Project bisects the Project site owned by Granite Construction Company ("Granite") as well as a portion of the Aspen III South site, owned by Teichert Aggregates ("Teichert"). The realigned channel will retain as many of the "natural" characteristics of the existing stream channel as possible (e.g., main channel, stream length, sinuosity) while significantly increasing the quality of wildlife habitat. A variety of features have been incorporated to the realigned channel in order to provide areas for different plant communities and wetland types. Backwaters, split-channel areas with islands, off-channel wetlands, benches of varying heights, as well as deeper pools, were included.

The purpose of the Project is to mine aggregate resources on the site to a depth of approximately 50 to 60 feet below existing site grade. At the completion of each phase of mining, the overburden (soils overlying the aggregate) will be replaced. Additional overburden material provided by Teichert will be used to recreate the creek, ephemeral drainage, and associated habitats.

The Mitigation Project encompasses approximately 89 acres, including approximately 14.44 acres of wetlands and creek, 1.65 acres of ephemeral drainage, 10 acres of riparian woodland

and marsh in the lowest portions of the channel and the ephemeral drainage, approximately 30 acres of Valley oak woodland, and approximately 36 acres of grassland. The oak woodland and riparian plantings will compensate for losses to the limited woody vegetation found at the site.

1.3 Regulatory History of the Project

The U.S. Army Corps of Engineers ("Corps") issued a Department of the Army Individual Permit ("Permit") to Granite for the Project on April 16, 2004 (Regulatory Branch Number 199400102) (Attachment A). The Permit authorizes the fill of 17.22 acres of waters of the United States ("Waters") including the approximately 1.5 miles of Morrison Creek between Mayhew Road and Hedge Avenue. When it was issued, the Permit referenced the construction of an enhanced Morrison Creek bypass channel and on-site wetland (pit-bottom) mitigation corridor.

After the permit was approved, Granite retained ECORP Consulting, Inc. ("ECORP") to review the approved mitigation plan for the Project and to develop a revised mitigation plan that incorporated a more natural creek alignment. The initial suggestions made were to straighten the 90 degree turns in the Enhanced Bypass Channel and to eliminate the need for an artificial system for providing and then removing water from the mitigation corridor (i.e., mechanical diversion and pump system). This began the discussion regarding the potential for a greatly expanded at-grade bypass channel design that eventually led to the conclusion that the creek should be realigned and recreated at grade. Therefore, the revised mitigation proposal for the Project is a 650-foot Preserve including an at grade 300-foot wide restored creek corridor; the construction of an ephemeral drainage within the 300-foot south restricted area (currently proposed at the pit bottom, final grade to be determined); a 50-buffer buffer comprising the north restricted area; and the planting of associated riparian, oak woodland, and grassland habitat.

The Mitigation Project presented in this *Wetland, Oak Woodland and Riparian Mitigation Monitoring for the Granite Vineyard I Project* ("Plan"), addresses many of the comments and concerns voiced during the permitting process by the Environmental Protection Agency (EPA), Corps, and conservation organizations. The revised mitigation plan embodies Alternative #2 (Reconstructed Creek Alternative) as suggested in written correspondence with the EPA and Corps. This alternative allows Granite to mine the entire site and reconstruct the creek at the natural, existing grade. The Mitigation Project addresses the agencies concern of loss of creek function/habitat separation, since the creek and mitigation will no longer be separate, but will be one continuous habitat corridor. A variety of other agency comments and concerns are addressed throughout this Plan.

The channel realignment and ability to restore the creek at grade requires a collaborative effort involving Teichert, which owns the adjacent Aspen III South property. The corridor is now proposed to pass through the Aspen III South property and the connection will be made on the Vineyard I site, just west of Mayhew Road (see Figure 1). (Note: Teichert was not required to obtain a permit from the Corps to mine their Aspen III South property due to an absence of wetlands on the site as reflected in the Final EIR/EIS for the 'Morrison Creek Mining Reach Downstream (South) of Jackson Highway'.

1.4 Jurisdictional Areas Affected by Project

Zentner and Zentner (1997) determined that a total of 17.22 acres of wetlands exist at the Project site, as shown in Table 1 below and in Attachment B. The impacts include 12.24 acres of Morrison Creek, 3.84 acres of seasonal wetland swale/ephemeral drainage, and 1.14 acres of seasonal marsh. As shown in Table 1 below, 3.79 acres of seasonal wetland/marsh and 0.53 acres of vernal pool credits have been purchased at an off-site mitigation bank. The acreages to be created/restored for the Mitigation Project are 13.33 acres of Morrison Creek, 1.11 acres of seasonal/perennial wetland, and 1.65 acres of ephemeral drainage. Including the purchased credits, the mitigation totals 20.41 acres.

Table 1 – Impact and Mitigation Acreages

Waters of the U.S.	Impact Acreage	Credits Purchased	On-Site Mitigation	Total Mitigation Acreage
Riparian (Morrison Creek)	12.24		13.33	13.33
Tributaries (Seasonal Wetland Swale/Ephemeral Drainage)	3.84	3.79 – Seasonal Wetland/Marsh 0.53 – Vernal Pool		4.32
Seasonal Marsh/Wetland	1.14		1.11	1.11
Ephemeral Drainage			1.65	1.65
Total:	**17.22**	**4.32**	**16.09**	**20.41**

1.5 Hydrology and Topography

The topography of the Project is gently rolling, with a centrally located low area containing Morrison Creek. Morrison Creek is the predominant drainage feature on site, crossing the Project in an east-west direction.

1.6 Geology and Soils

The geology of the Project is Riverbank Formations (Figure 2. *Regional Geology*). According to the *Soil Survey of Sacramento County, California* (U.S. Department of Agriculture, Soil Conservation Service 1993), seven soil units, or types, have been mapped for the Project (Figure 3. *Natural Resources Conservation Service Soil Types*). These are: (118) Columbia sandy loam, drained (0 to 2% slopes), (157) Hedge loam (0 to 2% slope), (164) Kimball silt loam (0 to 2% slope), (213) San Joaquin silt loam, leveled (0-1% slopes), (214) San Joaquin silt loam (0 to 3% slope); (215) San Joaquin-Durixeralfs complex (0-1% slopes); (221) San Joaquin-Xerarents complex, leveled (0 to 1% slope). Because the Project will be mined, these soil types will no longer be distinct within the Mitigation Project.

1.7 Waters of the U.S.

The Project is permitted to impact 17.22 acres of Waters. The following paragraphs describe the various wetlands/waters types present at the Project site prior to mining operations.

1.7.1 Riparian (Morrison Creek)

Morrison Creek is the predominant drainage feature on site, crossing the Project site in an east-west direction. Morrison Creek is intermittent within the Property. Riparian trees occur in scattered patches along the creek. The creek bed varies from bare to densely vegetated. Common dominant plants in the riparian areas include willows (*Salix* spp.), cottonwoods (*Populus fremontii*), water grass (*Echinochloa crus-galli*), broad-leaved cattail (*Typha latifolia*), curly doc (*Rumex crispus*), Himalayan blackberry (*Rubus procerus*), wild rye (*Leymus triticoides*), flat-head sedge (*Cyperus eragrostis*), Italian ryegrass (*Lolium multiflorum*), cocklebur (*Xanthium strumarium*), meadow barley (*Hordeum brachyantherum*), yellow waterweed (*Ludwigia repens*), and Baltic rush (*Juncus balticus*).

1.7.2 Tributaries (Seasonal Wetland Swale/Ephemeral Drainage)

Three small tributary channels feed into Morrison Creek from the surrounding uplands. These areas are dominated by herbaceous wetland species and shrubs. Plant species composition within seasonal wetland swales is typically comprised of non-native species such as Mediterranean barley (*Hordeum marinum*), Ryegrass (*Lolium multiflorum*), meadow barley, rabbitfoot grass (*Polypogon monspeliensis*), tules (*Scirpus acutus*), cattails (*Typha*), yellow waterweed, and rice cutgrass (*Leerzia oryzoides*).

1.7.3 Seasonal Marsh (Seasonal Wetland)

Seasonal marsh features are located in several locations throughout the Project site. These shallow depressions catch and hold winter/spring rains, sustaining marsh vegetation. Plants within the marsh are typical seasonal wetland and moist soil species such as ryegrass, Mediterranean barley, curly doc, annual hairgrass (*Deschampsia danthonioides*), spikerush, frog bit (*Phyla nodiflora*), slender popcorn flower (*Plagiobothrys stipitatus*), and Pacific foxtail (*Alopecurus sacatus*).

2.0 GOAL OF MITIGATION

The overall goal of the Mitigation Project is no net loss of wetland, riparian, and oak woodland functions and values resulting from the Project. This goal will be accomplished through a complete realignment and restoration of Morrison Creek and associated wetlands within the 300-foot mitigation corridor, the construction of an ephemeral drainage, and the planting of native riparian and oak woodland habitat.

2.1 Impact Types

As discussed in Section 1.4, impacts to Waters include 12.24 acres of perennial creek (Morrison Creek), 3.84 acres of tributaries (which include seasonal wetland swale and ephemeral drainage), and 1.14 acres of seasonal marsh. In addition, 174 County-regulated valley oak (*Quercus lobata*) and black walnut (*Juglans hindsii*) trees will be impacted at the site.

2.2 Characteristics, Functions and Values of Habitat Prior to Impact

In a summary of the *Draft Regional Guidebook for Assessing the Functions of Second Order Streams in the Central Valley of California* by Zentner and Zentner and Gill Water Resources Engineering (1999), the functional capabilities of Morrison Creek at the Vineyard I site were assessed. Using the Hydogeomorphic (HGM) methodology, the reach of Morrison Creek that intersects the Project site was considered a 'moderate value riparian wetland', scoring a 0.55 out of a possible 1.0. According to Zentner and Zentner's letter summary, Morrison Creek at the Project site has been partially channelized, reducing the creek systems capability to provide geomorphologic and hydrologic functions. In addition, the site has been historically farmed or otherwise disturbed up to the edge of the channel, eliminating native riparian trees and decreasing the native biological functions of the site.

2.3 Characteristics, Functions and Values of Habitat to be Created/Enhanced

Morrison Creek will be enhanced from its current state. As mentioned above, Morrison Creek prior to mining was partially channelized, with a mostly sparse non-native riparian habitat. To create improved wildlife, creek and wetland habitat (i.e., increased functions and values) and a more aesthetic feature, the creek will be re-contoured and planted with native trees and shrubs both as mitigation for the removal of native oak and black walnut trees, and to enhance the overall habitat quality of the riparian system.

In addition, an ephemeral drainage will be constructed south of the restored creek corridor and planted with riparian species. The constructed ephemeral drainage is to provide additional functions and values (i.e., additional length) for the loss of channel length.

2.3.1 Wetland Habitat to be Created

As shown in Table 1 (Section 1.4), the Project impacts include 12.24 acres of Morrison Creek, 3.84 acres of seasonal wetland swale/ephemeral drainage, and 1.14 acres of seasonal marsh. Also shown in Table 1, 3.79 acres of seasonal wetland/marsh and 0.53 acres of vernal pool credits have been purchased at an off-site mitigation bank. The acreage to be created/restored

on-site is 13.33 acres of creek, 1.11 acres of seasonal/perennial wetland, and 1.65 acres of ephemeral drainage. Including the purchased credits, the mitigation totals 20.41 acres.

The Mitigation Project has been designed to provide increased and more diverse habitat value compared with the Project prior to impact. The design of the creek includes depressions/backwater areas within the channel of Morrison Creek. Wetlands have been created both in-channel and off-channel along the newly restored Morrison Creek channel. The created wetland vegetation may provide nesting habitat (e.g., cattails) for birds such as the red-winged blackbird (*Agelaius phoenicus*). Amphibians may breed within this habitat, including Pacific chorus frog (*Pseudacris regilla*) and western toad (*Bufo boreas*). Mammals that may associate with the mitigation corridor include raccoon (*Procyon lotor*) and striped skunk (*Mephitis mephitis*). In addition, the on-site construction of the ephemeral drainage will provide mitigation for loss of channel length.

2.3.2 Oak Woodland/Riparian Habitat to be Created

The riparian and oak woodland habitats to be created include a variety of native trees and shrubs that will eventually provide shade both within the Morrison Creek corridor and adjacent to it providing habitat for the resident wildlife. The previous riparian canopy was very sparse, predominantly non-native, and in poor condition. Much of the woody vegetation at the site was historically comprised of a English walnut orchard where a black walnut root stock was used. When it was not actively farmed, the root stock most likely out-competed the grafted portion of the tree, resulting in the presence of black walnuts. Osage orange trees were also located at the site with little diversity of native species. As a result of Project impacts, approximately 174 native trees (Valley oak and black walnut) will be removed. As mitigation for these impacts, 3,570 oak woodland trees and associated riparian trees/shrubs will be planted along the creek and along the constructed ephemeral drainage.

2.4 Evaluation of Temporal Loss

It is expected that the entire realigned and restored reach of Morrison Creek between Mayhew Road and Hedge Avenue will begin functioning hydrologically during the first rainy season after completion of the excavation and contouring of the wetlands/creek (this is estimated to be in 2009-2010). The majority of the new channel will be built prior to impacting any portion of the existing Morrison Creek. During the summer (dry season) of 2009 or 2010 a short portion of Morrison Creek will be temporarily diverted at the eastern and western Project boundaries (Mayhew Road and Hedge Road, respectively) in order for the existing creek to be mined and then the new channel connected to the existing creek. The creek cannot be restored to its original connection portions without these temporary diversions.

Although a temporal loss will occur for the tree plantings, significantly more trees are being planted than are being impacted to compensate for loss (174 trees within County regulations being impacted and 3,570 mitigation trees planted). This increase in tree numbers for mitigation will greatly improve the habitat adjacent to Morrison Creek and in the surrounding area by providing shade, shelter, and ultimately a food source for wildlife species. The wetland vegetative cover is also expected to increase annually and reach the established performance

standards within three to five years. Refer to Section 4.2.2 for a more detailed implementation schedule.

3.0 PROPOSED ON-SITE WETLAND AND RIPARIAN/OAK WOODLAND MITIGATION

3.1 Wetland and Riparian/Oak Woodland Mitigation Site

The Mitigation Project includes creek, wetland, ephemeral drainage, riparian, and oak woodland mitigation. The Mitigation Project is located within the Project site owned by Granite and the adjacent Aspen III site owned by Teichert, as detailed in Figure 1.

3.2 Ownership Status

3.2.1 Present Owner of the Mitigation Site

Granite Construction Company and Teichert Aggregates

3.2.2 Expected Long-Term Owner of the Mitigation Site

Granite Construction Company and Teichert Land Company

3.2.3 Parties Responsible for Long-Term Maintenance of the Mitigation Site

Granite Construction Company, Teichert Land Company, and the Corps-approved conservation easement holder

3.2.4 Point of Contact for Corps Access to the Site

Attn:	Mr. Grant Williams Granite Construction Company 4001 Bradshaw Road Sacramento, California 95827	Attn:	Mr. John Lane Teichert Aggregates 3500 American River Drive Sacramento, California 95864
Phone: Fax:	(916) 855-4400 (916) 855-4590	Phone: Fax:	(916) 484-3256 (916) 484-7012

3.2.5 Conservation Easement

Conservation easements will be recorded in Sacramento County that will maintain the on-site created wetlands and open space/preserve area as wetland and wildlife habitat in perpetuity. Copies of the proposed conservation easements have been submitted to the Corps for approval as part of the *Operations and Management Plan for the Morrison Creek Nature Preserve* (submitted under separate cover).

3.3 Existing Functions, Values, Baseline Information of Wetland and Riparian Mitigation Sites

The mitigation site is the same as the impact site. Please refer to Section 1.0, 2.2 and 2.3.

3.4 Past/Present Use of the Wetland and Riparian Mitigation Site

The Project was historically used for farming and rural residential uses. According to the previous *Granite Vineyard Wetland Mitigation Plan* prepared by Zentner and Zentner (1994), the site was historically comprised of a few homes, a sod farm, an orchard, and oat hay fields. Much of the site has since been disturbed by approved mining operations. Agriculture is the approved future use of the area surrounding the Mitigation Project.

3.5 Jurisdictional Delineation

The original wetland delineation for the Project was conducted by Zentner and Zentner and submitted to the Corps in 1992. The 1992 delineation was set to expire in 1997; therefore, a modified jurisdictional delineation was submitted to the Corps and approved on July 2, 1997.

3.6 Present and Proposed Uses of All Adjacent Areas

Teichert's Aspen IV South property borders the site to the east. Rural residences and commercial properties border portions of the site to the south, north and west. Future and/or proposed uses of the adjacent properties are not known at this time.

3.7 Zoning

The Project site and the Aspen III site are both zoned for industrial uses (Industrial Reserve and Light Industrial) and include a surface mining (SM) and flood overlay zone. The area that encompasses the Mitigation Project has not been rezoned by the County of Sacramento. Accordingly, the zoning of the Mitigation Project will be consistent with the underlying zoning designations for Vineyard I and Aspen III South.

4.0 MITIGATION DESIGN/IMPLEMENTATION PLAN

The following sections discuss the design methodology and implementation of the created/restored creek, wetlands, ephemeral drainage and riparian/oak woodland habitats. Section 4.1 discusses the rationale for mitigation success, Section 4.2 outlines the creek, wetland, and ephemeral drainage design methodology and implementation schedule, and Section 4.3 outlines the riparian/oak woodland design methodology and implementation schedule.

The mitigation design and implementation plan outlined in the following section supersedes previous requirements outlined by the Corps (for wetlands/waters) and the County (for native tree impacts).

4.1 Rationale for Expecting Implementation Success

ECORP has successfully designed and overseen the construction of numerous wetland creation/restoration and riparian/oak woodland mitigation projects in Sacramento and Placer Counties, including those in locations with similar attributes to the Project. This experience has been used in the design and construction of the mitigation wetlands at the Project. Refer to section 4.2.1 for a discussion of the wetland and creek realignment design methodology, the primary reason for expecting implementation success. Also refer to Section 4.3 for a discussion of the riparian and oak woodland planting plan implementation and maintenance. Section 6.0 discusses the final success criteria and monitoring methodology for the wetlands, realigned creek, ephemeral drainage, and plantings.

4.2 Creek, Wetland, and Drainage Mitigation

The Mitigation Project involves the creation of 13.33 acres of creek, 1.11 acres of in-channel and off-channel seasonal/perennial wetlands, and 1.65 acres of ephemeral drainage (Figure 4. *Wetland Detail*).

4.2.1 Design Methodology

4.2.1.1 Morrison Creek

The realigned/restored Morrison Creek channel design was based on interpretation of aerial photographs, detailed topography, and information gathered during several field visits. The intent of the new channel design was to retain as many of the characteristics of the existing channel as possible, since these characteristics are the result of the creek's current "natural" dynamic equilibrium. Neither the flow regime of the creek nor the channel shape upstream and downstream of the Project site are "natural" per se, due to development in the area and prior channelization of the creek. The lack of notable fresh deposition areas or erosion cuts, however, seems to indicate that the creek is in a state of equilibrium and is neither aggrading nor degrading.

Aerial-photo interpretation and topographic map analysis included determinations of slope (valley slope and channel slope), sinuosity (creek length/valley length), and tightest existing

meander radius. A cursory assessment of the creek's natural features, course of the channel, and where the channel appeared to be artificially controlled or altered was also performed using these methods.

A preliminary soils review was performed using the Natural Resources Conservation Service (NRCS) soils maps. The channel runs primarily through hedge loam, and portions of the channel run through the San Joaquin xerarents complex and San Joaquin silt loam. The newly designed channel will be relocated north of its current location and placed on re-compacted soils from the area. The topsoil will be removed and preserved, gravel underneath mined, and the overburden and topsoil will be replaced and compacted before the grading of the new channel is performed.

Flows have been recorded by a gage maintained by the USGS on Morrison Creek near Sacramento, a few miles downstream of the Project. Records of past flows showed a maximum daily mean flow of 1940 cubic feet per second (cfs) in 1982, with normal flows during the year under non-storm conditions ranging from 1 to 10 cfs. (*USGS California Hydrologic Data Report*, Monthly Mean data for water years 1959-2001, "Morrison Creek near Sacramento", gage number 11336580)

In 2004, an initial visit to the site was made to give the ECORP team an overview of the existing creek. A second, more detailed site visit was conducted to assess vegetation and soils, estimate flows, and determine other creek characteristics such as: average water depth at the time (summer low-flow water depth), bankfull stage, width-depth ratio, entrenchment ratio, channel shape, types of wetlands that occur naturally, and any notable erosion or deposition features.

During the field visit, the oxbow at the downstream end of the channel was dry and the main channel carried all the creek's flows. The oxbow receives some portion of the creek's winter flows, but acts more as a backwater area. The portion of the main channel adjacent to the oxbow was constructed quite a while ago to bypass the oxbow, judging from the degradation of an abandoned culvert in the main channel near this location. The addition of this portion of the main channel does not appear to have affected the morphology of the creek channel recently, since no erosion or sedimentation problems were noted, aside from those caused by immediate scour around the culvert.

After the data from the site visits was analyzed, the general alignment of the creek provided by Granite and Teichert was printed out at 1"=20' scale. The channel design was sketched onto the plans and then digitized so a water-surface profile analysis could be performed.

Based on the low flow widths observed during the site visit, the bottom of the newly designed low-flow channel varies in width from just a few feet to over ten feet wide. Since the slope of the existing channel is essentially constant over the length of the Project area, the slope of the designed channel through the new floodway is also uniform. A variety of features were added to the floodway in order to provide areas for several different plant communities and wetland types. Backwaters, split-channel areas with islands, off-channel wetlands, benches (or terraces) of varying heights and deeper pools were included. For safety purposes, the slopes into the corridor and low flow channel-bank slopes do not exceed 3:1 in steepness. To create a

more natural corridor and variety in habitats, the slopes leading up from the bottom of the corridor range from 3:1 to 7:1.

The sinuosity of the existing Morrison Creek channel was evaluated in the design of the realigned creek corridor. Channel sinuosity (k) is defined as the ratio of channel length to valley length (k = (channel length/valley length)). Sinuosity indicates how the channel has adjusted its slope to the slope of the valley. Sinuosity is inversely related to channel slope; highly sinuous channels have low slope values whereas low sinuosity channels have higher slopes. Channels naturally develop a sinuous pattern to provide for the dissipation of the kinetic energy of the moving water and also to effectively transport sediment. The original sinuosity value calculated for Morrison Creek was based on the length of the active channel alone without the oxbow.

In general, the banks of the designed channel are steeper on the outside of a curve (cut banks) than on the inside of the curve (point bars). This is a characteristic of the existing channel, and is common to many creeks and rivers with characteristics similar to those of Morrison Creek. The shallower bank slopes are also intended to allow wetland vegetation to become established. Pools were included to prevent vegetation from establishing itself in some locations, permitting sections of open water to exist.

After construction, the designed channel may change shape to some extent, but replicating many characteristics of the current channel in the designed channel should minimize the likelihood of flows to change the channel shape drastically. Until vegetation is well established, Best Management Practices (BMPs) and erosion control measures will be taken to reduce the potential for erosion and sediment problems.

After ECORP created the initial creek design, G.C. Wallace, the Project engineers, digitized the design utilizing conservative estimates, ran the needed models to ensure that the channel would be able to pass the expected high flows. The U.S. Army Corps of Engineers *HEC-RAS River Analysis System* computer program was utilized to compute water surface elevations throughout the length of the channel. The HEC-RAS model was based on an HEC-2 model provided by Sacramento County. The 200-year storm event was modeled to determine channel and freeboard requirements. The 200-year flow rates analyzed were taken from the County HEC-2 model. Modifications to low-flow widths and bench areas were made as needed, but preserved a variety of widths and depths. The model also took into account channel roughness, including thick vegetation on the riparian bench areas and oak woodland habitat on the remaining corridor bottom.

4.2.1.2 Seasonal/Perennial Wetlands

The created in-channel and off-channel seasonal/perennial wetlands have been designed to have hydrology typical of seasonal/perennial wetlands in the Central Valley. The depth of the wetlands will range between 8 and 24 inches and the side slopes for the wetlands will be no steeper than 3:1 with an average of 7:1. Direct precipitation, overland flow, and storm flows in Morrison Creek will provide source water for the wetlands.

4.2.1.3 Ephemeral Drainage

As mitigation for Project impacts, an ephemeral drainage will be constructed south of the mitigation corridor. The ephemeral drainage feature will convey storm water from the Project into a detention basin located on-site. The following discussion provides a description of the ephemeral drainage design and proposed characteristics.

The proposed ephemeral drainage design assumes the following: the drainage will be constructed at the pit floor south of the corridor within the South Restricted Area; the drainage will only accept flows during storm events (i.e., it will act as a storm water conveyance); the drainage will accept flows from the northern portion of the site and adjacent Aspen III South site (north of the corridor) that will be conveyed through storm water pipes located underneath the constructed corridor; the drainage will also accept flows from the entire pit floor south of the drainage, with the exception of the restored creek corridor; and, the future land use of the site outside of the restored creek corridor will be agriculture (pasture). A preliminary model used to generate the conceptual drainage characteristics is based on an analysis of both a 2-year/6 hour storm event and a 2-year/24 hour storm event. Runoff characteristics assume the following: pasture ground cover; channel sinuosity of 1.2; bankfull discharge values are expected to range between 28.1 and 39.7 cubic feet per second (based on an analysis of the 2-year/6 hour and a 2-year/24 hour storm event, and based on the ultimate channel sinuosity and slope); channel slope is expected to range between 0.08% and 0.16%; and a roughness coefficient of 0.44. If there are changes from these assumptions, a revised design will be submitted to the Corps for approval.

The ephemeral drainage will be graded such that water flows west from the eastern portion of the site, and east from the western portion of the site, ultimately flowing into a detention basin (final location to be determined, approximated to hold 312 acre-feet). The drainage will be approximately 14.4 feet in width at the ordinary high water mark, with a maximum depth of 2.5 feet, and it is estimated to be approximately 5,000 feet in length. The acreage of the ephemeral drainage is estimated to be 1.65 acres. A conceptual cross-section of the drainage is shown in Attachment C. The constructed drainage will have an ordinary high water mark and will be planted with native trees and shrubs. The success criteria are presented in Section 6.3.

4.2.1.4 Buffers

The original Corps permit for the Project requires an upland buffer of at least 25 feet in width from the outer limit of all created wetlands/waters. Using GIS software, the distance between all created wetland features/creek and the edge of the Mitigation Project was calculated at each vertex (figure available upon request). Within the creek corridor it was determined that the buffer ranges from 78 feet to 428 feet with an average buffer of 243 feet between wetland features and the edge of the Mitigation Project. The realigned Morrison Creek channel, like all other stream systems, is dynamic. Although we do not expect significant change in the channel location in the short term, minor variations within the limits of the corridor are expected over an extended period of time.

4.2.2 Implementation Schedule

The creation of the new Morrison Creek corridor location that spans the Project site and Aspen III South site will be phased beginning in 2006 and is estimated to be completed in 2010 (Attachment D). Starting in 2006, the area of the future realigned/restored creek (as outlined in purple) will be mined and mass graded, followed by fine grading in Fall of 2006. In 2007 through 2009, connecting portions of the future creek will be mined and rebuilt (as indicated in green and orange), and then fine graded in Fall of 2007 through 2009, respectively. During the construction (dry) season of 2009 or 2010, the existing creek will be diverted through an open ditch to allow for the area below Anrak and below the oxbow (as indicated in blue) to be mined, mass graded and fine graded. The creek cannot be restored to its original connection points without these temporary diversions. Water will begin to flow through the new creek channel in 2009 or 2010. No portion of the existing creek (except the oxbow) will be impacted until the final stage of mining and grading in 2009 or 2010. Thus, the majority of the new corridor will be built prior to the existing creek being impacted.

In order to allow for flexibility in the final elevation (whether the ephemeral drainage will be constructed at the pit bottom, or at grade), the construction of the ephemeral drainage may occur within three years following the construction of the creek corridor (estimated to be in 2010). It is understood that either the pit bottom drainage or Corps approved alternative mitigation must be completed by 2013.

4.3 Riparian/Oak Woodland Mitigation

In March of 2001, an arborist report was prepared by Foothill Associates for the Project. According to this report, 223 Valley oak and black walnut trees were identified.

According to the current Sacramento County Tree Preservation Ordinance (Sacramento County Code 480, Chapter 19.12, Sections 19.12.010 through 19.12.240), the County Tree Ordinance protects native oak species, including interior live oak (*Quercus wislizenii)*, Valley oak, blue oak (*Q. douglasii)*, and oracle oak (*Quercus* x *morehus*), that measure ≥ 6 inches in diameter at breast height (DBH), and ≥ 10 inches DBH for multi-trunked trees (measured as an aggregate diameter). The Sacramento County General Plan protects non-oak native trees (excluding cottonwoods and willows) and landmark trees (defined as non-native oak trees measuring 19 inches DBH or greater).

Based on the above requirements, a total of 174 Valley oak and black walnut trees that exist at the Project, fall within County regulations. These 174 trees equate to 2,872" DBH of black walnut and 980" DBH of Valley oak. Of the trees on the site that meet County regulation size, Foothill Associates deemed that 171" DBH of Valley oak and 119" DBH of black walnut fall within County rights of way/perimeter setbacks and thus will not be impacted. Therefore, the total impact acreage is 2,753" DBH black walnut and 809" DBH of Valley oak, for a total combined impact of 3,562" DBH. For every inch of DBH impacted, one depot-sized tree will be planted. Thus, 2,515 oak woodland trees and associated riparian trees will be planted along the creek, within the 300-foot corridor. An additional 1,055 oak woodland trees and riparian trees will be planted on-site along the constructed ephemeral drainage, for a total of 3,570 tree

plantings. Additional native shrubs (675) and wetland plugs (900) will be planted to increase the habitat value.

In addition to the County's requirement, as mitigation for Project impacts, the Corps is also requiring the success of those mitigation plantings (1,055) installed along the ephemeral drainage as outlined in Table 3 below.

4.3.1 Revegetation Plan

A riparian revegetation plan has been developed in order to show the location of the 3,570 trees that will be planted on-site, 2,515 within the creek corridor and 1,055 along the ephemeral drainage feature (Attachment E). Tables 2 and 3 below list the species and number of plantings.

All areas within the Mitigation Project that are planned for planting will be hydroseeded with a blend of a minimum of three locally native grass species. These seed mixes are included in Attachment F.

As outlined in Attachment G, a porous and fibrous weed mat will be installed around the base of the plantings (minimum of 3' x 3'). Sterile bark mulch may also be used for each planting and should be augmented annually to a depth of 6 inches. The planting locations should be weeded (use of herbicide is approved per the *Operations and Management Plan for the Morrison Creek Nature Preserve*), at minimum, once annually in early spring, for at least the first two years. This will reduce competition between the plantings and the weeds for water and nutrients.

Erosion control blanketing (ECB) made of all natural biodegradable materials (e.g., coconut fiber and/or straw) with a natural woven (not fused) netting will be installed around the base of the plantings. Additional BMPs will be installed in accordance with the Storm Water Pollution Prevention Plan (SWPPP).

Table 2 - Morrison Creek Restored Corridor Planting Numbers*

Riparian Tree Type	Number of Plantings	Shrub Type	Number of Plantings
Box Elder (*Acer negundo*)	75	Coyote Brush (*Baccharis Pularis*)	75
Black Walnut (*Juglans hindsii*)	115	Hoary Coffeeberry (*Rhamnus Tomentella*)	70
California Sycamore (*Platanus racemosa*)	75	California Blackberry (*Rubus Ursinus*)	55
Fremont Cottonwood (*Populus fremontii*)	230	Buckbrush (*Ceanothus cuneatus*)	50
Black Willow (*Salix Gooddingii*)	240	Deergrass (*Muhlenbergia rigens*)	70
		Arroyo Willow (*Salix Lasiolepis*)	50
Subtotal	*735*	Sandbar Willow (*Salix Exigua*)	155
Oak Tree Type	**Number of Plantings**	*Subtotal*	*525*
Blue Oak (*Quercus douglasii*)	675		
Valley Oak (*Quercus lobata*)	530	**Wetland Plugs**	**Number of Plantings**
Interior Live Oak (*Quercus wislizenii*)	575	Rush (*Juncus*), Sedge (*Carex*), Spikerush (*Eleocharis*)	900
Subtotal	*1,780*		
TOTAL	***2,515***		***1,425***

*Mitigation for Sacramento County

Table 3 - Ephemeral Drainage Planting Numbers*

Riparian Tree Type	Number of Plantings	Shrub Type	Number of Plantings
Black Walnut (*Juglans hindsii*)	100	Coyote Brush (*Baccharis Pularis*)	50
California Sycamore (*Platanus racemosa*)	50	Hoary Coffeeberry (*Rhamnus Tomentella*)	50
Subtotal	*150*	Buckbrush (*Ceanothus cuneatus*)	50
Oak Tree Type	**Number of Plantings**	*Subtotal*	*525*
Blue Oak (*Quercus douglasii*)	350		
Valley Oak (*Quercus lobata*)	200		
Interior Live Oak (*Quercus wislizenii*)	355		
Subtotal	*905*		
TOTAL	***1,055***		***525***

*Mitigation for Corps and Sacramento County

4.3.2 Planting Location/Density

The planting locations were determined by what species are known to naturally grow at varying distances from perennial creeks and drainages. For example, certain species such as cottonwood require a year round water source and therefore are planted closest to the creek. Other tree species, like the blue oak thrive in upland areas furthest from the creek.

Information from the Project engineers was also utilized to determine appropriate planting locations. The draft hydraulic study by G.C. Wallace (2005) was used to input information into a Geographic Information System (GIS). This in turn created a model that estimated the elevation of various Morrison Creek flow levels. This data assisted in determining at what flow levels certain areas would be inundated. The revegetation plan was adjusted accordingly. To ensure the success of the plants that require year-round water, the riparian species will be not be planted until water is flowing through the realigned mitigation corridor.

The Mitigation Project totals approximately 89 acres in size. Excluding the creek there are approximately 40 acres of planting potential. Thus, for the 3,570 plantings within the corridor and the ephemeral drainage, there will be approximately 89 trees per acre.

4.3.3 Irrigation

The plantings will be irrigated with a drip irrigation system provided by on-site wells to ensure that the plantings are successful. Irrigation will be decreased and finally eliminated during the monitoring period to ensure that the plantings will survive in the long-term without irrigation.

Irrigation should deliver deep, infrequent watering and should normally take place between April 1st and October 15th of each year. This can be adjusted if a year is particularly hot earlier or later in the year. A recommended irrigation schedule is outlined in Table 4.

Table 4 – Seedling Irrigation Schedule

Duration	Year 1	Year 2	Year 3
April 1st – June 15th	8 gallons, once/2 weeks	8 gallons, once/3 weeks	8 gallons, once/ 4 weeks
June 16th – September 15th	10 gallons, once/2 weeks	12 gallons, once/4 weeks	10 gallons, once/ 4 weeks
September 16th – October 15th	6 gallons, once/3 weeks	8 gallons, once/4 weeks	8 gallons, once/6 weeks
October 16th – March 31st	Irrigation off	Irrigation off	Irrigation off

4.3.4 Maintenance

Maintenance of the replacement trees should include a check, adjustment, and replacement as necessary of the seedling tree shelters and weed mats, applications of supplemental mulch, weeding around the seedlings, and incidental litter removal. Litter removal will be conducted throughout the Mitigation Project on a seasonal basis as part of the general maintenance of the mitigation corridor.

In order to ensure that the tree and shrub plantings survive to maturity, the irrigation system should be checked regularly during the irrigation period. Additionally, all at-grade equipment and all equipment within the valve boxes should be inspected once per month during the months the irrigation system is on and repaired as necessary.

See Section 6.4 for monitoring and success criteria of the plantings.

4.3.5 Protection of Existing Trees during Planting Activities

Planting and irrigation contractors are to be made aware of existing trees (located in right-of-ways and perimeter setbacks) and shrubs to be preserved and take precautions to protect such vegetation from damage. Irrigation lines shall not be trenched under the drip lines of existing trees and shrubs. Equipment, construction materials, or tools shall not be stored within the drip line of the trees or shrubs to be preserved. No heavy equipment shall be allowed within the drip line of trees or shrubs to be preserved.

4.3.6 Topsoil Stockpile

As the existing Morrison Creek is mined, the top one foot of topsoil will be collected and stockpiled. The topsoil will be spread within the restored creek corridor in phases during fine grading activities. If it is determined that the soil is not appropriate for planting (i.e., soil compaction or soil quality), additional measures or amendments will be taken/used to increase the chance of success for the plantings.

4.3.7 Implementation Schedule

As outlined in Attachment D, fine grading and planting will be phased in relation to mass grading. As the realigned creek is fine graded (2006-2010), upland oak trees and grasses will be planted along with the phases outlined in Attachment D. During the winter of 2009 or 2010 when water will be flowing through the restored creek corridor, the water level/inundation areas will be assessed. Following this assessment, during the spring and fall of 2010 or 2011, the riparian trees and shrubs, as well as wetland plugs, will be planted within the 300-foot creek corridor. As mentioned above, the construction of the ephemeral drainage and associated plantings may occur up to three years following the completion of the construction of the corridor. Plantings along the ephemeral drainage will be installed the fall following construction. Attachment H shows the planting plan detail sheet for the 2006-2007 planting season. For each subsequent planting season a new detail sheet will be drafted.

5.0 MAINTENANCE DURING MONITORING PERIOD

5.1 Maintenance Activities

During the ten-year success-monitoring period (2010-2020), Granite and Teichert will be responsible for the maintenance activities within the Mitigation Project Area, and the Corps-approved easement holder will be responsible for those items/inspections outlined in Section 2.4 of the *Operations and Management Plan for the Morrison Creek Nature Preserve* (submitted under separate cover). Once the success monitoring is completed (estimated to be in 2020), the Corps-approved easement holder will take over all maintenance activities association with the Mitigation Project.

5.2 Responsible Parties

Applicant:

Attn: Mr. Grant Williams
Granite Construction Company
4001 Bradshaw Road
Sacramento, California 95827

Phone: (916) 855-4400
Fax: (916) 855-4590

Additional Mitigation Project Participant:

Attn: Mr. John Lane
Teichert Aggregates
3500 American River Drive
Sacramento, California 95864

Phone: (916) 484-3256
Fax: (916) 484-7012

5.3 Schedule

Annual maintenance inspections of the mitigation will occur concurrent with other monitoring activities for the first ten years or until mitigation monitoring obligations have been met. During the ten-year success-monitoring period (2010-2020), Granite and Teichert will be responsible for the maintenance activities within the Mitigation Project Area, and the Corps-approved easement holder will be responsible for those items/inspections outlined in Section 2.4 of the *Operations and Management Plan for the Morrison Creek Nature Preserve* (submitted under separate cover). Once the success monitoring is completed (estimated to be in 2020), the Corps-approved easement holder will take over all maintenance activities association with the Mitigation Project.

Monitoring/maintenance will occur after the ten-year success-monitoring period in perpetuity in accordance with the *Operations and Management Plan for the Morrison Creek Nature Preserve* (submitted under separate cover). Inspections will be performed by qualified personnel who will assess potential maintenance issues, such as: habitat function, preserve function, thatch accumulation, and newly introduced non-native species. These topics will be covered in the annual monitoring report. Refer to the *Operations and Management Plan for the Morrison Creek Nature Preserve* for a more detailed description of the on-going monitoring at the Preserve.

6.0 MONITORING PLAN

The overall goal of the Mitigation Project is no net loss of wetland, riparian and oak woodland functions and values resulting from the Project. In order to judge whether or not this goal has been met, a set of final success criteria have been developed for the constructed seasonal/perennial wetlands, creek, ephemeral drainage, and the riparian/oak woodland plantings.

6.1 Seasonal/Perennial Wetland

6.1.1 Final Success Criteria

Both in-channel and off-channel wetlands have been created along the newly restored Morrison Creek (see Figure 4). The constructed wetland habitat must meet the specific success criteria listed in Table 5 to be considered successful.

Table 5 – Seasonal/Perennial Wetland Success Criteria

Hydrology	Vegetation
1) Wetland habitat will be inundated or saturated for sufficient periods to support a predominance of wetland plant species (those listed as FAC, FACW, or OBL in *The National List of Plant Species that Occur in Wetlands: California (Region 0)* (Reed 1997)[1].	1) Species richness will equal or exceed 10 species.
	2) Prevalence Index will be less than 3.0.
2) 95% of the wetland acreage must be inundated or saturated for period of sufficient duration to support wetland vascular plants or open water as the most prevalent and dominant component.	3) Aerial coverage of vegetation must be greater than or equal to 85% in the seasonal wetlands and must be greater than or equal to 50% in the perennial wetlands, with the remaining 50% attributable to open water*.

*A determination of seasonal/perennial wetlands will be made after the first wet season.
Categories found in the *National List of Plant Species That Occur in Wetlands: California (Region 0)* (Reed 1997):
Obligate Wetland (OBL) = occur almost always in wetlands (>99% probability).
Facultative Wetland (FACW = usually occur in wetlands (67%-99% probability).
Facultative (FAC) = equally likely to occur in wetlands and non-wetlands (34%-66% probability).
Facultative Upland (FACU) = usually occur in non-wetlands (67%-99% probability).
Obligate Upland (UPL) = occur almost always in non-wetlands (>99% probability).

6.1.1.1 Target Jurisdictional Acreage to be Created

The target creek acreage is 1.11 acres of in-channel and off-channel seasonal/perennial wetlands.

6.1.2 Monitoring Methods

In order to determine if the created on and off-channel wetlands are functioning properly, the following specific hydrology and vegetation monitoring methods have been established.

Monitoring of the wetland hydrology and vegetation will take place in years 1, 2, 3, 5, 8, and 10 as outlined in Tables 6 and 7. Monitoring will be conducted along with other habitat monitoring as outlined in the following sections.

6.1.2.1 Wetland Hydrology

To assess the hydrology of the constructed wetlands, an estimate of the percent of ponded area will be made once during the peak period of inundation, typically during January or February, once during the flowering period, typically April or May, and once in June or July of each monitoring year. Aerial photographs or site visits to the constructed wetlands will be used to estimate the extent of inundation. For each photo/visit taken, each wetland will be ranked according to its approximate percent of inundation: 4 = basin is 100% inundated, 3 = basin $\geq$ 80% inundated, 2 = basin <80% and $\geq$ 50% inundated, 1 = basin <50% inundated, and 0 = basin not inundated.

6.1.2.2 Wetland Vegetation

Field surveys of constructed wetlands will be conducted each spring during peak flowering periods. Timing of floristic surveys will be adjusted according to annual site specific conditions. Data collected from each constructed wetland will include an estimate of percent aerial vegetative cover, a detailed species list, and an estimate of the cover of each species. A cumulative vascular plant species list will then be generated for each wetland. Data from each monitored wetland will be entered into a database. From this data, a list of the dominant/co-dominant species (those with at least a coverage of 6% relative cover) will be generated and the Prevalence Index (PI) will be calculated.

The PI is a standard method used to determine whether a floristic data set can be categorized as being that of a wetland or an upland community. Plant species categories used to calculate the PI will be based upon those described by Reed (1997) and weighted according to Table 8.

Table 6 - Morrison Creek/Wetland/Drainage/Oak Woodland and Riparian Monitoring Schedule - Years 1-5

	Wetlands	Morrison Creek	Ephemeral Drainage	Oak Woodland/Riparian Plantings	Photo Documentation	General Preserve Monitoring
First Year	Yes	Yes	Yes	Yes	Yes	Yes
Second Year	Yes	Yes	Yes	Yes	Yes	Yes
Third Year	Yes	Yes	Yes	Yes	Yes	Yes
Fourth Year	None	Yes	None	None	Yes	Yes
Fifth Year	Yes	None	Yes	None	Yes	Yes

Table 7 - Morrison Creek/Wetland/Drainage/Oak Woodland and Riparian Monitoring Schedule - Years 6-10

	Wetlands	Morrison Creek	Ephemeral Drainage	Oak Woodland/Riparian Plantings	Photo Documentation	General Preserve Monitoring
Sixth Year	None	Yes	None	Yes - Aerial Monitoring	Yes	Yes
Seventh Year	None	None	None	None	Yes	Yes
Eighth Year	Yes	Yes	Yes	None	Yes	Yes
Ninth Year	None	None	None	None	None	Yes
Tenth Year	Yes	Yes	Yes	Yes - Aerial Monitoring	Yes	Yes

Table 8 – Plant Species Category Weighting

Wetland Status	Weighting
Obligate Wetland (OBL)	1
Facultative Wetland (FACW)	2
Facultative (FAC)	3
Facultative Upland (FACU)	4
Obligate Upland (UPL)	5

The PI for each wetland is calculated using the following formula:

$$PI = \frac{1*f(OBL) + 2*f(FACW) + 3*f(FAC) + 4*f(FACU) + 5*f(UPL)}{f(OBL) + f(FACW) + f(FAC) + f(FACU) + f(UPL)}$$

where: f(OBL) = a measure of abundance for OBL species,
f(FACW) = a measure of abundance for FACW species, etc.

The PI is a standard method of determining whether a wetland data set is categorized as a wetland or upland plant community. To be considered a wetland, the area must have a PI value less than 3.0. However, PI values within disturbed areas (i.e., establishing wetlands) can range higher, depending on plant species.

6.2 Morrison Creek

The monitoring plan for Morrison Creek will observe the physical characteristics of the channel over a period of ten (10) years. The plan follows established procedures outlined in the field of fluvial geomorphology and requires the installation of permanent survey monuments. These permanent monuments will be re-visited over the course of the monitoring period to ascertain changes in the channel morphology of Morrison Creek. The target acreage is 13.33 acres of restored creek.

6.2.1 Final Success Criteria

Monitoring of the success criteria will be based on both the design specifications and as-built measurements. As-built measurements correspond with year zero of the monitoring record. Design specifications for Morrison Creek specify a slightly entrenched, meandering channel with moderate sinuosity (See Table 9 below). Currently Morrison Creek is a moderately entrenched meandering alluvial channel with a channel width ≥ 12 times channel depth at bankfull flow (Width/Depth [W/D] ≥ 12). Design criteria for the realigned Morrison Creek call for slightly entrenched meandering channel with a moderate W/D ratio (W/D ≥ 12). Alluvial channels operate in a dynamic state of equilibrium. Success criteria for Morrison Creek should account for the constantly adjusting (dynamic) channel geometry. Channel geometry data collected at each monitoring site should indicate a natural channel "type", at the Rosgen Level II classification.

Table 9 – Design Criteria at Four (4) Monitoring Cross-sections for Morrison Creek

Cross Section	W_{bkf}* (ft)	D_{bkf} (ft)	D_{max} (ft)	$Area_{bkf}$ (ft^2)	W_{fp} (ft)	ER	W/D	Stream Type	Sinuosity
A-A'	30.8	1.7	4.5	52.8	283.9	9.22	18	C	1.3
B-B'	23.7	2.1	4.5	49.5	260.4	10.99	11	C	
C-C'	23.4	1.8	3.5	42.3	75.1	3.21	13	C	
D-D'	36.9	3.3	6.5	122	340.6	9.23	11	C	
Mean	25.97	1.87	4.17	48.2	206.47	7.81	14	NA	

*bkf denotes a measurement taken at the bankfull elevation.

Stable channel design is based on principles outlined by David Rosgen, PhD (Rosgen, 1996). The Rosgen classification is a hierarchical continuum of physical variables beginning with single vs. multiple tread channels and continuing down through channel materials (Figure 5. *Classification of Natural Rivers [from Rosgen, 1996]*). Field data collected at four monitoring sites should indicate the presence or absence of a stable channel geometry. Stable streams like their "type". Or in other words, their field data indicate the presence of a stream type according to Rosgen's Classification. If a stream is unstable, the field data will not produce a stream type. For example, a single tread channel with an entrenchment ratio (ER) between 1.4 - 2.2 and a W/D of 8.0 is an unstable channel because it will not result in a stream type according to the classification. Therefore, the success criterion for Morrison Creek is based on the presence of stable channel geometry as measured at four monitoring sites (Figure 6. *Creek/Wetland Cross-section and Photo Point Locations*). Absence of stable channel geometry, at the same monitoring site for two consecutive monitoring periods, will indicate that the creek has not met the success criterion. This success criterion will be assessed after the first two years, as the creek may need one or two years to achieve equilibrium.

6.2.2 Creek Monitoring/Channel Morphology

Monitoring channel morphology allows for the assessment of the overall physical characteristics of the channel, and to determine any significant changes in the dimension, pattern, or profile of the channel. The monitoring will occur at four (4) permanently monumented cross-sections. Cross-sections will be aligned perpendicular to the direction of stream flow (see Figure 6). Each cross-section will consist of:

1. Two (2) 18 inch pieces of ½ inch rebar cemented into place and located on the levee tops, one marking each end of the cross-section.
2. Latitude and longitude coordinates for each cross-section monument using a hand-held Trimble GPS unit.
3. Monument identification consisting of an aluminum cap that uniquely identifies the cross-section (1-1/2" flat top for 1/2" rebar). Each cross-section cap will be stamped with the appropriate identification corresponding to the cross-section name (i.e., XS-A, XS-B, XS-C, and XS-D).

Cross-sectional and longitudinal data will be collected immediately following completion of the channel realignment (year zero). Monitoring data will be collected in years one through four, six, eight and ten during the dry season months of July, August, or September.

The cross-section is the basis for delineating channel geometry, measuring current velocity, and calculating discharge. While the cross-section measures a single vertical plane across the stream channel, the longitudinal profile measures points up and down the stream channel. Observations indicate the relative composition of morphological bed features such as pools and riffles. The longitudinal profile also delineates the gradient of the water surface, channel bed along the thalweg, bankfull stage, floodplain, and any terraces. Combined, these measurements establish the at-a-station hydraulic geometry and long-term records of stream flow (Harrelson et al., 1994). Channel cross-sections will delineate the channel bed morphological features and breaks in slope.

Four (4) longitudinal profiles will be collected along the channel thalweg over a distance equal to 20x the bankfull width (see Figure 6). Each cross-section will be located approximately mid-way in the longitudinal profile. Location of channel cross-sections will be noted and indicated in the graphical presentation of the longitudinal profile.

Bankfull elevation will be determined by a qualified fluvial geomorphologist following the successful completion of the channel reconstruction. Field data will be entered into an appropriate software program (Excel, QuattroPro, etc) in tabular form. Using criteria outlined in the Rosgen Classification of Natural Channels (Rosgen 1996), the stream "type" will be determined for each cross-section. Changes in channel morphology will be evaluated for degradation and/or aggradation. Results for each cross-section will be compared to the natural channel type of the as-built channel. The success criteria outlined in Section 6.2.1 is based on the presence of a natural channel design. A "C" stream type is the likely channel type expected to form in Morrison Creek. The C stream type is a slightly entrenched, meandering channel with a well developed floodplain (Rosgen 1996).

Photo documentation for each cross-section will consist of four (4) photographs. One across-channel view from each monument end-point, one upstream view taken 60-feet downstream of the cross-section, and one downstream photo taken 60-feet upstream of the cross section.

6.2.3 Particle Size Distribution

The composition of the streambed and banks is an important variable that influences channel form and hydraulics, erosion rates, and sediment supply. The nature and distribution of channel materials is critical for interpreting channel stability. A change in particle size distribution can produce a change in stream type.

A reach-averaged particle size distribution will be quantified for each monumented cross-section using the Wolman Pebble Count procedure (Wolman 1954) and the Reach Averaged procedure (Rosgen 1994). The Wolman procedure quantifies the bed and bank material up to the bankfull elevation. The reach-averaged procedure provides quantitative analysis of the bed material in each of these features.

6.2.4 Stream Discharge

Channel discharge will be measured once a year at cross-section B-B' (see Figure 6). Discharge measurements will be collected during the later part of the Spring run-off, preferably March or

April. Stream discharge will provide insight and help explain significant changes in channel morphology (if they occur). Field collected discharge data will be compared to the estimated discharge values computed with Manning's equation. Monitoring of channel discharge will provide information relating to unanticipated changes in channel hydrology due to changes in upstream watershed land-use practices. Land-use changes that effect (increase) channel discharge may initiate changes in downstream channel morphology.

6.2.5 Design Threshold Values

Morrison Creek is designed within a set of threshold values for dimension, pattern and profile based on a stable channel geometry. Yearly monitoring will provide data to determine changes in the dimension, pattern and profile. This in turn will provide information on any tendencies for Morrison Creek to change its geometry. Annual data collection will consist of:

1. width
2. depth (mean and max)
3. cross-sectional area
4. channel slope
5. water surface slope
6. water depth
7. bankfull elevation
8. reach-averaged particle size distribution
9. at-a-station stage/discharge (cfs) relationship (at one-foot intervals)

6.3 Ephemeral Drainage

6.3.1 Final Success Criteria

The ephemeral drainage will be constructed south of the 300-foot corridor within the Mitigation Project. The ephemeral drainage may be constructed within three years of the completion of the corridor. The ephemeral drainage may be constructed at the base of the levee either on the pit bottom floor, or at a higher grade. The target acreage for the constructed ephemeral drainage is 1.65 acres.

Ephemeral drainages are linear features that exhibit an ordinary high water mark. These are seasonal features that typically convey runoff for short periods of time, immediately following rain events and do not receive supplemental water from groundwater sources. The primary channel within such features tends to be largely un-vegetated due to the scouring effects of flowing water.

The limit of Corps jurisdiction for non-tidal watercourses (without adjacent wetlands) is defined in 33 CFR 328.4(c)(1) as the "ordinary high water mark", therefore final success of the constructed ephemeral drainage will be determined by:

- the presence of an ordinary high water mark, as defined by: a line on the shore (in this case the bank) established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in

the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

The success of the ephemeral drainage feature will also be determined by the success of the County-required plantings that will be installed within the south restricted area. As outlined in Section 4.3.1 (Table 3), 1,055 tree plantings are planned to be installed within the south-restricted area. Please refer to Section 6.4 for the success criteria and monitoring methods for the plantings.

6.3.2 Monitoring Methods

In order to determine if the constructed ephemeral drainage is functioning properly, the following specific hydrology monitoring methods have been established. Monitoring of the drainage hydrology will take place in years 1, 2, 3, 5, 8, and 10 as outlined in Tables 6 and 7. Monitoring will be conducted along with other habitat monitoring as outlined in the following sections.

To assess the hydrology of the constructed ephemeral drainage, an estimate of the percent of ponded area will be made once following a rain event, typically during January or February, once during April or May, and once in June or July of each monitoring year. Aerial photographs or site visits to the constructed drainage will be used to estimate the extent of inundation.

A biologist will monitor the drainage at four, 20-foot long transects as shown in Figure 7. *Ephemeral Drainage Monitoring Locations.* At each of the four transects, a biologist will evaluate the presence/absence of an ordinary high water mark and hydrology indicators including, but not limited to, inundation, saturation in the upper 12 inches of soil, water marks, drift lines, and sediment deposits.

During each visit, the transects will be ranked according to the approximate percent of inundation: 4 = feature is 100% inundated, 3 = area <100% and ≥ 80% inundated, 2 = area <80% and ≥ 50% inundated, 1 = area <50% inundated, and 0 = area not inundated. Because of the nature of ephemeral drainage (e.g., only fully inundated during and immediately following rain events), a specific inundation percentage is not required.

6.4 Oak/Riparian Plantings

6.4.1 Final Success Criteria

In order to ensure that the required replacement trees will eventually grow to replace the trees that were removed, the required replacement trees (3,562 trees) will be monitored over a ten-year period. To be counted as successful, a tree must be surviving in at least good condition. Table 10 below outlines the planting success criteria.

Table 10 – Riparian and Oak Woodland Planting Success Criteria		
Vegetation:	1)	No less than 100% success rate for the riparian plantings.
	2)	No less 100% success rate for the oak woodland plantings.

During monitoring, each planting will be located and its condition will be recorded. Plant condition will be scored on a scale of 0 to 3, where:

Score	Plant Condition
0	dead
1	poor health (alive but with a few green leaves and no apical growth)
2	good health (alive with healthy foliage but minimal apical growth)
3	excellent health (alive and growing vigorously)

These data will be entered into a spreadsheet for analysis. Results calculated will include the total number of plantings monitored (all condition classes), total plantings found in each condition class, and the success rates for both individual species and for the plantings as a whole, as calculated below.

The success rate will be calculated according to the following formula:

$$\text{Success Rate (\%)} = \frac{\text{total \# in good or excellent condition during survey}}{\text{total \# originally planted}} \times 100$$

If the success rate of 100% has not been met by year 10 for the 3,562 required mitigation plantings, then the DBH of the trees will be counted and used as a comparison with the inches required. The diameter measurement will be rounded to a whole number as the trees being impacted were measured in whole numbers.

6.4.2 Monitoring Timeline

Tree monitoring will be conducted once annually toward the end of the dry season (i.e., July or August) after the trees have experienced high stress conditions. This time frame will ensure greater accuracy in determining plant condition and survivorship. See Tables 6 and 7 for the ten-year monitoring timeline.

6.5 Wildlife

A wildlife survey will occur once per year. A biologist will walk a meandering transect through the Mitigation Project to generate a cumulative list of the type and number of all species observed utilizing the area. Wildlife signs, such as scat, pellets, or bones, will also be noted. This wildlife survey will be conducted in conjunction with vegetation monitoring. An annual

cumulative list of wildlife found within the Mitigation Project will be included in the annual monitoring report.

6.5.1 Sacramento Blackfish

Sacramento Blackfish native habitat includes low-elevation reaches of the San Joaquin and Sacramento rivers and their major tributaries (Moyle, 2002). They prefer warm, turbid waters of the Central Valley and are common in oxbow lakes. They have been found in deep, turbid pools with soft (i.e., clay, mud) bottoms (Smith, 1977). They exhibit an extraordinary ability to adapt to extreme changes in their environment (Cech et al. 1979, Campagna and Cech, 1981). Adults have been found in waters with temperatures > 30°C and low dissolved oxygen levels.

The realignment of the Morrison Creek channel on the Project site will not pose a threat to the Sacramento Blackfish. As noted by Moyle and others, the ability of the Sacramento Blackfish to survive in warm, turbid waters, allows them to persevere despite changes in their environment. Given the relatively short period of stream alteration, coupled with the Blackfish's physiological adaptability to extreme environments, construction of the new and temporary channels should not disrupt the propagation of the Sacramento Blackfish.

6.6 Photo-Documentation

In conjunction with the above-described monitoring activities, photographs of the creek and created/restored wetlands within the Mitigation Project will be taken at four (4) permanent photo point locations (see Figure 6). Photo point locations for the constructed ephemeral drainage will be determined during the first year of monitoring. The photo points are intended to provide a photographic history of both preserved and restored areas within the Mitigation Project (See Tables 6 and 7 for the years when photos will be taken). During the first year following restoration, additional photo points may be established, if desired. Additionally during the first year, photo point locations of the plantings will be established.

6.7 Schedule

Monitoring will occur over a ten-year period to ensure continuous success of the constructed habitat. Refer to Tables 6 and 7 for the 10-year monitoring schedule.

7.0 ANNUAL REPORTS

7.1 As-Built Maps

The applicant will submit separate reports to the Corps within 60 days of the creek corridor and ephemeral drainage construction activities or in the first monitoring report, which will describe the as-built status of the Mitigation Project. If there are significant changes from the original plans, these will be indicated in indelible red and submitted to the Corps.

An aerial photo will be taken in the first winter after the wetlands have been constructed. The ponded wetland areas will be digitized and a wetland acreage will be calculated. This wetland "as-built" will be included in the first annual monitoring report and will verify that the wetland mitigation acreage specified in the permit has been constructed. In addition, the aerial photo will be used to calculate the length of the newly created low flow channel.

7.2 Annual Reports

A monitoring report will be submitted to the Corps, County and CDFG for each year the constructed wetlands and riparian/oak woodland habitat are monitored. The report will present the status of the creek, wetlands, drainage, oak woodland and riparian habitats, including individual wetland data, photo-documentation, status of the riparian and oak woodland plantings, and any recommended remediation. In addition, the report will include an assessment of the monitoring results against the success criteria described above. At the end of the ten-year monitoring period, monitoring will cease if the Mitigation Project is found by the Corps, County, and CDFG to be in substantial compliance with established success criteria. Monitoring will be extended beyond the ten-year period only for those habitats that are not meeting success criteria.

A monitoring report will be prepared and submitted to the Corps, County and CDFG for each of the monitoring years by December 31st of each monitoring year. The report will refer to the Corps regulatory branch number for the Project, which is 199400102. The reports will be sent to the attention of Chief, Sacramento Valley Office, Regulatory Branch, at the Corps. Monitoring reports will include:

1. A map showing the Preserve including wetland locations, location of various monitoring activities, and photo points;
2. Hydrology, vegetation, and photographic monitoring results as described above;
3. An assessment of the monitoring results against the established success criteria;
4. A description of the overall site condition and any management actions taken during that year; and
5. Any recommended management or remediation actions to be conducted (if necessary, a contingency plan, as described in Section 8.2, will be prepared).

To be included with each annual monitoring report or until the success criteria are met (whichever is longer), the Corps-approved easement holder will provide the Corps with a record of annual endowment deposit (as outlined in Section 2.4 of the *Operations and Management Plan for the Morrison Creek Nature Preserve* - submitted under separate cover).

8.0 CONTINGENCY MEASURES

8.1 Initiating Procedures

If any annual performance criterion is not met for all or any portion of the Mitigation Project in any year, or if the final success criteria are not met, the applicant shall prepare an analysis of the cause or causes of failure and propose remedial action for approval (e.g., re-grading). If the Mitigation Project has not met the performance criterion, the responsible party's maintenance and monitoring obligations continue until the appropriate agency gives final confirmation.

8.2 Contingency Measures

8.2.1 Mitigation Contingency

If a portion of the acreage designated for the Project does not function properly remediation will be proposed. If remediation is not feasible or is unsuccessful, Corps approved mitigation may take place off-site or through credit purchase. If the construction of the ephemeral drainage is determined by the Corps to not be practicable then mitigation will take place off-site or through credit purchase. Either the pit bottom drainage or Corps' approved alternative mitigation must be completed by 2013.

8.2.2 Creek Corridor Contingency – Engineering/Design Justification

A failure of the reconstructed Morrison Creek is not anticipated. The existing creek is currently underlain with sand and gravels. Therefore, if Morrison Creek was left in its current position and the remainder of the Project was mined (no mining within 150 feet of the creek would occur), Morrison Creek would be perched and thus more susceptible to lateral blow out. Additionally any drainage above bankfull would flow across the 150-foot floodplain (buffer) into the pit bottom. Flow velocities at the buffer boundary would reach super-critical values and may cause severe erosion and possible blow out.

In contrast, with the proposed plan, the reconstructed Morrison Creek channel would be engineered to a minimum of 90% compaction and will be constructed to federal and local standards. Compaction testing will be performed throughout the course of construction to ensure adequate compaction is obtained. These compaction records will be reviewed by the design engineer and will remain on file. In addition, detailed fieldwork and analysis took place prior to the design (See Section 4.2.1). The restored channel was designed with a similar sinuosity and length to that of the existing active Morrison Creek channel. The project engineer ran the needed models to ensure that the channel would be able to pass the expected high flows associated with a 200-year storm event without overtopping. For these reasons, a failure associated with the restored creek corridor is not anticipated.

8.2.3 Creek Corridor Contingency – Corridor Failure

Once constructed, if the restored creek corridor levees were subject to a failure, Granite and Teichert would be responsible to coordinate, fund, and implement any necessary remediation activities.

If a catastrophic event (e.g., flood event exceeding a 200 year event; a natural disaster such as an earthquake; war; riot; falling aircraft) were to occur, Granite and Teichert would not be held liable for the costs involved in the remediation of the Preserve; however, Granite and Teichert would make a good faith effort to remediate to the extent possible.

8.3 Funding Mechanism

Funding for the construction, monitoring, maintenance, and remediation of the created habitats will be provided by Granite and Teichert.

9.0 COMPLETION OF MITIGATION RESPONSIBILITIES

9.1 Notification

Upon the submission and approval of the final monitoring report to the Corps County, and CDFG, it is Granite and Teichert's understanding that the final success criteria have been met.

9.2 Agency Confirmation

Following receipt of the report, the Corps and the County may require a site visit to confirm the completion of the mitigation monitoring. At the end of the ten-year monitoring period for the wetlands and oak woodland/riparian habitats, monitoring will cease if the Mitigation Project is found by the Corps and the County to be in substantial compliance with established success criteria. Once the initial success monitoring period is complete, all of the provisions of the *Operations and Management Plan for the Morrison Creek Nature Preserve* will be implemented for long-term management of the Mitigation Project.

10.0 REFERENCES

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Figure 7. Ephemeral Drainage Monitoring Locations

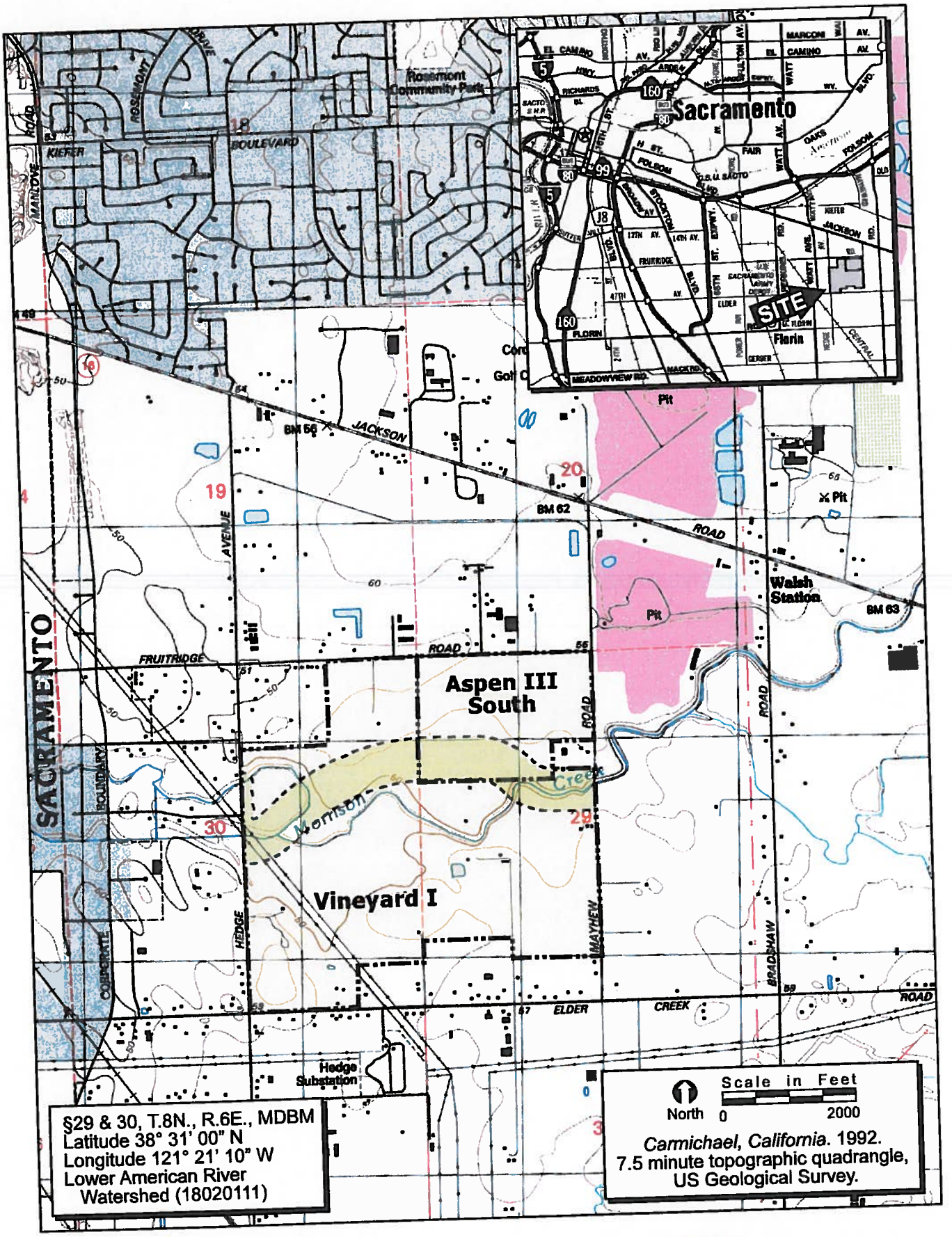

FIGURE 1. Project Site and Vicinity

2004-217 Morrison Creek Realignment

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS
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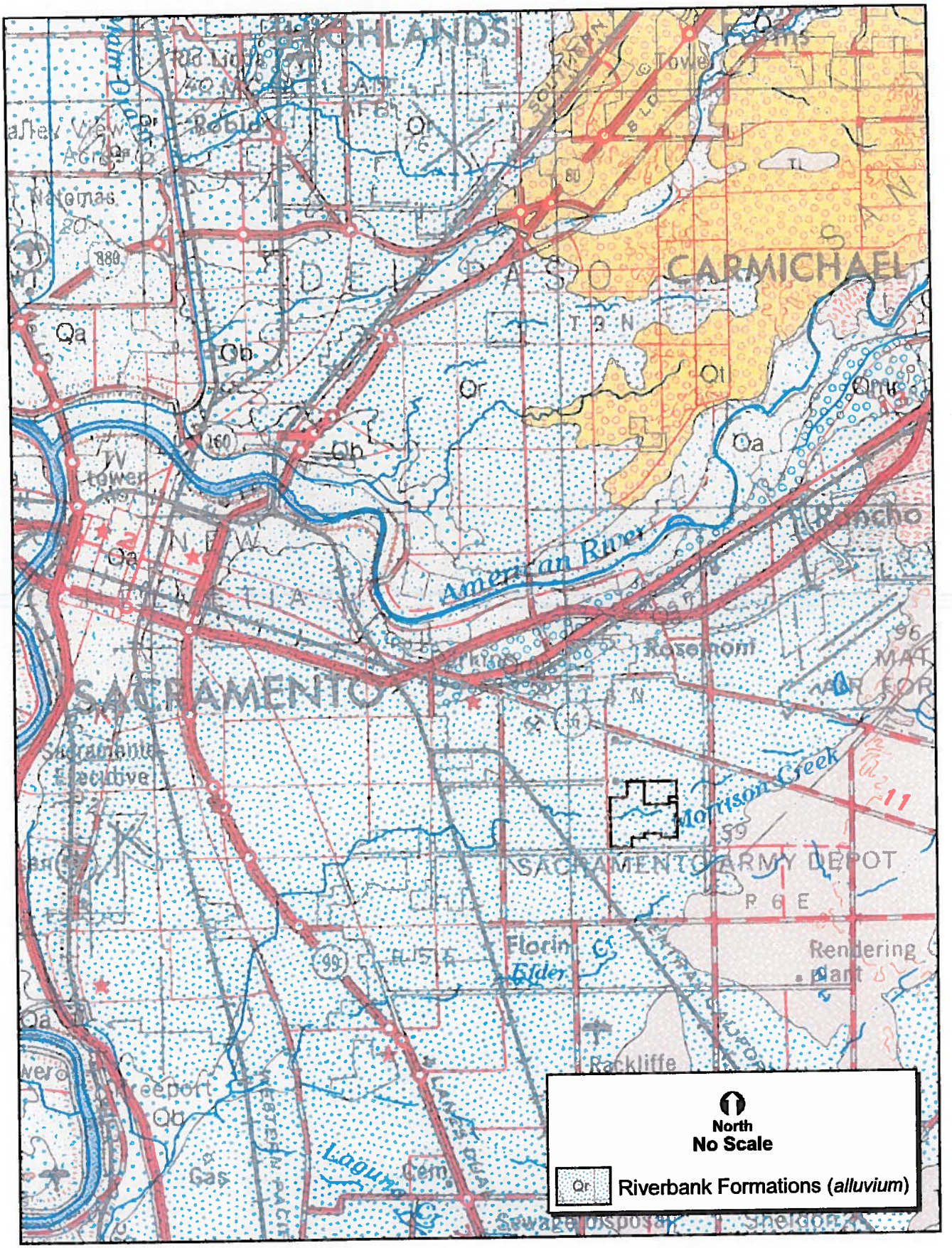

FIGURE 2. Regional Geology

2004-217 Morrison Creek Realignment

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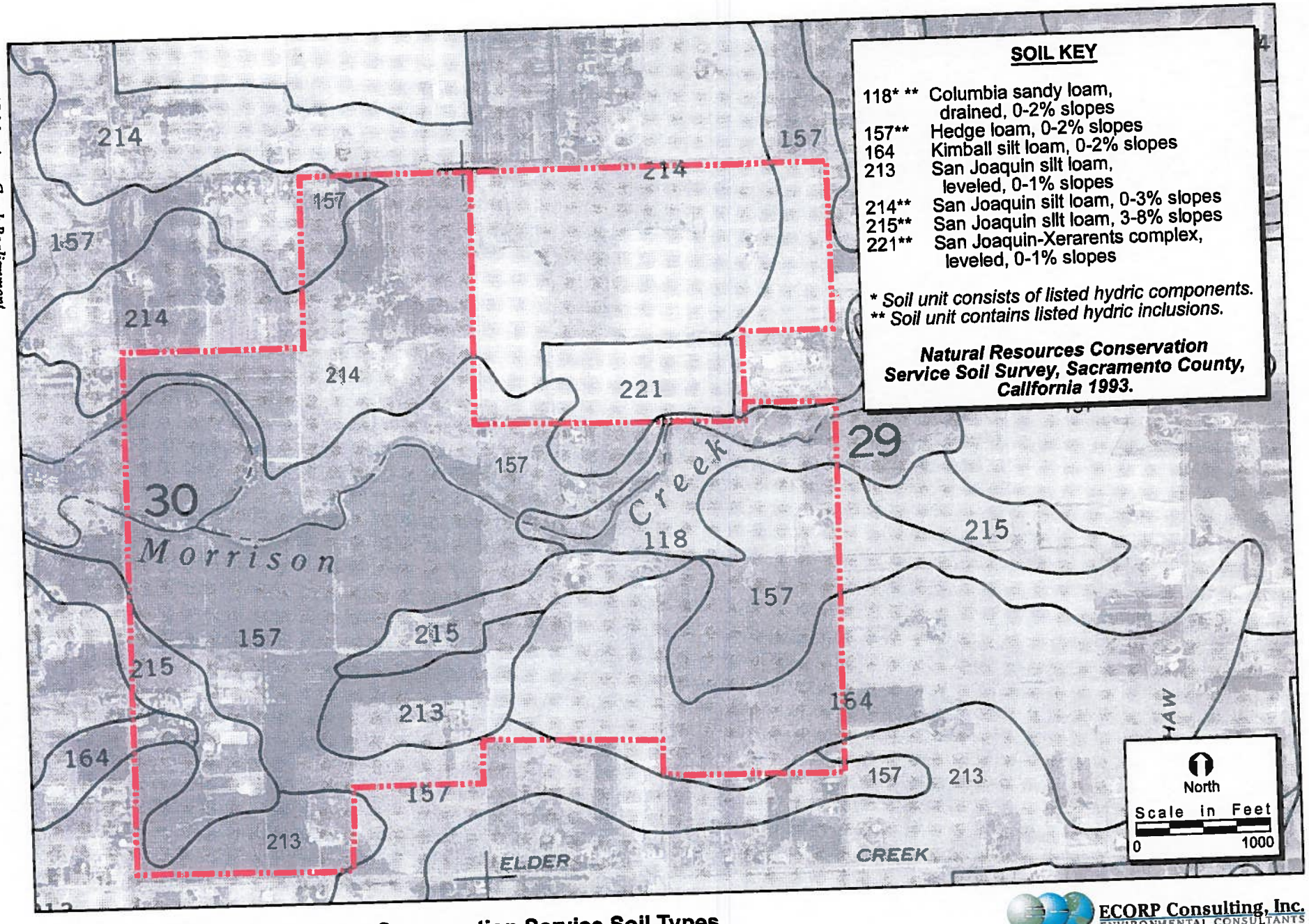

FIGURE 3. Natural Resources Conservation Service Soil Types

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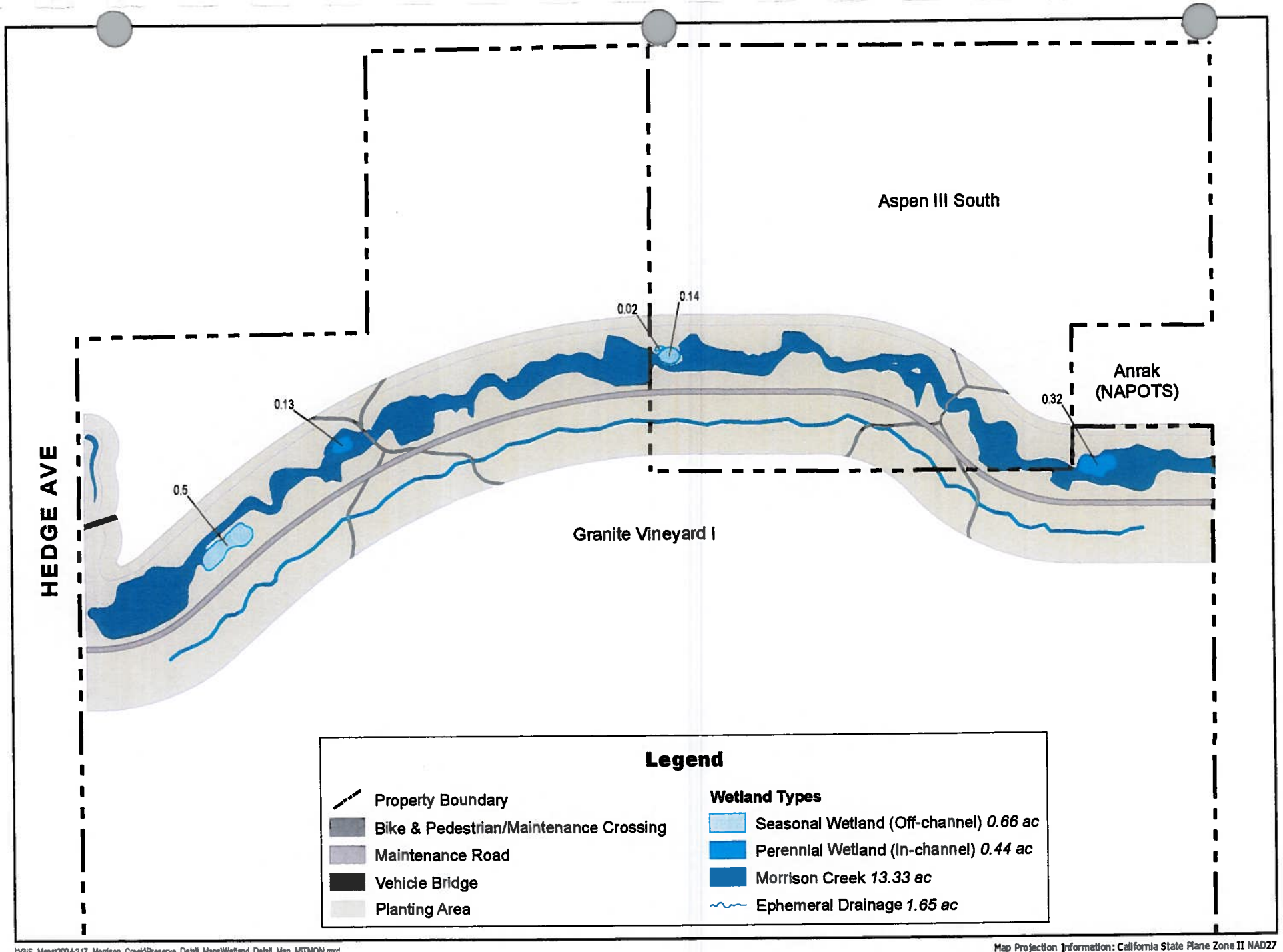

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Map Projection Information: California State Plane Zone II NAD27
Project Boundary from G.C. Wallace

Figure 4. Wetland Detail

2004-217 Morrison Creek

1 " equals 600 '

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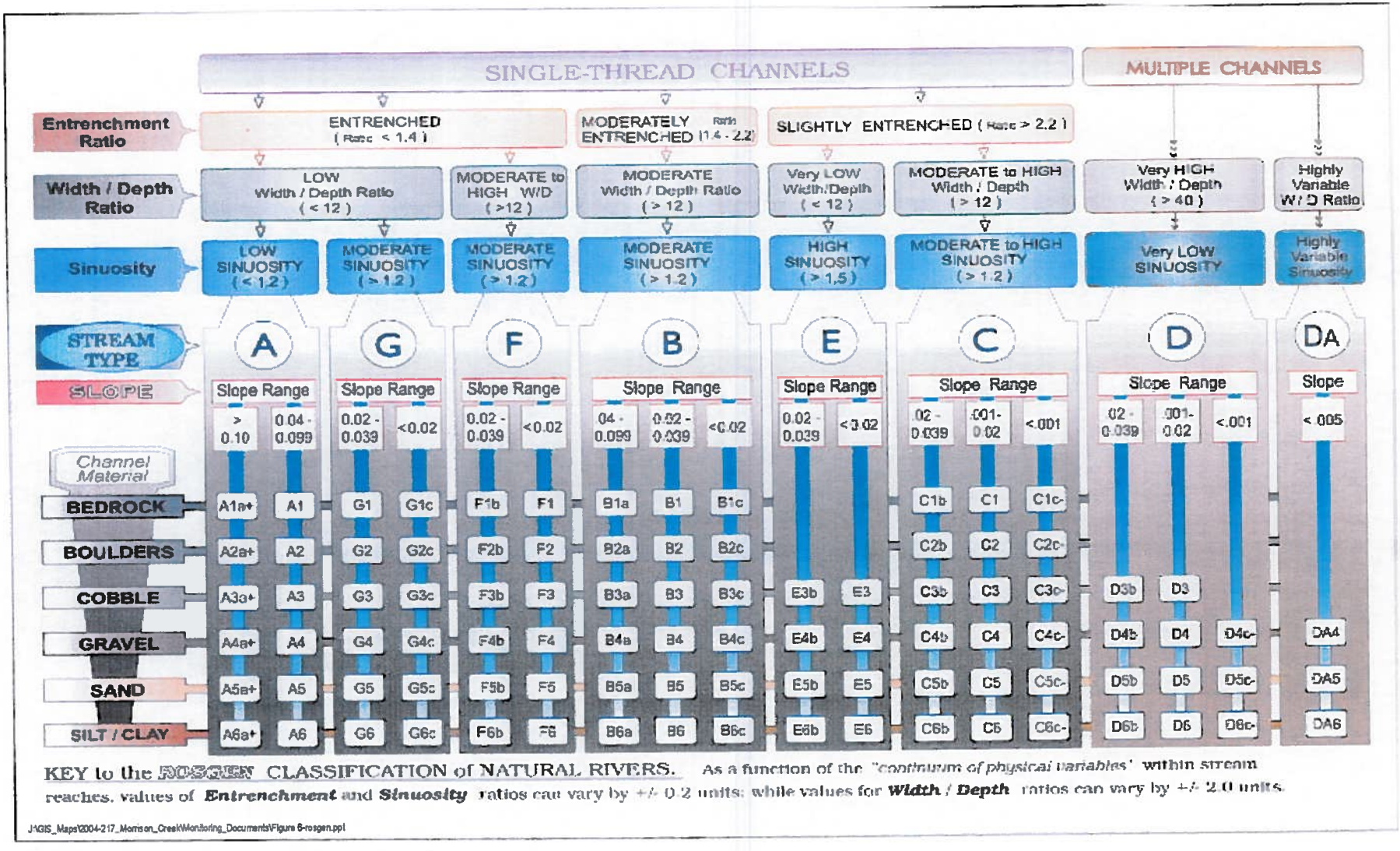
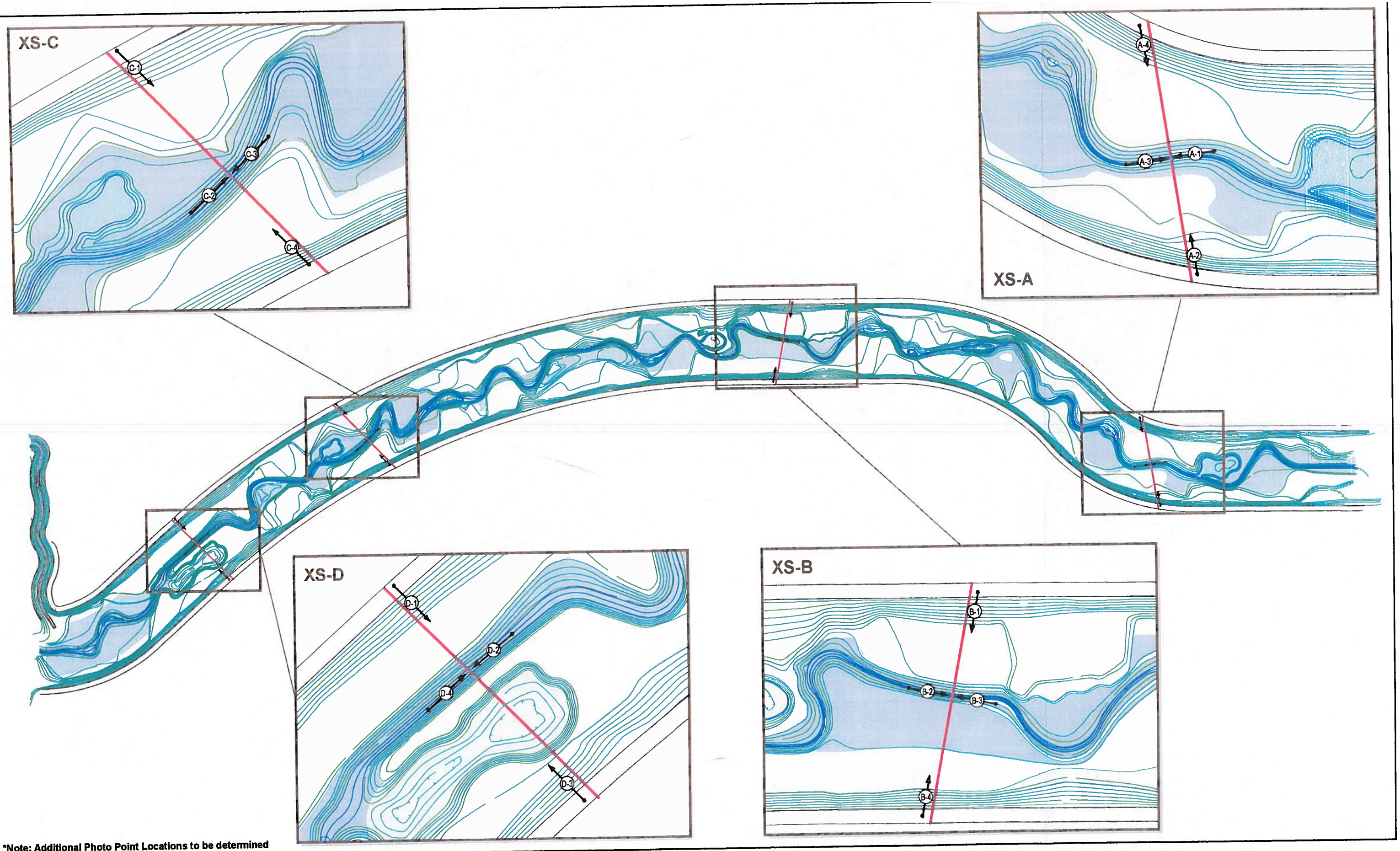


Figure 5. Classification of Natural Rivers (from Rosgen, 1996).



*Note: Additional Photo Point Locations to be determined

Map Projection Information: California State Plane Zone II NAD27

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Figure 6. Creek/Wetland Cross-section and Photo Point Locations

2004-217 Morrison Creek

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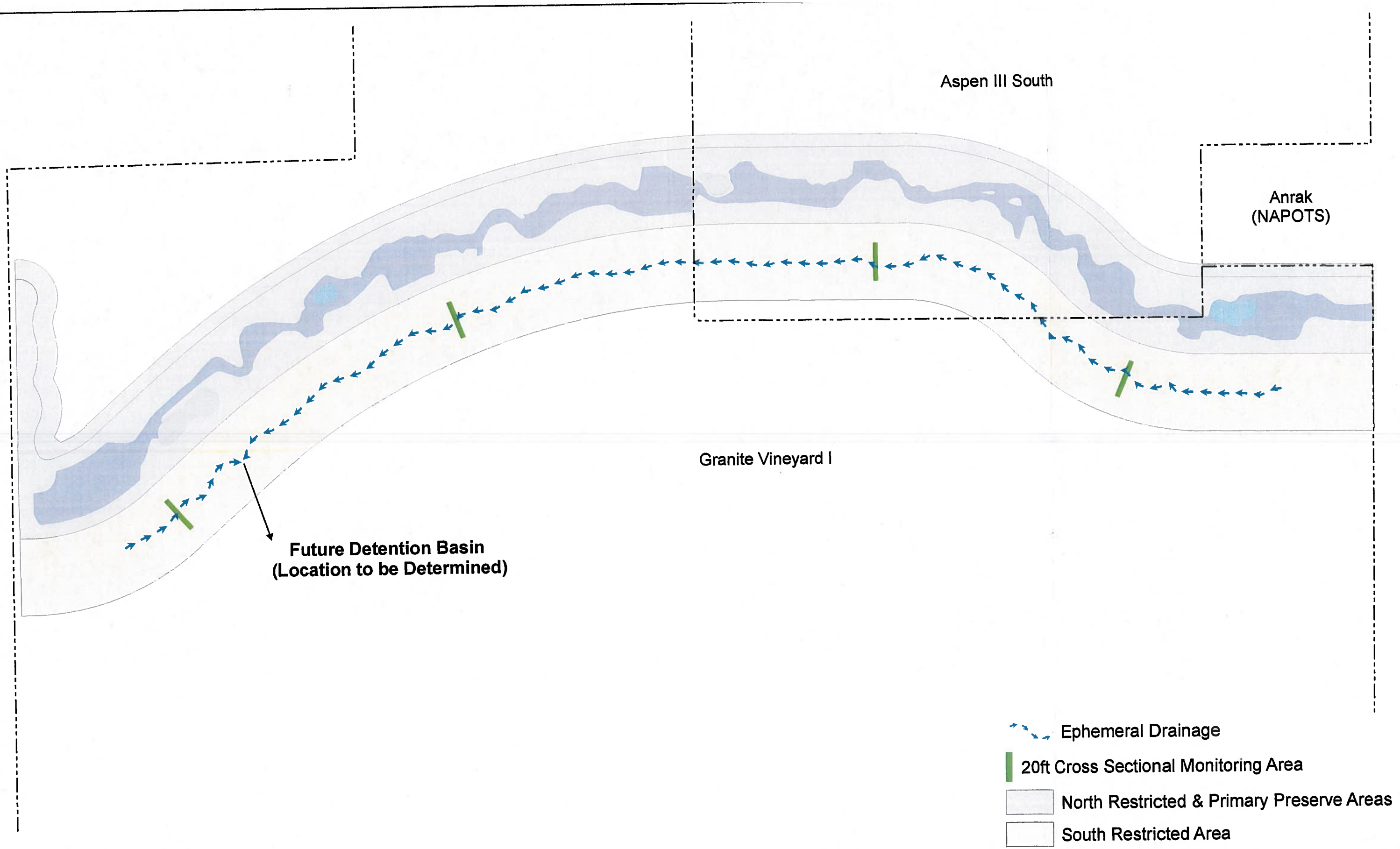

*Note: Photo Point Locations to be determined

Map Projection Information: California State Plane Zone II NAD27

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Figure 7. Ephemeral Drainage Monitoring Locations

2004-217 Morrison Creek

LIST OF ATTACHMENTS

Attachment A – Department of the Army Permit (Regulatory Branch Number 199400102)

Attachment B – Wetland Delineation

Attachment C – Ephemeral Drainage Design

Attachment D – Conceptual Construction Schedule

Attachment E – Conceptual Riparian and Oak Woodland Planting Plan for Morrison Creek Restoration

Attachment F – Seed Mixes

Attachment G – Tree and Shrub Planting Detail Sheets

Attachment H – 2006-2007 Planting Detail

ATTACHMENT A

Department of the Army Permit (Regulatory Branch Number 199400102)

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO, CALIFORNIA 95814-2922

REPLY TO
ATTENTION OF

APR 16 2004

Regulatory Branch (199400102)

Scott Wolcott
Granite Construction
P.O. Box 15287
Sacramento, California 95851-0287

Dear Mr. Wolcott:

We are enclosing your copy of Department of the Army Permit 199400102. Please note you are only authorized to complete the work described in the permit.

If you sell the property associated with this permit, the terms and conditions of this permit will continue to be binding on the new owner. To validate the transfer of this permit, have the succeeding party sign the permit transfer section at the end of the permit and forward a copy to this office, along with their printed name, address, telephone number, and other contact information.

The time limit for completing the work is specified in General Condition 1. If the work will not be completed prior to that date, you may request a time extension. Your request for an extension must be received by this office for consideration at least 30 days before the time limit date.

My staff has reviewed your April 7, 2004, Wetland Contingency Mitigation Plan for the off-channel wetlands. The plan is generally consistent with the provisions of the permit and addresses most of the items in our preliminary response. However, the timing and mitigation ratios in Contingency Measures 1 and 3 are not adequate to offset temporal losses of aquatic functional values. We believe this aspect of the plan can be easily rectified by including a phased approach, with mitigation ratios increasing with time from the date the specific wetlands are impacted. Please contact my regulatory staff to discuss this issue in more detail and finalize this plan.

DEPARTMENT OF THE ARMY PERMIT

Permittee: Scott Wolcott
Granite Construction Company
Sacramento Branch
P.O. Box 15287
Sacramento, California 95851

Permit Number: 199400102

Issuing Office: U.S. Army Engineer District, Sacramento
Corps of Engineers 1325 "J" Street
Sacramento, California 95814-2922

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work, in accordance with the terms and conditions specified below.

Project Description: To discharge dredged or fill material into waters of the United States on the 407.5-acre Granite Vineyard project site to mine gravel. This work will result in adverse impacts to approximately 17.22 acres of waters of the United States, including approximately 1.5 miles of Morrison Creek, between Mayhew Road and Hedge Avenue. The project includes construction of an enhanced Morrison Creek bypass channel and on-site wetland mitigation. All work is to be completed in accordance with the permit conditions. This permit does not authorize any work outside of the Vineyard project site as shown on the attached site map.

Project Location: The project site is bordered by Mayhew Road on the east, Hedge Avenue on the west, Fruitridge Road on the north and Elder Creek Road on the south, as shown on the above site map, in Sections 29 and 30, Township 8 North, Range 6 East, MDBM, in Sacramento County, California as shown on the attached Vineyard I Site and Vicinity map (Exhibit 1).

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on November 30, 2013. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.

in coordination with Sacramento County, the U.S. Fish and Wildlife Service (FWS), the U.S. Environmental Protection Agency (EPA), and the California Department of Fish and Game (DFG). No mining within 150-feet from the ordinary high water mark of Morrison Creek, including the "oxbow" channel, may occur until the final plan has been approved. Mining may commence in the off-channel wetlands before approval of the final plan, following Corps receipt and acceptance of a contingency mitigation plan for the off-channel wetlands, which will be implemented if mitigation in the final plan is not initiated within five (5) years.

2. To protect the engineering integrity of the bypass channel and provide maintenance access, a portion of the bypass channel, planted with native grasses, may be maintained (i.e., mowed) for the purpose of flood conveyance. Construction and long-term maintenance of the bypass channel must not prevent water from continuing to flow to both the north and south channels of Morrison Creek west of Hedge Avenue to sustain healthy riparian and wetland vegetation along these channels.

3. You shall design, construct and maintain any water conveyances from the bypass channel to downstream portions of Morrison Creek (north and south channels) and the pit-bottom wetland mitigation as open (non-piped) channels. Such conveyance must be a minimum of 10 feet wide at the ordinary high water mark. Water from the pit-bottom detention pond may be pumped back into the bypass channel. If it is established during the ten (10) year monitoring period that the pump is not necessary to successfully sustain the pit-bottom mitigation, the long-term operation and maintenance of the pump may be discontinued, following approval by this office.

4. You shall establish and maintain undisturbed, upland vegetated buffers, including native riparian trees, of at least twenty five (25) feet in width from the outer limit of all created wetlands or the ordinary high water mark, whichever is greater, within the pit-bottom mitigation, the bypass channel and any water conveyances addressed above. In the event the created wetlands naturally expand over time into the buffer, the buffer areas and legal descriptions need not be modified. Appropriate permanent fencing and signage shall be constructed and maintained at the outside perimeter of all-upland buffers (or expanded wetlands), except in the pit-bottom wetland mitigation where only signage at regular intervals is required. Fencing and signage must be installed within thirty (30) days of the completion of construction of the pit-bottom wetland mitigation, the bypass channel, and any other water conveyances.

5. You shall construct the mitigation prescribed by the final plan in special condition 1 concurrently with, or in advance of, initiating any activity authorized by this permit within 150 feet of Morrison Creek, including the oxbow channel. Construction of the pit-bottom wetland mitigation shall be completed by no later than two years following the completion of work in Morrison Creek, in accordance with the phases on your April 4, 2002, *Vineyard I Revised Reclamation Plan* drawing (Exhibit 5 attached). Construction of the bypass channel, including associated wetland and riparian habitat, shall be completed by no later than two years from initiating any diversion of Morrison Creek.

6. You shall establish and maintain the pit-bottom wetland mitigation and enhanced bypass channel riparian habitat corridor, including buffers, as wetland and wildlife habitat preserves (preserves) in perpetuity to insure that the functions and values of the aquatic environment are protected.

overseer during construction activities, preserve manager and holder of the required conservation easements for the bypass channel preserve.

d. Submit proposed permanent conservation easement and/or deed restriction language for both preserves for the Corps to review and approve prior to recordation.

12. No later than thirty (30) days following completion of construction of the preserve areas, you shall record and submit to this office the Corps-approved conservation easements and/or deed restrictions maintaining the preserves as wetland and wildlife habitat in perpetuity.

13. To insure mitigation success, you shall monitor the preserves in accordance with the final plan for ten years or until the success criteria described in the approved mitigation plan are met, whichever is greater. This period shall commence upon completion of construction of the enhanced bypass channel and mitigation wetlands. Continued success of the mitigation wetlands in the preserves, without human intervention, must be demonstrated for three (3) consecutive years, once the success criteria have been met. The mitigation will not be deemed successful until this criterion has been met.

14. You shall submit annual monitoring reports to this office for the ten (10) year monitoring period, and for each additional year, if remediation is required, by October 1 of each year. You shall submit an additional monitoring report at the end of the three (3) year period demonstrating continued success of the mitigation program without human intervention. The only exception to this last requirement shall be if the three (3) year period occurs wholly within the ten (10) year monitoring period. In which case, the ten (10) year report may be used to meet this requirement.

15. This permit does not authorize you to take an endangered species, in particular the vernal pool fairy shrimp (Branchinecta lynchi), valley elderberry longhorn beetle (Desmocerus californicus dimorphus), or designated critical habitat. In order to legally take a listed species, you must have separate authorization under the Endangered Species Act (e.g., an Endangered Species Act Section 10 permit, or a Biological Opinion under Endangered Species Act Section 7, with "incidental take" provisions with which you must comply). The enclosed Fish and Wildlife Service Biological Opinion and amendment (Number 1-1-02-F-0161 and 1-1-00-F-0179), dated March 18, 2002 and April 26, 2002, contain mandatory terms and conditions to implement the reasonable and prudent measures that are associated with "incidental take" that is also specified in the Biological Opinion. Your authorization under this Corps permit is conditional upon your compliance with all of the mandatory terms and conditions associated with incidental take of the attached Biological Opinion, which terms and conditions are incorporated by reference in this permit. Failure to comply with the terms and conditions associated with incidental take of the Biological Opinion, where a take of the listed species occurs, would constitute an unauthorized take, and it would also constitute non-compliance with your Corps permit. The Fish and Wildlife Service is the appropriate authority to determine compliance with the terms and conditions of its Biological Opinion, and with the Endangered Species Act. The permittee must comply with all conditions of this Biological Opinion, including those ascribed to the Corps.

Further Information:

Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (see 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General Condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

Granite Construction Company
P.O. Box 15287
Sacramento, CA 95851

P. W. Cornelius — 3-15-04

Permittee — Date

P.W. Cornelius
Branch Manager

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

Issued for and on behalf of Colonel Michael J. Conrad, Jr., District Engineer.

Michael Conrad — 4/16/04

for Mark W. Connelly — Date
Lieutenant Colonel,
Corps of Engineers
Acting District Engineer

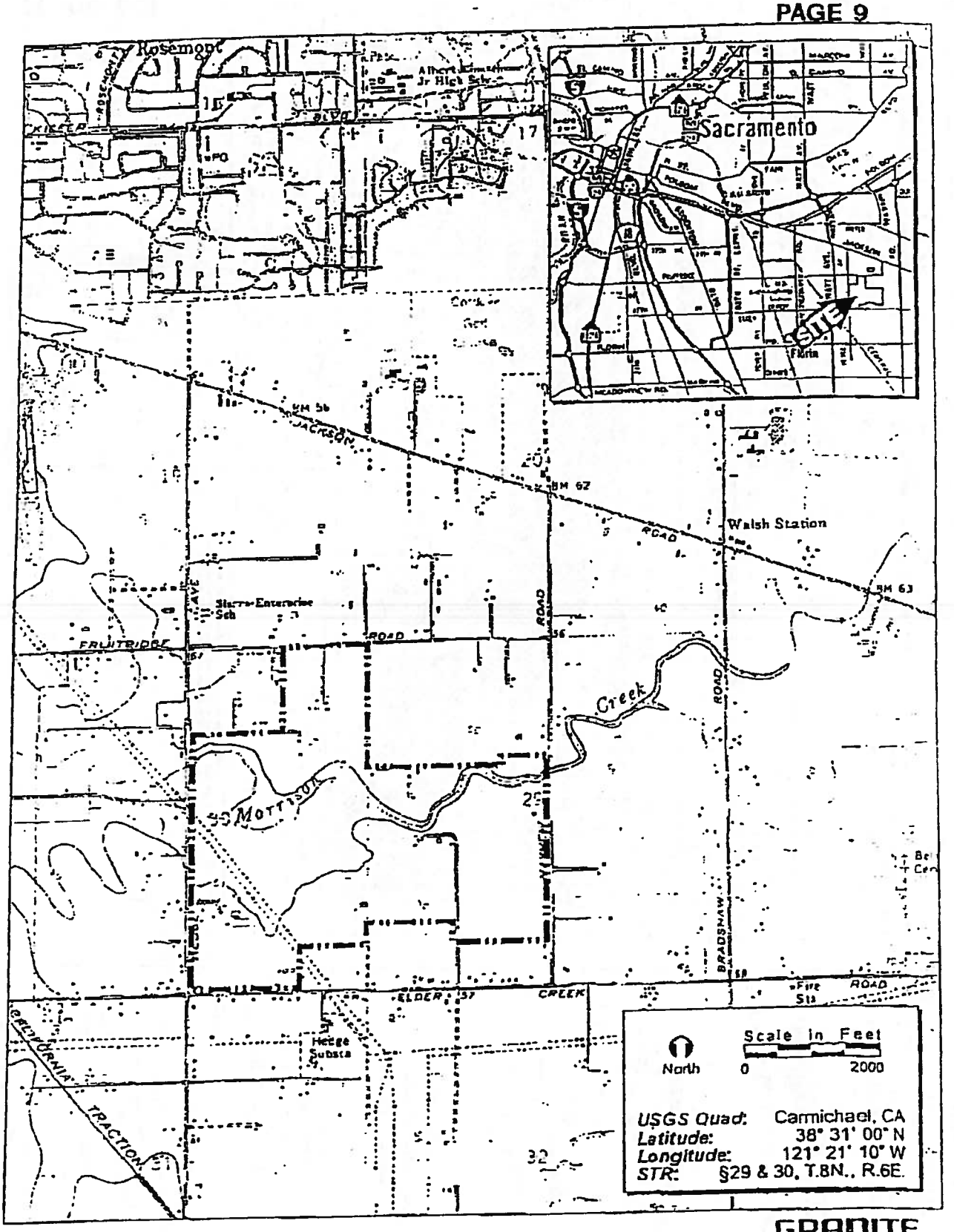


EXHIBIT 1. Vineyard I Site and Vicinity Map

Prepared by ECORP Consulting, Inc.

GRANITE CONSTRUCTION INCORPORATED

2001-071 Granite Vineyard

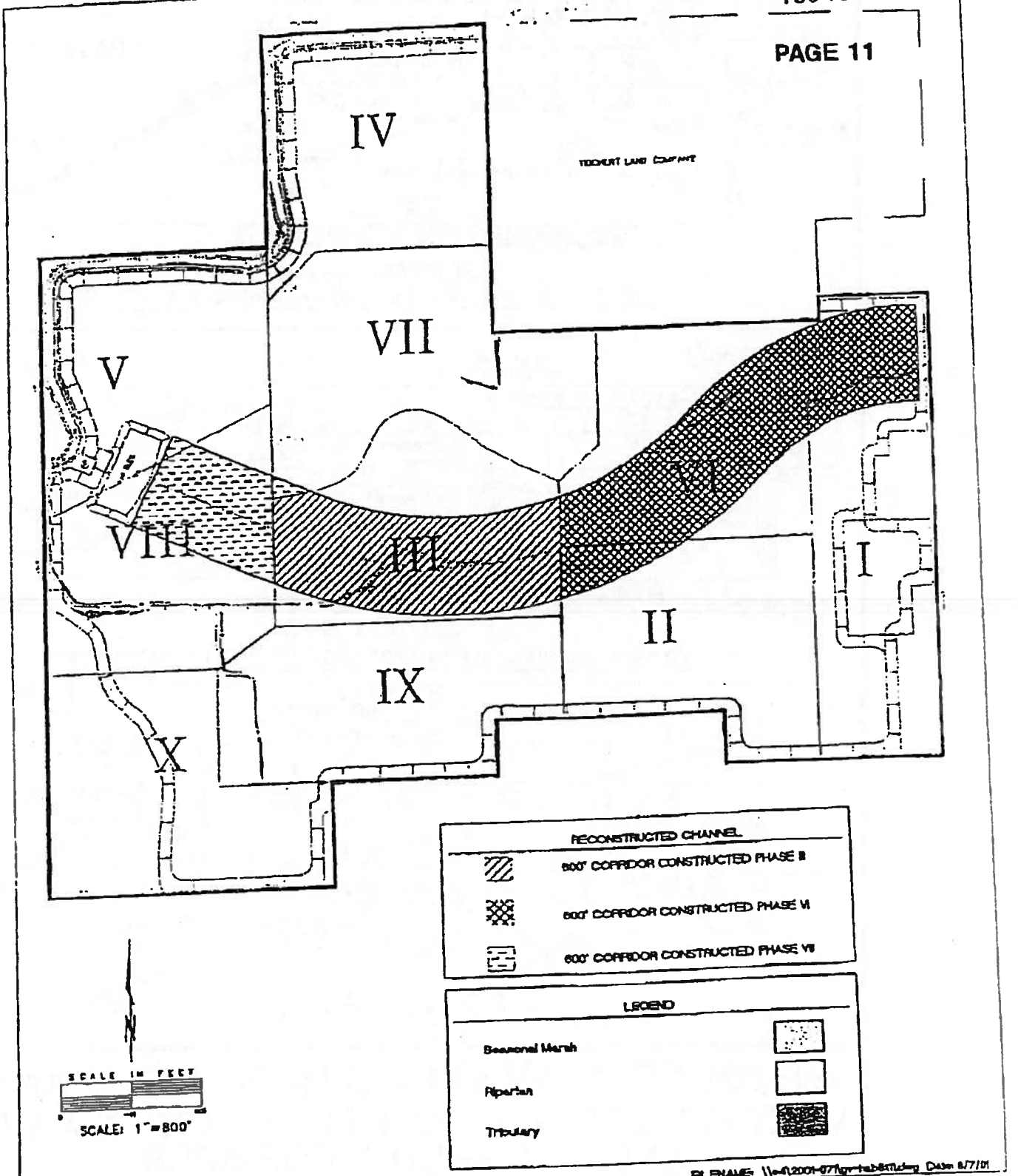
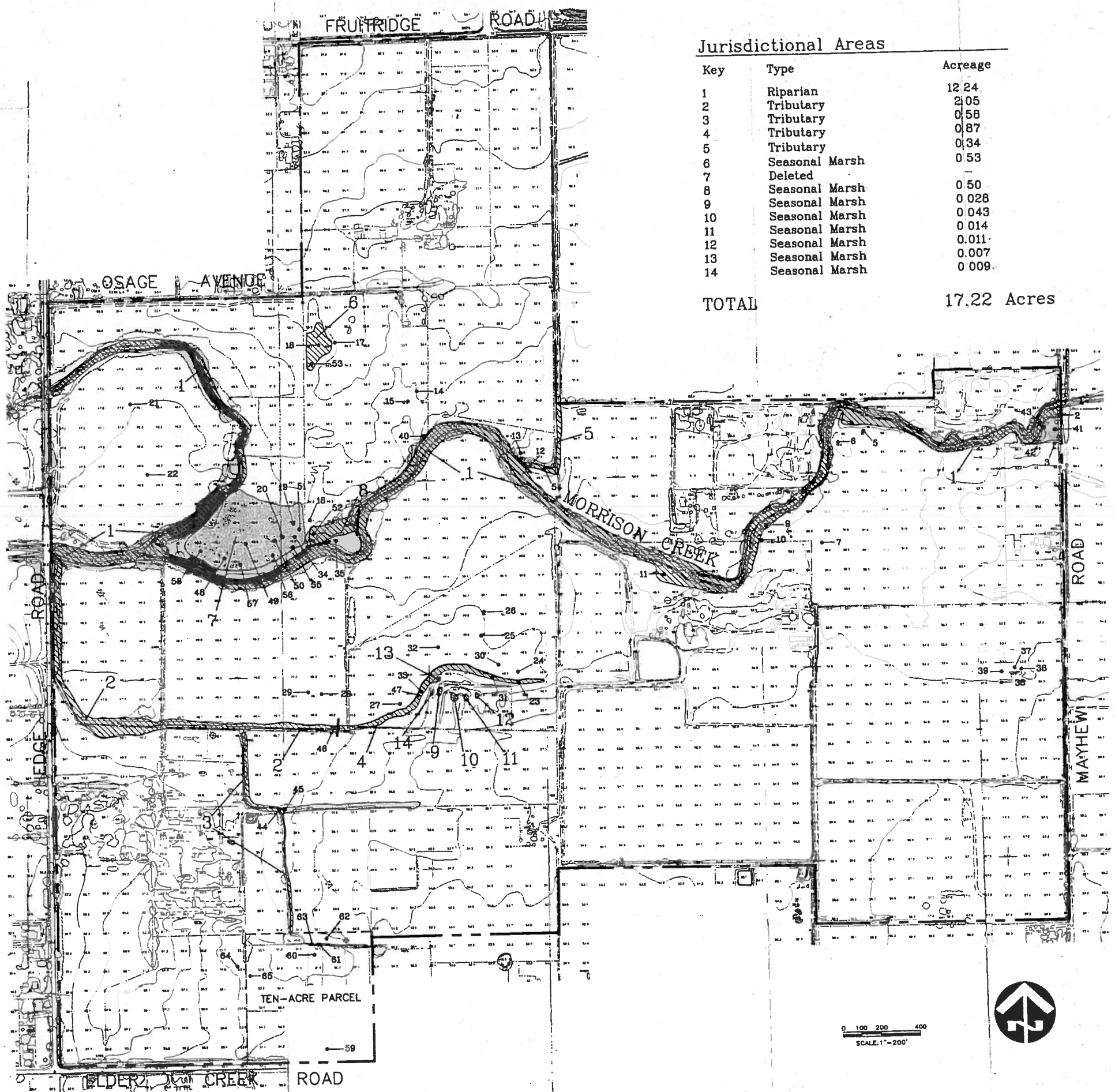


Figure 2. Habitat Impact and Creation Map

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

ATTACHMENT B

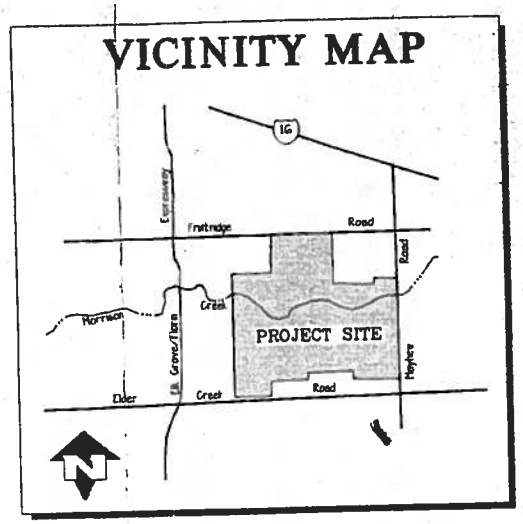
Wetland Delineation



Jurisdictional Areas

Key	Type	Acreage
1	Riparian	12.24
2	Tributary	2.05
3	Tributary	0.58
4	Tributary	0.87
5	Tributary	0.34
6	Seasonal Marsh	0.53
7	Deleted	—
8	Seasonal Marsh	0.50
9	Seasonal Marsh	0.028
10	Seasonal Marsh	0.043
11	Seasonal Marsh	0.014
12	Seasonal Marsh	0.011
13	Seasonal Marsh	0.007
14	Seasonal Marsh	0.009
TOTAL		17.22 Acres

VICINITY MAP



Legend

- 1 — Jurisdictional Area
- Deleted Jurisdictional Area
- 4 — Sample Point
- Habitat Boundary
- Project Boundary

Disclaimer: Section 404 Jurisdictional Map

This map exhibits conditions on the site at the time of completion of the delineation. For various reasons, conditions on a site may change, which may affect site wetland boundaries. Delineation maps generally expire five years after approval by the U.S. Army Corps of Engineers (Corps).
Because regulations governing delineations are subject to change, this map should be reviewed by a qualified wetland consultant to ensure its accuracy if not submitted to the Corps within six (6) months of preperation.

ZENTNER and ZENTNER

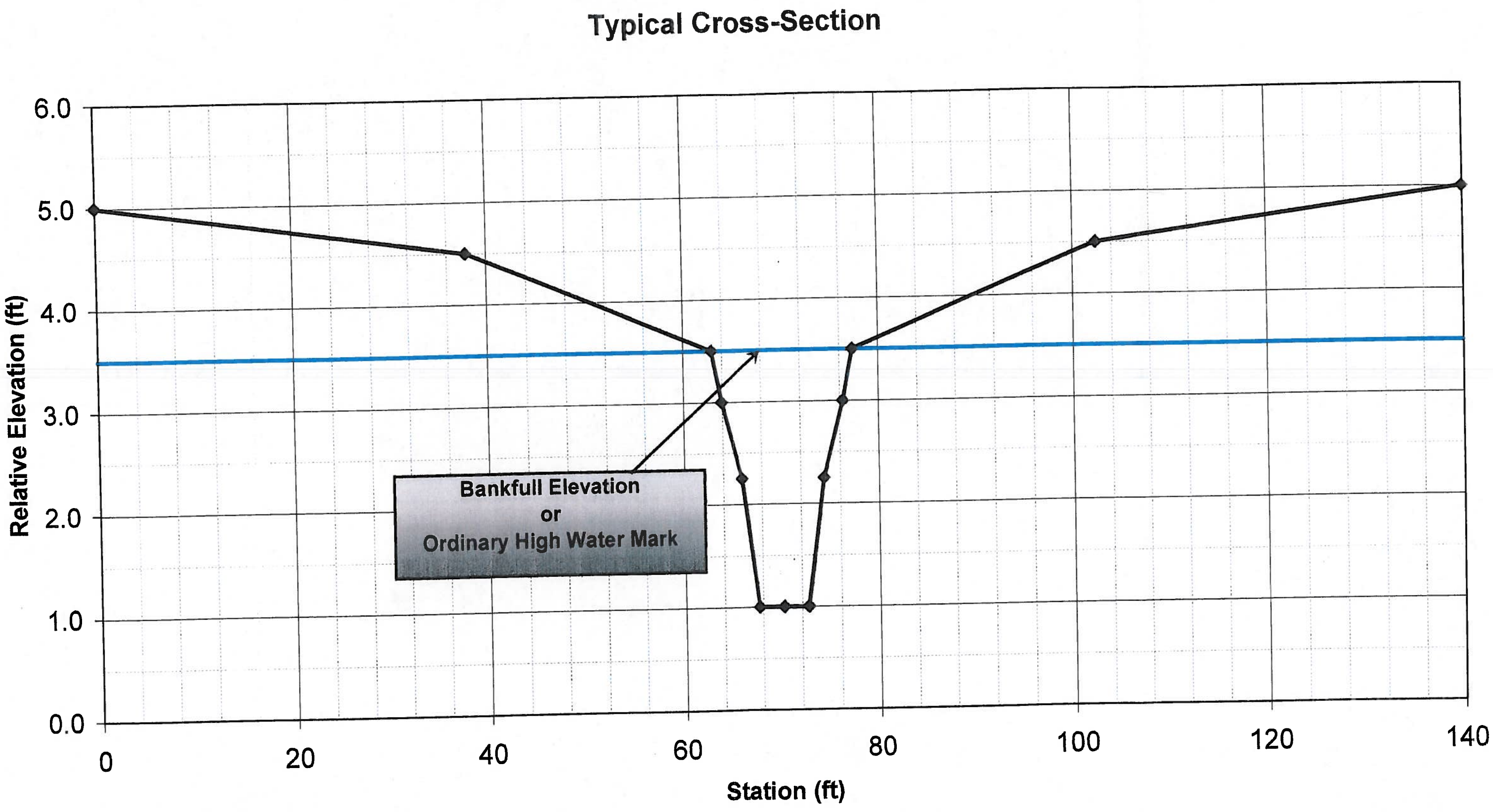
VINEYARD I

Modified Jurisdictional Delineation Map

Date	JUNE 1997
Scale	1" = 200'
Drawn	RKW
Job	084 GCC
Sheet	1
Of	1 Sheets

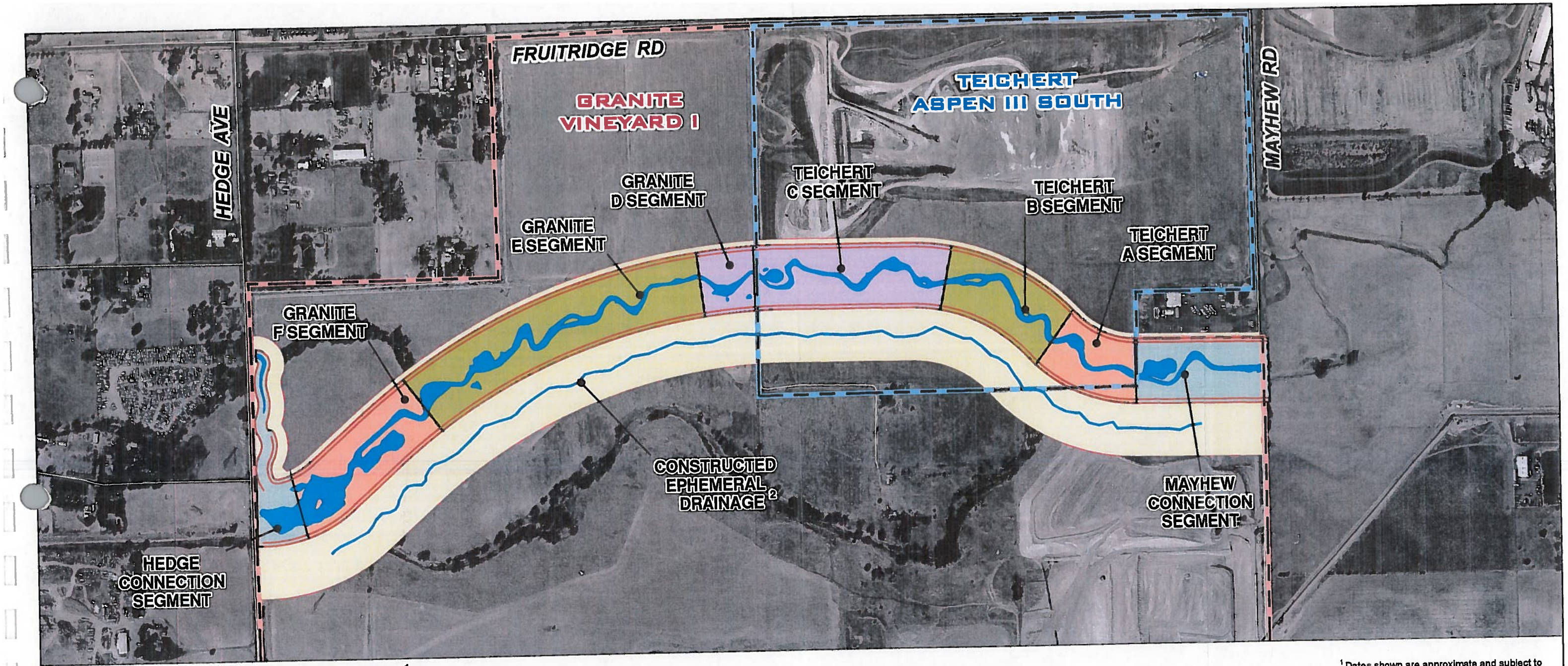
ATTACHMENT C

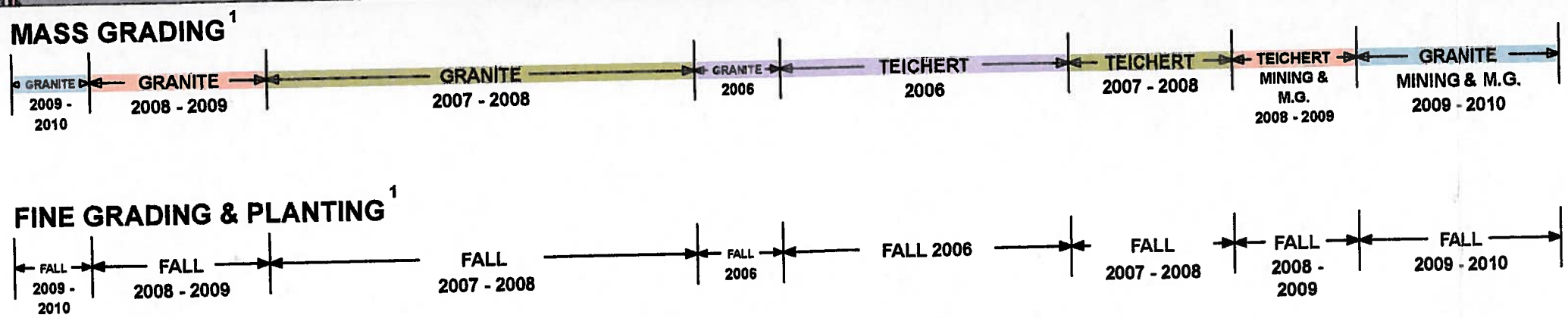
Ephemeral Drainage Design


Typical Cross-Section
6.0
5.0
4.0
3.0
2.0
1.0
0.0
Relative Elevation (ft)
0
20
40
60
80
100
120
140
Station (ft)
Bankfull Elevation
or
Ordinary High Water Mark

ATTACHMENT D

Conceptual Construction Schedule





[1] Dates shown are approximate and subject to variability in production and final reserves.

[2] Drainage to be constructed within 3 years of creek corridor construction.

0 1,000
Feet

1 inch equals 500 feet

TEICHERT

GRANITE CONSTRUCTION COMPANY SINCE 1922

CONCEPTUAL CONSTRUCTION SCHEDULE

MORRISON CREEK REALIGNMENT

SACRAMENTO COUNTY, CA

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

J:\GIS_Maps\2004-217_Morrison_Creek\Mining_Phasing_Analysis\MORRISON_REALIGN_11x17_EXH-F_USACOE_APPLICATION_MAY07_v2.mxd

ATTACHMENT E

Conceptual Riparian and Oak Woodland Planting Plan for Morrison Creek Restoration

Attachment E
Full Size Map
In File

ATTACHMENT F

Seed Mixes

SEED MIX - UPLAND

FOR UPLAND AREAS DOWN TO 2' ABOVE TOE OF SLOPE

SPECIES	PLS LBS./ACRE	MIN. GERM. %
NASELLA PULCHRA (PURPLE NEEDLEGRASS)	10.0	60
ELYMUS GLAUCUS (BLUE WILDRYE)	8.0	60
NASELLA CARNUA (NODDING NEEDLEGRASS)	6.0	60
MELICA CALIFORNICA (CALIFORNIA MELIC)	6.0	50
VULPIA MICROSTACHYS (THREE WEEKS FESCUE)	6.0	60
POA SECUNDA (NATIVE PINE BLUEGRASS)	3.0	80
TOTAL	39 LBS. PER ACRE (PLS)	

SEED MIX - CHANNEL / WETLAND EDGES / LOWLANDS

FOR CHANNEL AREAS TO 2' ABOVE TOE OF SLOPE

SPECIES	PLS LBS./ACRE	MIN. GERM. %
ELYMUS TRACHYCAULUS (SLENDER WHEATGRASS)	12.0	45
HORDEUM BRACHYANTHERUM (MEADOW BARLEY)	10.0	40
LEYMUS TRICTICOIDES 'YOLO' (CREEPING WILDRYE)	9.0	45
NASELLA LEPIDA (FOOTHILL NEEDLEGRASS)	3.0	45
DESCHAMPSIA CAESPITOSA (TUFTED HAIRGRASS)	3.0	40
TOTAL	34 LBS. PER ACRE (PLS)	

SEED MIX - PATH

LOW MIX FOR AREAS WITHIN 15' OF PATHS (OR AS SPECIFIED)

SPECIES	PLS LBS./ACRE	MIN. GERM. %
FESTUCA RUBRA MOLATE (NATIVE RED FESCUE)	13.0	45
FESTUCA IDAHOENIS (IDAHO FESCUE)	10.0	45
FESTUCA OCCIDENTALIS (WESTERN FESCUE)	10.0	45
VULPIA MICROSTACHYS (SIX WEEKS FESCUE)	10.0	45
CLARKIA AMOENA (FAREWELL TO SPRING)	0.5	45
ESCHSCHOLZIA CALIFORNICA (CALIFORNIA POPPY)	2.0	45
LUPINUS NANUS (SKY LUPINE)	3.5	45
NEMOPHILA MENZIESII (BABY BLUE EYES)	1.5	45
TOTAL	46.5 LBS.	

FERTILIZER COMPONENT	INGREDIENT %
NITROGEN	7
PHOSPHORUS	2
POTASSIUM	3

FERTILIZER SHALL BE NATURAL & SLOW RELEASE.
ADD MYCORRHIZAL INNOCULANT AT 60 LBS/ACRE

ANY CHANGES TO THE ABOVE SEED MIXES MUST BE APPROVED BY ECORP CONSULTING BEFORE APPLICATION.

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

HYDROSEEDING NOTES:

1. Seed shall be applied with hydroseeding equipment together with fertilizer, mulch fiber, tack (binder), and inoculate per specified quantities. Mulch fiber shall be produced from wood pulp and shall be of such character that it will disperse into an uniform slurry when mixed with water. Mulch fiber shall be colored to contrast with the area on which the seed mixture is to be applied, shall be nontoxic to plant or animal life, and shall not stain concrete or painted surfaces.

2. Mixing of materials for application with hydroseeding equipment shall be performed in a tank with a built-in continuous agitation system of sufficient operating capacity to produce a homogeneous slurry and a discharge system which will apply the slurry to the slopes at a continuous and uniform rate. The tank shall have a minimum capacity of 1,500 gallons.

3. No dispersing agent will be added to the slurry. Any material considered harmful, as determined by the owners or their representatives, shall not be used.

4. Before seeding, the Contractor shall submit copies to the owners or their representatives of all seed labels and all seed invoices, providing written evidence that seed conforms to the application rates, purity and germination requirements in these specifications. Samples of the application mixture will be provided upon request.

5. Seed designated without a purity or germination requirement shall be labeled to include the name, date (month and year) collected, and the name and address of the seed supplier. Seed at the time of sowing shall be from the previous or current year's harvest.

6. The legume seed shall be inoculated as per trade specifications and rate specified.

7. Seed shall be premixed by a licensed supplier and a copy of the license shall be provided to the owners or their representatives upon request.

8. Water shall be of such quality that it will promote germination and growth of seeds and plants.

9. The material shall be registered with and licensed by the State of California, Department of Food and Agriculture, as an "Auxiliary Soil Chemical".

10. Mulch fiber shall not be applied during rainy weather or when soil temperatures are below 40°F. Mulch fiber shall be applied with a binder sufficient to assure completeness of coverage. Pedestrians or equipment shall not enter hydroseeding areas after the seed mixture has been applied for 24 hours.

11. The Contractor shall notify the Owner's Representative at least 48 hours in advance of any hydroseeding activity, and shall not perform any work without authorization of the owners or their representatives. The contractor shall apply the hydroseed materials at least 24 hours in advance of any reasonably predictable period of rainy weather.

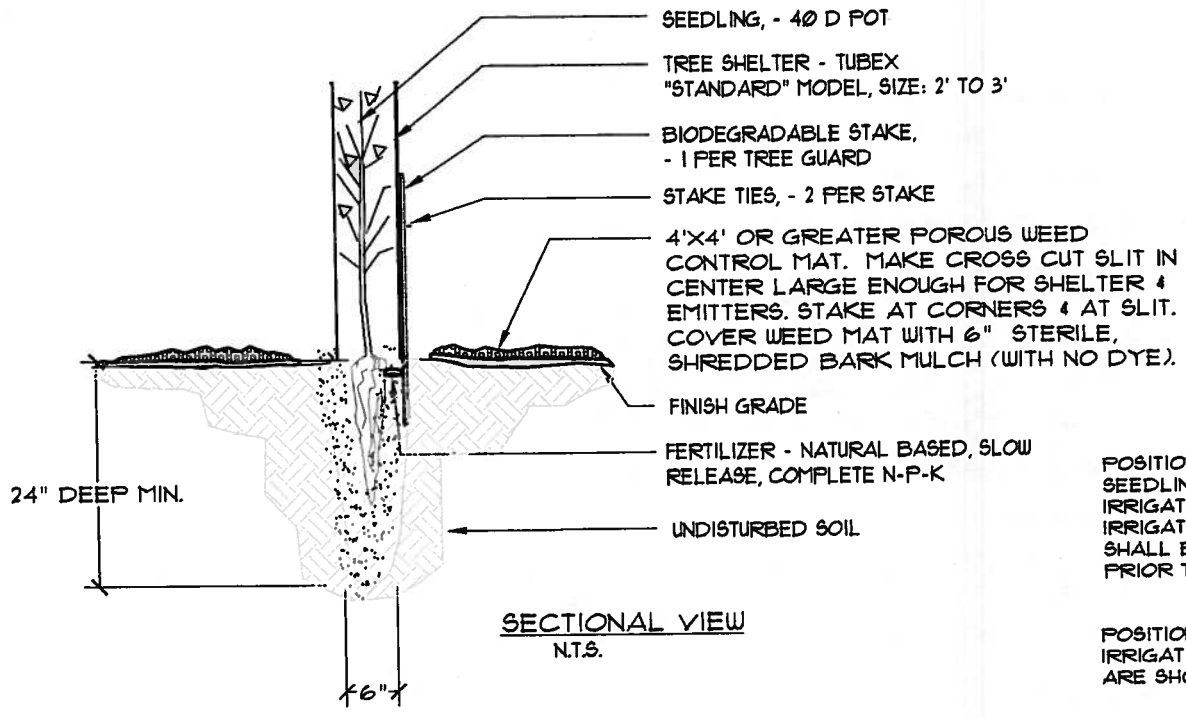
12. The proportion of erosion control materials may be changed by the owners or their representatives to meet field conditions.

13. Refer to specifications of turf reinforcement mat or erosion control blanketing for hydroseeding over or under material. If in doubt, consult owner's representative.

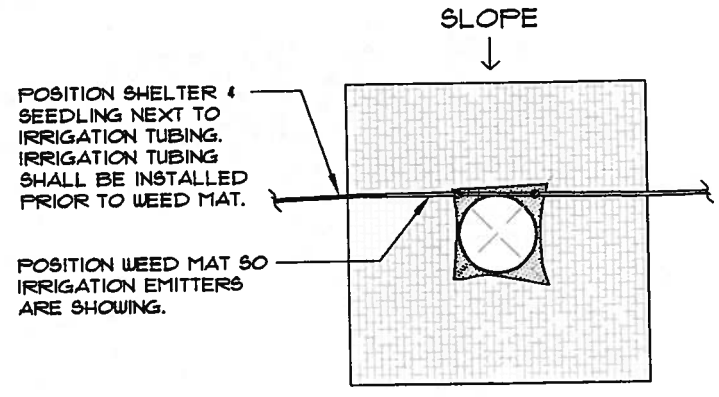
14. The owners or their representatives may authorize alternative methods or equipment if it is demonstrated that methods and equipment are capable of performing all operations satisfactorily.

ATTACHMENT G

Tree and Shrub Planting Detail Sheets



SECTIONAL VIEW
N.T.S.



PLAN VIEW
N.T.S.

1. PLANTING HOLES SHALL BE AUGURED 6" WIDE X 24" DEEP (MINIMUM).
2. ALL TREES TO RECEIVE SPECIFIED TREE SHELTER.
3. IF VOLE HERBIVORY NOTICED IN IMMEDIATE OR SURROUNDING AREAS INCREASE SHELTER SIZE TO 3' & PLACE BOTTOM OF SHELTERS 6" UNDERGROUND .

1 SEEDLING TREE PLANTING WITH SHELTER

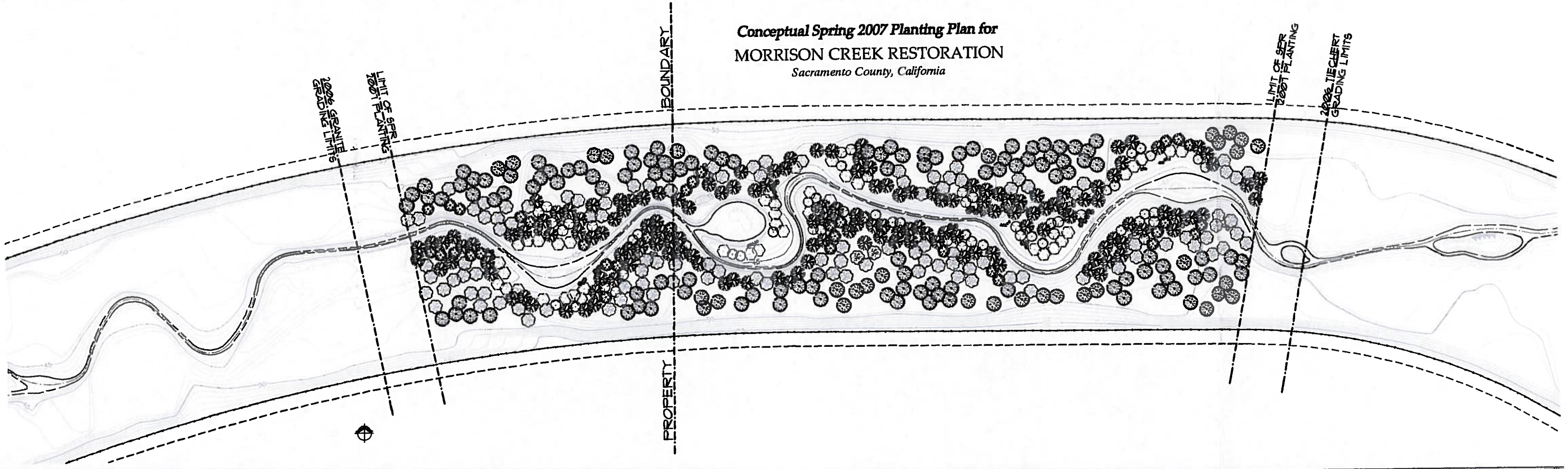
ATTACHMENT H

2006-2007 Planting Detail

Conceptual Spring 2007 Planting Plan for

MORRISON CREEK RESTORATION

Sacramento County, California



GRANITE 2006-07 PLANTING LEGEND

SYMBOL	BOTANICAL/ COMMON NAME	QUANTITY
	TREES	
	ACER NEGUNDO BOX ELDER	4
	POPULUS FREMONTII FREMONT COTTONWOOD	15
	SALIX GOODDINGII BLACK WILLOW	N/A*
	JUGLANS HINDSII BLACK WALNUT	16
	PLATANUS RACEMOSA CALIFORNIA SYCAMORE	9
	QUERCUS LOBATA VALLEY OAK	48
	QUERCUS WISLIZENII INTERIOR LIVE OAK	44
	QUERCUS DOUGLASII BLUE OAK	44
	TOTAL	180

SYMBOL	BOTANICAL/ COMMON NAME	QUANTITY
	SHRUBS	
	BACCHARIS PULARIS COYOTE BRUSH	8
	CEANOTHUS CUNEATUS BUCKBRUSH	2
	MUHLENBERGIA RIGENS DEERGRASS	N/A
	RHAMNUS TOMENTELLA HOARY COFFEEBERRY	6
	RUBUS URSINUS CALIFORNIA BLACKBERRY	9
	SALIX EXIGUA SANDBAR WILLOW	N/A*
	SALIX LASIOLEPIS ARROYO WILLOW	N/A*
	SUBTOTAL	25
	JUNCUS, CAREX, & ELEOCHARIS RUSH, SEDGE, SPIKERUSH (6 PER SYMBOL)	N/A*
	TOTAL	205

NOTE: THIS LEGEND DOES NOT INCLUDE PROPOSED EXTRA 15% TREE PLANTING. ADD 27 EXTRA TREES TO TOTAL 207.

* THESE PLANTS WILL BE INSTALLED WHEN WATER IS FLOWING THROUGH THE CHANNEL.

TEICHERT 2006-07 PLANTING LEGEND

SYMBOL	BOTANICAL/ COMMON NAME	QUANTITY
	TREES	
	ACER NEGUNDO BOX ELDER	25
	POPULUS FREMONTII FREMONT COTTONWOOD	27
	SALIX GOODDINGII BLACK WILLOW	N/A*
	JUGLANS HINDSII BLACK WALNUT	19
	PLATANUS RACEMOSA CALIFORNIA SYCAMORE	20
	QUERCUS LOBATA VALLEY OAK	107
	QUERCUS WISLIZENII INTERIOR LIVE OAK	66
	QUERCUS DOUGLASII BLUE OAK	100
	TOTAL	364

SYMBOL	BOTANICAL/ COMMON NAME	QUANTITY
	SHRUBS	
	BACCHARIS PULARIS COYOTE BRUSH	11
	CEANOTHUS CUNEATUS BUCKBRUSH	10
	MUHLENBERGIA RIGENS DEERGRASS	18
	RHAMNUS TOMENTELLA HOARY COFFEEBERRY	13
	RUBUS URSINUS CALIFORNIA BLACKBERRY	22
	SALIX EXIGUA SANDBAR WILLOW	N/A*
	SALIX LASIOLEPIS ARROYO WILLOW	N/A*
	SUBTOTAL	74
	JUNCUS, CAREX, & ELEOCHARIS RUSH, SEDGE, SPIKERUSH (6 PER SYMBOL)	N/A*
	TOTAL	438

NOTE: THIS LEGEND DOES NOT INCLUDE PROPOSED EXTRA 15% TREE PLANTING. ADD 55 EXTRA TREES TO TOTAL 419.

* THESE PLANTS WILL BE INSTALLED WHEN WATER IS FLOWING THROUGH THE CHANNEL.

Digital base data provided by:

G.C. WALLACE OF CALIFORNIA, INC.
Engineers/Planners/Surveyors
2150 RIVER PLAZA DR., SUITE 100/SACRAMENTO, CALIFORNIA 95833
TELEPHONE: (916) 558-7500 • FAX: (916) 558-7501

GRANITE CONSTRUCTION COMPANY SINCE 1922

TEICHERT

Sheet 1 of 1
February 08, 2007

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS
2260 Douglas Blvd., Suite 160
Roseville, CA 95661
2100 Embarcadero, Suite 201
Oakland, CA 94606
Ph: (510) 484-0150

Aspen IIIS, IVS and Granite Vineyard I
Post Reclamation Plan

Hydrology & Hydraulic Analysis

June 2011

Prepared by:

WOOD RODGERS
3301 C Street, Building 100-B
Sacramento, CA 95816

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3. Floodplain Exhibit Post Reclamation
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Executive Summary

The Teichert Aggregates (Teichert) and Granite Construction (Granite) mining areas are located adjacent to Morrison Creek in Sacramento County. The aggregate mining companies are seeking amendments to the existing approved Use Permits and Reclamation Plans to accommodate proposed modifications to reclamation related elements of the approved projects. The existing Reclamation Plans included "below-grade bypass/mined-bottom" channels and perimeter "at-grade creek flow bypass channels" which were to be constructed after the mining operations in Teichert's Aspen III South, IV South and Granite's Vineyard I properties were completed. The proposed project (also referred to as the "proposed Reclamation Plan") consists of eliminating the approved "below-grade bypass/mined-bottom" channel and at-grade bypass channels and replacing these elements with a combined "at-grade reconstructed and realigned" Morrison Creek low-flow channel and flood control channel with riparian habitat (Realigned Channel) on Aspen III South and Vineyard I properties. On Aspen IV South a raised bank flood control channel is to be constructed outside of the effective FEMA floodway while preserving the natural low-flow channel (Raised Bank Channel). Together, these comprise the Post-Reclamation Channel, which is defined as approximately 5,800 feet of Realigned Channel within Aspen III South and Vineyard I and approximately 2,000 feet of Raised Bank Channel within Aspen IV South. See Figure 1.

Wood Rodgers (WRI) was contracted to analyze the impacts of the proposed Realigned Channel and Raised Bank Channel to Morrison Creek. The Post-Reclamation Channel realignments are based on the Reclamation Plans prepared by GC Wallace to facilitate the mining operations in the area. The intent of the GC Wallace Reclamation Plans is to contain the 100-year flows within the flood control channel therefore this assumption is included in the analysis. The project approval will be conditioned to meet these criteria. This analysis presents the effects of the Post-Reclamation Channel upstream and downstream of the project area (Figure 1).

The peak flows and water surface elevations presented in the 1998 Effective FEMA Flood Insurance Study (FEMA FIS) and the Revised 2000 FEMA Flood Insurance Rate Map (FEMA FIRM) are used as the benchmark for comparison to the results from the WRI Post-Reclamation Channel Model.

Peak water surface elevations may not be directly comparable between the FEMA FIRM study and the more current Post-Reclamation Channel model due to differences in the precision of the available topographic data at the time the studies were conducted. However, the overall floodplain inundation area as modeled in the Post-Reclamation Channel model is considerably less than the floodplain inundation area shown on the FEMA FIRM.

This Hydrology and Hydraulic analysis concludes that the proposed project amendments do not have adverse impacts downstream or upstream of the project.

Introduction

The majority of Granite's Vineyard I property is located south of the natural Morrison Creek low-flow channel and is bordered by Mayhew on the east and Hedge Avenue on the west. A smaller portion of Vineyard I Property is located north of the natural Morrison Creek low-flow channel and is bordered by Aspen III South on the east and Hedge Ave on the west. The portion of the Vineyard I property on the south side of the natural Morrison Creek low-flow channel has been partially mined. The portion of the Vineyard I property north of Morrison Creek has been mostly mined and is proposed to be filled and reclaimed after mining is complete.

Teichert's Aspen III South property is located to the north of the natural Morrison Creek low-flow channel and west of Mayhew Road. Most of the aggregate mining planned for this site has been completed. The reclamation of the site is currently underway. The proposed Reclamation Plan includes relocation of the natural low-flow channel and construction of flood control channel banks on portions of the Vineyard I property and Aspen III South properties (see Figure 2).

Teichert's Aspen IV South property is south of Morrison Creek, east of Mayhew Road and west of Bradshaw Road. Aspen IV South has not been mined. The proposed Reclamation Plan will preserve the natural low-flow channel and construct raised channel banks outside the Effective FEMA Floodway (See Figure 2).

Previous Studies

The following is a partial list of studies that were available for use in this study:

1. "EIR/EIS," Teichert Aggregates and Granite Construction. 1995
2. "FEMA FIS – Sacramento County Unincorporated Areas," Revised February 4, 1998
3. "FEMA FIRM – Revised to Reflect LOMR" and the corresponding HEC-2 model cross sections downstream of Jackson Highway, Dated March 21, 2000.
4. "South Sacramento County Streams Project," C.D.M. July 2003
5. Amended Reclamation Plans for Aspen IV South, GC Wallace January 18, 2008. The GC Wallace plans are the final grading design for the Morrison Creek Enhanced Channel upstream of Mayhew Rd. Superseded by Aspen IV South Raised Bank Channel proposed in this analysis.
6. "Morrison Creek Hydraulic Study," GC Wallace March 20, 2008 and Comments from Sacramento County DWR June 19. 2008. The GC Wallace HEC-RAS model is superseded by this analysis. The proposed grading of the realigned Morrison Creek channel was used in creating the current Wood Rodgers model
7. Improvement Plans Morrison Creek Enhancement Channel and Oxbow Relocation, GC Wallace 4-23-08. The GC Wallace plans are the final grading design for the Morrison Creek Enhanced Channel downstream of Mayhew Rd.

8. "Morrison Creek Hydrology & Hydraulics Analyses Part A and Part B," Wood Rodgers, Inc. January 23, 2009. The Wood Rodgers HEC-RAS model from Morison Creek H&H Analyses was used as the upstream base for the current EIR analysis (hereafter referred to as the Wood Rodgers Model)

Study Methodology

Wood Rodgers has developed a HEC-RAS Model for Morrison Creek upstream of Jackson Highway for other projects. In addition to the HEC-RAS model upstream of Jackson Highway, Wood Rodgers obtained the HEC-2 model cross sections that were used to model the floodplain for the FEMA FIRM. In order to develop a Post-Reclamation Channel model, the HEC-RAS model upstream of Jackson Highway was extended downstream from Jackson Highway to South Watt Ave by utilizing the FEMA FIRM and HEC-2 model cross sections for the non-realigned areas from Jackson Highway to Mayhew Road. The cross sections were constructed with the natural low-flow channel from the HEC-2 cross sections and the overbanks were supplemented with the latest Sacramento County LiDAR contour data from Jackson Highway to Mayhew. Wood Rodgers used the proposed grading contours of the Morrison Creek Realigned Channel from GC Wallace between Mayhew Road to Hedge Ave.

The Post-Reclamation Condition assumes that the as-built creek overflow weir on Granite's "Granite I" property that allows flow into Teichert's Aspen VI property for offline detention is in place and functioning. The weir is located upstream of Jackson Highway on the at-grade Morrison Creek bypass channel constructed by the aggregate mining companies in 2001 as part of Granite and Teichert mining activities and related permit conditions. The weir in the extended HEC-RAS model is consistent with the "As-Built Condition" HEC-RAS model described in Reference #8, Previous Studies section above (see Figure 1).

The Effective FEMA FIS and FIRM Baseline Condition are used as a benchmark to reflect **Pre-Reclamation Conditions** for comparison to the Post-Reclamation Channel model. The Table 1- Summary of Discharges in the FEMA FIS (See Appendix A) is used for reporting the effective 100 year flows at the State Highway 16 (Jackson Hwy) Crossing and the Central California Traction Company RR (CCTC RR) Crossing. The duration of the 100 year storm event is not specified in the FEMA FIS report; however it is typical for the 100 year 24 hour event to be used for floodplain mapping. It is assumed that the 100 year results provided in the FEMA FIS are comparable to the 100 year 24 hour duration storm.

The FEMA FIS flow is reported at Jackson Hwy (2,755 cfs) and 3.8 miles downstream at the CCTC RR crossing (2,855cfs). Since the reported increase of flow between Jackson Hwy to CCTC RR is only 100 cfs, it is conservative to assume that the benchmark flows in the creek will be compared to the lower flow at Jackson Hwy for all crossings between Jackson Hwy and the CCTC RR crossing (See Appendix A)..

The Floodway Data Table 2 (See Appendix A) for Morrison Creek in the FEMA FIS Report is used for reporting the Water Surface Elevations at the cross sections for the 100 year flood.

The Sacramento County Zone A Floodplain Boundary was obtained from the Sacramento County DWR. The Zone A Boundary refers to a 100 year floodplain without the 100 year flood elevations determined. The Zone A boundary was built by combining the effective FEMA FIRM Zone AE (100 year Flood Elevations determined) Floodplain with the outer extent of the existing mined areas adjacent to Morrison Creek except for the Sacramento Aggregates Property east of Mayhew Road. The Effective FEMA FIRM Zone AE Baseline Floodplain is shown on Figures 3 and 4 for reference.

The **Post-Reclamation Condition** assumes that the proposed Morrison Creek Realigned Channel and the mining operations are complete in the Aspen III South and Vineyard I properties and the mining operations are complete on Aspen IV South where the natural Morrison Creek low-flow channel and floodway are preserved.

Under the Post-Reclamation Condition, significant portions of the Aspen III South, IV South and Granite Vineyard I properties are mined below existing grade. The isolated local runoff from inside Aspen III South and Vineyard I is conveyed to a basin located on Granite's Vineyard I property. The local runoff volume (100-yr, 10-day) of 267 ac-ft for these two properties is to be stored onsite in the Granite Vineyard I property per the original EIR/EIS documents and existing permits. Aspen IV South has been revised to store the 30 ac-ft of local runoff volume from the Aspen IV South watershed in a 14 acre retention basin. The EIR/EIS document identifies 309 ac-ft of storage which is consistent with the cumulative storage of 297 ac-ft identified for Aspen III South, Vineyard I, and Aspen IV South properties within the accuracy of this analysis.

The offsite storm water runoff is assumed to be conveyed as overland flow around the mining areas and drain into the Morrison Creek Post-Reclamation Channel.

The Post-Reclamation watersheds were delineated using the 2004 Sacramento County LiDAR contours, the GC Wallace proposed Realigned Channel grading contours and the proposed Reclamation Plans (All sources in vertical datum NGVD29) (See Figure 2). The Sac Calc program was used to generate hydrographs for the 100 year 24 hr and 100 year 10 day events. The Mayhew ditch hydrograph was taken from the Preliminary Aspen IV Drainage Study dated October 2007 by Wood Rodgers.

The soils in this area mainly consist of type C and D soils and the assumed land uses are consistent with the 1993 Sacramento General Plan and all subsequent amendments and the City of Rancho Cordova General Plan.

Under the Post-Reclamation Condition, the proposed Realigned Channel in Vineyard I and Aspen III South incorporates wetland and upland planting scenarios. As a result, the Realigned Channel's low-flow and flood control channel are assumed to have a Manning's Roughness Coefficient of n=0.10. This value was required by the Sacramento County DWR Comments on the original GC Wallace model and confirmed by Wood Rodgers using the USGS Guide for Selecting Manning's Roughness Coefficients for Natural Channels and Floodplains. The FEMA FIRM was developed using a Manning's n value that varies from 0.015 to 0.06 (0.045 weighted average by channel length through the project area). The FEMA FIRM Manning's n values were retained for the Raised Bank Channel's natural low-flow and overbank in the flood control channel upstream of Mayhew Road on Aspen IV South.

On Aspen IV South, the project proposes a mining boundary that is set back from the floodway and constructing raised banks outside the Morrison Creek Effective FEMA floodway boundary to channelize the flood waters outside the low-flow channel. A representative cross section of the Aspen IV South channel banks is shown on Figure 5.

The FEMA FIRM shows a shallow flooding area with a depth of less than one foot that spills from Elder Creek to Morrison Creek upstream of Bradshaw Road. The Post-Reclamation Channel model does not include flow spilling from Elder Creek into Morrison Creek because the model data is not available and the contributing flow would be negligible given that the FEMA FIS reports an increase of only 100 cfs throughout the 3.8 mile stretch of Morrison Creek that would also include the Elder Creek Spill.

Results

The resulting HEC-RAS flow at the relevant road crossings are provided for comparison purposes throughout the Post-Reclamation Channel in Table 1. The discussion of results has been broken up into three areas: Upstream, Onsite and Downstream.

Table 1 - Morrison Creek Flows (cfs)

		100 Year 24 hour	
		FEMA FIS*	**Post-Reclamation**
Upstream (Offsite)	Jackson Hwy.	2,755	1,032
	Bradshaw Rd.	2,755*	1,331
Onsite	Mayhew Rd.	2,755*	1,494
	Hedge Ave.	2,755*	1,507
Downstream (Offsite)	S. Watt Ave.	2,755*	1,550
	CCTC RR	2,855	1,678

*FEMA FIS Flows are only reported at Jackson Hwy and the CCTC RR Crossing with an increase of only 100 cfs over 3.8 miles of channel. The lowest flow is assumed for the most conservative benchmark flow.

The resulting 100 year 24 hour floodplain for the Post-Reclamation Channel model is plotted against the Effective Zone AE Floodplain Boundary on Figures 3 and 4.

Upstream Results

Table 1 shows a decrease in the upstream flows between the FEMA FIS baseline condition and the Post-Reclamation condition. The decrease in upstream flows is due to the weir at Granite I which diverts peak flows out of Morrison Creek and into the Granite I/Aspen VI retention basin. The water surfaces presented in the Table on Figure 4 show that the Post-Reclamation water surface elevations upstream of the Post-Reclamation Channel are 0.7 feet higher than the FEMA FIS Floodway

Table Results for Morrison Creek. The increased water surface elevation upstream of the Morrison Creek Realigned Channel is created by the backwater effect due to the increased Manning's roughness coefficient of n=0.1 in the Realigned Channel between Mayhew Road and Hedge.

However, a comparison of the Effective FEMA Zone AE Baseline Floodplain extents and Post-Reclamation floodplain through the area upstream of the Realigned Channel is provided in Figure 4. The area of inundated floodplain on the upstream property APN's 0630070011 and 0630100018 are reduced by 25% and reduced on the upstream property APN 0630100020 by 84% when plotted against the Post-Reclamation floodplain (See Table 2A). The difference in floodplain extents is due to the accuracy of the contour data available at the time of the studies and not due to Project related activities.

The FEMA FIS and the Post-Reclamation Channel models were developed using topographic data of differing precision levels. Therefore, a direct comparison of water surfaces may not be meaningful. The Post-Reclamation floodplain was plotted on the 2004 Sacramento County 2-foot LiDAR contours in contrast to the Effective FEMA Zone AE floodplain, which is assumed to be plotted on the 1992 USGS 5-foot contours. The increased accuracy of the 2004 2-foot LiDAR contours results in a calculated decrease in the floodplain area.

Table 2A - Floodplain Area in Upstream Neighboring Properties

Property Owner	Floodplain Area (acre)		Reduction
	FEMA FIRM	Post - Reclamation	
Property APN's 0630070011 and 0630100018	14.8	11.0	3.8ac (25%)
Property APN 0630100020	5.0	0.8	4.2ac (84%)

***Jackson Highway Structure Crossing* -** The 100-year 24-hour water surface elevation at Jackson Highway crossing is lowered by 1.9 ft with the current operation of the Granite I weir when compared to the FEMA FIS Baseline water surface elevation as shown on Figure 4. The Post-Reclamation channel does not affect the water surface elevation at the Jackson Highway crossing.

The Granite I/Aspen VI detention basin and weir upstream of Jackson Highway were designed to mitigate flows in Morrison Creek upstream of Jackson Highway consistent with the conditions present prior to the mining the Aspen VI and Granite I mining areas. Teichert and Granite constructed the weir and associated bypass channel in approximately 2001-2003 and maintain the channel and weir in the current As-built state. The weir is a stepped weir construction with an upper crest at elevation 63.6 ft NGVD and a lower crest elevation of 62.0 ft. The weir currently diverts flow out of Morrison Creek when the capacity of the main channel exceeds 500 cfs approximately (Morrison

Creek H&H Analysis Part A & B, 2009). Although Teichert and Granite continue to be responsible for the ongoing operation and maintenance of the weir and detention basin, detailed issues related to ownership of the As-built storm water detained within the basin has not been determined.

Onsite Results

The floodplain within Vineyard I and Aspen III South properties is channelized and contained with the Realigned Channel flood control banks and within the Raised Channel banks on Aspen IV South. The net result of the proposed Post-Reclamation Channel is that the onsite floodplain area is reduced from the FEMA Baseline Floodplain area by 81%.

Table 2B - Floodplain Area in Onsite Properties

Property Owner	Floodplain Area (acre)		Reduction
	FEMA FIRM	Post - Reclamation	
Onsite Properties (AspenIIIs, IVs, Vineyard I)	277.0	53.0	223.0ac (81%)

The Granite Vineyard I Post-Reclamation Retention Basin will retain the onsite isolated local runoff volume of 267 acft (100-year 10-day) for the Aspen IIIS and Vineyard I properties.

There is no pump option in the proposed amendments. The retention basin will be evacuated solely by infiltration into the soil and evaporation off the basin water surface. The basin will evacuate the 100-year 10-day volume within 16 days. The evacuation time is based on a proposed basin area of 62 acres, mean annual evaporation of 66 inches per year and an infiltration rate of 0.14 in/hr (see Appendix for Evacuation Time Calculation). In January 2006, Granite Construction observed an infiltration rate of 6 inches per day in the Vineyard I mined area but it was decided to use a conservative infiltration rate for type B soils for the Evacuation Time Calculations.

A Mean Annual Precipitation water balance analysis was conducted for the 62 acre retention basin in Vineyard I. The monthly precipitation accumulated over RC38, RC40, RC43, and RC36 that is retained in the 62 acre basin will infiltrate and evaporate completely by the end of each month.

The Aspen IV South Post-Reclamation Retention Basin will retain the onsite isolated local runoff volume of 30 acft (100-year 10-day) for the Aspen IVS property.

There is no pump option in the proposed amendments. The retention basin will be evacuated solely by infiltration into the soil and evaporation off the basin water surface. The basin will evacuate the 100-year 10-day volume within 8 days. The evacuation time is based on a proposed basin area of 14 acres, mean annual evaporation of 66 inches per year and an

infiltration rate of 0.14 in/hr (see Appendix for Evacuation Time Calculation).

A Mean Annual Precipitation water balance analysis was conducted for the 14 acre retention basin in Aspen IV South. The monthly precipitation accumulated over RC75 that is retained in the 14 acre basin will infiltrate and evaporate completely by the end of each month.

Embankment Failure Impact Vineyard I, Aspen III South and Aspen IV South Basins - In the event of a catastrophic embankment failure along the Morrison Creek Post-Reclamation Channel, the mined areas would operate as offline retention basins in the interim until the embankment was rebuilt. It is assumed that an embankment failure would occur near the peak Morrison Creek water surface elevation therefore half of the storm volume would have already past downstream of the breach location and half of the 100-year 10-day total volume would spill into the mined area. The volume of the 100-year 10-day storm is 7,140 ac-ft therefore 50% is 3,570 ac-ft.

During a worst-case scenario (more than 50% of the 100-year 10-day volume), the mined area would fill up until the capacity was exceeded and the water surface elevation in the mined area would equalize with the water surface elevation in the channel downstream of the breach. The results of the volumetric analysis are provided in Table 3 below to demonstrate the function of the mined areas individually during an embankment failure.

Aspen IV South and Vineyard I mined areas both have the capacity to store more than 50% of the 100-year 10-day storm individually. An embankment failure adjacent to the Aspen III South property would fill the mined area up to a maximum of the water surface elevation in the channel adjacent to the mined area (51.8 ft at cross section 13.412). The top of mined area elevation (56 ft) at the North, East, and West boundaries of the property will keep the volume of the breach contained within the mined area and the channel.

The Aspen III South and Vineyard I mined areas are planned to be connected by culverts that would combine the available storage volume, therefore it is unlikely that the combined mined area storage would be exceeded by the embankment failure volume. The Aspen III South and Vineyard I combined mined area volume is sufficient for storing the entire 100-year 10-day volume, but it is assumed that the mined areas are not connected for the worst-case scenario provided below. The Reclamation Plans for each mined area assume a maximum proposed depth of 40 ft with 2:1 side slopes.

Table 3: Morrison Creek Embankment Failure

Embankment Location Property Name	Mined Area (acre)	Estimated Available Storage* (ac-ft)	50% of 100-Year 10-Day Storm Volume (ac-ft)	Max Water Depth (ft)
Aspen IV South	147	4410	3570	30
Aspen III South	80	2400	3570	40+**
Granite Vineyard I	263	7890	3570	17

*Based on 40 foot depth from existing ground and 2:1 side slopes as shown in the Reclamation Plans
** Excess Volume is equalized between the mined area and the channel at the elevation of the downstream cross section adjacent to the mined area.

Downstream Results

The 100 year flows leaving the Post-Reclamation site are less than the flows in the FEMA FIS Baseline study as shown in Table 1 above at Hedge Avenue.

Downstream Affect of Embankment Failure - In the event of either of the onsite embankment failure scenarios, the downstream flow in the Morrison Creek channel would be reduced by the flow to the offline storage available in the mined areas. Due to the low velocity of flows in Morrison Creek, an embankment failure is not likely to result in a total diversion of flows to the mined area. Reduced flows downstream will continue until the mined area has filled to the water surface elevation of Morrison Creek. Upon reaching this water surface elevation, flows in the Morrison Creek channel would continue downstream of the embankment failure at the same rate as upstream flows in the Morrison Creek channel. The storm water volume in all three mined properties combined would infiltrate in 26 days. An embankment failure would not have significant impacts on areas downstream and upstream of Aspen III South, IV South and Vineyard I.

Granite and Teichert Safety/Evacuation Plan In the Event of Embankment Failure

The on-site superintendent and/or foreman will be responsible for the safety of employees and visitors in the event of an embankment overtopping or failure. Granite and Teichert both implement preventative safety measures to alert employees and visitors of potential hazards associated with work areas. Employees and visitors working on site will be informed of available evacuation and site access/exit routes. Individuals that will be located near embankments during high flow events will be informed of the risk of embankment failures and notified of proper emergency procedures. As a precautionary measure, embankments will be patrolled periodically during

high water or heavy rainfall events to assess levee conditions and identify potential areas of concern. In the event of a failure or overtopping of the embankment, or upon indication that a failure or breach is imminent, all personnel and mobile equipment will be relocated away from the channel to higher ground and evacuated from the site (if necessary) using the closest available exit. Evacuation during emergency situations that occur with little or no warning will be implemented on an ad hoc basis, and specific evacuation instructions will be based on real or anticipated flooding in the levee protected areas. Emergency exit routes include Fruitridge Road on the north and Mayhew Road on the east, which both connect to other arterial and major roadways in the area. Once personnel and mobile equipment have been evacuated to a safe location, the site superintendent and/or foreman will contact their Company's designated environmental and/or safety personnel to seek additional instructions.

Conclusion

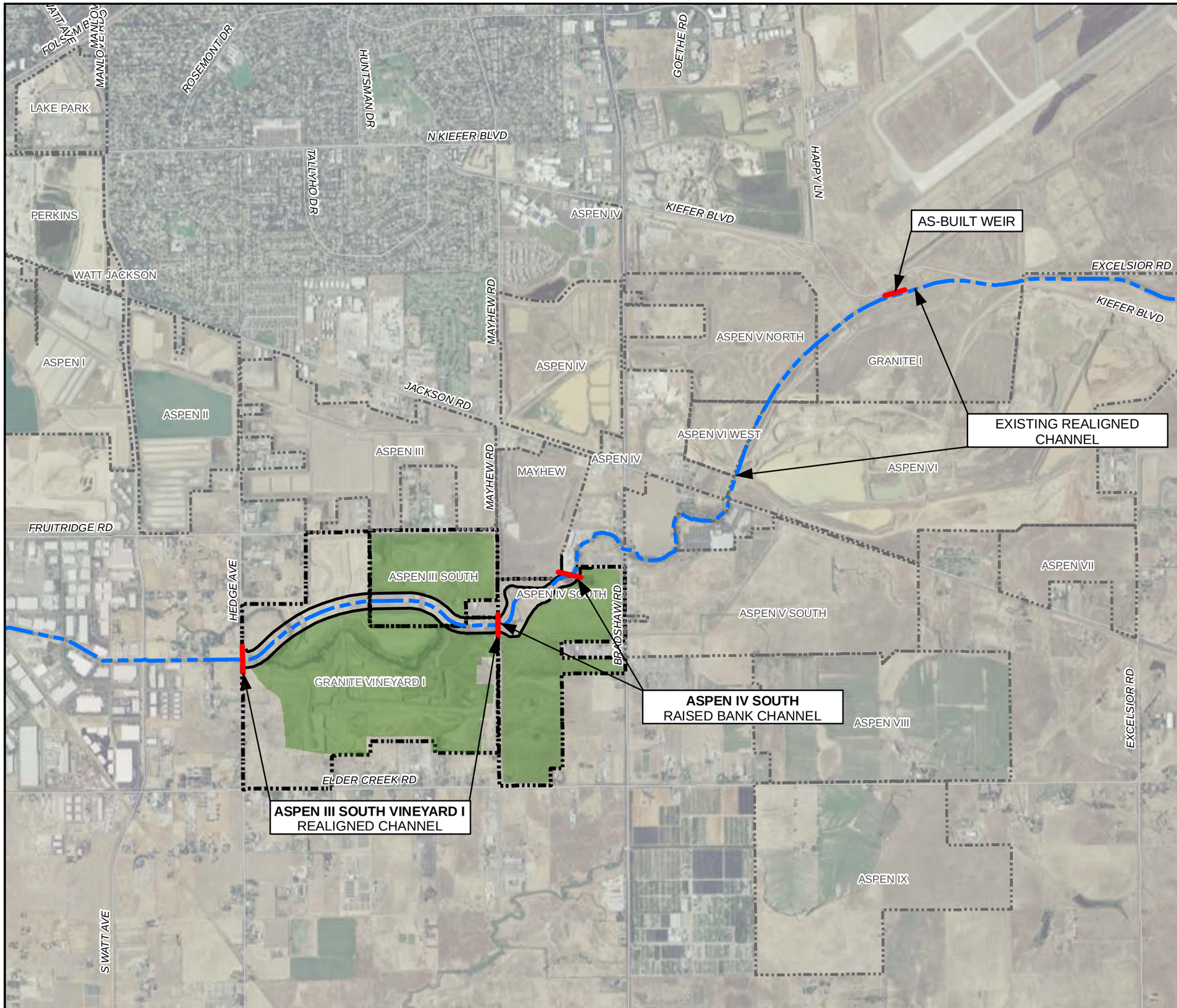
This analysis concludes that the Vineyard I/Aspen III South Realigned Channel and the Aspen IV South Raised Bank Channel proposed by the mining companies do not increase peak flows downstream of the realigned channel when compared to the Effective FEMA FIS Baseline study.

The results of this analysis show that the onsite floodplain within Aspen III South, IV South, and Vineyard I Properties is contained with the Post-Reclamation Channel banks. The floodplain area on the properties is reduced from the FEMA Baseline Floodplain area by 81%. The Aspen IV South property Raised Bank Channel is setback to the Effective FEMA Floodway extents to contain the raised WSE at the upstream end of the project area.

The results of this analysis show that the combined baseline condition and the proposed amendments to the Morrison Creek Post-Reclamation Channel decrease the floodplain area upstream by 25% on APN's 0630070011 and 0630100018 and 84% on APN 0630100020.

This Hydrology and Hydraulic Analysis concludes that the Proposed Project does not have adverse impacts downstream or upstream of the Project.

FIGURE 1



Morrison Creek

Proposed Mining Areas

Property Boundary

Streets

NORTH

0 1,000 2,000

FEET

ASPEN III-IV SOUTH, VINEYARD I
POST-RECLAMATION CHANNEL

SACRAMENTO, CALIFORNIA

MAY 2011

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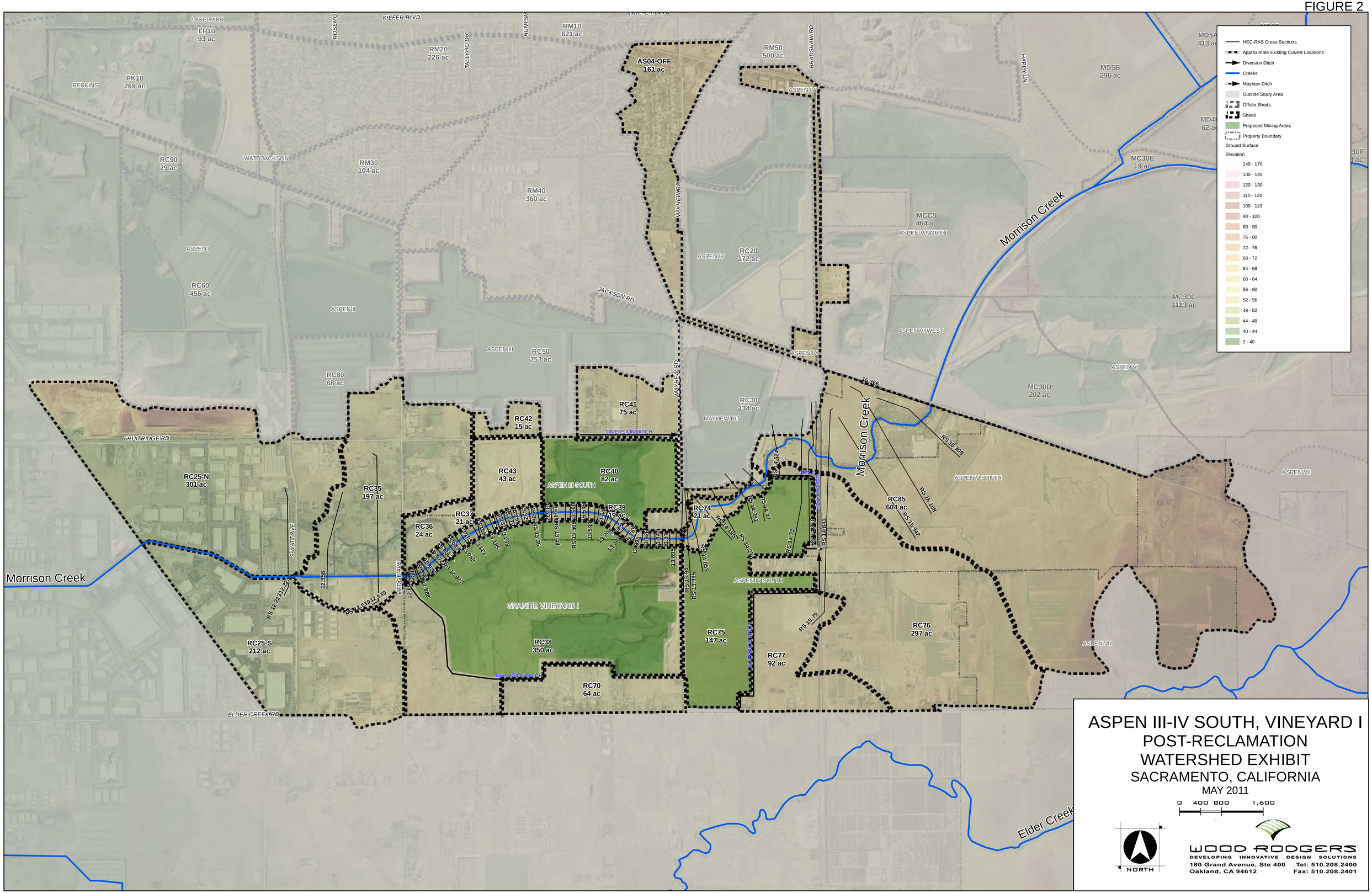
180 Grand Avenue, Ste 400 Tel: 510.208.2400
Oakland, CA 94612 Fax: 510.208.2401

FIGURE 2



ASPEN III-IV SOUTH, VINEYARD I
POST-RECLAMATION WATERSHED EXHIBIT
SACRAMENTO, CALIFORNIA

MAY 2011

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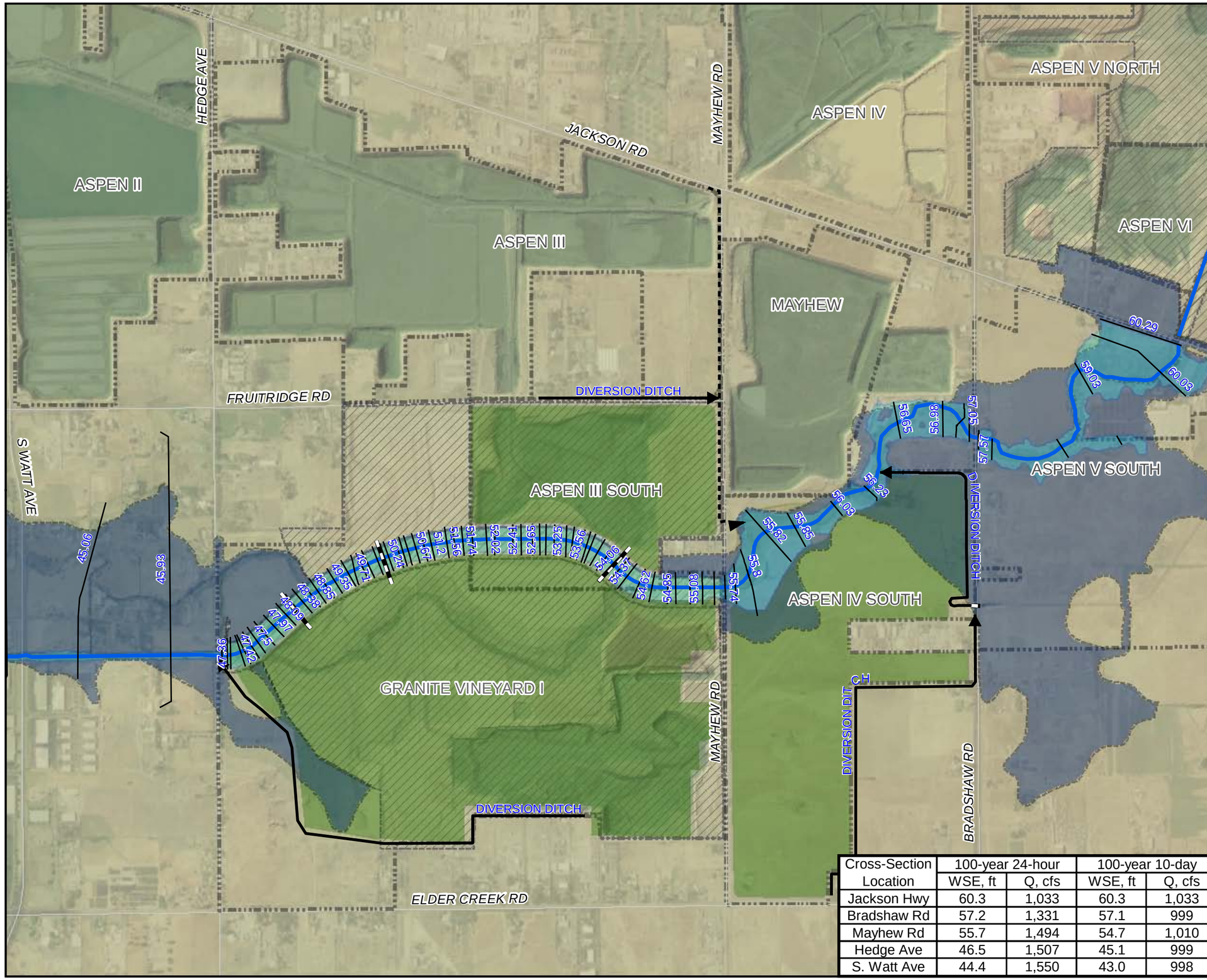
FIGURE 3



Cross-Section Location	100-year 24-hour		100-year 10-day	
	WSE, ft	Q, cfs	WSE, ft	Q, cfs
Jackson Hwy	60.3	1,033	60.3	1,033
Bradshaw Rd	57.2	1,331	57.1	999
Mayhew Rd	55.7	1,494	54.7	1,010
Hedge Ave	46.5	1,507	45.1	999
S. Watt Ave	44.4	1,550	43.0	998

Water Surface Elevation
Approximate Existing Culvert Locations
Diversion Ditch
Creeks
Mayhew Ditch
Post-Reclamation Floodplain
Current FEMA 100-year Zone AE Floodplain
Proposed Mining Areas
Sacramento County Zone A Mining Areas
Property Boundary
Streets

Ground Surface Elevation
- 140 - 170
- 130 - 140
- 120 - 130
- 110 - 120
- 100 - 110
- 90 - 100
- 80 - 90
- 76 - 80
- 72 - 76
- 68 - 72
- 64 - 68
- 60 - 64
- 56 - 60
- 52 - 56
- 48 - 52
- 44 - 48
- 40 - 44
- 2 - 40

NOTES:
THE FLOODPLAIN REPRESENTED IN THIS MAP ASSUMES THE WEIR AT ASPEN VI IS AS-BUILT.
THE REALIGNED CHANNEL CROSS-SECTION LOCATIONS ARE TAKEN FROM GC WALLACE CHANNEL GRADING CONTOURS. THE NON-REALIGNED CHANNEL CROSS-SECTIONS WERE TAKEN FROM THE FEMA FIS HEC-2 MODEL.
THE WATER SURFACE ELEVATIONS ARE THE RESULTS FROM WOOD RODGERS HEC-RAS MODEL.
THE HYDROLOGY WAS DEVELOPED USING SACRAMENTO COUNTY LIDAR 2004. LOCAL MINED AREA RUNOFF IS ASSUMED TO BE STORED IN GRANITE VINEYARD I.
OFFSITE RUNOFF IS ASSUMED TO BE DIVERTED AROUND THE MINED AREA AND INTO THE REALIGNED MORRISON CREEK CHANNEL.

NORTH

0 500 1,000
FEET

ASPEN III-IV SOUTH, VINEYARD I
FLOODPLAIN EXHIBIT
POST-RECLAMATION
ASPEN VI WEIR IN AS-BUILT CONDITION
SACRAMENTO, CALIFORNIA
MAY 2011

WOOD RODGERS
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Sacramento, CA 95816 Fax: 916.341.7767

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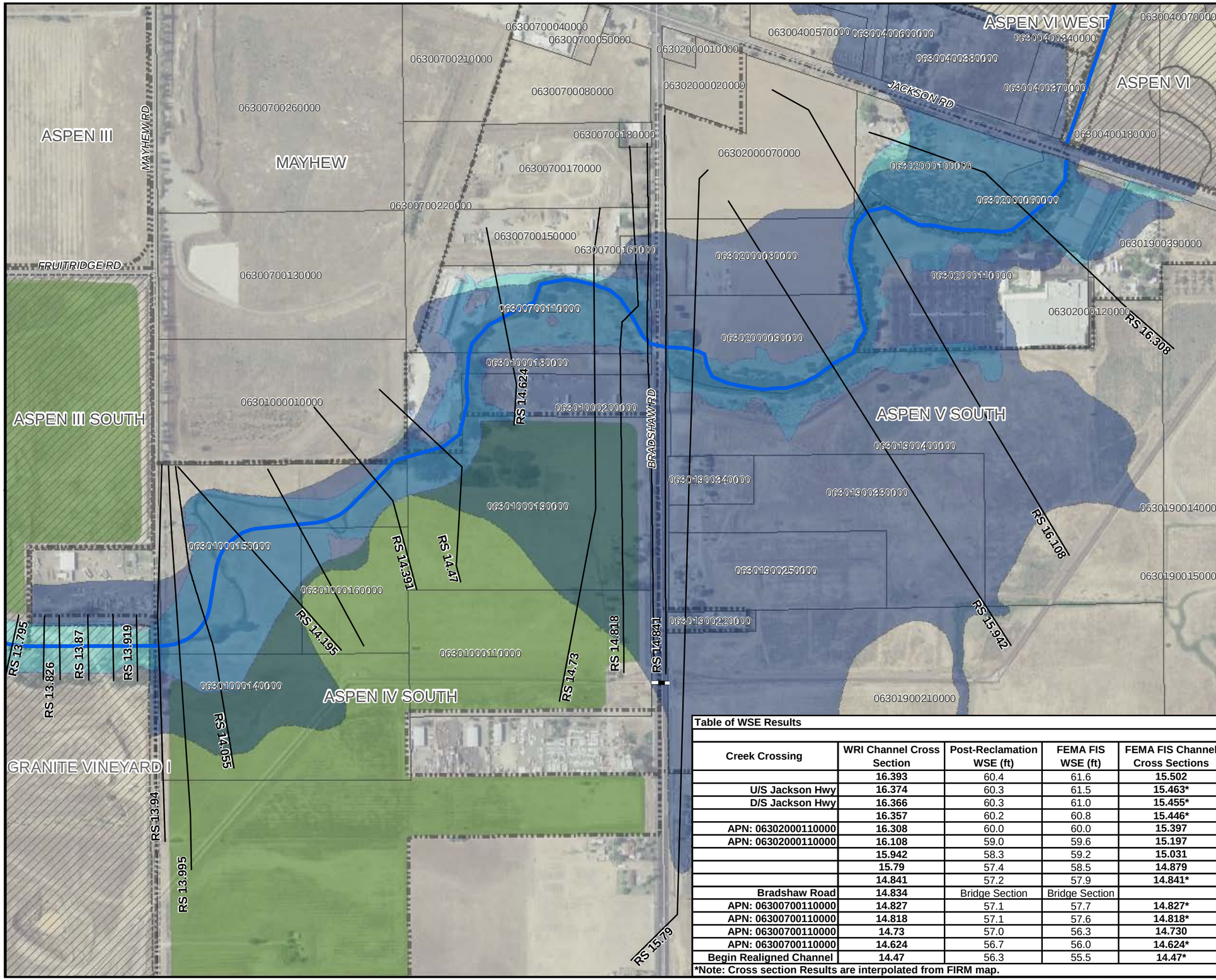

FIGURE 4

- HEC-RAS Cross-Sections
- Approximate Existing Culvert Locations
- Morrison Creek
- Current DWR Zone AE
- Post_Reclamation Floodplain
- Current DWR Zone A Mining Areas
- Parcels
- Property Boundary
- Streets
- Project Area: Proposed Mining Areas

NOTES:
THE POST RECLAMATION FLOODPLAIN IN THIS MAP REFLECTS THE GRANITE I WEIR IN THE AS-BUILT CONDITION.

THE CURRENT FEMA FIRM ZONE AE BOUNDARY IS SHOWN FOR COMPARISON PURPOSES. EXISTING MINED AREAS ARE SHOWN AS FUTURE ZONE A. THE BOUNDARY LINEWORK WAS OBTAINED FROM SACRAMENTO COUNTY DWR.

NORTH

0 250 500
FEET

Table of WSE Results

Creek Crossing	WRI Channel Cross Section	Post-Reclamation WSE (ft)	FEMA FIS WSE (ft)	FEMA FIS Channel Cross Sections
	16.393	60.4	61.6	15.502
U/S Jackson Hwy	16.374	60.3	61.5	15.463*
D/S Jackson Hwy	16.366	60.3	61.0	15.455*
	16.357	60.2	60.8	15.446*
APN: 06302000110000	16.308	60.0	60.0	15.397
APN: 06302000110000	16.108	59.0	59.6	15.197
	15.942	58.3	59.2	15.031
	15.79	57.4	58.5	14.879
	14.841	57.2	57.9	14.841*
Bradshaw Road	14.834	Bridge Section	Bridge Section	
APN: 06300700110000	14.827	57.1	57.7	14.827*
APN: 06300700110000	14.818	57.1	57.6	14.818*
APN: 06300700110000	14.73	57.0	56.3	14.730
APN: 06300700110000	14.624	56.7	56.0	14.624*
Begin Realigned Channel	14.47	56.3	55.5	14.47*

*Note: Cross section Results are interpolated from FIRM map.

ASPEN IV SOUTH AND UPSTREAM PROPERTIES FLOODPLAIN EXHIBIT
POST-RECLAMATION

SACRAMENTO, CALIFORNIA
MAY 2011

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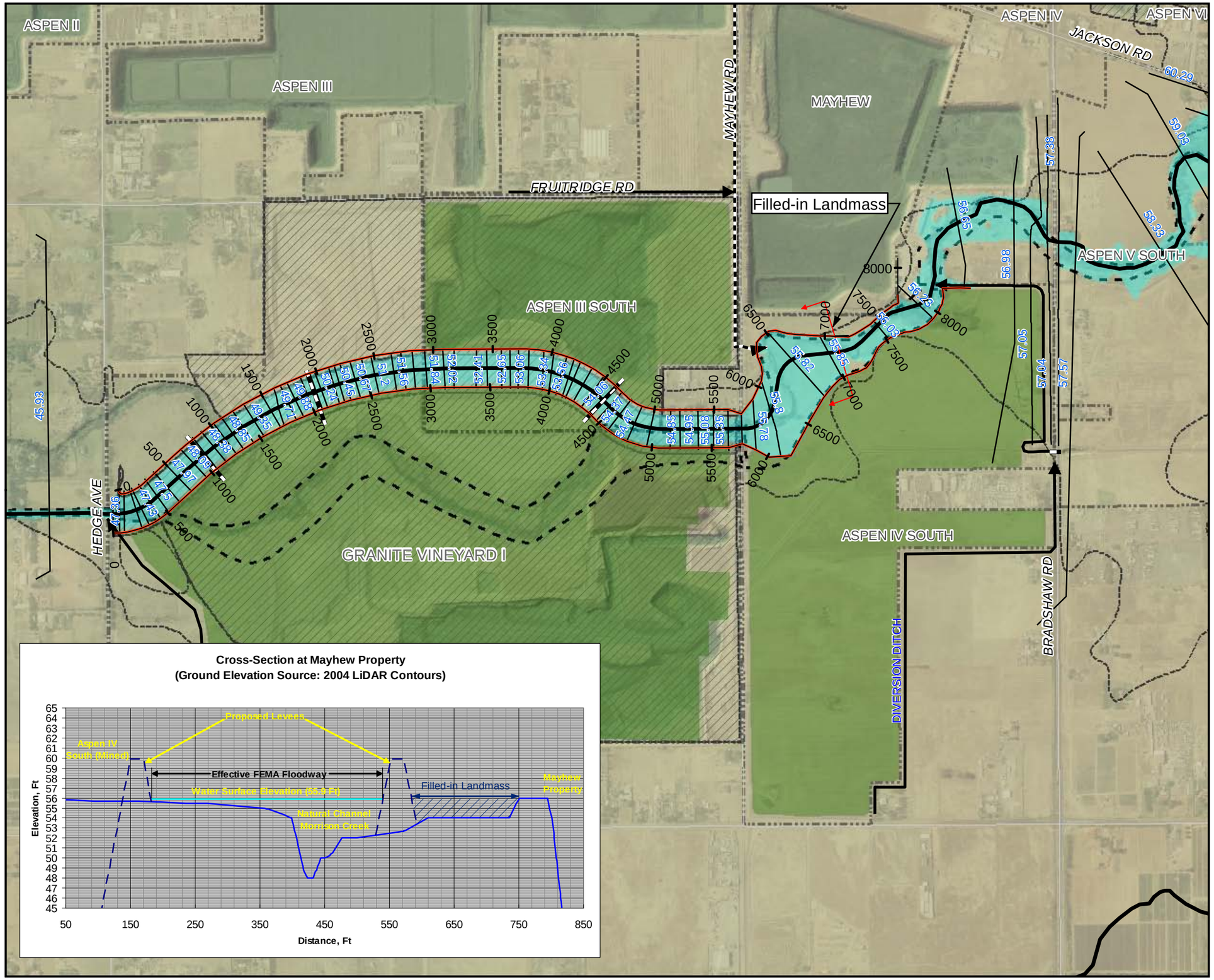
FIGURE 5



Proposed Channel Bank
Cross Section Location
Water Surface Elevation
Approximate Existing Culvert Locations
Diversion Ditch
Creeks
Mayhew Ditch
Post-Reclamation Floodplain
Current FEMA Floodway
Current FEMA 100-year Zone AE Floodplain
Proposed Mining Areas
Sacramento County Zone A Mining Areas
Property Boundary
Streets

Ground Surface Elevation
140 - 170
130 - 140
120 - 130
110 - 120
100 - 110
90 - 100
80 - 90
76 - 80
72 - 76
68 - 72
64 - 68
60 - 64
56 - 60
52 - 56
48 - 52
44 - 48
40 - 44
2 - 40

NOTES:
THE FLOODPLAIN REPRESENTED IN THIS MAP ASSUMES THE WEIR AT GRANITE I IS AS-BUILT.
THE REALIGNED CHANNEL CROSS-SECTION LOCATIONS ARE TAKEN FROM GC WALLACE CHANNEL GRADING CONTOURS.
THE NON-REALIGNED CHANNEL CROSS SECTIONS WERE TAKEN FROM THE FEMA FIS HEC-2 MODEL.
THE WATER SURFACE ELEVATIONS ARE THE RESULTS FROM WOOD RODGERS HEC-RAS MODEL.
THE HYDROLOGY WAS DEVELOPED USING SACRAMENTO COUNTY LIDAR 2004. LOCAL MINED AREA RUNOFF IS ASSUMED TO BE STORED IN GRANITE VINEYARD I. OFFSITE RUNOFF IS ASSUMED TO BE DIVERTED AROUND THE MINED AREA AND INTO THE MORRISON CREEK CHANNEL.

NORTH

0 400 800
Feet

ASPEN III SOUTH, IV SOUTH, VINEYARD I CHANNEL BANK EXHIBIT

POST-RECLAMATION

SACRAMENTO, CALIFORNIA
MAY 2011

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3301 C Street, Bldg. 100-B Tel: 916.341.7760
Sacramento, CA 95816 Fax: 916.341.7767

Appendix A – FEMA FIS Tables

TABLE 1. SUMMARY OF DISCHARGES (Cont'd)

Flooding Source and Location	Drainage Area (Square Miles)	Peak Discharges (cfs) 10-Year	50-Year	100-Year	500-Year
Gerber Creek					
Vineland Road	1.35	205	280	310	515
Central California Traction Company RR	3.69	455	845	1,070	1,775
Elder Creek	5.00	455	690	870	1,220
Laguna Creek					
Excelsior Road	17.97	1,556	2,305	2,580	3,635
Central California Traction Company RR	19.71	1,205	1,500	1,585	1,790
Waterford Road	30.15	1,405	2,070	2,350	3,465
State Highway 99	32.46	1,405	2,080	2,355	3,335
Franklin Road	47.00	1,645	2,505	2,840	4,540
Morrison Creek	48.30	1,650	2,505	2,840	4,555
Laguna Tributary No. 1					
Laguna Creek	6.11	645	865	950	1,430
North Laguna Creek					
Laguna Creek	1.50	155	180	195	235
Linda Creek	7.8	680	1,140	1,820	2,800
Magpie Creek	2.7	340	440[1]	490[1]	610[1]
Magpie Creek Diversion	9.0	750	1,500	1,880	2,400
Mariposa Creek	2.2	260	510	650	1,030
Mokelumne River					
Below Dry Creek	1,000	--[2]	--[2]	28,200	--[2]
Morrison Creek					
Excelsior Road	12.61	885	1,290	1,450	2,170[3]
PROJECT AREA State Highway 16	22.27	1,705	2,270	2,755	3,985[3]
Central California Traction Company RR	29.02	1,925	2,665	2,855	4,010[3]
Southern Pacific RR	30.91	1,375	1,510	1,555	1,960[3]
Downstream of State Highway 99	43.43	2,340	3,155	3,395	4,235[3]
Western Pacific RR	67.53	3,450	4,845	5,315	6,415[3]
Sacramento River	110.65	4,280	6,635	7,410	11,025[3]
At Interstate Highway 5	131.90	--[2]	--[2]	7,890	--[2]
Natomas East Drainage Canal	33.0	400	650	690	730
Natomas East Main Drainage Canal					
At West El Camino Avenue	206.0	--[1]	--[1]	16,700	--[1]
At Main Avenue	143.0	--[1]	--[1]	11,800	--[1]
Above Dry Creek	27.0	--[1]	--[1]	2,300	--[1]

[1]Excluding overflow
[2]Discharge Not Computed
[3]Basin 500-year flow does not include American River 500-year overflow

SOURCE: FEMA FIS - SACRAMENTO COUNTY UNINCORPORATED AREAS, FEB. 4, 1998

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
					(FEET NGVD)			
Morrison Creek								
A	12.358	118	679	4.3	47.5	47.5	47.8	0.3
B	12.539	74	549	5.4	47.9	47.9	48.6	0.7
C	12.701	87	569	5.2	48.8	48.8	49.8	1.0
D	12.868	351	1,189	2.5	50.7	50.7	51.7	1.0
E	13.143	350	1,321	2.2	51.8	51.8	52.8	1.0
F	13.469	326	1,277	2.0	53.3	53.3	54.2	0.9
G	13.611	378	1,515	1.7	53.6	53.6	54.6	1.0
H	13.830	298	1,065	2.5	54.1	54.1	55.1	1.0
I	13.995	417	1,830	1.5	54.8	54.8	55.8	1.0
J	14.274	631	2,061	1.4	55.0	55.0	56.0	1.0
K	14.470	287	864	3.3	55.5	55.5	56.5	1.0
L	14.730	144	928	3.0	56.3	56.3	57.3	1.0
M	14.879	103	596	4.7	58.5	58.5	59.1	0.6
N	15.031	169	720	3.9	59.2	59.2	60.1	0.9
O	15.197	517	1,797	1.6	59.6	59.6	60.6	1.0
P	15.397	126	693	4.1	60.0	60.0	61.0	1.0
Q	15.502	63	510	5.5	61.6	61.6	62.5	0.9
R	15.682	218	1,023	2.7	62.6	62.6	63.4	0.8
S	15.928	592	1,638	1.7	62.8	62.8	63.6	0.8
T	16.173	308	298	4.8	63.1	63.1	63.9	0.8
U	16.375	181	489	2.9	64.9	64.9	65.9	1.0
V	16.579	259	1,003	1.4	65.3	65.3	66.3	1.0
W	16.681	74	429	3.3	65.3	65.3	66.3	1.0
X	16.929	94	460	3.1	65.9	65.9	66.9	1.0
Y	17.137	51	308	4.6	66.7	66.7	67.7	1.0
Z	17.324	82	330	4.3	68.6	68.6	69.2	0.6

[1]Stream Distance in Miles Above Mouth

TABLE 2	FEDERAL EMERGENCY MANAGEMENT AGENCY SACRAMENTO COUNTY, CA (UNINCORPORATED AREAS)	FLOODWAY DATA MORRISON CREEK

SOURCE: FEMA FIS - SACRAMENTO COUNTY UNINCORPORATED AREAS, FEB. 4, 1998

Appendix B – Water Balance Calculations

Granite Vineyard I Retention Basin - Mean Annual Precipitation Water Balance

	Parameter	Units	Month											
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
(1)	Days of the Month	days	31	28	31	30	31	30	31	31	30	31	30	31
(2)	Mean Annual Precip SACRAMENTO 5 ESE (1877-2007)*	inches	3.66	3.20	2.67	1.41	0.62	0.16	0.01	0.03	0.31	0.91	2.00	3.19
(3)	Total Precip Volume (516 acre contribute to Pit)	acft	157	138	115	61	27	7	0	1	13	39	86	137
(4)	Infiltration Rate based on Type B soil infiltration rate (0.142 in/hr) .	in/day	3.402	3.402	3.402	3.402	3.402	3.402	3.402	3.402	3.402	3.402	3.402	3.402
(5)	Volume of Infiltrated Water for 62 acre Basin	Acft	157	138	115	61	27	7	0	1	13	39	86	137
(6)	Monthly Mean PAN Evaporation Rates(1955-1993)(at Folsom Dam)**	inches	0.92	1.90	3.47	5.21	8.07	9.91	11.12	9.93	7.45	4.89	2.06	1.25
(7)	Volume of Evaporated Water for 62 acre Basin	Acft	4.56	9.35	16.93	24.90	26.66	6.88	0.43	1.29	13.33	23.17	9.94	6.15
(8)	**Water Balance [(8)=(3)-(5)-(7)]**	**Acft**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Retention Basin Rating Curve	
AREA (ac)	VOLUME (acft)
62	270
56	0

*Source: Western Regional Climate Center http://www.wrcc.dri.edu/htmlfiles/ca/ca.ppt.html
**Source: Western Regional Climate Center http://www.wrcc.dri.edu/htmlfiles/westevap.final.html#CALIFORNIA

Aspen IV South Retention Basin - Mean Annual Precipitation Water Balance

	Parameter	Units	Month											
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
(1)	Days of the Month	days	31	28	31	30	31	30	31	31	30	31	30	31
(2)	Mean Annual Precip SACRAMENTO 5 ESE (1877-2007)*	inches	3.66	3.20	2.67	1.41	0.62	0.16	0.01	0.03	0.31	0.91	2.00	3.19
(3)	Total Precip Volume (147 acre contribute to Pit)	acft	45	39	33	17	8	2	0	0	4	11	25	39
(4)	Infiltration Rate based on Type B soil infiltration rate (0.142 in/hr) .	in/day	3.402	3.402	3.402	3.402	3.402	3.402	3.402	3.402	3.402	3.402	3.402	3.402
(5)	Volume of Infiltrated Water for 22 acre Basin	Acft	45	39	33	17	8	2	0	0	4	11	25	39
(6)	Monthly Mean PAN Evaporation Rates(1955-1993)(at Folsom Dam)**	inches	0.92	1.90	3.47	5.21	8.07	9.91	11.12	9.93	7.45	4.89	2.06	1.25
(7)	Volume of Evaporated Water for 22 acre Basin	Acft	1.11	2.27	4.07	5.89	7.60	1.96	0.12	0.37	3.80	5.45	2.37	1.49
(8)	**Water Balance [(8)=(3)-(5)-(7)]**	**Acft**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Retention Basin Rating Curve	
AREA (ac)	VOLUME (acft)
14	30
13	0

*Source: Western Regional Climate Center http://www.wrcc.dri.edu/htmlfiles/ca/ca.ppt.html
**Source: Western Regional Climate Center http://www.wrcc.dri.edu/htmlfiles/westevap.final.html#CALIFORNIA

100-year 10-day - Vineyard I Basin Storage Evacuation

Infiltration Rate	3.402	in/day
Mean Evaporation Rate	0.181	in/day
Basin Top Area	62	acre
Basin Bottom Area	56	acre
100-year 10-day Storage Volume	267	acft
Infiltration x (Basin Area)	15.87	acft/day
Evaporation x (Basin Area)	0.94	acft/day
Evacuation Time = Storage / (infil +evap)	**15.9**	**days**

Granite Vineyard 1 Retention Basin		
Basin Top Area	62	acre
Basin Bottom Area	56	acre

100-year 10-day - Aspen IV South Basin Storage Evacuation

Infiltration Rate	3.402	in/day
Mean Evaporation Rate	0.181	in/day
Basin Top Area	14	acre
Basin Bottom Area	13	acre
100-year 10-day Storage Volume	30	acft
Infiltration x (Basin Area)	3.69	acft/day
Evaporation x (Basin Area)	0.21	acft/day
Evacuation Time = Storage / (infil +evap)	**7.7**	**days**

Granite Vineyard 1 Retention Basin		
Basin Top Area	14	acre
Basin Bottom Area	13	acre

Embankment Failure Storage Evacuation

Infiltration Rate	3.402	in/day
Mean Evaporation Rate	0.181	in/day
Basin Top Area	489	acre
Basin Bottom Area	460	acre
Berm Failure Storage Volume	3570	acft
Infiltration x (Basin Area)	130.39	acft/day
Evaporation x (Basin Area)	7.38	acft/day
Evacuation Time = Storage / (infil +evap)	**25.9**	**days**

	Vineyard I	AspenIIIS	AspenIVS	
Pit Top Area	263	80	146	acre
Pit Bottom Area	250	73	137	acre

Appendix C – Comparison to CDM Model

A review of the peak flows of the WRI Post-Reclamation Channel Model (WRI Model) and the CDM model for the South Streams Levee Study (CDM) is presented in this analysis at the request of the Sacramento County DWR. The comparison to the CDM model results shows that the peak flows at South Watt Ave are higher in the WRI model. The difference in peak flow results for both models is likely due to the assumptions used in the CDM model between Jackson Highway and South Watt Ave and not due to the proposed project improvements.

The proposed project will not have adverse impacts downstream if flows are not increased. A comparison of hydrographs/flows from the WRI Model and the CDM model for the South Streams Levee Study (CDM, model used by City of Sacramento for downstream flows) is presented in this section at the request of the Sacramento County DWR. The WRI Model downstream 100year 24hour peak flow is higher than the peak flow used in the CDM Study. The below graph is a comparison to the hydrograph at Elk Grove Florin Road (now S. Watt Avenue) provided by Heidi Huber at the Sacramento County DWR. A comparison of the peak flow at Jackson Highway showed the results of the two models to be similar. The WRI Model peak flow of 1,032 cfs is about 14% less than the CDM flow of 1,201 cfs.

At South Watt Ave, the WRI Model peak flow of 1,550 cfs is about 41% higher than the CDM flow of 1,100 cfs. The FEMA FIS flow at S. Watt is 2,755 cfs, 150% higher than the CDM flow.

The difference between the CDM model and the WRI Model peak flows at Elk Grove Florin Road/South Watt is likely due to different assumptions in the two models between Jackson Hwy and South Watt Ave. As discussed with DWR, one possible reason for the lower flow in the CDM model would be that the CDM model includes additional detention storage upstream of Hedge Avenue which would lower the CDM peak flow. A comparison of hydraulic and hydrologic assumptions was not conducted as part of this study. Based on WRI Model comparisons to the FEMA FIS, the difference in flow is not attributable to the Proposed project.

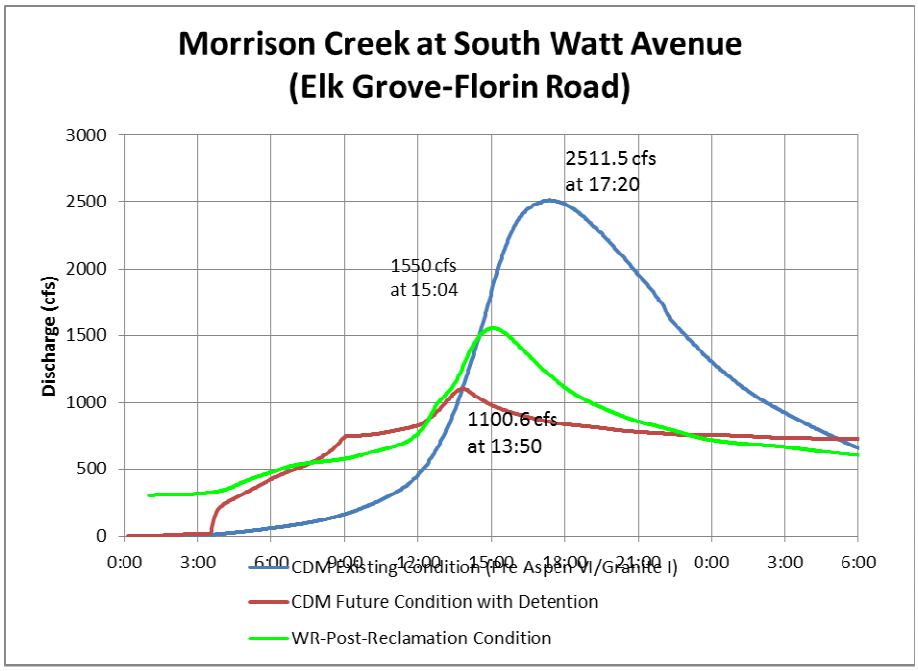

Figure 5 – Comparison to of WRI Post-Reclamation Model to CDM Model at South Watt Avenue

The comparison to the CDM model results shows that the peak flows at South Watt Ave are higher in the WRI Model. The difference in peak flow results between the models is likely due to the assumptions used in the CDM model between Jackson Highway and South Watt Ave. The results of this analysis show that the difference in flow is not due to the Proposed Project improvements.

Appendix D – Qualitative Evaluation of Proposed Levees

The proposed project is not seeking certification of levees nor constructing structures that require flood protection at this time. The area within the project will be used as open space and/or agricultural land and does not require protection from flooding by levee certification. Additional information, analysis and certification would be required to obtain a revision to existing floodplain maps and obtain certification of proposed levees. In our review of the information provided we do not foresee issues or impacts that would preclude a floodplain revision or certification in the future. The applicable criteria for protection by levees is FEMA CFR Ch. I Section 65.10.

The Morrison Creek Post-Reclamation Channel is contained by the channel banks which function as levees on the north and south banks for the majority of the reconstructed channel (Vineyard I south bank, Aspen III South north bank). The Aspen IV South floodway stays intact and the channel banks serve as levees. The smaller portion of Vineyard I Property located on the north bank between Aspen III South and Hedge Ave is proposed to be raised to an elevation higher than the 100 year. The levees containing the Post-Reclamation Channel protect the flows from entering the mined areas which are reclaimed mining areas used as open space and environmental mitigation that do not require flood protection. In the event the levees are overtopped or breached the mined areas will flood. The flooded mined areas would not impact other areas outside the mining boundaries. Below is a general qualitative evaluation of the proposed facilities with respect to the levees criteria; note the project is not required to construct nor obtain levee certification.

(A) General Criteria:

The criteria from FEMA 44 CFR Ch. I Section 65.10 of the NFIP Regulations must be met for levees to be certified.

(B)(1) Freeboard:

The minimum design criteria require 3 feet of freeboard from the water surface elevation of the base flood (100 year flood). If certification of levees is sought by project proponents, as-built information will be required to confirm the 3 feet of freeboard.

An additional 1 foot of freeboard is required within 100 ft of structures where the flow is constricted. No structures are proposed for the Post-Reclamation Channel therefore this criterion shall not apply.

An additional 0.5 foot of freeboard is required above the minimum at the upstream end of the levee If certification of levees is sought by project proponents, as-built information will be required to confirm this criterion.

(B)(2) Closures:

If certification of levees is sought by project proponents, all openings must be provided with closure devices that are structural parts of the system. The opening that conveys flow from the Mayhew Ditch into the Post-Reclamation Channel is assumed to have a properly rated flap gate closure or other closure structure to satisfy this criterion.

Culverts are located below the Post-Reclamation Channel to convey storm water from Vineyard I and Aspen III South north of Morrison Creek to Vineyard I south of Morrison Creek and from Aspen IV South east of Mayhew Road to Vineyard I west of Mayhew Road. The culverts are assumed to have a properly rated flap gate closure or other closure structure to satisfy this criterion.

(B)(3) Embankment Protection:

If certification of levees is sought by project proponents, analyses must be submitted to demonstrate that no appreciable erosion of the levee can be expected during the base flood. The expected flow velocities are less than the 4 feet per second (fps) as reported in the HEC-RAS model. Native grass plantings are typically sufficient in preventing erosion with velocities less than 5 fps.

The Post-Reclamation Channel is relatively narrow and contains native tree plantings therefore wind and wave action is not expected to impact the stability of the proposed levees. Debris impact is not expected to affect the stability of the levees due to low flow velocity (4 fps) and annual maintenance. A Geotechnical Investigation for Slope Evaluation Morrison Creek Realignment Project was performed by Geocon. We reviewed this report and find that the proposed slope protection techniques, duration of flooding, embankment and foundation materials, levee alignment transitions and bends, and levee side slopes are adequate and are not expected to result in failure of the levee embankment.

(B)(4) Embankment and Foundations Stability:

If certification of levees is sought by project proponents, an analysis evaluating the expected seepage during the base flood loading conditions must be provided. The study submitted by Geocon Consultants Inc dated February 2008 should be sufficient in meeting this criterion. The required factors addressed in the analysis are, depth and duration of flooding, embankment geometry and the length of seepage path at critical location, embankment and foundation materials, compaction, and penetrations.

(B)(5) Settlement:

If certification of levees is sought by project proponents, loss of freeboard due to settlement of the levee materials must be determined by analyzing the embankment loads, compressibility of the embankment and foundation soils, age of the levee system, and the construction compaction methods. An analysis utilizing the soil data presented in the Geocon report dated February 2008 and the Wallace and Kuhl Report dated February 2009 should be sufficient in satisfying this criterion.

(B)(6) Interior Drainage:

If certification of levees is sought by project proponents, the interior drainage is required to be studied for the source and extent of flooding on the landside of the levee structures. The interior drainage protected from the Post-Reclamation Channel has been studied as part of the Aspen IIIS, IVS and Granite Vineyard I Post Reclamation Plan EIR Analysis and is mostly comprised of the local flooding of the mined areas.

If certification of levees is sought by project proponents, a more detailed analysis would be required to satisfy this criteria. The analysis would include the function of Mayhew Road ditch and the Bradshaw Road ditch which both convey flows to the Post-Reclamation Channel.

The areas protected by the channel banks/levees are reclaimed mining areas used as open space, agriculture and environmental mitigation which do not require flood protection. In the advent of channel bank/levee overtopping or failure no structures or property damage would occur. The depressed areas would flood and the flood water as well as local drainage water will recede over time.

(C) Operation Plans and Criteria

Operational Criteria of all closure structures and interior drainage structures must be documented and incorporated into the Federal, State or Community officials' flood warning system. A formal plan of operation is required including specific actions and assignments of responsibility by individual name or title. Provisions for periodic inspection of interior drainage systems and periodic operation of any mechanized portions for testing and training purposes. If certification of levees is sought by project proponents, this information will be required.

(D) Maintenance Plans and Criteria

At a minimum the maintenance plan shall specify the maintenance activities to be performed, frequency of performance, and the person by name or title responsible for their performance and be officially adopted. If certification of levees is sought by project proponents, prior to certification a maintenance plan will be required.

(E) Certification Requirements

Data submitted to support that a given levee system complies with the above requirements must be certified by a registered professional engineer and must be accompanied by certified as-built plans of the levee. Alternatively a Federal agency with responsibility for levee design may certify that the levee has been adequately designed and constructed to provide protection against the base flood.

Memo

WOOD RODGERS
DEVELOPING INNOVATIVE DESIGN SOLUTIONS

Job No.: 1426.025

To: **Heidi Huber, Sacramento County DWR**

☐ **URGENT!**
☐ Meeting/Phone Summary
☒ For Your Information
☐ Other: _____

From: Darren Bonfantine, PE CFM
Date: **6/8/11**

Re: **Response to Comments: Aspen IIIS, IVS, Vineyard I Post Reclamation EIR**

The comments from Heidi Huber are presented below in italics with the Wood Rodgers response below each comment in bold. Since the last submittal dated June 9, 2009, the Aspen IV South channel design has been widened to the Effective FEMA Floodway extents. The effect of this change has decreased the WSE at the upstream end of the project boundary.

1. *In your Proposed Scope of Work dated June 9, 2009, you indicated that a Pre-Reclamation model would be prepared.*

   The Pre-Reclamation model did not accurately reflect the improved drainage condition from the Aspen VI/Granite I Weir and Basin upstream of Jackson Highway. The Effective FIS study was conducted before the Aspen VI/Granite I property had been mined and therefore is currently the best representation of the Pre-Reclamation floodplain. It was decided that the Effective FIS study results should be submitted as the Pre-Reclamation condition.

2. *The SacCalc model submitted shows all land use as open space even though the aerial photograph shows quite a bit of developed area. Also, there are two large areas east of S Watt Avenue that aren't included in the sub-sheds that drain to the creek at S Watt but should be.*

   These watersheds were reviewed and some have approximately 5-10% impervious area. These watersheds have been revised from Open Space to Residential/Agricultural land use assuming 10% impervious area (RC-35, RC-45, RC-70, and RC-76).

   Additionally, watersheds RC25-N and RC25-S, which extend to the UPRR Crossing, have been added into the SacCalc and HEC-RAS model in order to provide a more realistic downstream condition. The land use is assumed to be Industrial for the developed areas and Agricultural for the undeveloped areas. The impact to water surface elevations of these revisions is not significant. A revised model is submitted with this report.

3. *The volume of the hydrograph in the Vineyard I pit per the SacCalc model is significantly larger than the detention volume indicated in the report. This may be due to the inclusion of sub-shed RC70 and the southwest part of RC38 in the SacCalc model. The "Watershed Exhibit" indicates these areas will be prevented from draining to the mining pit by a diversion channel that drains directly to Morrison Creek. If this is still the case, the SacCalc model should be revised to reflect this.*

The Sac Calc model has been revised to reflect runoff from watersheds RC75, RC38, RC40, RC43, RC42 and RC36 contributing to the Granite I mining pit The Previous submittal did not include RC42. The total 100-year 10-day volume in the model is now 297 ac-ft. This matches the volume reported in the revised text.
The original submittal included a dummy junction that created difficulty when trying to determine the contributing volume.

4. *The report indicates that one of the hydrographs is from an earlier study of Aspen IV. I do not have this model. It needs to be included with the other models. Also, the "Watershed Exhibit" needs to indicate what drainage area this hydrograph covers.*

   The Aspen IV watershed map and Sac Calc model from the earlier study are attached for your reference.

5. *It is difficult to determine the extent of sub-shed RC85 on the "Watershed Exhibit". It would probably help if property boundaries were omitted or a different color and/or line thickness than off-site watershed boundaries.*

   A revised Figure 2 Watershed Map showing the extents of the contributing subsheds within the study area is provided.

6. *The June 2009 scope of work indicated that sensitivity analyses of the Aspen VI/Granite I weir and channel would be preformed. These models are not included in the submittal.*

   The Aspen VI weir Sensitivity Analysis will be provided in a separate memo. The model will also be included.

7. *In the section regarding the qualitative evaluation of the proposed levees, it states that it is assumed that the original GC Wallace design and plans will meet the various freeboard criteria. Since you have both the GC Wallace plans and the water-surface profiles it is possible to determine if these criteria are being met. It would be better to know now if freeboard requirements are not being met. Also, if these criteria are only just being met, changes at the Aspen VI/Granite I weir might be out of the question.*

   With respect to (B)(1) Freeboard: The evaluation section states that it is "assumed that the original GC Wallace design and plans will meet the three (3) feet of freeboard. Prior to certification as levees, as-built information will be required confirming 3 feet of freeboard."

8. *The comments as a result of the Teichert and Granite's meeting with Sacramento County DWR and DERA have been addressed in the Revised EIR Text. The responses are as follows:*

a) The study will define the current function/operation of the weir and agree to maintain the weir in its current physical state. This will define the CEQA baseline condition. In agreeing to the "as-is" condition of the weir, the applicant does not agree to accepting ownership of the water that will cross over the weir onto their property, merely accept the fact that it does and commitments to not change this fact. The County and applicant agree to defer the water ownership and related maintenance issues to a later discussion.

b) The study will analyze how water will flow over the lateral weir and into the Aspen VI/Granite I pits and how the Morrison Creek hydrology would be affected downstream if the levees fail.

c) **The study will describe how the Jackson Road (SR 16) bridge over Morrison Creek will be affected by the project.**

SACRAMENTO HYDROLOGIC CALCULATOR (SacCalc) WATERSHED ROUTING

ASPEN IV - SPA

STONEBRIDGE PROPERTIES

COUNTY OF SACRAMENTO, CALIFORNIA

OCTOBER 2007

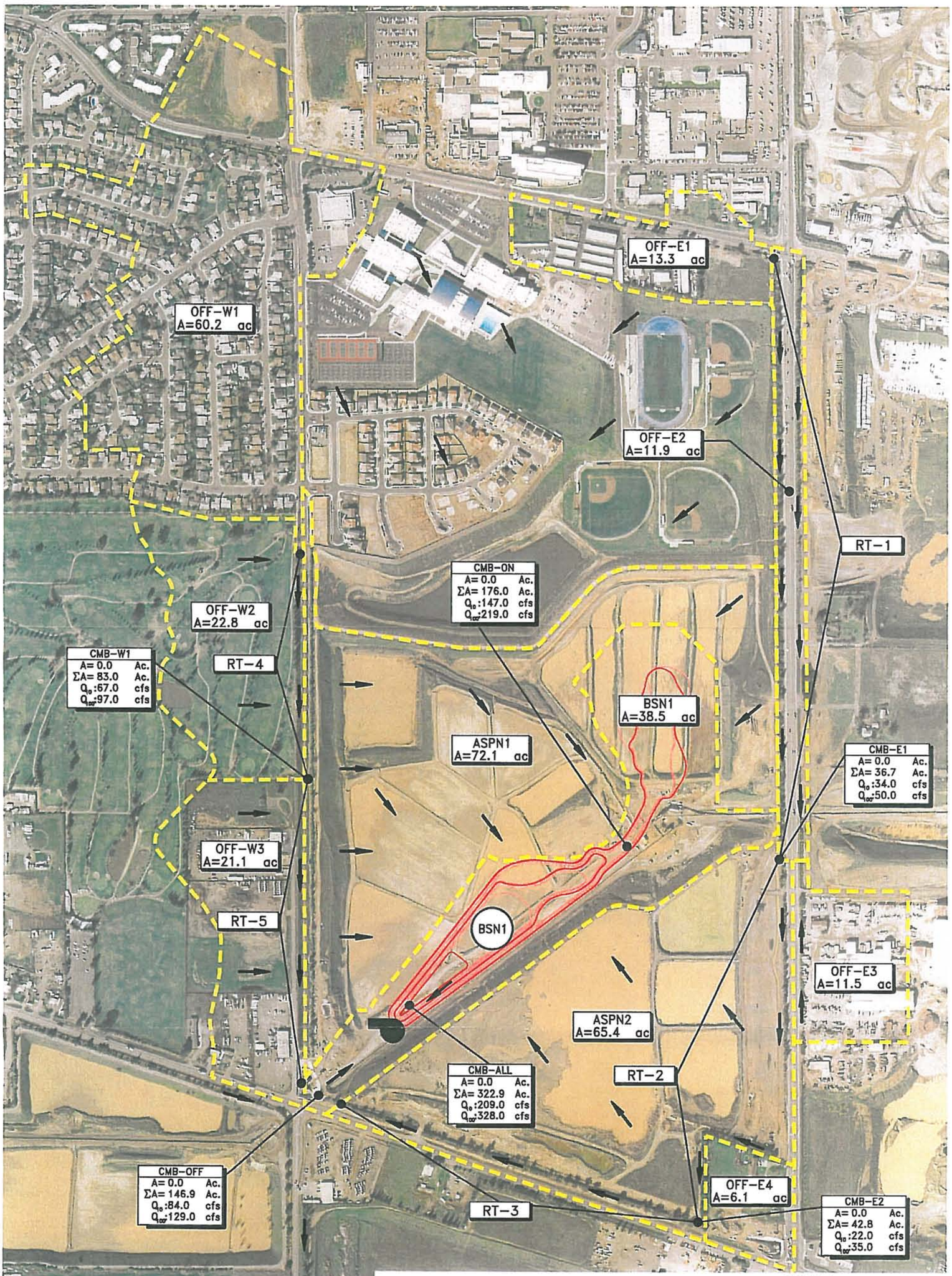

FIGURE 6

WOOD RODGERS
DEVELOPING INNOVATIVE DESIGN SOLUTIONS
3301 C St, Bldg. 100-B Tel 916.341.7760
Sacramento, CA 95816 Fax 916.341.7767

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COUNTY OF SACRAMENTO

DEPARTMENT OF WATER RESOURCES

MEMORANDUM

Date: December 23, 2011

TO: Jeff Gamel, Planning

Catherine Hack & Michelle Nagao, DERA

Copy: John Lane, Teichert jlane@teichert.com
Yasha Saber, Granite Yasha.Saber@gcinc.com

FROM: George Booth, County of Sacramento Department of Water Resources

---

PROJECT NAME: Aspen 3S, 4S, and Vineyard 1 (channelizing Morrison Creek)

APPLICATION NUMBER: 08-0017 and 08-0016 (Teichert), and 05-0062 (Granite)
Location:
Aspen III South APNs: 063-0080-016, 063-0080-028 through -032, 063-0090-007, and 063-0090-012
Aspen IV South APNs: 063-0100-011, -014 through -016, 063-0100-019, 063-0130-001, -002, -009, -010 and -011
Vineyard I expansion APN: 063-0090-009 and 063-0090-018
The rest of Vineyard I - APNs 063-0080-010 through 013, 063-0090-001 through 003, 063-0090-006, 063-0090-009 through 011, 063-0090-015 through 019, 063-0110-001 through 006, 063-0110-012, 063-0110-028, and 063-0110-029.

CONDITIONS OF APPROVAL:

In addition to other conditions on the project, if the project is approved, the subject application shall be conditioned on the following:

Prior to diversion of Morrison Creek into the Morrison Creek Realigned Channel (post-reclamation channel) the applicants shall enter into an agreement with the Sacramento County Department of Water Resources requiring that Granite and Teichert maintain and operate the weir on Granite I in the existing "As-Built Condition" in perpetuity. If the applicants want to change the operation or function of the weir, they must first conduct or fully fund a hydrology and hydraulic analysis deemed satisfactory by the Sacramento County Department of Water Resources. Any proposed changes must receive approval from the Sacramento County Department of Water Resources and undergo any necessary permitting and CEQA analysis at the applicants' expense.

COUNTY OF SACRAMENTO
INTER-DEPARTMENT CORRESPONDENCE
DEPARTMENT OF WATER RESOURCES

MEMORANDUM

August 3, 2011

TO: Michelle Nagao, DERA

John Lundgren, DERA

FROM: George Booth

COPY: Michael Peterson, Mark Rains, Mike Johnson, Heidi Huber - DWR

SUBJECT: Aspen 3S, Aspen 4S, Vineyard 1 Aggregate Mining on Morrison Creek

Water Resources finds the following Morrison Creek hydrology and hydraulic studies to be acceptable:

- January 23, 2009 Part A & B Morrison Creek Hydrology and Hydraulics (H&H) Analyses
- June 8, 2011 Response to Comments Aspen IIIS, IVS, Vineyard I Post Reclamation EIR
- July 6, 2011 Tech Memo-Granite Vineyard I/ Aspen VI Weir Sensitivity Analysis

Water Resources looks forward to reviewing the as-built plans of the constructed creek corridor as well as the proposed plans for the proposed Teichert mining reach (upstream of Mayhew). Please remind the applicants that the plans must be submitted to FEMA for a letter of map revision mapping the 4S mining area in Zone A (flooding of unknown depth). Such a submittal to FEMA should not trigger need for documentation of the upstream weir analysis.

The miners have held that the volume that might spill over the weir, upstream of Jackson Hwy, exceeds the volume anticipated in their earlier model. However, miners' goal had been and continues to be reduced downstream peak flow to compensate for their taking of floodplain. The existing side channel weir serves to reduce flood flow in the creek to a level allowing it to fit in the constructed channel. The July 6, 2011 Sensitivity Analysis clearly describes the importance of long-term maintenance of the existing creek vegetation (Manning's n-value roughness coefficient) and the weir in its as-built condition.

The Sensitivity Analysis goes on to describe what would occur if the weir were to be raised and shortened to limit the spill to the miners' preferred 1600 AF volume in the

100-yr storm event. Such an action would increase flow at Jackson Highway and into the downstream channel realignment to unacceptable levels thus causing damage to the constructed levees and adjacent and downstream properties. Clearly, this would not support the intention of the Morrison Creek mining operations. The study makes clear that reduced capacity of the weir must never be allowable.

The Sensitivity Analysis describes channel vegetation roughness (Manning's n-value) sensitivity for 100-yr, 1 day and 10 day storm events (Q_{100}). If mowed, the channel would deliver too much flow to Jackson Highway and downstream properties. If the channel is thickly vegetated, much water will spill over the weir. Therefore, the miners' must guarantee proper maintenance of the drainage features in perpetuity.

All of the open pit mining areas are mapped as 100-yr floodplain (Zone A) on the flood insurance rate map update (effective in 2012). No structures are allowed in the mined areas.

Water Resources looks forward to working with DERA on the hydrology section of the Draft EIR.

COUNTY OF SACRAMENTO
INTER-DEPARTMENT CORRESPONDENCE
DEPARTMENT OF WATER RESOURCES

MEMORANDUM

Date: July 15, 2008

TO: Jeff Gamel, Planning (01-230)
Bob DeMorales & Catherine Hack, DERA (01-220)

Applicant: Tyler Chatriand, Grant Williams Granite Construction Co. Fax 369-0429

FROM: George Booth (916)874-6484
CC. Pete Hall, Michael Peterson, Heidi Huber – Water Resources

---

PROJECT NAME: Vineyard I (aggregate mine)
CONTROL NUMBER: 05-0062
A.P.N.: Reclamation Plan Amendment for 063-0080-010, -011, -012, -013, 063-0090-001, -002, -003, -006,-009, -010, -015, -016, -017, -018, 063-0110-001, -002, -003, -004, -005, -006, -012,-028,-029 & 063-0090-018 and mining permit for 063-0090-009, -018

COMMENTS SECTION:

1. FEMA Flood Zone: AE
   Panel No. 060262- 0215E dated 9/30/1988

2. 100-Year water surface elevation (NGVD1929 datum): unknown

3. Watershed: Morrison Creek

4. ***ADDITIONAL INFORMATION REQUIRED:*** The flow in Morrison Creek is controlled by a weir constructed upstream at Aspen 6 aggregate mine. This change has never been submitted to FEMA. Submit to Water Resources for review and comment a drainage study, existing condition FEMA Letter of Map Revision (LOMR) and request for FEMA Conditional Letter of Map Revision (CLOMR) for the proposed project. The LOMR will show how the weir at Aspen 6 controls flows though the subject parcels and how the Flood Insurance Rate Map would be revised. Analysis must be to a 200-year standard with sensitivity analysis enveloping the assumptions. The 1995 Morrison Creek Mining Drainage Mitigation Plan, Miner's Preferred Alternative showed a weir in this reach of the creek.

5. The subject property contains Waters of the State or Waters of the U.S. Any alterations or work within these areas will require applicable State Fish & Game and U.S. Army Corps of Engineers permits prior to grading.

6. Provide copy of Section 404 Corps permit to Water Resources for review and approval of

long term maintenance obligations. The County will not serve as the 'Preserve Manager', but the maintenance of Morrison Creek serves upstream and downstream drainage needs and uncontrolled increase in channel roughness may exceed the assumptions of the design.

7. The proposed Morrison Creek Channel will be supported by a high embankment and levees. County safety standards require that new levees must be constructed in accordance with federal standards and certified by FEMA to at least a 200-year level of flood protection.

8. No structures will be allowed to be constructed in areas subject to deep flooding in storms of greater frequency than .5% annual (the 200-year storm event).

9. Submit grading plans and geotechnical study to Water Resources for review and comment before beginning any grading.

10. Certify levees in accordance with 44CFR65.10 federal levee standards (it is likely that 2:1 proposed side slopes will be to steep to meet stability standards). Provide all-weather access road along top of levee with an overall width of at least 4' chokers and 15' wide travel surface (total 23' hinge to hinge).

11. Provide operation and maintenance protocol, for proposed construction of preservation areas in the highline creek channel, to Water Resources for review and comment.

12. Water Resources plans to request a workshop to discuss the overall county aggregate mining plan with the Board of Supervisors in hopes of gaining better sense of the long term reclamation vision.

CONDITIONS OF APPROVAL:

If the project is approved, the subject application should be conditioned on the following:

1. Provide drainage easements and install facilities pursuant to the Sacramento County Floodplain Management Ordinance, Sacramento County Water Agency Code, and Sacramento County Improvement Standards, including any fee required by the Sacramento County Water Agency Code.

2. Provide a floodplain easement pursuant to the Sacramento County Floodplain Management Ordinance, Sacramento County Water Agency Code, and Sacramento County Improvement Standards.

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4. There may not be any structures constructed below the 100-year floodplain and only flood resistant materials may be used in areas prone to flooding.

5. Facilities specified in the State Water Resources Control Board NPDES General Permit for Discharges of Storm Water Associated with Industrial Activities, must file a notice of intent with the Central Valley Regional Water Quality Control Board to obtain coverage under the state's General Stormwater Permit for Industrial Activities. The requirements of this permit will likely affect site layout and design.

6. On-site stormwater pollutant source control measures are required.

7. The miners will enter into a long term maintenance agreement, with assurance of adequate funding, with Water Resources for operation and maintenance of all drainage features associated with the mine reclamation plan before mining begins.

COUNTY OF SACRAMENTO
INTER-DEPARTMENT CORRESPONDENCE
DEPARTMENT OF WATER RESOURCES

MEMORANDUM

Date: July 15, 2008

TO: Jeff Gamel, Planning (01-230)
Bob DeMorales & Catherine Hack, DERA (01-220)

Applicant:
Applicant:
John Lane
jlane@teichert.com
Andrea Mayer
amayer@gcwallace.com

FROM: George Booth (916)874-6484
CC. Pete Hall, Michael Peterson, Heidi Huber – Water Resources

---

PROJECT NAME: Aspen 3 South (aggregate mine)
CONTROL NUMBER: 08-0016
A.P.N.: Reclamation Plan and Use Permit for 063-0080-016,-028,-029,-030,-031,-032,063-0090-007,-012

COMMENTS SECTION:

1. FEMA Flood Zone: AE
   Panel No. 060262- 0215E dated 9/30/1988

2. 100-Year water surface elevation (NGVD1929 datum): unknown

3. Watershed: Morrison Creek

4. ***ADDITIONAL INFORMATION REQUIRED***: The flow in Morrison Creek is controlled by a weir constructed upstream at Aspen 6 aggregate mine. This change has never been submitted to FEMA. Submit to Water Resources for review and comment a drainage study, existing condition FEMA Letter of Map Revision (LOMR) and request for FEMA Conditional Letter of Map Revision (CLOMR) for the proposed project. The LOMR will show how the weir at Aspen 6 controls flows though the subject parcels and how the Flood Insurance Rate Map would be revised. Analysis must be to a 200-year standard with sensitivity analysis enveloping the assumptions. The 1995 Morrison Creek Mining Drainage Mitigation Plan, Miner's Preferred Alternative showed a weir in this reach of the creek.

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TO: Jeff Gamel, Planning (01-230)
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Applicant:
John Lane
jlane@teichert.com
Andrea Mayer
amayer@gcwallace.com

FROM: George Booth (916)874-6484
CC. Pete Hall, Michael Peterson, Heidi Huber – Water Resources

---

PROJECT NAME: Aspen 4 South (aggregate mine)
CONTROL NUMBER: 08-0017
A.P.N.: Reclamation Plan and Use Permit for 063-0100-011,-014,-015,-016,-019, 063-0130-001,-002,-009,-011

COMMENTS SECTION:

1. FEMA Flood Zone: AE
Panel No. 060262- 0215E dated 9/30/1988

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FINAL SUPPLEMENTAL ENVIRONMENTAL IMPACT REPORT

Vineyard I Community Plan Amendment, Rezone, Use Permit, Reclamation Plan Amendment, and Zoning Agreement Amendments; and Aspen III South Reclamation Plan and Use Permit Amendments and Aspen IV South Reclamation Plan, Use Permit, and Zoning Agreement Amendments

Control Numbers: *2005-CZB-UPB-REB-ZGB-0062*
PLNP2008-REB-UPB-00016 &
PLNP2008-REB-UPB-ZGB-00017

State Clearinghouse Number: *1995102057*

Date: *September 2012*

COUNTY OF SACRAMENTO
DEPARTMENT OF COMMUNITY DEVELOPMENT
PLANNING AND ENVIRONMENTAL REVIEW DIVISION
827 7TH STREET, ROOM 220
SACRAMENTO, CALIFORNIA 95814

Board Of Supervisors

1st District: Phil Serna
2nd District: Jimmie Yee
3rd District: Susan Peters
4th District: Roberta MacGlashan
5th District: Don Nottoli

County Executive

Bradley J. Hudson, County Executive Officer

Prepared By

Department of Community Development, Planning and Environmental Review Division

FINAL SUPPLEMENTAL ENVIRONMENTAL IMPACT REPORT

VINEYARD I COMMUNITY PLAN AMENDMENT, REZONE, USE PERMIT, RECLAMATION PLAN AMENDMENT, AND ZONING AGREEMENT AMENDMENT; ASPEN III SOUTH RECLAMATION PLAN AND USE PERMIT AMENDMENT; AND ASPEN IV SOUTH RECLAMATION PLAN, USE PERMIT, AND ZONING AGREEMENT AMENDMENT

Control Number: 2005-CZB-UPB-REB-ZGB-0062; PLNP2008-REB-UPB-00016; & PLNP2008-REB-UPB-ZGB-00017
State Clearinghouse Number: 1995102057

This Supplemental Environmental Impact Report has been prepared pursuant to the California Environmental Quality Act of 1970 (Public Resources Code Division 13). An Environmental Impact Report is an informational document which, when this Department requires its preparation shall be considered by every public agency prior to its approval or disapproval of a project. The purpose of an Environmental Impact Report is to provide public agencies with detailed information about the effect that a proposed project is likely to have on the environment; to list ways in which any adverse effects of such a project might be minimized; and to suggest alternatives to such a project.

Prepared by the
COUNTY OF SACRAMENTO
DEPARTMENT OF COMMUNITY DEVELOPMENT
PLANNING AND ENVIRONMENTAL REVIEW DIVISION
827 7TH STREET, ROOM 220
SACRAMENTO, CALIFORNIA 95814
www.DERA.saccounty.net

County Executive
Bradley J. Hudson

County of Sacramento

Board of Supervisors
Phillip R. Serna, District 1
Jimmie Yee, District 2
Susan Peters, District 3
Roberta MacGlashan, District 4
Don Nottoli, District 5

September 5, 2012

TO: ALL INTERESTED PARTIES

SUBJECT: Vineyard I Community Plan Amendment, Rezone, Use Permit, Reclamation Plan Amendment, and Zoning Agreement Amendments; Aspen III South Reclamation Plan and Use Permit Amendments; and Aspen IV South Reclamation Plan, Use Permit, and Zoning Agreement Amendments (Control Numbers: 2005-CZB-UPB-REB-ZGB-0062, PLNP2008-REB-UPB-00016, & PLNP2008-REB-UPB-ZGB-00017)

The subject Final Supplemental Environmental Impact Report (SEIR) is attached for your review. This Final SEIR contains all of the California Environmental Quality Act (CEQA) mandated information and analyses for the subject project. This Final SEIR updates the prior FEIR/EIS (Morrison Creek Mining Reach Downstream (South) of Jackson Highway), which has been provided on CD and can be found in the inside flap at the back of this Final SEIR. Additional CD copies of the prior FEIR/EIS are available upon request from the Planning and Environmental Review Division, 827 7th Street, Room 220, Sacramento, CA 95814, telephone (916) 874-7914.

Comments on the project (e.g. recommendations for approval or denial, concerns about what the project proposes to do, etc.) should be directed to the Sacramento County Planning and Environmental Review Division (827 7th Street, Room 230, Sacramento, CA 95814) and/or the Sacramento County Board of Supervisors (Clerk of the Board, 700 H Street, Suite 2450, Sacramento, CA 95814). A hearing on the project will be held in the Board of Supervisors Chambers, at 700 H Street in Sacramento, but the date has not been finalized at this time. A notice of the date and time of the public hearing will be provided to all property owners within 500 feet by the hearing body authorized to conduct the public hearing for the proposed project. Interested individuals not within this radius should contact the Clerk of the Board (http://www.sccob.saccounty.net/) to be placed on the hearing notice mailing list. Interested individuals may also check the materials for upcoming hearings on the website for the Board of Supervisors at http://www.agendanet.saccounty.net/sirepub/meetresults.aspx.

For questions about this environmental document, please contact John Lundgren or Michelle Nagao of this office at 874-7914.

Sincerely,

Catherine Hack
Environmental Coordinator

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1 PREFACE

The following Supplemental Environmental Impact Report (SEIR) was prepared to address proposed changes to the Vineyard I, Aspen III South and Aspen IV South Reclamation Plans, as well as inclusion of mining an additional 5.6 acres on the Vineyard I site. Although the three mining sites are three separate projects, the three projects are so closely related that they have been incorporated together as the proposed Project. The existing Reclamation Plans were the subject of a previously certified Final Environmental Impact Report/ Environmental Impact Statement (FEIR/EIS) titled *Morrison Creek Mining Reach (South) of Jackson Highway* (Control Numbers: 94-UPB-0484, 91-CZB-UPB-01118, 90-CZB-UPB-1607 and 94-CZB-UPB-0671) (State Clearinghouse Number: 95102057). The prior FEIR/EIS considered the reach of Morrison Creek that included four mining and reclamation proposals (known as Vineyard I, Aspen III South, Aspen IV South and Aspen V South), as well as an on-site processing plant. The Aspen V South mining project is not included in this Project.

On October 20, 1999, the Sacramento County Board of Supervisors certified the FEIR/EIS. The Board approved the ***Aspen III South and Aspen IV South*** mining projects on December 15, 1999 ***and the Vineyard I mining project on January 12, 2000***. This SEIR addresses environmental impacts and mitigation measures associated with the proposed revised Reclamation Plans, either resulting from the proposed changes to the Plan or new impacts and/or mitigation measures that result from changed circumstances. In addition, this SEIR addresses environmental impacts and mitigation measures associated with the request for mining the 5.6 acres for Vineyard I (referred to as the Vineyard I expansion mining site throughout this document).

The mitigation measures of the prior FEIR/EIS as they pertain to mining activities remain applicable to the Vineyard I, Aspen III South and Aspen IV South mining sites and those measures are not reiterated in this document.

Mitigation measures of the prior FEIR/EIS as they pertain to mining and are applicable to the Vineyard I mining expansion site are reiterated in this document and it is specified that the measure is applicable to the Vineyard I mining expansion site. Mitigation measures that apply to the Morrison Creek Realigned Channel or the Raised Bank Channel (the reclamation plan amendments) are specified as such and the responsible party is identified within the measure.

Along with a Notice of Completion (NOC), the Draft SEIR was released to the Governor's Office of Planning and Research to begin the public review period (Public Resources Code, Section 21161) on February 24, 2012. Concurrent with the NOC, the County also provided public notice of the availability of the Draft SEIR for public review through publication in a newspaper of general circulation, publication on the Division of Environmental Review and Assessment (DERA) website and with notices sent to individuals who had requested such notification.

The public review and written comment period began on February 24, 2012 and ended on April 9, 2012.

A public hearing on the Draft SEIR and project was held before the Sacramento County Planning Commission on May 21, 2012. Oral comments on the Draft SEIR were accepted during this hearing; however, none were provided, at which time the Planning Commission closed the public comment period on the Draft SEIR and directed DERA to prepare the Final SEIR. The Response to Comments chapter of this Final SEIR contains all the written comments received during the public comment period on the Draft SEIR. The Board of Supervisors will use this Final SEIR as one of the informational sources used to determine whether to approve or deny the project.

Changes made to the content of the SEIR are shown bold italics and deleted text is provided in ~~strikethrough~~ format. Minor topographical errors and punctuation corrections are not tracked in this manner unless the corrections are germane to a comment or analysis.

Impacts that were identified in the prior FEIR/EIS as significant and unavoidable remain so for the proposed Project. Impacts identified as significant and reduced to less than significant for the proposed Project, due to either completed mitigations or changed circumstances, are stated as such. Impacts identified as less than significant, remain so. Mitigation measures of the FEIR/EIS that remain applicable to the proposed Project are summarized in the Executive Summary of this ***Final*** SEIR. A copy of the prior FEIR/EIS is attached to this SEIR in CD format (back cover) and is available online as Appendix A at http://www.dera.saccounty.net/PublicNotices/SQLView/ProjectDetails/tabid/71/Default.aspx?ProjectID=33759)

2 EXECUTIVE SUMMARY AND MITIGATION MEASURES

The subject of this Supplemental Environmental Impact Report (SEIR) is comprised of three separate projects that have been incorporated into the proposed Project known as *Vineyard I Community Plan Amendment, Rezone, Use Permit, Reclamation Plan Amendment, and Zoning Agreement Amendments (Control Number: 05-CZB-UPB-REB-ZGB-0062)*; *Aspen III South Reclamation Plan and Use Permit Amendments (Control Number: PLNP2008-REB-UPB-00016);* and *Aspen IV South Reclamation Plan, Use Permit, and Zoning Agreement Amendments (Control Number: PLNP2008-REB-UPB-ZGB-00017)*.

The Project is located in the Vineyard community in the unincorporated area of Sacramento County. The Vineyard I project parcels are located at the northeast corner of Hedge Road and Elder Creek Road. The Aspen III South project parcels are located in the southwest corner of Fruitridge Road and Mayhew Road. The Aspen IV South project parcels are located at the northeast corner of Mayhew Road and Elder Creek Road.

The proposed project includes revisions to the previously approved reclamation plan***s***, consistent with permits received from the County, State and federal regulatory agencies. The previous reclamation plan***s*** consisted of a below grade, 600-foot wide riparian corridor/low-flow channel within the bottom of the mining pit in generally the same location as the existing creek and an at-grade trapezoidal bypass channel around the perimeter of the three mining sites. The proposed project revises the previously approved reclamation plan***s*** by completely eliminating the at-grade trapezoidal bypass channel component and changing the below grade, 600-foot wide riparian corridor/low-flow channel to an at-grade mitigation corridor (Morrison Creek Realigned Channel) on the Vineyard I and Aspen III South mining properties. The Morrison Creek Realigned Channel has been designed to contain the 100-year flood flows. On the Aspen IV South property, the existing Morrison Creek channel will now be preserved and a raised bank flood control channel (Raised Bank Channel) is proposed to be constructed outside the effective FEMA floodway. The Morrison Creek Realigned Channel will connect with the preserved Morrison Creek channel on Aspen IV South. ***This connection may require some encroachment within the floodway.***

The proposed project also consists of a request for a rezone and a use permit amendment to allow aggregate mining on an additional 5.61 acres (two parcels) and to incorporate this new area into the previously approved Vineyard I mining plan (referred as Vineyard I mining expansion). In addition, the Vineyard I mining expansion will be incorporated into the previously approved reclamation plan, including revisions consistent with the requested reclamation amendments described above. The location of a retention basin on the Vineyard I mining site has been determined for the proposed project and the volume of a retention basin on the Aspen IV South mining site has been determined.

The following environmental impact and mitigation summary table describes the project impacts and the recommended mitigation measures to eliminate or reduce the impacts. The residual impact after mitigation is also identified. Detailed discussions of each of the identified impacts and mitigation measures, including pertinent support data, can be found in the specific topic sections in the remainder of this report.

This report identifies significant and unavoidable impacts related to land use (conflict with nearby land uses), air quality (exhaust emissions) and geology (permanent alteration of the landform).

This report has identified project-related impacts associated with land use, groundwater hydrology and quality, geology and slope stability, public safety, airport compatibility, cultural resources, aesthetics; biological resources and traffic and circulation as potentially significant, which could be reduced to a less than significant level through inclusion of recommended mitigation measures.

Other impacts associated with surface water hydrology and drainage, groundwater hydrology and water quality, cultural resources, biological resources, aesthetics, climate change, air quality, geology and slope stability, traffic and circulation, land use, public safety and public services are considered less than significant.

Table 2-1
Executive Summary of Impacts and Mitigation

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
SURFACE WATER HYDROLOGY AND DRAINAGE			
In the Post-Reclamation condition, there would be a decrease in the upstream flows between the baseline condition and the Post-Reclamation condition. The Post-Reclamation floodplain upstream would be reduced.	LS	None Required	LS
In the Post-Reclamation condition, the flows downstream of the project site will not increase as a result of the project.	LS	None Required	LS
The proposed project would not result in on-site flooding in the Post-Reclamation condition as peak flows will be contained within the Morrison Creek Realigned Channel.	LS	None Required	LS
The embankments of the Morrison Creek Realigned Channel and the Raised Bank Channel are not likely to fail, but in the unlikely event they did, the applicants have an evacuation and safety plan and there would not be a potential for off-site flooding, or drying up of the creek channel downstream.	LS	None Required	LS
The proposed project will not result in damage to the Jackson Highway Bridge due to high Morrison Creek flows.	LS	None Required	LS
GROUNDWATER HYDROLOGY AND QUALITY			
The prior FEIR/EIS concluded that gravel extraction may alter drainage and groundwater flow and quality which could affect surrounding properties and domestic septic leachfield systems on adjacent surrounding properties. This was found to be a significant impact that could be reduced to less than significant with mitigation	S	***This mitigation is from the prior FEIR/EIS and is applicable to the Vineyard I mining expansion site of the proposed project:*** **GW-1:** The ***Vineyard I operator*** ~~proponents~~ shall store contaminants in the gravel operation area in a manner that will contain any spills (i.e., containment berms). Any spills occurring in operational areas should be cleaned up immediately.	LS

[1] PS = Potentially Significant S = Significant SU = Significant and Unavoidable LS = Less Than Significant

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
The prior FEIR/EIS determined that mining operations could alter or disrupt any future monitoring of the contamination plume from Mather Field. The contamination plum has not migrated and the inclusion of 5.6 acres to the Vineyard I mining site will not affect future monitoring efforts of contamination plumes from Mather Field. This impact is now considered less than significant.	LS	None Required	LS
CULTURAL RESOURCES			
There are no significant cultural or historical resources on the Vineyard I mining expansion site. Mining of the additional 5.6 acres will not impact known cultural resources	LS	None Required	LS
Mining of the 5.6-acre Vineyard I mining expansion site could uncover subsurface archaeological materials.	PS	**CR-1:** ***On the Vineyard I mining expansion site, if*** ~~If~~ subsurface deposits believed to be cultural or human in origin are discovered during construction, then all work must halt within a 200-foot radius of the discovery. A qualified professional archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for prehistoric and historic archaeology, shall be retained at the ***Vineyard I mining operator's*** ~~Applicant's~~ expense to evaluate the significance of the find. If it is determined due to the types of deposits discovered, that a Native American monitor is required, the Guidelines for Monitors/Consultants of Native American Cultural, Religious, and Burial Sites as established by the Native American Heritage Commission shall be followed, and the monitor shall be retained at the **mining operator's** ~~Applicant's~~ expense. Work cannot continue within the 200-foot radius of the discovery site until the archaeologist conducts sufficient research and data collection to make a determination that the resource is either 1) not cultural in origin; or 2) not potentially eligible for listing on the National Register of Historic Places or California Register of Historical Resources. If a potentially-eligible resource is encountered, then the archaeologist, ***the Environmental Coordinator*** ~~DERA~~, and project proponent shall arrange for either 1) total avoidance of the	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		resource, if possible; or 2) test excavations or total data recovery as mitigation. The determination shall be formally documented in writing and submitted to ***the Environmental Coordinator*** ~~DERA~~ as verification that the provisions of CEQA for managing unanticipated discoveries have been met. **CR-2:** Pursuant to Section 5097.98 of the State Public Resources Code and Section 7050.5 of the State Health and Safety Code, in the event of the discovery of human remains ***on the Vineyard I mining expansion site***, all work is to stop and the County Coroner shall be immediately notified. If the remains are determined to be Native American, guidelines of the Native American Heritage Commission shall be adhered to in the treatment and disposition of the remains.	
AIR QUALITY			
The proposed project will result in a significant increase of exhaust emissions due to the continued use of heavy off-road equipment for an additional 3-6 months time frame for the Vineyard I mining expansion site. This impact is significant and unavoidable.	S	**AQ-1:** *Category 1: Reducing NOx emissions from off-road diesel powered equipment*. The ***Vineyard I mining expansion operator*** ~~proponent~~ shall provide a plan, for approval of the lead agency and the Sacramento Metropolitan Air Quality Management District (SMAQMD), demonstrating that the heavy-duty (50 horsepower or more) off-road vehicles to be used in the project ***(mining of the Vineyard I expansion site)***, including owned or leased and subcontracted vehicles, will achieve a project wide fleet-average 20 percent NO_x reduction and 45 percent particulate reduction[2] compared to the most recent California Air Resource Board (ARB) fleet average at time of each annual report; and The ***mining operator*** ~~proponent~~ shall submit to the lead agency and SMAQMD a comprehensive inventory of all off-road equipment, equal to or greater than 50 horsepower, that will be	SU

[2] Acceptable options for reducing emissions may include use of late model engines, low-emissions diesel products, alternative fuels, engine retrofit technology, after-treatment products and/or other options as they become available.

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		used an aggregate of 40 or more hours per year during any portion of the project. The inventory shall include the horsepower rating, engine production year, and project hours of use or fuel throughput for each piece of equipment. The inventory shall be updated and submitted annually throughout the duration of the project. The ***mining operator*** ~~proponent~~ shall provide SMAQMD with the name and phone number of the project manager and/or on-site foreman. Due to the long term nature of this project, the requirement for the emission reduction plan referenced herein will sunset on Month/date/year[3] due to existing SMAQMD and ARB rules that will affect ARB fleet averages at that time. And: *Category 2: Controlling visible diesel emissions from off-road diesel powered equipment*. Emissions from all off-road diesel powered equipment used on the project site shall not exceed 40 percent opacity for more than three minutes in any one-hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be repaired immediately, and the lead agency and the lead agency and SMAQMD shall be notified within 48 hours of identification of non-compliant equipment. The SMAQMD and/or other officials may conduct periodic site inspections to determine compliance. Nothing in this mitigation measure shall supersede other SMAQMD or State rules or regulations. **AQ-2:** All vehicles ***utilized as part of the Vineyard I mining expansion*** shall be maintained in accordance with the manufacturers' recommendations, and all stationary equipment ***used on the site shall be*** maintained in compliance with emissions limitations established by a permit issued by the SMAQMD. ***The Vineyard I mining operator*** ~~Granite Construction~~ shall maintain records of equipment maintenance activities and records shall be	

[3] Project proponent should contact SMAQMD staff to determine appropriate sunset period.

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		provided to the County upon request. **AQ-3:** Particulate filters and catalysts should be used where technically feasible to reduce NOx emissions from off-road heavy duty equipment ***associated with the Vineyard I mining expansion***. ~~Granite Construction~~ ***The mining operator*** should contact SMAQMD and/or ARB for assistance in determining appropriate emission reducing technologies.	
The prior project was found to have a significant dust (particulate matter) emission impact. During mining of the Vineyard I mining expansion site, all Basic Construction Emission Control Practices will be implemented and the maximum daily disturbed area will not exceed 15 acres. This impact is now considered less than significant.	LS	None Required	LS
GEOLOGY AND SLOPE STABILITY			
The prior project was found to have a significant and unavoidable impact due to the permanent alteration of the project site's landform. Mining the Vineyard I expansion site will increase the amount of land permanently altered by mining. The project does not lessen the prior impact.	S	None Available	SU
The prior project concluded that the project's reclaimed slopes would be subject to slope instability. The proposed project does not change this prior significant impact. Mitigation from the prior FEIR/EIS remains applicable to the proposed project and will reduce the level of significance.	S	The following mitigation **(GS-1)** is from the prior FEIR/EIS ~~and remains~~ ***is*** applicable to the Vineyard I mining expansion site of the proposed project. **GS-1:** For the Vineyard I mining expansion site, the ~~proponent~~ ***mining operator*** shall limit the finished side slopes ***of the Morrison Creek Realigned Channel and mining pit slopes at the Vineyard I mining expansion site*** to ~~1.5:1~~ ***2:1*** (horizontal:vertical) to ensure stability for existing soil conditions. ***For the slopes of the Morrison Creek Realigned Channel,*** ~~S~~***s***oils shall be placed and compacted to 90 percent of the maximum dry density, at or near optimum moisture conditions, in all finished slopes. Since local stability of the slope is critically dependent upon proper compaction of the overburden soils, a qualified soils engineer shall be regularly present throughout	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		grading operations to determine compliance with job specifications. **GS-2:** Prior to allowing re-directed stream flows to the Morrison Creek Realigned Channel, ~~Granite Construction~~ ***the Vineyard I mining operator*** shall submit a report prepared by a California registered professional engineer certifying the channel and embankment engineering and foundation soils of the Morrison Creek Realigned Channel. The engineer's report shall address slope stability, soil compaction rates, foundation soils, potential failure mechanisms and contingencies for repairing failures. The report shall be submitted to the ***Department of Community Development*** ~~Community Planning and Development Department and the Division of Environmental Review and Assessment~~ for approval. No flows shall be directed to the new channel until approval is granted by ***the Department of Community Development*** ~~both entities~~. **GS-3:** For the embankments of the Raised Bank Channel and the mining slopes on the Aspen IV South mining site, ***the Aspen IV South mining operator*** ~~Teichert Aggregates~~ shall follow the recommendations contained in the GEOCON Consulting, Inc report (September, 2011). At the completion of the construction of the Raised Bank Channel, a report, signed by a California registered professional engineer, shall be submitted to ***the Environmental Coordinator*** ~~DERA~~ indicating completion of the recommendations from the GEOCON report. During mining, a report, prepared and signed by a California registered professional engineer, shall be submitted indicating completion of the recommendations regarding the mining pit slopes. **GS-4:** Prior to mining within 25 feet of the Mayhew Road right-of-way, ***the Aspen IV South mining operator*** ~~Teichert Aggregates~~ shall submit a report, prepared by a geotechnical engineer or engineering geologist, on the soils observed at 25 feet from the right-of-way and whether or not the soils observed are consistent with those anticipated. If the soils observed differ significantly from what was anticipated, the engineer shall increase the proposed 12-foot setback accordingly. This report shall be submitted to ***the Department of Community Development*** ~~DERA and the~~	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		~~Community Planning and Development Department~~ for review and approval prior to commencement of mining within 25 feet of the Mayhew Road right-of-way.	
The slopes of the mining pit and recreated channel of the proposed project would be subject to erosion and slope instability if not properly vegetated and maintained.	S	**GS-5:** The ***Vineyard I mining expansion operator*** ~~proponents~~ shall ensure that the side slopes of the pit are vegetated following final slope placement to prevent excessive erosion and enhance slope stability. The side slopes shall be revegetated with an erosion control mix as specified in an Erosion Control Plan. The Erosion Control Plan shall be prepared by the ***mining operator*** ~~applicant~~ and submitted to the County prior to issuance of the work authorization permit. The species chosen for the erosion control mix shall be comprised of native stock and shall not contain any species considered to be invasive or noxious weeds. The Erosion Control Plan shall include performance standards that can be used to determine the success of erosion control measures and the revegetation effort, and shall discuss monitoring requirements. The plan shall include remedial measures to be implemented if revegetation is not successful. **GS-6:** The ***mining operator for Vineyard I*** ~~applicant~~ shall submit to the ***Environmental Coordinator*** ~~Division of Environmental Review and Assessment (DERA)~~, a ten-year monitoring plan that outlines monitoring requirements and identifies mitigating steps for any significant erosion that may occur at a specific location in the ***Morrison Creek Realigned Channel (***flow channel***)***. If significant erosion is identified during monitoring, the ~~applicant~~ ***mining operator*** shall contact ***the Environmental Coordinator*** ~~DERA~~ and submit proof of corrective actions. Appropriate mitigation includes, but is not limited to; strengthening of the channel, re-grading the channel, widening the channel to reduce scour velocities, or any other revision as approved by County staff to mitigate significant erosion.	LS
The loss of mineral resource availability is not an impact of the proposed project.	LS	None Required	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
BIOLOGICAL RESOURCES			
Vegetation The loss of existing natural vegetation communities was found to be a significant impact under the prior project. Mitigation included a mitigation corridor which has been revised as the proposed Morrison Creek ***Realigned Channel*** ~~Preserve Corridor~~ which has been approved by the regulatory agencies. Mitigation has been included to ensure success of the Morrison Creek ***Realigned Channel*** ~~Preserve Corridor~~ and impacts will be considered less than significant.	S	**BR-1:** ~~Prior to the issuance of a Work Authorization Permit~~ ***Granite Construction shall*** submit to the ~~County Department of Environmental Review and Assessment~~ ***Department of Community Development*** the recorded Conservation Easements for the ***Morrison Creek Realigned Channel*** ~~project sites~~ ***by the date set in the issued U.S. Army Corps of Engineers Section 404 permit (November 30, 2013). Teichert Aggregates shall submit to the Department of Community Development the recorded Conservation Easement for the Raised Bank Channel by the date set in the issued U.S. Army Corps of Engineers Section 404 Permit (May 13, 2017). In the event that the U.S. Army Corps of Engineers changes the date for either permit, a copy of the recorded Conservation Easement shall be submitted within five (5) days of the new approved date.*** **BR-2:** ***The mining operators for Vineyard I and Aspen IV South shall*** Implement the***ir respective*** *Wetland, Oak Woodland and Riparian Mitigation Monitoring Plan* (refer to Appendix D1 ***and Appendix D2***) ***and*** Submit to the ***Department of Community Development*** ~~County Division of Environmental Review and Assessment~~ ***their respective*** annual monitoring reports ***as specified in their*** **Wetland, Oak Woodland and Riparian Mitigation Monitoring Plan**. The reports shall present the status of the creek, wetlands, drainage, oak woodland and riparian habitats, including individual wetland data, photo-documentation, status of the riparian and oak woodland plantings, and any recommended remediation. The report***s*** shall also include an assessment of the monitoring results against the success criteria described in the *Wetland, Oak Woodland and Riparian Mitigation Monitoring Plan*. ~~A~~ ***The*** monitoring report***s*** ~~will~~ ***shall*** be prepared and submitted to the ***Department of Community Development*** ~~County~~ (and Corps and CDFG) for each of the monitoring years by December 31st of each monitoring year. The report***s*** shall include: a. A map showing the Preserve including wetland locations,	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		location of various monitoring activities and photo points; b. Hydrology, vegetation, and photographic monitoring results as described in the ***respective*** *Wetland, Oak Woodland and Riparian Mitigation Monitoring Plan*; c. An assessment of the monitoring results against the established success criteria; d. A description of the overall site conditions and any management actions taken during that year; and e. Any recommended management or remediation actions to be conducted (if necessary, a contingency plan, as described in Section 8.2 of the *Wetland, Oak Woodland and Riparian Mitigation Monitoring Plan* will be prepared). If any revisions to the Morrison Creek Realigned Channel occur during the first ten years, a letter indicating proposed changes shall be submitted to ***the Department of Community Development*** ~~DERA~~. If changes require approval by either the Corps or CDFG an approval letter from the respective agency shall be submitted to ***the Department of Community Development*** ~~DERA~~. At the end of the ten-year monitoring period***s***, monitoring will cease if the Morrison Creek Realigned Channel ***and Raised Bank Channel are*** ~~is~~ found by the ***Department of Community Development*** ~~County~~, Corps and CDFG to be in substantial compliance with the established success criteria. Monitoring will be extended beyond the ten-year period for those habitats that are not meeting success criteria.	
Native Trees Mining of the Vineyard I site resulted in removal of 3,562 inches dbh of native oak and walnut trees. The tree plantings within the Morrison Creek Realigned Channel will adequately compensate (out-of-kind, inch-for inch) for this impact. Mining the Vineyard I Expansion Site will result in removal	S	**BR-3:** ***The mining operators for Vineyard I and Aspen IV South shall*** Implement Mitigation Measure BR-1 (submittal of recorded conservation easements) and BR-2 (implement the *Wetland, Oak Woodland and Riparian Mitigation Monitoring Plan for Vineyard I* [refer to Appendix D1] and the *Oak Tree Mitigation and Monitoring Plan for Aspen IV South* [refer to Appendix D2]). **BR-4:** The removal of 40 inches ~~by Granite~~ for the Vineyard I expansion site shall be compensated by planting native oak trees	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
of 40 inches dbh of native trees. Mining the Aspen IV South site will result in 566 inches dbh of tree impacts. Perimeter and landscape tree plantings (140 oak tree plantings) will compensate for 140 inches of impacts. The remaining 426 inches dbh will be adequately mitigated through tree plantings within the Morrison Creek Preserve Corridor. Connection of the Morrison Creek Realigned Channel and Raised Bank Channel will result in impacts to trees located within the Mayhew Road right-of-way. Granite will be responsible for trees located on the western half of the right-of-way for a total of 273 inches. Teichert will be responsible for the trees located on the eastern half of the right-of-way for 74 inches. Planting within the Morrison Creek Raised Bank Channel for Aspen IV South will sufficiently compensate for 875 inches of impacts for Teichert. Granite impacts of 273 inches and 40 inches (for expansion site) will be mitigated consistent with the County tree ordinance.		(either valley oak/Quercus lobata, blue oak/ Quercus douglasii and/or interior live oak/ Quercus wislizenii) equivalent to the dbh inches lost, based on the ratios listed below, at locations that are authorized by the ***Environmental Coordinator*** ~~Division of Environmental Review and Assessment~~. On-site preservation of native oak trees that are less than 6 inches (<6 inches) dbh, may also be used to meet this compensation requirement. A total of 40 inches ~~for Granite~~ will require compensation. Equivalent compensation based on the following ratio is required: • One preserved native oak tree < 6 inches dbh on-site = I inch dbh • One D-pot seedling (40 cubic inches or larger) = 1 inch dbh • One 15-gallon tree = 1 inch dbh • One 24-inch box tree = 2 inches dbh • One 36-inch box tree = 3 inches dbh Replacement tree plantings shall be completed prior to tree removal or a bond shall be posted by the ***Vineyard I mining expansion operator*** ~~applicant~~ in order to provide funding for purchase, planting, irrigation, and 3-year maintenance period, should the ***mining operator*** ~~applicant~~ default on replacement tree mitigation. The bond shall be in an amount equal to the prevailing rate of the County Tree Preservation Fund and will be due within one year of posting the bond. Prior to the issuance of a Work Authorization Permit for the Vineyard I expansion site, a Replacement Oak Tree Planting Plan shall be prepared by a certified arborist or licensed landscape architect and shall be submitted to the Environmental Coordinator for approval. The Replacement Oak Tree Planting Plan(s) shall include the following minimum elements: 1. Species, size and locations of all replacement plantings and < 6 inch dbh trees to be preserved; 2. Method of irrigation; 3. If planting in soils with a hardpan/duripan or clayplan layer, include the Sacramento County Standard Tree Planting Detail L-1, including the 10-foot deep boring hole to provide for	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		adequate drainage; 4. Planting, irrigation and maintenance schedules; 5. Identification of the maintenance entity and a written agreement with that entity to provide care and irrigation of the trees for a 3-year establishment period, and to replace any of the replacement oak trees which do not survive during that period; and 6. Designation of a 20-foot root zone radius and landscaping to occur within the radius of oak trees < 6 inches dbh to be preserved on-site. No replacement tree shall be planted within 15 feet of the driplines of existing oak trees or landmark size trees that are retained on-site. The minimum spacing for replacement oak trees shall be 20 feet on-center. If oak tree replacement plantings are demonstrated to the satisfaction of the Environmental Coordinator to be infeasible for any or all trees removed, then compensation shall be through payment into the County Tree Preservation Fund. Payment shall be made at a rate of $325.00 per dbh inch removed but not otherwise compensated, or at the prevailing rate at the time payment into the fund is made.	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
Wetlands The prior project found that the prior project would impact 19 acres of waters of the U.S. Mitigation required the applicants to obtain the necessary permits; these permits have been secured. Impacts to wetlands and waters of the U.S. on the Aspen IV South site have decreased under the proposed reclamation plan amendment as there will be no mining within Morrison Creek on Aspen IV South. The Morrison Creek Realigned Channel will mitigate for impacts to wetlands associated with the Vineyard I mining site; however to ensure that the corridor will adequately mitigate for impacts to wetlands, mitigation to submit recorded conservation easements and the mitigation plan has been included.	S	**BR-5:** Implement Mitigation Measures BR-1 and BR-2	LS
Wildlife It was determined that the prior project would result in the loss of most existing wildlife habitat and wildlife displacement. Mining the Vineyard I expansion site does not change the prior conclusion that mining activities would result in habitat loss and wildlife displacement. Mitigation Measures BR-1 and BR-2 have been recommended to ensure the recreated habitats function adequately. A wildlife survey has been included within the *Wetland, Oak Woodland and Riparian Mitigation Monitoring Plan.*	S	**BR-6:** Implement Mitigation Measure BR-1 and BR-2	LS
Invertebrates The proposed project will not impact general invertebrate populations (non-special status species populations).	LS	None Required	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
Fisheries The proposed project will not result in the loss of existing warm water fisheries habitat within approximately two miles of the Morrison Creek channel, nor would the project result in a disruption of fish migration as a result of the loss of two miles of the Morrison Creek stream channel.	LS	None Required	LS
American Badger Mining the Vineyard I expansion site would not adversely impact the American badger. It is also likely that the American badger has fled the project site. The recreated Morrison Creek Preserve Corridor may provide suitable habitat for the badger at completion of mining activities. The project will only result in temporarily displacing the American badger.	LS	None Required	LS
Palled bat, Townsend's western big eared bat and other bats The Vineyard I expansion site would remove an abandoned building that is potential roosting habitat for bats in the area. Removal of the building is not a significant loss of roosting habitat for bats, such as the pallid bat, Townsend's western big-eared bat and other bats. This loss is considered temporary since the riparian habitat proposed along the Morrison Creek Preserve Corridor will provide future roosting habitat for bats at the completion of mining activities.	LS	None Required	LS
Valley Elderberry Longhorn Beetle The Vineyard I expansion mining site does not contain any elderberry bushes; mining the site will not result in impacts to the valley elderberry longhorn beetle. Mitigation for the removal of nine elderberry bushes has been completed. This impact is now considered less than significant.	LS	None Required – prior mitigation completed	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
Special Status Vernal Pool Invertebrates The Vineyard I expansion mining site does not contain any wetlands; therefore vernal pool invertebrates are not utilizing the site. Mining the Vineyard I expansion site will not impact vernal pool invertebrates. The prior project had a significant impact to the loss of vernal pool invertebrates and consulted with the USFWS and purchased necessary vernal pool preservation and creation credits at an approved mitigation bank. The Morrison Creek Realigned Channel will replace wetland habitats; mitigation has been recommended to ensure appropriate wetland habitat functions.	S	**BR-7:** Implement Mitigation Measure BR-1 and BR-2	LS
Swainson's hawk and Other Special Status Birds (Burrowing owl and Tricolored blackbird) The prior FEIR/EIS concluded that the project would result in the temporary loss of approximately 880 acres of potential foraging habitat, with potential nesting sites for Swainson's hawk. The proposed Morrison Creek Realigned Channel does not change the overall post-reclamation use of the site and as such, the prior conclusion does not change. The project was found to result in temporary loss of potential nesting sites for both the burrowing owl and tricolored blackbird. The Morrison Creek Realigned Channel will replace this habitat upon completion of mining. Mining the Vineyard I expansion site could have potentially significant impacts to Swainson's hawk, burrowing owl or other special status birds if they are utilizing the site. This is considered a potentially significant impact.	PS	**BR-8:** Prior to the issuance of a Work Authorization Permit, if mining the Vineyard I expansion site is to occur between March 1 and September 15, a focused survey for Swainson's hawk nests on the site and on nearby trees shall take place within ½ mile for rural sites and ¼ mile for urban sites, and shall be conducted by a qualified biologist within 14 days prior to the start of construction work (including clearing and grubbing). If active nests are found, the California Department of Fish and Game (CDFG) shall be contacted to determine appropriate protective measures. If no active nests are found during the focused survey, no further mitigation will be required. **BR-9:** Burrowing Owl Survey: Prior to mining activities ***on the Vineyard I mining expansion site***, a focused survey shall be conducted by a qualified biologist for burrowing owls where suitable habitat is present in the project area. Suitable habitat includes agricultural field margins, drainage ditches and fallow fields. Surveys shall be conducted no less than 14 days and no more than 30 days prior to commencement of construction activities. Surveys shall be conducted in accordance with CDFG protocol (CDFG, 1995). a. If no occupied burrow are found in the survey area, a letter report documenting survey methods and findings shall be	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		submitted to the County and no further mitigation is necessary. b. If an occupied burrow is found, the ***Vineyard I expansion mining operator*** ~~applicant~~ shall contact ***the Environmental Coordinator*** ~~DERA~~ and consult with the CDFG, prior to construction or mining activities, to determine if avoidance is possible or if burrow relocation will be required. c. If owls are to remain on-site, a minimum of 6.5 acres of foraging habitat for each occupied burrow needs to be permanently preserved according to CDFG guidelines. d. In order to avoid direct impacts to owls, no activity shall take place within 160 feet of an active burrow from September 1 to January 31 (wintering season) or 250 feet from February 1 through August 31 (breeding season). Protective fencing shall be placed, at the distances above, around the active burrows and no activity shall occur within the protected buffer areas. e. Any impact to active owl burrows, relocation of owls or mitigation for habitat loss shall be done in accordance with CDFG guidelines. Written evidence from CDFG staff shall be provided to ***the Environmental Coordinator*** ~~DERA~~ attesting to the permission to remove burrows, relocated owls, mitigate for lost habitat and provide a method for preservation habitat in perpetuity. **BR-10:** Survey for Tricolored blackbirds: If mining activities ***on the Vineyard I mining expansion site*** occur between March 1 and July 31, a pre-construction survey for nesting tricolored blackbird shall be performed by a qualified biologist. Surveys shall include the project site and areas of appropriate habitat within 300 feet of the site. Surveys shall be conducted no less than 14 days and no more than 30 days prior to commencement of mining activities. The biologist shall supply a brief written report (including date, time of survey, survey method, name of surveyor and survey results) to the ***Environmental Coordinator*** ~~Department of Environmental Review and Assessment (DERA)~~ prior to ground disturbing activities. If no tricolored blackbirds are found during the pre-construction survey, no further mitigation will be required. If an	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		active tricolored blackbird colony is found on-site or within 300 feet of the project site, the ***Vineyard I expansion mining operator*** ~~project proponent~~ shall do the following: a. Consult with CDFG to determine if project activity will impact the tricolored blackbird colony(s). Provide ***to the Environmental Coordinator*** ~~DERA~~ with written evidence of the consult or a contact name and number from CDFG. b. With CDFG permission, the **mining operator** ~~applicant~~ may avoid impacts to tricolored blackbirds by establishing a 300-foot temporary setback with fencing that prevents any project activity within 300 feet of the colony. A qualified biologist shall verify that setbacks and fencing are adequate and will determine when the colonies are no longer dependent on the nesting habitat (i.e., nesting have fledged and are no longer using habitat). The breeding season typically ends in July. c. If the tricolored blackbird habitat is permanently destroyed, follow CDFG procedure to mitigate for habitat loss.	
Special Status Plants The prior FEIR/EIS concluded that the project would not significantly impact any special status plants since none were known to occur within the project site. There are no wetlands or vernal pools on the Vineyard I expansion site; the proposed project will not impact special status plants.	LS	None Required	LS
Giant Garter Snake The USFWS presumed the presence of the giant garter snake in the project area in the issued Biological Opinion for the Aspen IV South site. Impacts are considered potentially significant. Minimization and avoidance measures were included in the issued Biological Opinion and have been carried forward as mitigation.	LS	None Required	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
TRAFFIC AND CIRCULATION			
The prior FEIR/EIS concluded that the additional haul trucks on the roadway system would degrade the existing level of service and that this was identified as a significant impact. Removal of overburden from the Vineyard I expansion site would not result in additional haul trucks on the roadway system and would not result in a significant increase in worker trips. Mitigation has been included to ensure impacts are less than significant.	PS	***The following mitigation measure is from the prior FEIR/EIS and is applicable to the Vineyard I expansion site:*** **TC-1:** The ***Vineyard I expansion mining operator*** ~~proponents~~ shall transport mined aggregate material to the processing plants only by conveyor and not by trucks. **TC-2:** If overburden from the Vineyard I mining expansion site is to be removed from the site, overburden transport shall be by conveyor and internal vehicles only and not by on-road haul trucks.	LS
The prior project resulted in significant impacts to traffic safety due to increased truck traffic on roads not designed to accommodate truck traffic and at access points to heavily traveled roads. The proposed project will not result in an increase in haul trucks. Prior mitigation for this impact has been completed. Impacts are now considered less than significant.	LS	None Required	
The proposed project will not result in the introduction of new trucks on the roadway system which will not result in deterioration of pavement and damage to roadway structural sections.	LS	None Required	
The cumulative condition of the prior FEIR/EIS was identified as year 2010 and significant impacts to the level of service (LOS) were reduced with mitigation. The mitigations from the prior project have been completed and as the proposed project will not result in an increase in truck traffic, the level of service on area roadways in the existing and cumulative conditions are now considered less than significant.	LS	None Required	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
NOISE			
The Vineyard I mining expansion site will not expose sensitive receptors to noise levels in excess of noise standards. The Reclamation Plan amendment will not generate noise in excess of the standard. The prior mitigation has been completed; impacts are considered less than significant.	LS	None Required	LS
The conveyor system was found to not violate the Zoning Code Noise Standard and the Vineyard I mining expansion site would utilize the existing conveyor system.	LS	None Required	LS
The proposed project will not have a potential for noise impacts associated with heavy truck traffic.	LS	None Required	LS
LAND USE			
The prior FEIR/EIS concluded that the mining area would potentially conflict with on-site and nearby land uses and this was considered a significant and unavoidable impact. Although the Vineyard I mining expansion does not result in a significant impact, since the Vineyard I mining expansion will be a part of the prior approved Vineyard I mining site, the prior conclusion remains.	S	***The following mitigation measure from the prior FEIR/EIS is applicable to the Vineyard I expansion site:*** **LU-1:** In order to mitigate potential impacts to surrounding land uses, the ***Vineyard I expansion mining operator*** ~~proponents~~ shall be required to comply fully with mitigation measures identified in the Noise; Traffic and Circulation; Air Quality; and Visual Resources sections of ***the prior FEIR/EIS as amended by*** this SEIR. These mitigation measures employ appropriate state-of-the-art techniques for erosion control, reclamation, nuisance prevention, and environmental impact mitigation relative to surface mining and processing operations.	SU

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
The prior project was found to disturb 31 acres of Prime Farmland, 435 acres of Farmland of Statewide Importance and 419 acres of Farmland of Local Importance. The proposed Vineyard I expansion site will disturb an additional 5.6 acres of Prime Farmland and Farmland of Statewide Importance.	S	**LU-2:** In order to mitigate potential impacts to agricultural uses, prior to the issuance of the work authorization permit ***for the Vineyard I mining expansion site, the mining operator***, ~~Granite~~ shall revise/prepare a plan, that includes the ~~additional~~ ***Vineyard I mining expansion site (***5.6 acres***)***, for the preservation and salvage of topsoil resources suitable for sustaining economically viable agricultural uses, consistent with the performance standards set forth in Sections 3708 and 3711 of the State Mining and Geology Board Reclamation Regulations.	LS
The prior project was found to have a significant impact as the post-project development of the site was limited and lacked open space/recreational uses of the site. The proposed project includes a recreational opportunity (trail) that was not a part of the prior project. This proposed component reduces the prior significant impact to less than significant.	LS	**LU-3:** ~~Prior to redirecting Morrison Creek to the Morrison Creek Realigned Channel, the applicants~~ ***Upon final reclamation, the mining operators*** shall provide copies to ~~DERA and the Planning Division~~ ***the Department of Community Development*** of ***either*** executed trail easements dedicated to the Southgate Recreation and Park District***, or a signed legal contract indicating future dedication of easements to the Southgate Recreation and Park District.***	LS
AIRPORT COMPATIBILITY			
The proposed project is consistent with the Mather Airport Comprehensive Land Use Plan (CLUP). A Bird Airstrike Hazard (BASH) Analysis has been completed and the potential for bird airstrikes over the project site is low.	PS	**LU-4:** The retention basins on Vineyard I and Aspen IV South shall include the following design criteria to the maximum extent practicable, while still adhering to the federal agency regulations: a. The basin shall incorporate steep side slopes (3:1 or greater) b. The basin shall be designed to remain clear of vegetation that may provide nesting, roosting or foraging opportunities for birds. Only herbaceous vegetation necessary for erosion control purposes will be allowed.	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
PUBLIC SAFETY			
The use of heavy equipment, creation of a 25± foot deep, steep-sided pit and inadvertent public entry to the mining site could create a public safety hazard. Mitigation requiring perimeter fencing until post-reclamation development or future use of the site occurs would reduce the level of significance.	S	***The following mitigation is from the prior FEIR/EIS and is applicable to the Vineyard I mining expansion site:*** **PS-1:** All perimeter fencing shall be retained until post-reclamation development/ future use of the project site occurs.	LS
The proposed project will not create hazardous conditions post reclamation.	LS	None Required	LS
AESTHETICS AND VISUAL RESOURCES			
The project will not result in degradation of the visual character or quality of the site and its surroundings. Mitigation from the prior project that required visual screening of the mining activities has been completed and is currently in place. Impacts are now considered less than significant.	LS	None Required	LS
The prior project was found to have a significant impact as a result of creating a new source of substantial light or glare affecting nighttime views in the area. The proposed project does not create any new impacts to nighttime lighting or glare. Mitigation from the prior project remains applicable to the proposed project.	S	With minor changes, the mitigation measure from the prior FEIR/EIS below is applicable to ***the Vineyard I mining expansion site*** ~~the proposed project~~: **AV-1:** Any lighting shall be arranged and controlled so as not to illuminate public rights-of-way or adjacent properties. In order to reduce direct and reflected light pollution, lighting at the project site shall be equipped with shields that concentrate the illumination downward such that no direct light is cast off the site. Energy efficient lights shall be used, similar to the types used as residential outdoor security lights. The candle power of the illumination at ground level shall not exceed what is required by any safety or security regulations of any government agency with regulatory oversight of the mining operation.	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
PUBLIC FACILITIES AND SERVICES			
Energy Supply (Electric & Gas)			
The proposed project will not require additional electric facility use over what was originally permitted.	LS	None Required	LS
The proposed project will not require the use of natural gas; new natural gas facilities will not be required as part of the proposed project.	LS	None Required	LS
Emergency Services			
The proposed project will provide public use of the mitigation corridor. In addition, the Sacramento Metropolitan Fire District provides fire protection services to the project area and provided conditions of approval. The project will not adversely affect the provision of fire services.	LS	None Required	LS
Parks and Recreation			
The proposed project provides for a trail easement through ***(or nearby)*** the Morrison Creek Realigned Channel and Raised Bank Channel. This trail will provide recreational opportunities and will not result in an adverse impact to the provision of park services.	LS	None Required	LS
Water Supply			
The proposed project will not have a significant impact as a result of well water use or removal of onsite water wells.	LS	None Required	LS
Removal of water wells in compliance with EMD regulations and Building Department guidelines will be required.	LS	None Required	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
Sewer Service			
The proposed project will not have an impact to SRCSD and/or SASD (formally CSD-1) sewage lines.	LS	None Required	LS
The Vineyard I expansion mining site will not have an adverse impact to existing septic systems.	LS	None Required	LS
CLIMATE CHANGE			
The proposed project will not result in a cumulative build up of greenhouse emissions.	LS	None Required	LS

TERMINOLOGY USED IN THIS EIR

This Draft EIR uses the following terminology to describe environmental effects of the project.

- **Significance Criteria.** A set of criteria used by the lead agency to determine at what level, or "threshold," an impact would be considered significant. Significance criteria used in this EIR include those that are set forth in the CEQA Guidelines, or can be discerned from the CEQA Guidelines; criteria based on factual or scientific information; criteria based on regulatory standards of local, state, and federal agencies; and criteria based on goals and policies identified in the Sacramento County General Plan.
- **Less-than-Significant Impact.** A project impact is considered less than significant when it does not reach the standard of significance and would therefore cause no substantial change in the environment. No mitigation is required for less-than-significant impacts.
- **Potentially Significant Impact.** A potentially significant impact is a substantial, or potentially substantial, adverse change in the environment. Physical conditions which exist within the area will be directly or indirectly affected by the proposed project. Impacts may also be short-term or long-term. A project impact is considered significant if it reaches the threshold of significance identified in the EIR. Mitigation measures may reduce a potentially significant impact to less than significant.

- **Significant Unavoidable Impact.** A project impact is considered significant and unavoidable if it is significant and cannot be avoided or mitigated to a less-than-significant level once the project is implemented.
- **Cumulative Significant Impact.** A cumulative impact can result when a change in the environment results from the incremental impact of a project when added to other related past, present or reasonably foreseeable future projects. Significant cumulative impacts may result from individually minor but collectively significant projects.
- **Mitigation.** Mitigation measures are revisions to the project that would minimize, avoid, or reduce a significant effect on the environment. CEQA Guidelines §15370 identifies 5 types of mitigation:

  a) Avoiding the impact altogether by not taking a certain action or parts of an action.

  b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation.

  c) Rectifying the impact by repairing, rehabilitating, or restoring the impacted environment.

  d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.

  e) Compensating for the impact by replacing or providing substitute resources or environments.

MITIGATION MONITORING AND REPORTING PROGRAM

Comply with the Mitigation Monitoring and Reporting Program (MMRP) for this project as follows:

1. It shall be the responsibility of the project applicant to reimburse the County for all expenses incurred in the implementation of the Mitigation Monitoring and Reporting Program (MMRP), including any necessary enforcement actions. Each Applicant (Granite and Teichert) shall pay an initial deposit of **$5,000.00 each**. Over the course of the project, DERA will regularly conduct cost accountings and submit invoices to the applicant when the County monitoring costs exceed the initial deposit.

2. Until the MMRP has been recorded and initial deposit paid, no work authorization permit, grading permit or encroachment permit from Sacramento County shall be approved.

3 PROJECT DESCRIPTION

INTRODUCTION

On July 9, 1999, Sacramento County published a Final Environmental Impact Report/ Environmental Impact Statement (FEIR/EIS) for the Morrison Creek Mining Reach Downstream (South) of Jackson Highway [(Control Numbers: 94-UPB-0484; 90-CZB-UPB-1607; and 94-CZB-UPB-0671) (State Clearinghouse Number: 95102057) (Public Notice Number: 199400102)].

The Sacramento County Board of Supervisors certified the Final Environmental Impact Report on October 20, 1999***. The Board of Supervisors*** ~~and~~ approved the ***Aspen III South and Aspen IV South*** project and adopted Findings of Fact and Statement of Overriding Considerations on December 15, 1999. ***The Board of Supervisors approved the Vineyard I mining and reclamation project, and adopted Findings of Fact and Statement of Overriding Considerations on January 12, 2000.***

The project evaluated in the prior FEIR/EIS was a request for the necessary land use entitlements to surface mine sand and gravel on the proposed Vineyard I, Aspen III South, Aspen IV South and Aspen V South sites and divert Morrison Creek around the mining area***s***. The prior project included ~~a~~ request***s*** to ***mine and*** reclaim 881.7 acres of ~~a~~ ***the*** 966.3-acre project site***s***. The Federal action was ***related to*** ~~a~~ Section 404 permit ***applications submitted*** to ~~be issued by~~ the Army Corps of Engineers to allow work to occur in waters of the United States.

The current proposed project consists of three separate projects, known as Vineyard I project, Aspen III South project and Aspen IV South project. Since these three projects are interrelated, they have been incorporated as the proposed project.

This chapter discusses the three mining sites that together comprise the proposed project; Vineyard I, Aspen III South, and Aspen IV South. This chapter will provide the requested entitlements, project features and project objectives of the three mining sites. Teichert Aggregates is the project proponent for the Aspen III South and Aspen IV South sites and Granite Construction Company is the project proponent for the Vineyard I site.

Drainage Mitigation Plan

The drainage mitigation plan included in the project was part of a larger plan (Morrison Creek Mining Reach Drainage Mitigation Plan – Part A) and the overall impacts of the project on the drainage mitigation plan were addressed in the Morrison Creek Upstream (North) Mining Reach EIR/EIS. The intent of the drainage mitigation plan was to mitigate the drainage impacts resulting from mining within the Morrison Creek 100-year floodplain. The drainage mitigation plan included the construction of an unlined

trapezoidal bypass channel. The channel was to be constructed at the existing ground surface elevation around the perimeter of the mining area to convey the bulk of the flows of Morrison Creek around the aggregate mining pits. The channel would begin/meet the natural Morrison Creek drainage on the Aspen IV South site between Mayhew Road and Bradshaw Road. Construction of the bypass channel was to occur during years 7 and 8, of the anticipated 12 year duration of mining activities. Morrison Creek would not have been affected until year 9, at which time the flows would be diverted from the creek to the bypass channel.

When the drainage volume from Morrison Creek exceeded the capacity of the bypass channel, the excess was to be diverted into one of the pit floor detention areas via weir/outfall structures in the bypass channel. A small and variable speed pump station would be located adjacent to the northeast portion of the project site where the bypass channel proposed in the upstream portion of the mining reach terminates and where the existing drainage channel of Morrison Creek continues to the project site (on the Aspen V South site, not a component of the current proposed project).

Wetland Mitigation Plan/ Reclamation Plan

It was determined in the prior FEIR/EIS that the proposed combined mining activities would impact approximately 19.83 acres of Waters of the United States, which are under jurisdiction of the United States Army Corps of Engineers. The estimated acreage included impacts to seasonal wetlands, portions of Morrison Creek, and irrigated seasonal wetlands. The proponents developed a wetland mitigation plan that outlined how the loss of acreage and function of wetlands impacted by the project would be compensated. The plan included developing a 600-foot wide riparian corridor along a re-created low flow channel within the bottom of the mining pit in generally the same location as the existing creek. The corridor would contain a creek channel, perennial marsh, riparian woodlands, seasonal marsh and valley oak woodlands in a series of terraces.

Proposed Amendments

Granite obtained a Section 404 permit from the U.S. Army Corps of Engineers that reflected the approved reclamation plan on Vineyard I and Aspen III South. However, since the issued Section 404 permit, Granite and Teichert proposed changes to the previously approved reclamation plan to form a Morrison Creek ***Realigned Channel*** ~~Preserve Corridor~~ that would re-create Morrison Creek at or near original grade, just north of the existing Morrison Creek location. Granite has received amended Section 404 (federal) and 401 (State) permits that reflect the proposed reclamation change to Vineyard I and Aspen III South ***mining properties***.

Since the Morrison Creek Realigned Channel has been designed to contain the 100-year flood flows, the previously approved drainage mitigation plan is amended by eliminating the at grade bypass channel around the perimeter of the mining properties. The elimination of the previously approved drainage

mitigation plan (bypass channel) is a component of all three mining site amendment requests.

Teichert Aggregates did not have wetland mitigation requirements for their Aspen III South mining site since there were no wetlands impacts as a result of mining the Aspen III South site. Therefore, Teichert is requesting to amend their reclamation plan to allow Granite's Morrison Creek Realigned Channel mitigation corridor to be constructed across a portion of Aspen III South site.

For the Aspen IV South mining site, Teichert has received an amended State 401 (issued April 13, 2012, WDID# 5A34CR00444A1) and amended federal 404 permit (issued May 3, 2012, SPK-1994-00504 & SPK-01994-00693) to reflect their current proposal of not mining through Morrison Creek and instead preserving the creek by constructing raised flood control berms (referenced as Raised Bank Channel) outside the effective FEMA floodway. The Morrison Creek Realigned Channel will connect upstream with the Raised Bank Channel and the preserved Morrison Creek on Aspen IV South. This connection will require some encroachment within the floodway. ~~Teichert has received federal and State permits that reflect the proposed reclamation changes for Aspen IV South~~.

The proposed project requests to amend existing approved reclamation plans to be consistent with the applicants' amended federal stream restoration and mitigation plans. Additionally the Vineyard I project requests new entitlements to mine two additional small parcels totaling 5.61 acres.

~~This chapter discusses the three mining sites that together comprise the proposed project; Vineyard I, Aspen III South, and Aspen IV South. This chapter will provide the requested entitlements, project features and project objectives of the proposed project. Teichert Aggregates is the project proponent for the Aspen III South and Aspen IV South sites and Granite Construction Company is the project proponent for the Vineyard I site~~.

PROJECT LOCATION

The proposed project is located within the Vineyard Community Plan Area in the unincorporated area of Sacramento County. The Vineyard I project parcels are located at the northeast corner of Hedge Road and Elder Creek Road. The Aspen III South project parcels are located in the southwest corner of Fruitridge Road and Mayhew Road. The Aspen IV South project parcels are located at the northeast corner of Mayhew Road and Elder Creek Road. Plate PD-1 presents the regional location and Plate PD-2 presents an aerial photograph of the project site, captured in 2011. Plate PD-3 presents an overview of the proposed Morrison Creek Preserve Corridor.

PROJECT PROPONENTS

APPLICANTS

Teichert Aggregates
Attn: John Lane

Granite Construction Company
Attn: Yasha Saber

OWNERS

Teichert Land Co.

Granite Construction Company

ENGINEER

~~G.C. Wallace of CA, Inc~~.
Cunningham Engineering
Attn: Steve Greenfield

Cunningham Engineering
Attn: Steve Greenfield

PLANNING CONSULTANT

Jeff Gamel, Senior Planner, Sacramento County ***Department of Community Development*** ~~Planning and Community Development Department~~

Plate PD-1: Regional Location Map

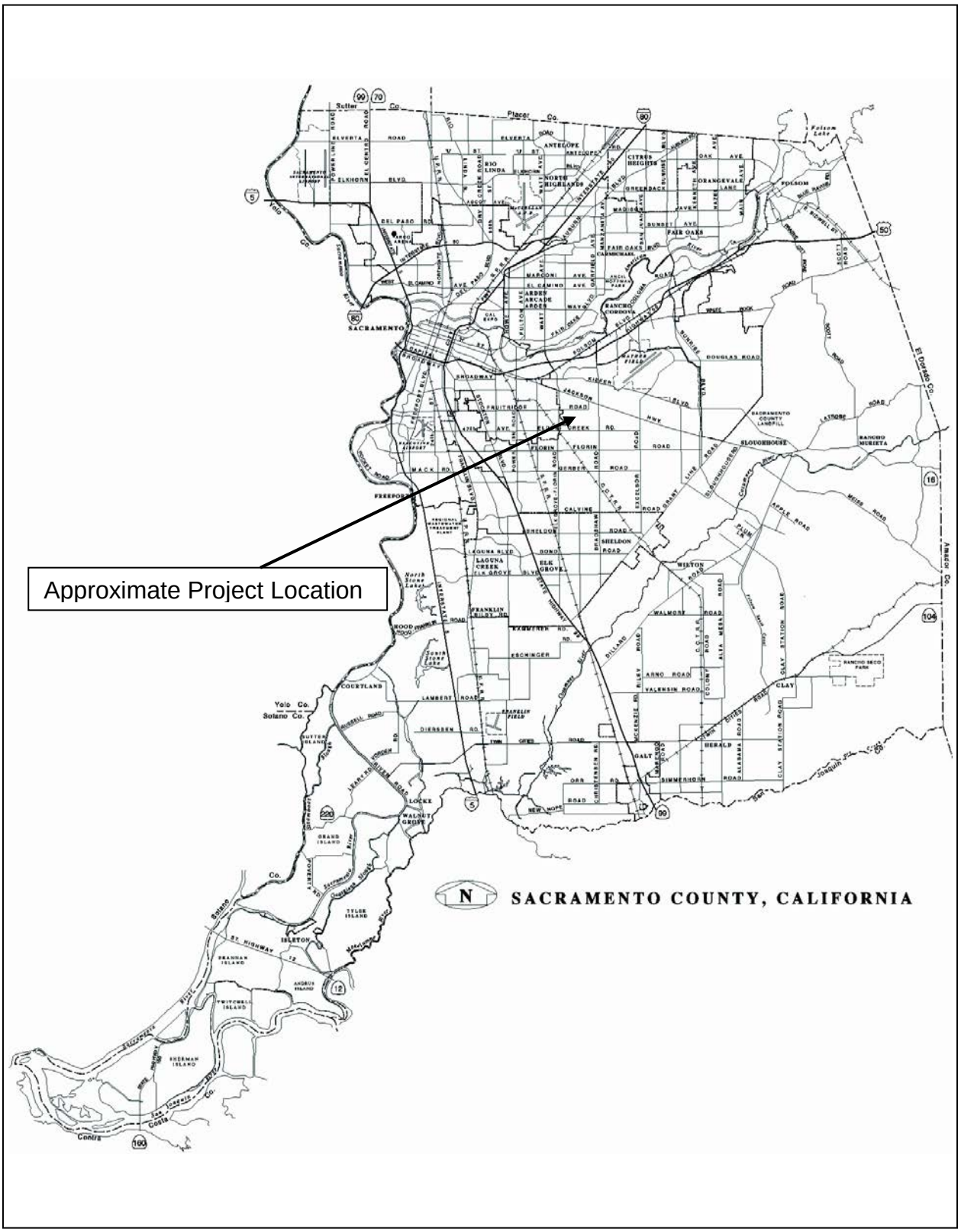


Plate PD-2: Aerial of the Project Site

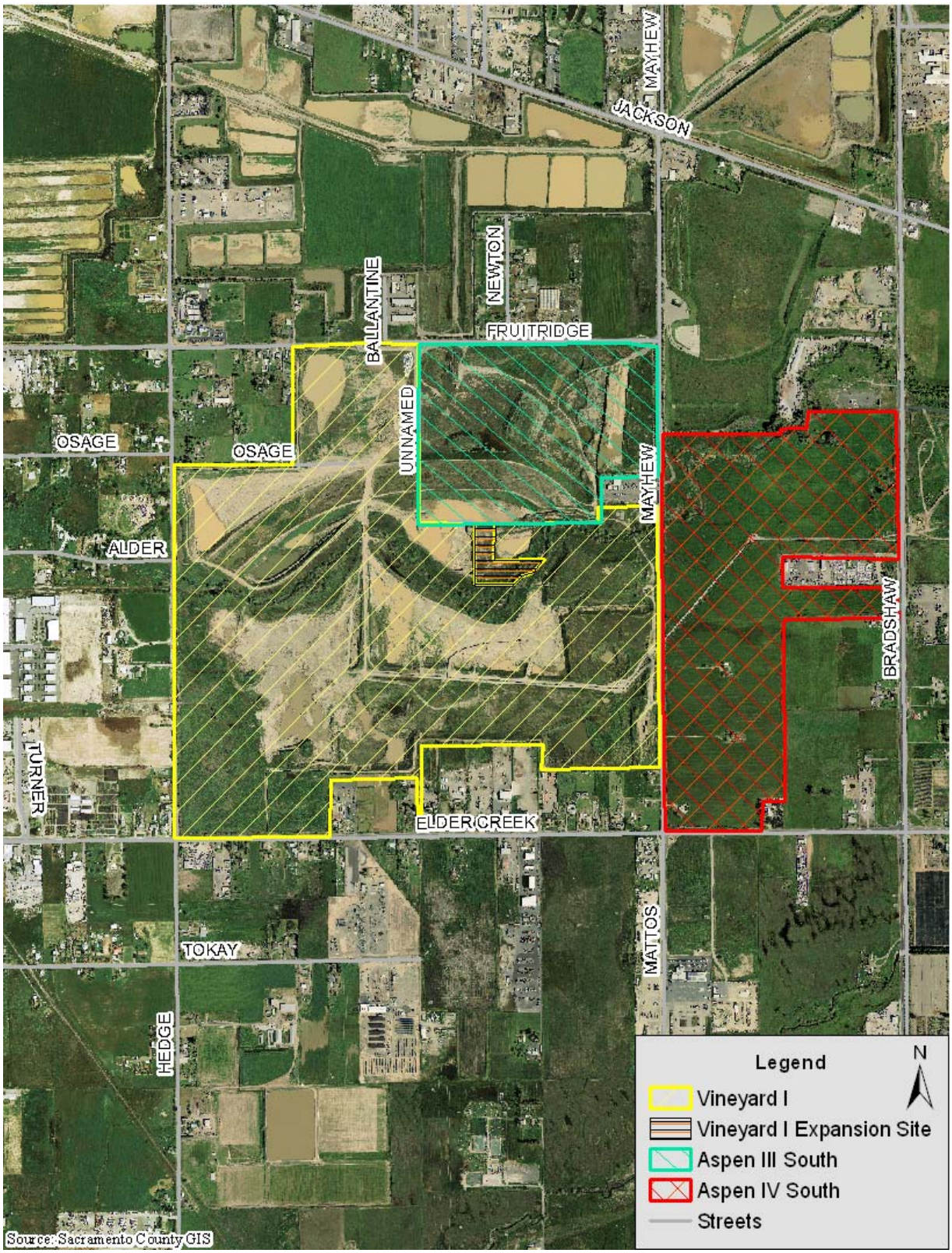
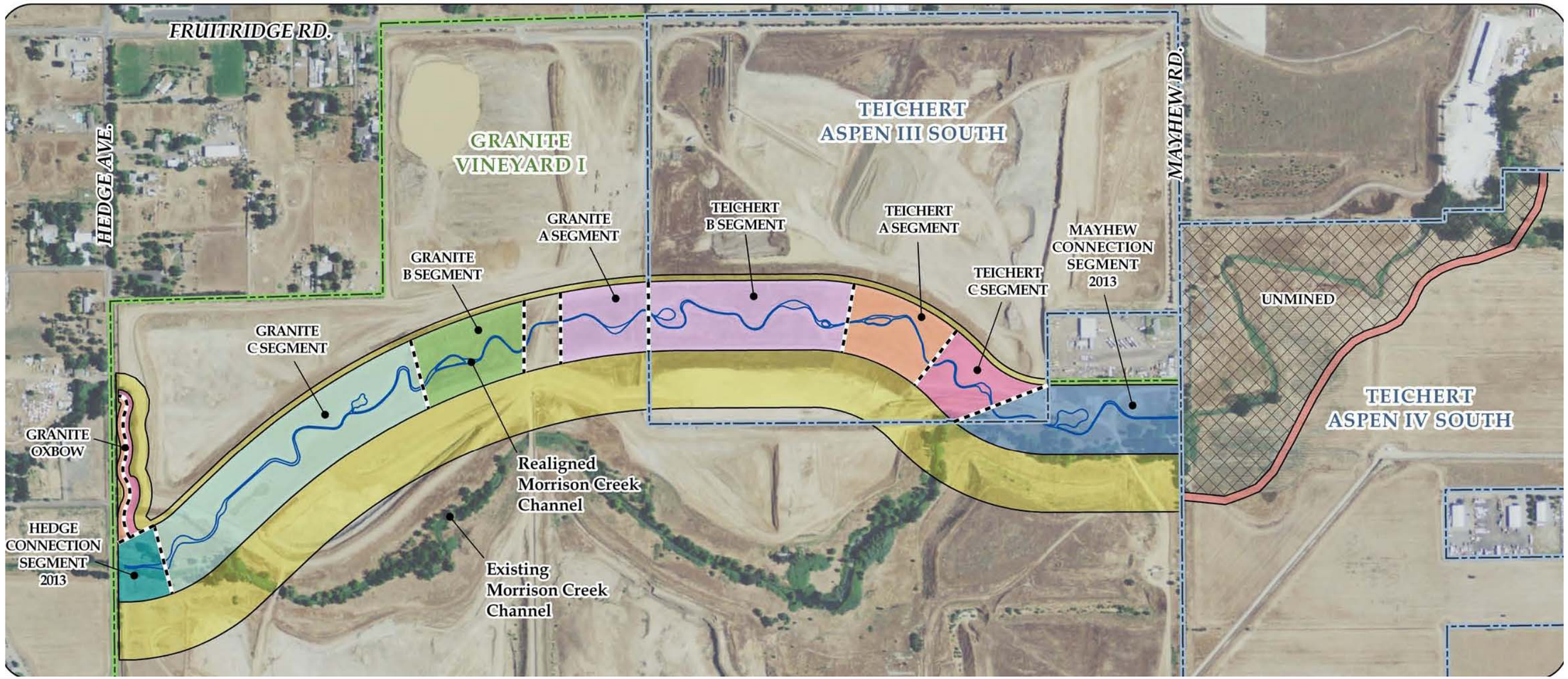


Plate PD-3: Overview of Project Plans



ENVIRONMENTAL SETTING

The Vineyard I, Aspen III South and Aspen IV South mining sites are within the Vineyard Community Planning Area in unincorporated Sacramento County. The project parcels are part of a larger aggregate mining area. Most of the site***s are*** ~~is~~ disturbed from mining activities.

~~The project is proposing a stream corridor (referenced as the Morrison Creek Realigned Channel throughout this document) in an area where mining activities have been completed. A portion of~~

The applicants have constructed a majority of the Morrison Creek Realigned Channel. The ~~the~~ Morrison Creek Realigned Channel has been vegetated with grasses, with tree saplings planted throughout. A drainage channel has been cut, in a meandering fashion, through this corridor. The stream corridor has been elevated back to nearly the original grade prior to mining consistent with the requested reclamation plan amendment.

PROJECT PROPOSAL

PROJECT FEATURES

The mining sites in this project include Vineyard I, Aspen III South and Aspen IV South. The proposed project includes revisions to the previously approved Reclamation Plan, consistent with permits received from the County, State and federal regulatory agencies. The revised reclamation plan ***for all three mining sites consists of eliminating*** ~~eliminates~~ the previously approved ***wetland mitigation plan/reclamation plan to construct a*** 600-foot wide riparian corridor/low-flow channel at the bottom of the mining pit***s*** in generally the same location as the existing creek and ***eliminates the previously approved drainage mitigation plan to construct*** an at-grade trapezoidal bypass channel around the perimeter of the mining pits***.*** ~~and~~

Granite Construction will construct~~s~~ an at-grade mitigation corridor (referred to as the Morrison Creek Realigned Channel) on the Vineyard I and Aspen III South mining properties. The Morrison Creek Realigned Channel has been designed to contain the 100-year flows and be a self-sustaining stream corridor, and will be constructed to mimic a natural meandering stream with varied slopes ranging from 3:1 to 7:1 (horizontal:vertical). In addition, a low flow channel with varying widths and depths (not less than 10 feet wide), and a native riparian/upland buffer area with varying widths will be constructed. The area north of the corridor will be brought back to within five feet of original grade over time and the area south of the corridor will be reclaimed with available overburden and include a retention pond for stormwater drainage from the

surrounding areas. The Morrison Creek Realigned Channel will connect upstream with the existing Morrison Creek on the Aspen IV South property and downstream at Hedge Road (on the Vineyard I property) at the boundary of the City of Sacramento and Sacramento County.

The Aspen III South site did not have any wetland or biological impacts as a result of mining; therefore, Teichert Aggregate's request for the Aspen III South site is for the above components to be eliminated from their reclamation plan and to allow for Granite Construction to construct the Morrison Creek Realigned Channel across a portion of the Aspen III South mining site.

As part of the new proposal for ~~On~~ the Aspen IV South site, Morrison Creek will not be impacted by mining activities and will now be preserved. Raised bank flood control berms (referred to as the Raised Bank Channel throughout this document) are proposed to be constructed outside of the floodway of Morrison Creek on the Aspen IV South mining site. ***Some encroachment to the floodway will be required to connect the Morrison Creek Realigned Channel with the Raised Bank Channel.***

~~Furthermore, a recreation trail is proposed through the Morrison Creek Realigned Channel and Raised Bank Channel~~.

A recreation trail is proposed through the Vineyard I, Aspen III South and Aspen IV South properties***, along the proposed Morrison Creek Realigned Channel and Raised Bank Channel.***

REQUESTED ENTITLEMENTS

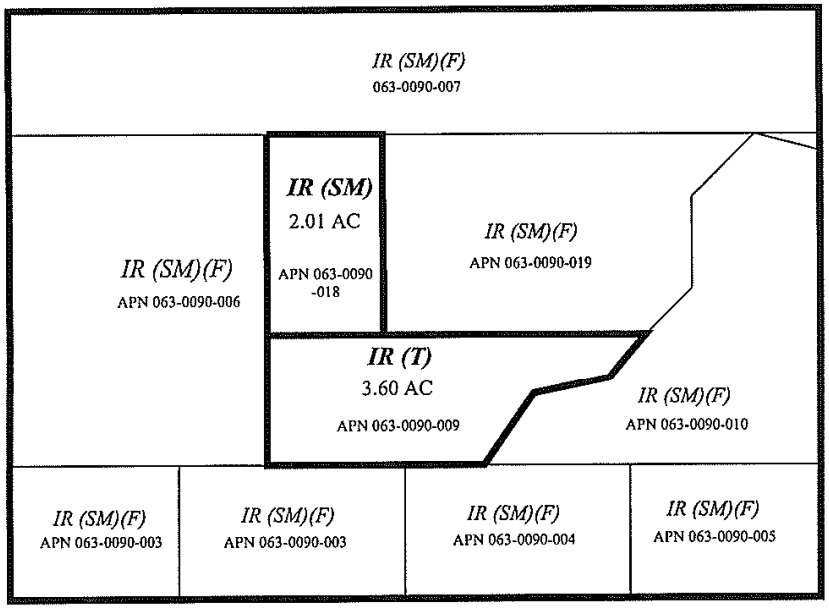
The proposed Project seeks to amend existing approved mining and reclamation plans to be consistent with the applicants' amended federal stream restoration and mitigation plans. Additionally the Vineyard I project seeks new entitlements to mine two additional small parcels totaling 5.61 acres (referred to as the Vineyard I mining expansion site).

VINEYARD I

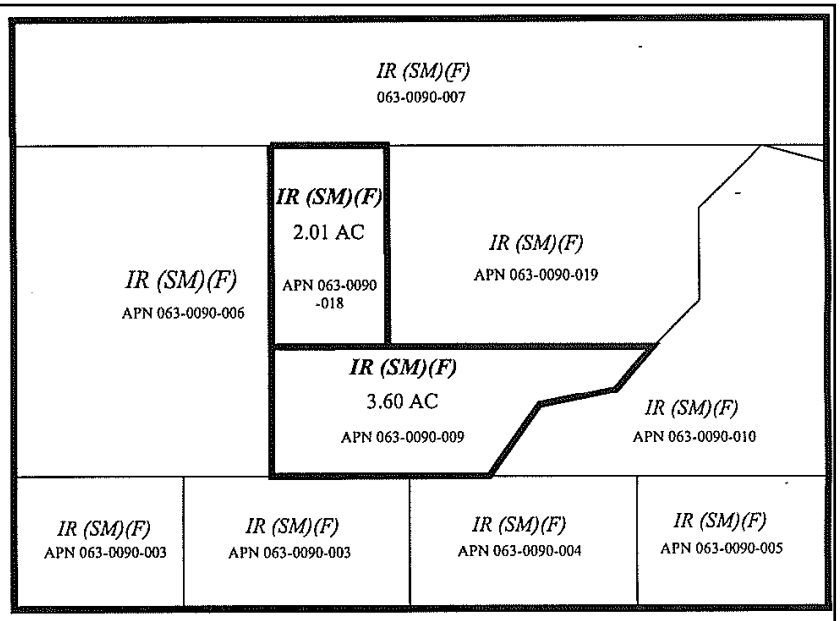
The Vineyard I mining expansion site consists of two parcels, requests a rezone, community plan amendment and a use permit to allow surface mining. The two parcels are identified as assessor parcel numbers (APNs) 063-0090-009 and 063-0090-018.

In addition to the rezone and surface mining use permit for the Vineyard I mining expansion site, all of the project parcels within the Vineyard I project are the subject of a reclamation plan revision. The parcels are APNs 063-0080-010 through 013, 063-0090-001 through 003, 063-0090-006, 063-0090-009 through 011, 063-0090-015 through 019, 063-0110-001 through 006, 063-0110-012, 063-0110-028, and 063-0110-029. The Vineyard I proposed rezone and community plan amendment is shown on Plate PD-4. The previously approved reclamation plan within Vineyard I is shown on Plate PD-5 and the proposed (revised) reclamation plan within Vineyard I is shown on Plate PD-6.

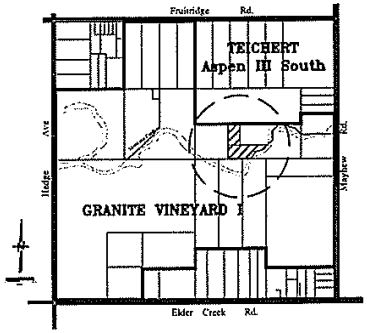
Plate PD-4: Proposed Vineyard I Community Plan Amendment and Rezone



Existing Zoning



Proposed Zoning



Vicitinity Map

RECEIVED
05 0062
FEB 10 2005
PLANNING DEPT
County of Sacramento

APN	AREA	EXISTING ZONE	PROPOSED ZONE
063-0090-009	3.60-AC	IR(SM)	IR(SM)(F)
063-0090-018	2.01-AC	IR(T)	IR(SM)(F)

GRANITE CONSTRUCTION COMPANY

Drawn by: Tyler Chatriand
Date: 02/02/05

Plate PD-5: Approved Reclamation Plan (section within Vineyard I)

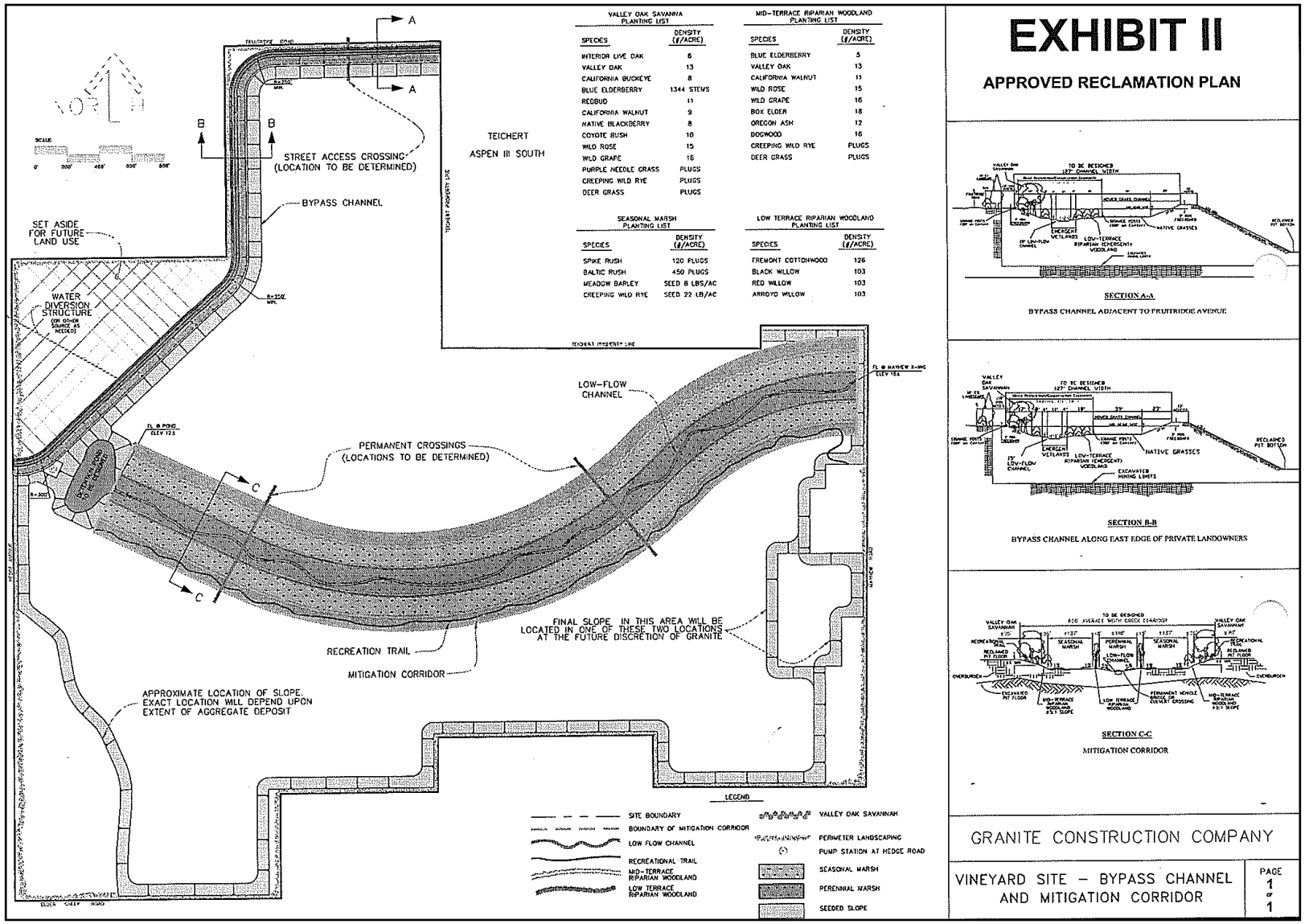
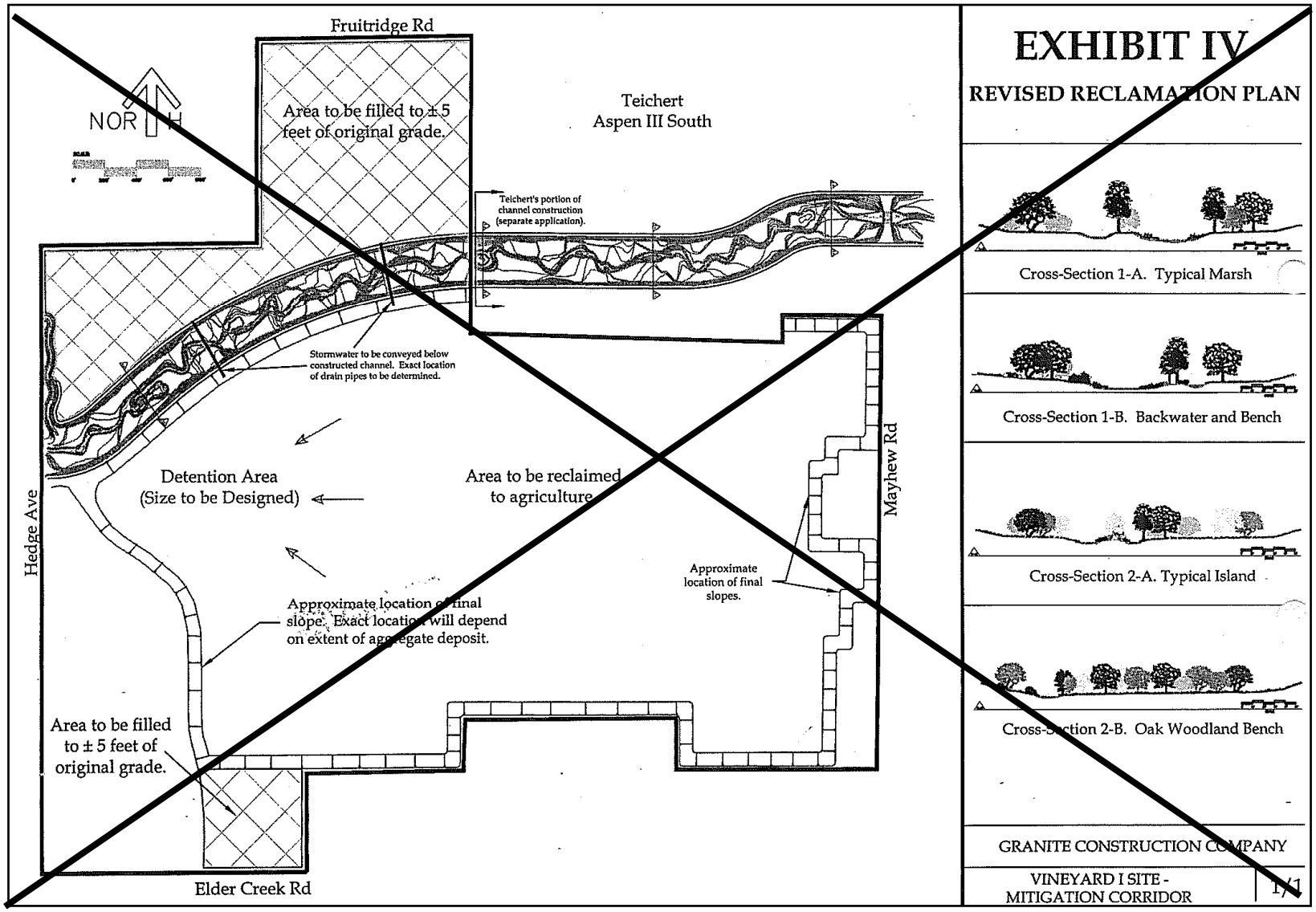
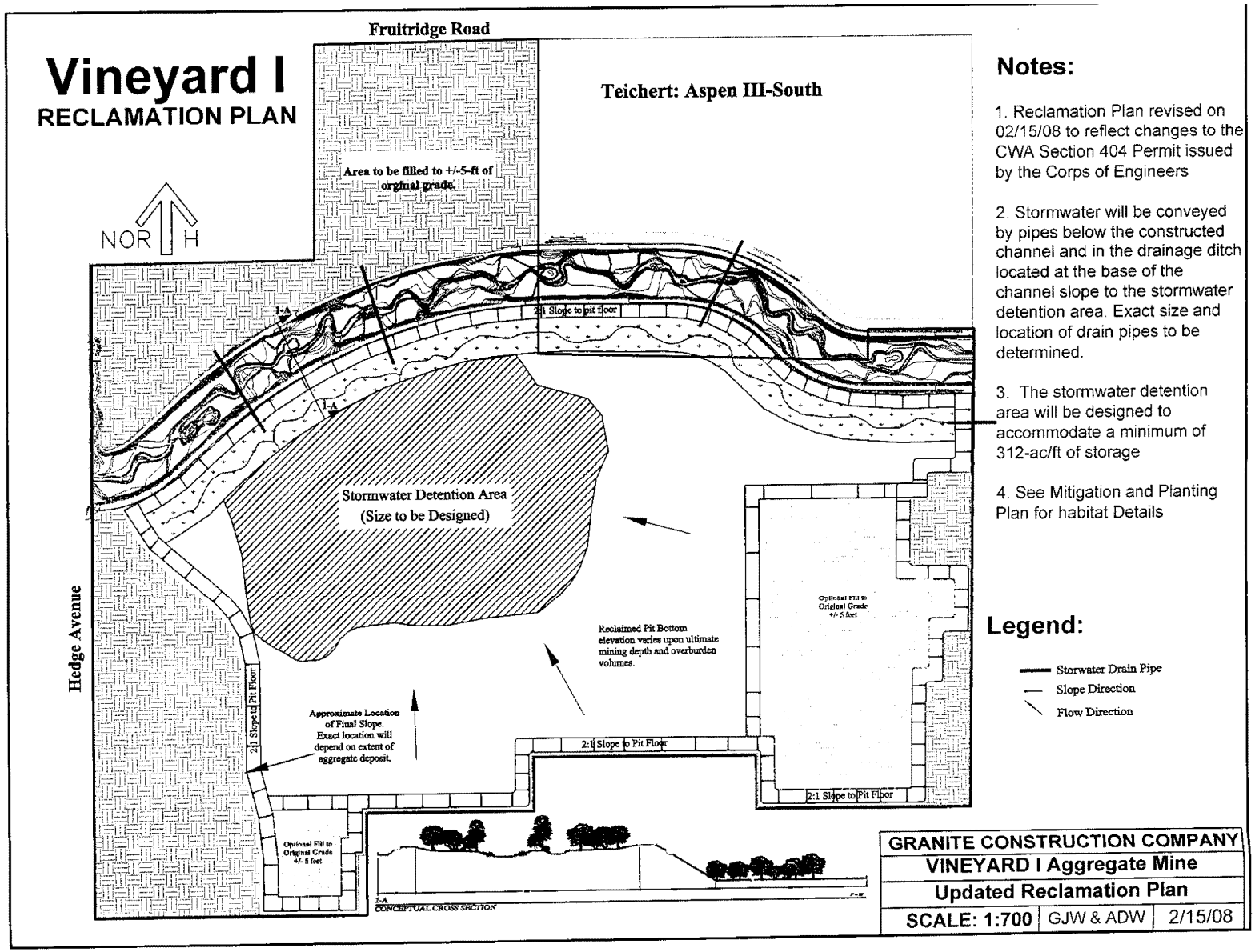


Plate PD-6: Revised (Proposed) Reclamation Plan (Vineyard I)




Vineyard I
RECLAMATION PLAN
NORTH
Fruitridge Road
Teichert: Aspen III-South
Area to be filled to +/-5-ft of orginal grade.
2:1 Slope to pit floor
Stormwater Detention Area
(Size to be Designed)
Reclaimed Pit Bottom elevation varies upon ultimate mining depth and overburden volumes.
Optional Fill to Original Grade +/- 5 feet
Approximate Location of Final Slope. Exact location will depend on extent of aggregate deposit.
2:1 Slope to Pit Floor
Hedge Avenue
CONCEPTUAL CROSS SECTION
Notes:
1. Reclamation Plan revised on 02/15/08 to reflect changes to the CWA Section 404 Permit issued by the Corps of Engineers
2. Stormwater will be conveyed by pipes below the constructed channel and in the drainage ditch located at the base of the channel slope to the stormwater detention area. Exact size and location of drain pipes to be determined.
3. The stormwater detention area will be designed to accommodate a minimum of 312-ac/ft of storage
4. See Mitigation and Planting Plan for habitat Details
Legend:
Storwater Drain Pipe
Slope Direction
Flow Direction
GRANITE CONSTRUCTION COMPANY
VINEYARD I Aggregate Mine
Updated Reclamation Plan
SCALE: 1:700
GJW & ADW
2/15/08

The following are the requested entitlements for the Vineyard I project site:

1. A **Community Plan Amendment** and corresponding **Rezone** to change the designations from Industrial Reserve with Surface Mining Combining (IR (SM)) and Industrial Reserve with Flood combining (IR (F)) to Industrial Reserve with Surface Mining/Flood Combining (IR (SM)(F)) for 5.61 acres (i.e., APN: 063-0090-009 and -018) of the project site.

2. A **Use Permit Amendment** for an aggregate mining operation known as Vineyard I, approved in 2000 (Control Number: 91-CZB-UPB-0118) to allow aggregate mining on an additional 5.61 acres, and to incorporate this new area into the previously approved mining plan.

3. A **Reclamation Plan Amendment** to the Vineyard I approval to allow:

    a. The additional 5.61 acre area proposed for mining to be incorporated into the previously approved reclamation plan.

    b. A revision to the drainage and wetland mitigation plans for the project site that will include the construction of a new Morrison Creek Realigned Channel (mining of the creek bed was approved in 2000) that will be approximately 300 feet in width at or near original grade, and will include adjacent buffer lands for a total width of 650 feet. This new Morrison Creek Realigned Channel will accommodate 100-year flood flows and incorporate wetland/riparian habitat mitigation elements.

    c. The previously approved elevated bypass channel for Morrison Creek, and the 600-foot wide pit floor riparian corridor would be superseded with the construction of the new Morrison Creek Realigned Channel, as described above.

    d. Fill (overburden) will be added to portions of the pit floor to bring the areas north of the creek to within 5 feet of original grade.

    e. A stormwater retention basin designed to accommodate 297-acre feet of water will be added to a portion of the pit floor.

4. A **Use Permit Amendment** and **Zoning Agreement Amendment** to the Vineyard I approval to allow:

    a. Amendments to several of the conditions of the original approval that reference an approved elevated bypass channel for Morrison Creek and a 600-foot wide pit floor riparian corridor, and instead reference the new Morrison Creek Realigned Channel, as described above.

    b. An update of several conditions to reflect the 2011 Morrison Creek Hydrology and Hydraulic Analysis prepared for the project.

c. An update of several conditions to reflect new wetland and oak woodland mitigation consistent with recent approvals by the U.S. Army Corps of Engineers.

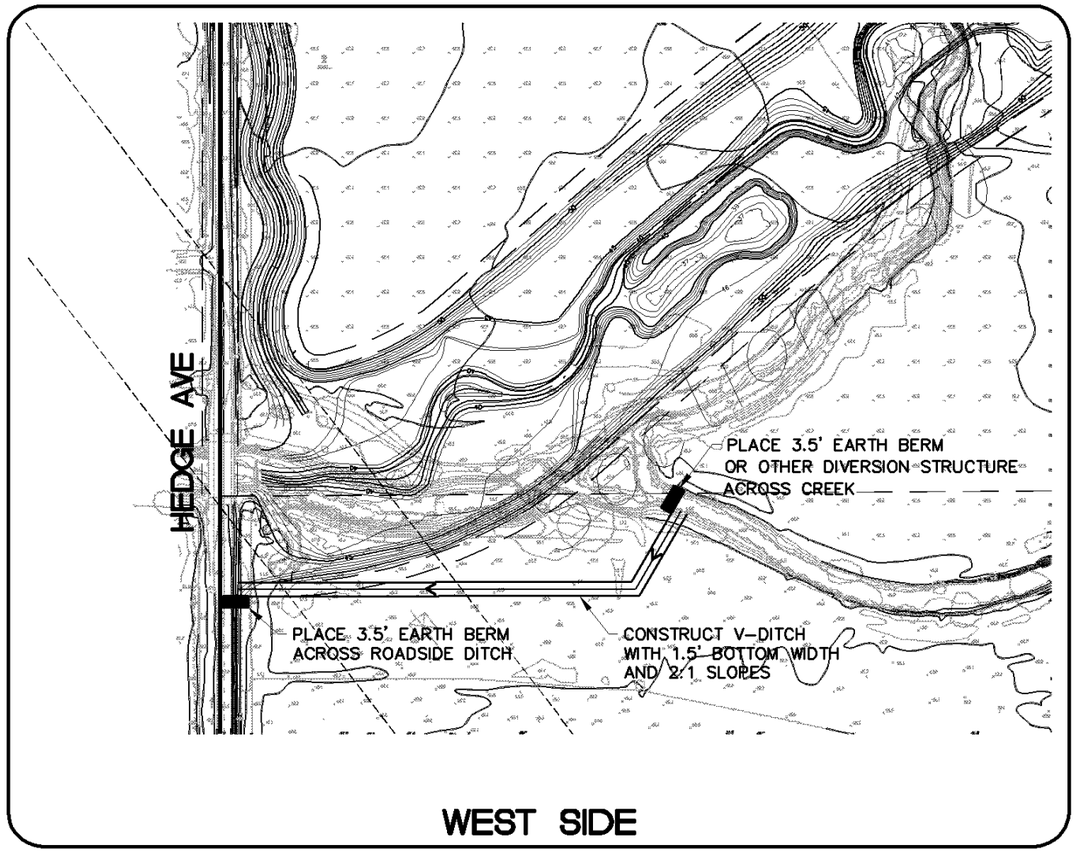
d. A revision to conditions requiring the dedication of a public trail easement corresponding to the alignment of Morrison Creek.

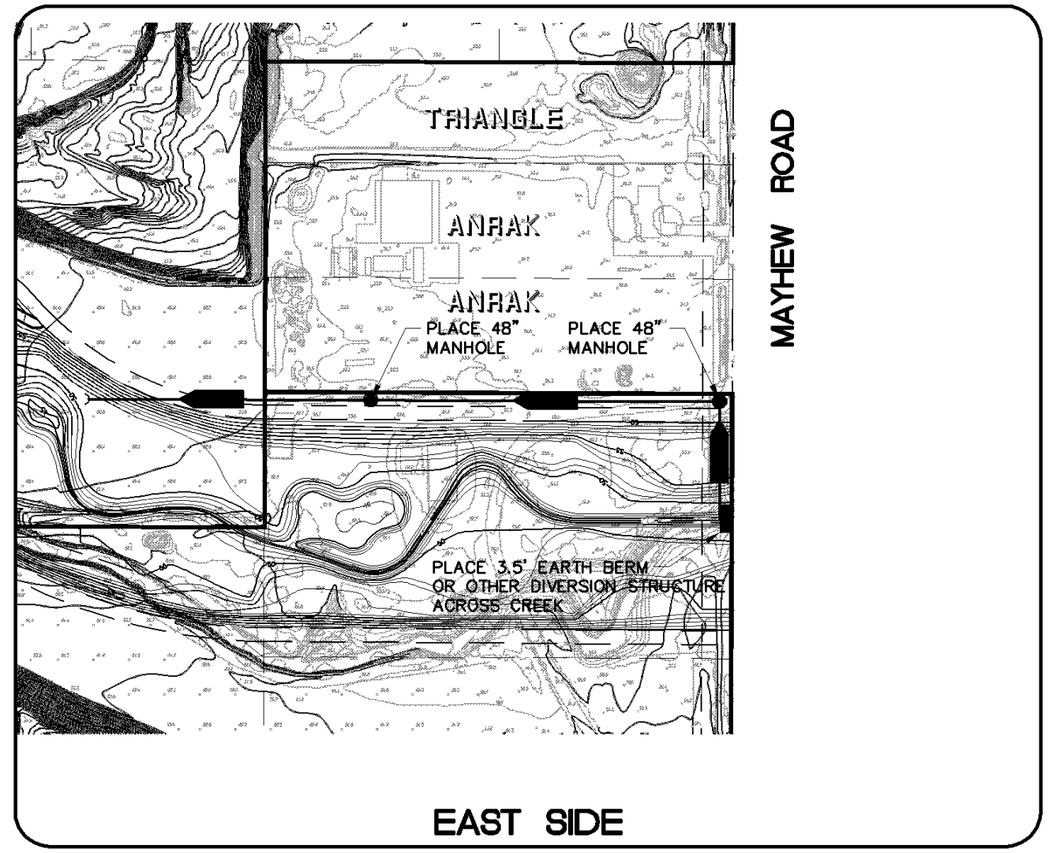
5. A **Release** from the prior Zoning Ordinance, adopted by Ordinance No. SZC 2000-0001, to be replaced by an amended Zoning Ordinance.

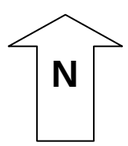
Temporary Diversion Channel:

In order to construct the connections of existing Morrison Creek (offsite) with the recreated Morrison Creek Realigned Channel (on Vineyard I property), temporary Morrison Creek diversions to convey dry season (summer) creek flows have been proposed at Hedge Avenue and at Mayhew Road, as shown on Plate PD-7. The temporary Morrison Creek diversion at Hedge Avenue is expected to occur in 2010 and will divert a portion of Morrison Creek flows south of the proposed Hedge Connection Segment (as shown on Plate PD-3). The diversion at Mayhew Road is expected to occur in 2012 or 2013 and an earth berm or other diversion structure will be placed within Morrison Creek and dry season creek flows will be piped north and then west, into the proposed Morrison Creek Realigned Channel. This diversion is necessary so that the Mayhew Connection Segment (as shown on Plate PD-3) can be mined and reclaimed consistent with the proposed realigned Morrison Creek.

Plate PD-7: Temporary Channel Diversion Plans for Vineyard I







Aspen III South

The project parcels within Aspen III South are the subject of a use permit and reclamation plan amendment. The project parcels are APNs 063-0080-016, 063-0080-028 through -032, 063-0090-007, and 063-0090-012. Plate PD-8 and Plate PD-9 shows the revised reclamation plan (section within Aspen III South) and Plate PD-10 shows the conceptual riparian and oak woodland planting plan for Aspen III South.

The following are the requested entitlements for the Aspen III South project:

1. A **Reclamation Plan Amendment** for an aggregate mining operation known as Aspen III South approved in 1999 (Control Number: 94-UPB-0484) to allow:

    a. A revision to the drainage and wetland mitigations plans for the project site that will include the construction of a new Morrison Creek Realigned Channel (mining of the creek bed was approved in 1999) that will be approximately 300 feet in width at or near original grade, and will include adjacent buffer lands for a total width of 650 feet. This new Morrison Creek Realigned Channel will accommodate 100-year flood flows and incorporate wetland/riparian habitat mitigation elements.

    b. The previously approved elevated bypass channel for Morrison Creek and the 600-foot wide pit floor riparian corridor would be superseded with the construction of the new Morrison Creek Realigned Channel, as described above.

    c. Selected pit floor elevations may be raised to within 2 feet of the original grade over the term of the use permit (i.e., 22 years) using the “drying bed” method (i.e., the accumulation of silt like material obtained from aggregate washings or direct import).

2. A **Use Permit Amendment** to amend the Aspen III South approval to allow:

    a. Amendments to several of the conditions of the original approval that reference the approved elevated bypass channel for Morrison Creek and a 600-foot wide pit floor riparian corridor, and instead reference the new Morrison Creek Realigned Channel, as described above.

    b. An update of several conditions to reflect the 2011 Morrison Creek Hydrology and Hydraulic Analysis prepared for the project.

    c. An update of several conditions to reflect landscape plans approved for the project in 2002 (Control No 01-PAB-0686).

    d. An update of several conditions to reflect new wetland and oak woodland mitigation consistent with recent approvals by the U.S. Army Corps of Engineers.

Plate PD-8: Revised Reclamation Plan (Section within Aspen III South)

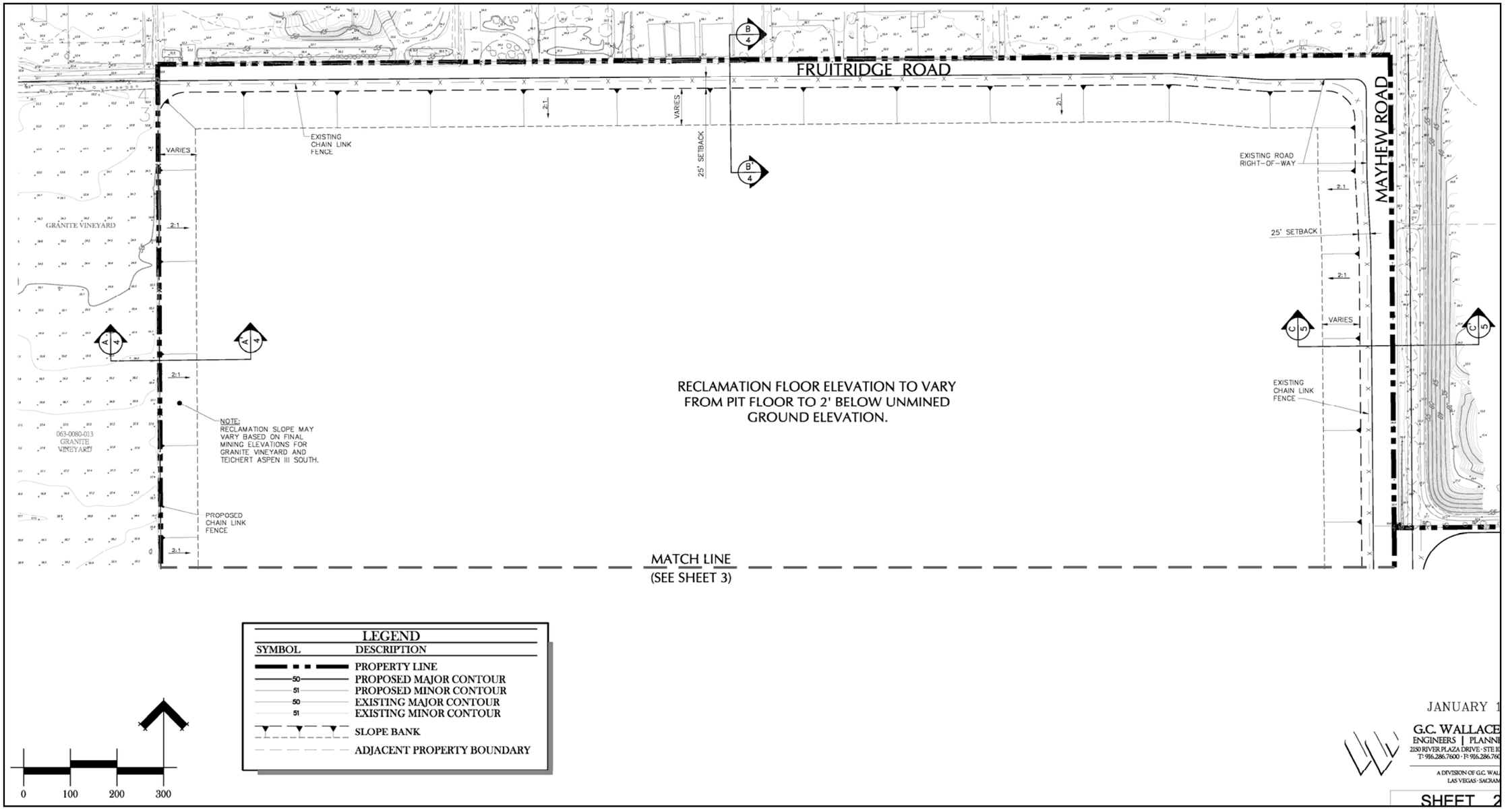


Plate PD-9: Revised Reclamation Plan (Section within Aspen III South) (page 2)

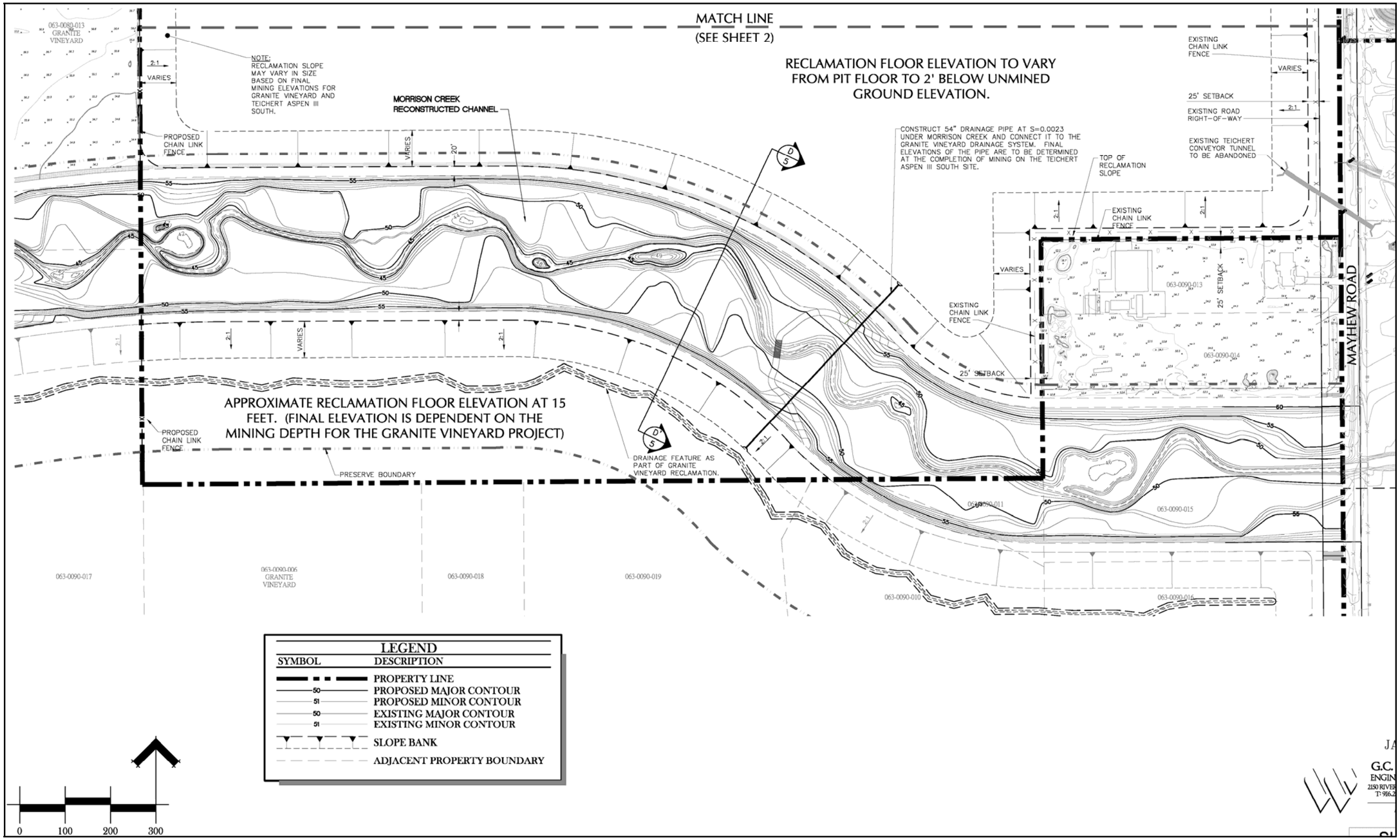
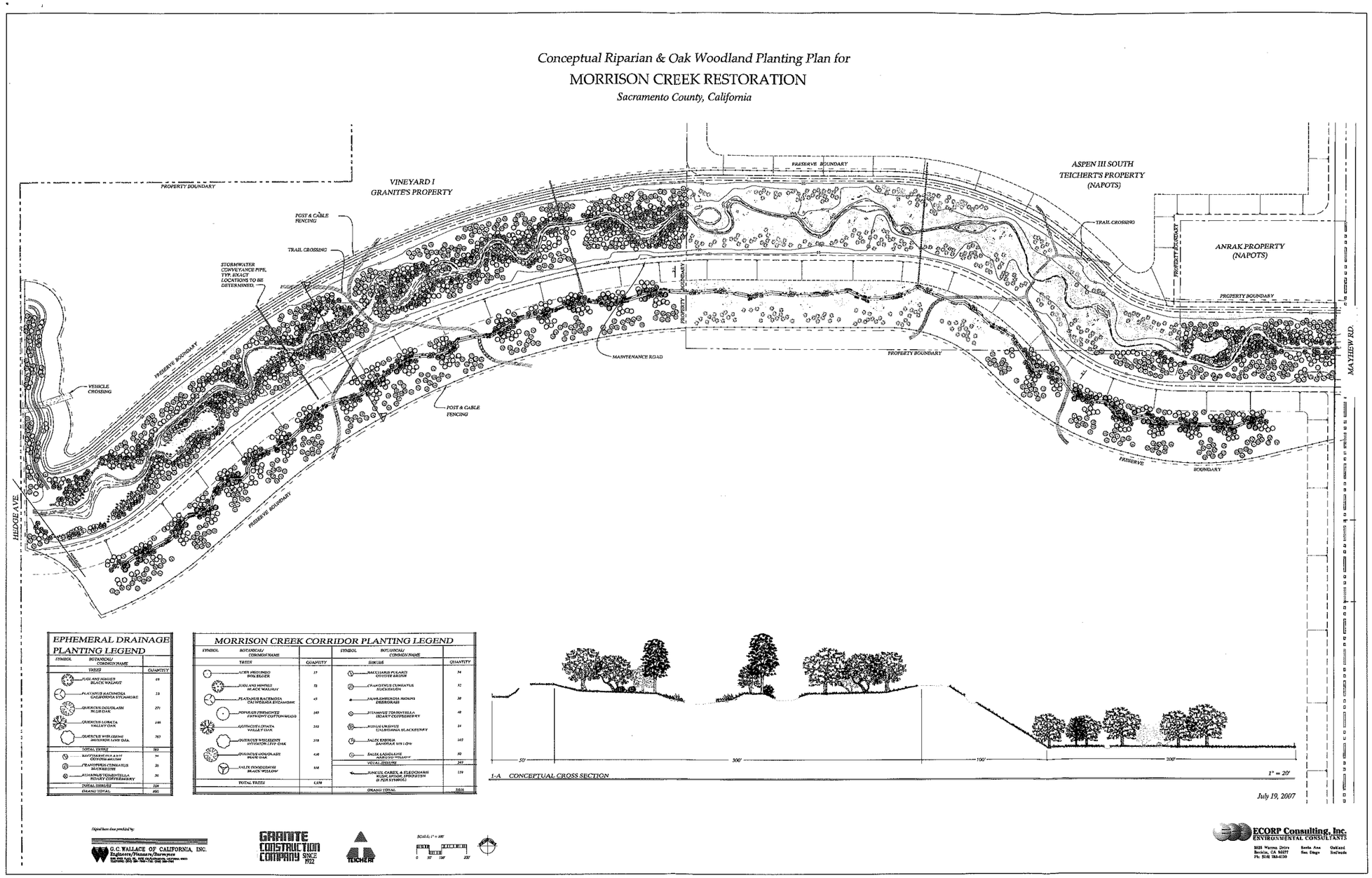


Plate PD-10: Conceptual Riparian & Oak Woodland Planting Plan (Aspen III South)



Aspen IV South

The project parcels within the Aspen IV South project are the subject of a use permit and reclamation plan amendment. The project parcels are APNs 063-0100-011, -014 through -016, 063-0100-019, 063-0130-001, -002, -009, -010 and -011. Plate PD-11 and Plate PD -12 show the revised reclamation plan within Aspen IV South. Plate PD-13 represents the conceptual riparian and oak woodland planting plan for this site.

The following are the requested entitlements for the Aspen ***IV*** ~~III~~ South project:

1. A **Reclamation Plan Amendment** for an aggregate mining operation known as Aspen IV South approved in 1999 (Control Number: 90-CZB-UPB-1607) to allow:

    a. A revision to the drainage and wetland mitigations plans for the project site that consists of completely avoiding Morrison Creek on the Aspen IV South property and constructing a “Raised Bank Channel”. Teichert will mine up to the southern edge of the floodway of Morrison Creek, and will construct berms outside of the floodway on the north and south sides of the creek to create a Raised Bank Channel.

    b. The previously approved elevated bypass channel for Morrison Creek, and the 600-foot wide pit floor riparian corridor would be superseded with the construction of the Raised Bank Channel, as described above.

    c. Selected pit floor elevations may be raised to within 2 feet of the original grade over the term of the use permit (i.e., 22 years) using the “drying bed” method (i.e., the accumulation of silt like material obtained from aggregate washings or direct import).

    d. Two options for on-site retention of stormwater: (a) drain to the adjacent Vineyard I mining site (this option was approved in 1999), or (b) retain on site in an engineered retention basin.

2. A **Use Permit Amendment** and **Zoning Agreement Amendment** to the Aspen IV South approval to allow:

    a. Amendments to several of the conditions of the original approval that reference the previously approved elevated bypass channel for Morrison Creek and a 600-foot wide pit floor riparian corridor, and instead reference the new Raised Bank Channel, as described above.

    b. An update of several conditions to reflect the 2011 Morrison Creek Hydrology and Hydraulic Analysis prepared for the project.

    c. An update of several conditions to reflect landscape plans approved for the project in 2002 (Control No 01-PAB-0686).

Plate PD-11: Revised Reclamation Plan for Aspen IV South (north portion)

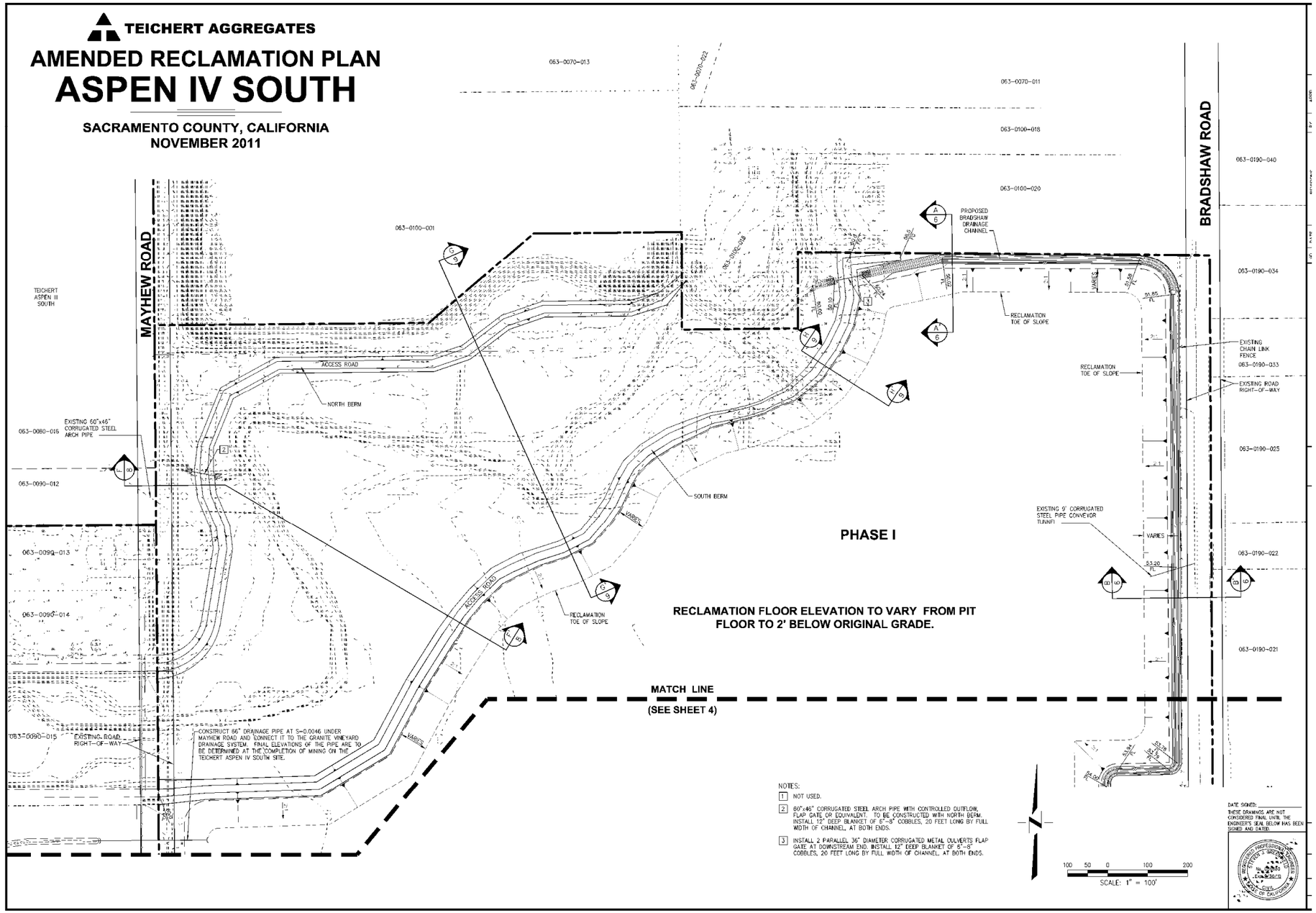


Plate PD -12: Revised Reclamation Plan for Aspen IV South (south portion)

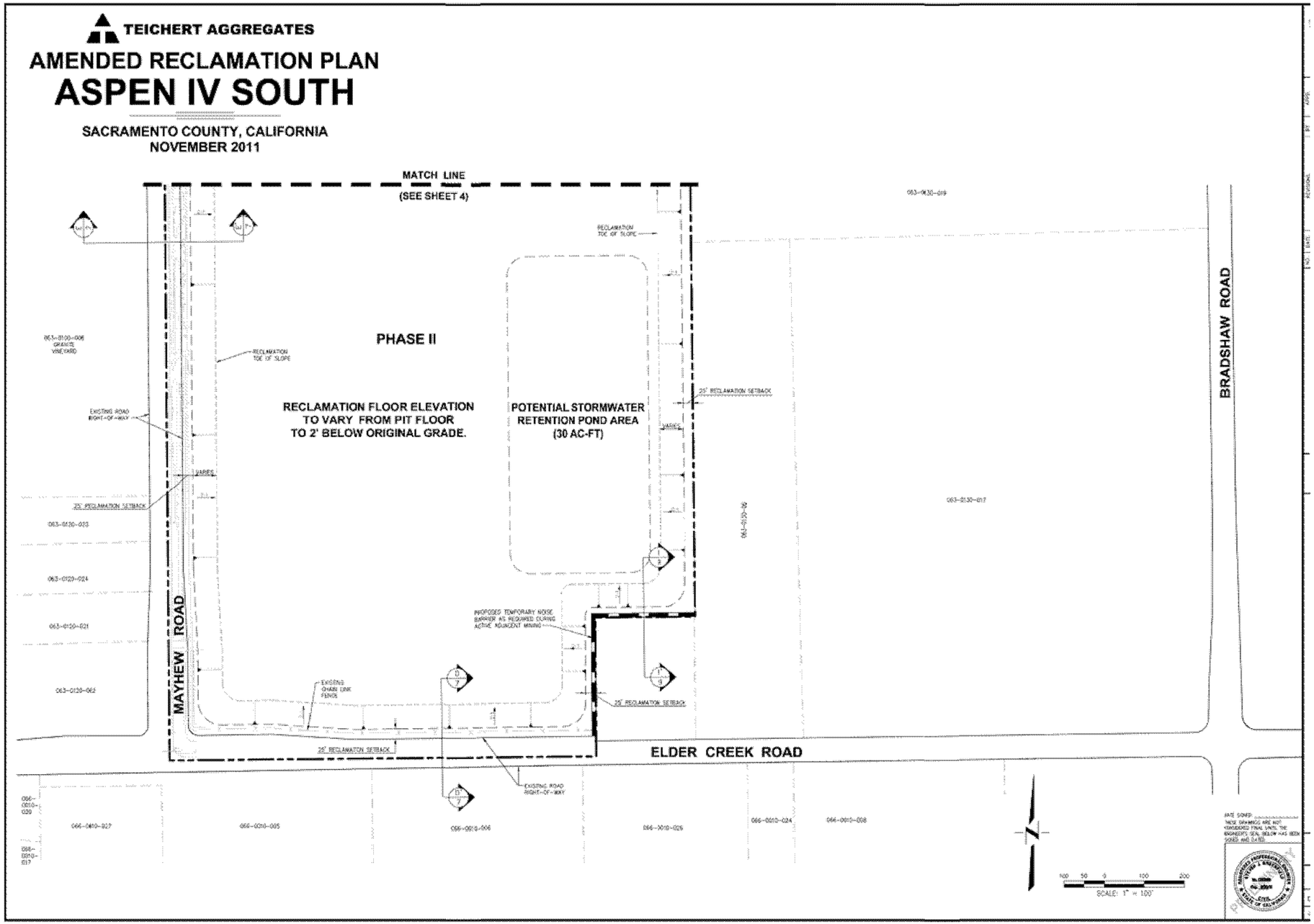
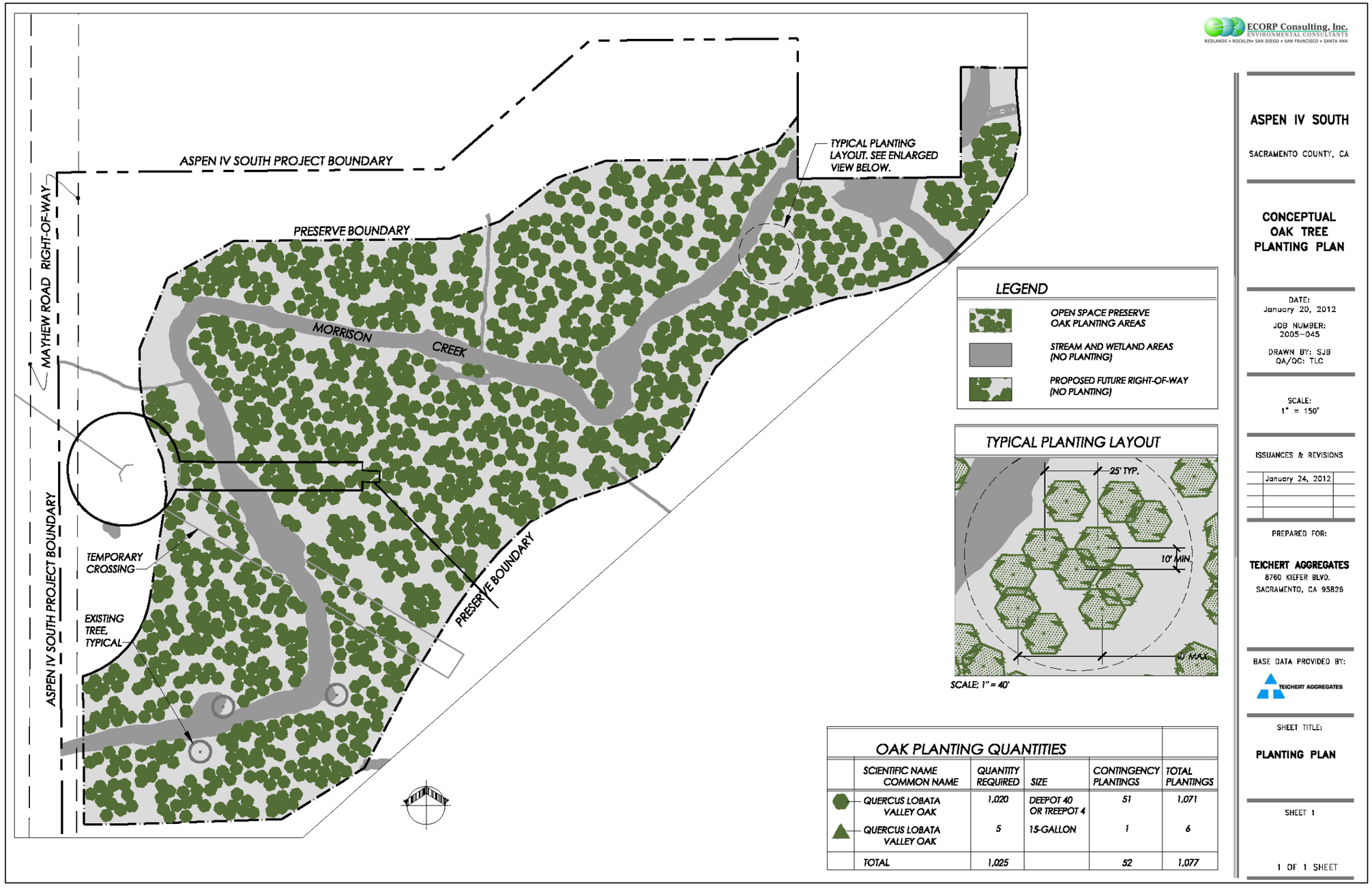


Plate PD-13: Conceptual Oak Tree Planting Plan (Aspen IV South)



OAK PLANTING QUANTITIES

SCIENTIFIC NAME / COMMON NAME	QUANTITY REQUIRED	SIZE	CONTINGENCY PLANTINGS	TOTAL PLANTINGS
QUERCUS LOBATA VALLEY OAK	1,020	DEEPOT 40 OR TREEPOT 4	51	1,071
QUERCUS LOBATA VALLEY OAK	5	15-GALLON	1	6
TOTAL	1,025		52	1,077

d. An update of several conditions to reflect new wetland and oak woodland mitigation consistent with recent approvals by the U. S. Army Corps of Engineers.

e. A revision to conditions requiring the dedication of a public trail easement corresponding to the alignment of Morrison Creek.

3. A **Release** from the prior Zoning Ordinance, adopted by Ordinance No. SZC 99-0068, to be replaced by an amended Zoning Ordinance.

PROJECT OBJECTIVE

The applicants have provided a project justification statement and the following are portions of the statement which serve to outline the project objectives:

- **Granite Construction Company: Vineyard I**
  - The proposed entitlements would allow the applicant to consolidate the currently approved pit floor mitigation corridor and enhanced bypass channel from the Vineyard I project into a single recreated creek channel that more closely mirrors Morrison Creek's natural condition.
  - Maximizes the production of vital aggregate resources

- **Teichert Aggregates: Aspen III South and Aspen IV South**
  - The proposed mitigation corridor better mirrors the natural creek condition, while eliminating the need for a mechanical pump system.
  - The at-grade, single channel design avoids the separation of creek function and habitat.
  - The revised reclamation plan allows Teichert to mine aggregates with fewer operational constraints while minimizing impacts to the environment.
  - Mining on Aspen IV South will avoid Morrison Creek which eliminates direct impacts to the creek and related habitat.
  - There is currently great demand for aggregates in Sacramento County and surrounding areas and this demand continues to increase as the population of the region grows.

INTENDED USE OF THE EIR

The Project Planning Commission and the Board of Supervisors will use the information contained in the SEIR in evaluating the proposed project and rendering a decision to approve or deny the requested entitlements. The SEIR will serve as an informational document for the general public as well. Responsible agencies may also use the SEIR for subsequent discretionary actions.

4 ALTERNATIVES

INTRODUCTION

The proposed project is an amalgamation of the alternatives that were analyzed in the Prior FEIR/EIS.

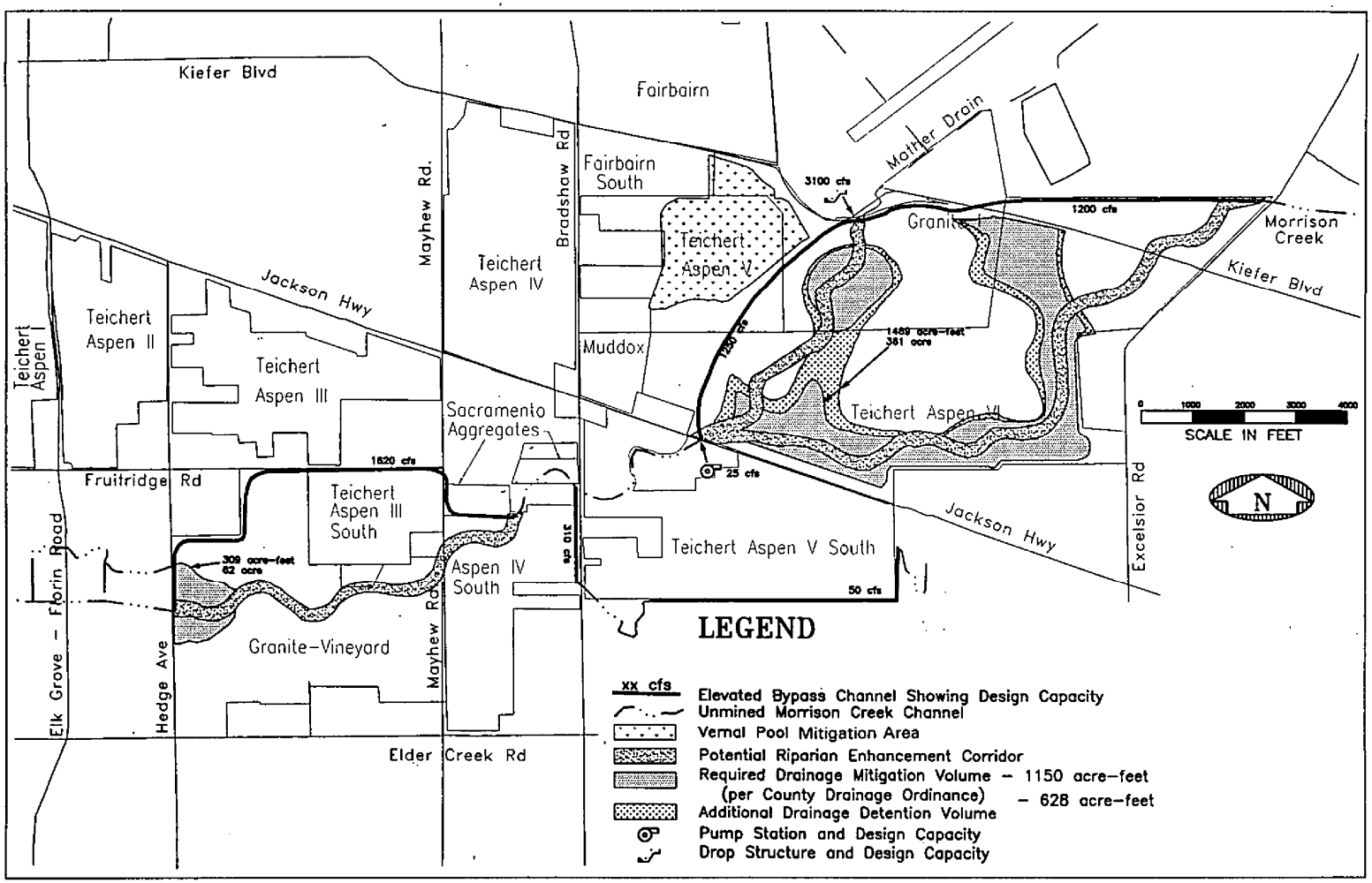
The proposed project is a result of revisions to the previously approved reclamation plan consistent with permits received from the County, State and federal regulatory agencies. The prior approved reclamation plan was not favored by the State and federal agencies from a biological standpoint. The applicants (Granite Construction and Teichert Aggregates) worked with the regulatory agencies in designing the proposed project so that it would have fewer biological impacts. This chapter will present the previously analyzed alternatives and compare the proposed project to those alternatives and the prior approved project.

BACKGROUND

In 1989 it was recommended that a comprehensive drainage mitigation plan for Morrison Creek be prepared prior to approval by the County of any mining project within the Morrison Creek floodplain. The purpose of this recommendation was to prepare a plan that would accurately assess the cumulative effects of mining projects within the 100-year floodplain. The intent of the drainage mitigation plan is to mitigate the drainage impacts of mining on the Morrison Creek 100-year floodplain, as required by the County floodplain management policies. As a result, proposed mining projects at the time were placed on hold while the County prepared the *Morrison Creek Mining Reach Drainage Mitigation Plan.* The boundary of the drainage plan is the portion of Morrison Creek located between Mather Airport and Hedge Avenue (referred to as the "Morrison Creek Mining Reach").

The miner's preferred alternative of the *Morrison Creek Mining Reach Drainage Mitigation Plan* was referred to as Part A which consisted of the construction of an unlined trapezoidal bypass channel. The bypass channel would be at-grade and convey the bulk of the flows of Morrison Creek through the reclaimed aggregate mining areas and lower pit. The bypass channel would begin/meet the natural Morrison Creek drainage on the Aspen IV South site. The bypass channel would be located along the alignment shown in Plate ALT -1.

Plate ALT -1: Drainage Mitigation Plan of Prior Project – Bypass Channel and Mitigation Corridor



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 3-7
Drainage Mitigation Plan—Proposed Project (Part A)

EDAW Inc.

Source: County of Sacramento Water Resources Division

The bypass channel would be sized to contain the 100-year peak flows which would allow the majority of Morrison Creek to continue downstream through the project site with minimal disruption. When the drainage exceeded the capacity of the bypass channel, the excess flows would be diverted into one of the pit floor detention areas via a weir or outfall structure constructed in the bypass channel. The lower pit was proposed to provide 306 ac-ft of detention/storage volume. The upper pit (located at the upstream portion of the mining reach) would be substantially larger, providing 1,469 ac-ft of detention/storage volume. A small variable speed pump station was also proposed to be located on the Aspen V South mining site. The purpose of the pump station is to evacuate water that does not percolate, evaporate, or transpire from the ponding/detention area located north of Jackson Highway (the upstream portion of the mining reach). The bypass channel, pit floor detention and small pump station was to be fully financed and constructed by the mining companies which would relieve the County of any involvement in the operation and maintenance of the bypass channel. The drainage mitigation plan Part A was a component of the project proposal in the prior FEIR/EIS. The following alternatives were analyzed in the prior FEIR/EIS (Pages 4-1 through 4-16 of FEIR/EIS):

- Proposed Project Without the Vineyard I Processing Plant
    - The Proposed Project Without the Vineyard I Processing Plant Alternative was included to allow for flexibility in land use decisions during the application review process and following the potential approval of entitlements. This alternative does not include processing facilities on the Vineyard I mining site; it was assumed that Granite would use a conveyor to transfer mined material from the site to an existing processing facility located off site. Subsequent to the release of the Draft EIR/EIS, Granite obtained conveyor access, thus this alternative became a part of the proposed project.
- Proposed Project with County Drainage Alternatives (Part B Options)
    - The Proposed Project with County Drainage Alternative (Part B Options) was developed as part of the Sacramento County Water Resources Division's 1994 *Morrison Creek Mining Reach Drainage Mitigation Plan* which was developed to go beyond the minimum requirements for drainage mitigation, in order to provide additional flood control and stormwater detention benefits. However, it was stated in the FEIR/EIS that following additional consideration and evaluation of the County Drainage Alternatives (Part B) subsequent to the release of the Draft EIR/EIS, the County of Sacramento determined that the incremental downstream flood control benefits would be minimal and decided to forego additional consideration of this alternative at the time of writing the FEIR/EIS.

- 100-Year Floodplain Protection Alternative
    - The Floodplain and Creek Protection Alternative was considered so as to minimize the cumulative effects of mining inside the 100-year floodplain. Under this alternative, the 100-year floodplain protection alternative, the natural character of the 100-year floodplain for the creek would be maintained by avoiding aggregate extraction within the floodplain.
- Creek Buffer Alternative
    - The Creek Buffer Alternative was included in the FEIR/EIS since during the comment period on the Draft EIR/EIS there were several comments requesting that a modified floodplain protection alternative be considered in the EIR/EIS. This alternative was to include a 150-foot buffer area on either side of Morrison Creek similar to the condition of approval placed on the north project by the U.S. Army Corps of Engineers. As a result of these comments, the “Creek Buffer Alternative” was incorporated into the FEIR/EIS. Under this alternative, the natural creek channel and associated riparian vegetation would be preserved by precluding mining activities within 150 feet of the lateral extent of Corps jurisdiction associated with the main stem of Morrison Creek. Mining and reclamation would occur up to the edge of the 150-foot buffer and the perimeter would be back filled with 2:1 slopes. The Morrison Creek channel would be retained at existing grade throughout the project site. Under this alternative, a 350-foot corridor of land, including the creek, would be preserved and surrounded on both sides by the proposed mining and reclamation areas.
- No project Alternative
    - The No Project Alternative assumed that the project sites would not be mined for aggregate and that the sites would have remained in their present condition or be used consistent with existing zoning, which was general agricultural.

The FEIR/EIS also considered the following alternatives, but the alternatives were rejected due to not meeting the project objective or because they were infeasible:

- Recycling Alternative
- Off-site Alternative
- Mather Field Alternative

Identification of the Environmentally Superior Alternative

The FEIR/EIS identified the following as the Environmentally Superior Alternative: (page 6-8 of FEIR/EIS):

> *Based on the alternatives analysis in the individual sections in Chapter 5 (Affected Environment and Environmental Consequences), the 100-Year Floodplain Protection Alternative is the environmentally superior alternative. Under this alternative, the natural character of the 100-year floodplain for Morrison Creek would be maintained by avoiding aggregate extraction within the floodplain. Unlike the other mining alternatives, this alternative would not require reconstruction of the floodplain, would not alter flows downstream, and would not result in hydrologic and landform changes to the existing floodplain. Thus, impacts to biological resources, open space, and aesthetic values inherently associated with the streambed, floodplain and uplands under natural conditions would be avoided.*

None of the alternatives were chosen over the proposed project; accordingly, the project, as proposed, was approved. Approval of the prior project allowed for mining operations through Morrison Creek and the construction of the at-grade trapezoidal bypass channel, pump station and a riparian/low-flow corridor at the bottom of the mining pit.

Proposed Project

The proposed project eliminates the previously approved bypass channel around the perimeter of the Aspen IV South, Aspen III South and Vineyard I mining sites. The previously approved 600-foot wide riparian corridor/ low-flow channel at the bottom of the mining pit has been revised to be an at-grade Morrison Creek Realigned Channel on the Aspen III South and Vineyard I mining sites. As the Morrison Creek Realigned Channel does not require a pump station, it will maintain the hydroconnectivity of Morrison Creek, compared to an at pit-bottom channel. The Morrison Creek Realigned Channel has also been designed to contain the 100-year flows of Morrison Creek, and will mirror a meandering creek; therefore, biological functions of this design are superior to the prior approved bypass channel and pit-bottom creek corridor (refer to the Biological Resources chapter).

Morrison Creek on the Aspen IV South site will not be impacted under the proposed project. A flood control channel (Raised Bank Channel) will be constructed outside the effective floodway of Morrison Creek on the Aspen IV South site. The Raised Bank Channel on Aspen IV South portion of the proposed project is very similar to the 100-year Floodplain Protection Alternative and the Creek Buffer Alternative, both previously proposed in the prior FEIR/EIS. This component of the proposed project will not mine through the existing Morrison Creek (similar to the Creek Buffer Alternative) and will not mine through the Morrison Creek floodplain since the Raised Bank Channel will be

constructed outside the floodplain which will preclude mining within the channel (similar to the 100-year floodplain protection alternative). This portion of the project is mostly consistent with the identified environmentally superior alternative of the prior FEIR/EIS.

5 SURFACE WATER HYDROLOGY AND DRAINAGE

INTRODUCTION

This section describes the surface water hydrology and drainage of the project site, including issues relating to the Morrison Creek channel, flood protection and channel stability. The analysis contained in this chapter is based on the *Aspen IIIS, IVS and Granite Vineyard I Post Reclamation Plan Hydrology & Hydraulic Analysis,* prepared by Wood Rodgers, dated June 2011 (hereinafter referred to as 2011 H&H Analysis) and the technical memo for the *Granite Vineyard I/ Aspen VI Weir Sensitivity Analysis,* dated July 6, 2011. Both documents are provided in Appendix B1. The Sacramento County Department of Water Resources (DWR) reviewed the 2011 H&H Analysis report and deemed it to be technically adequate for CEQA review on August 3, 2011.

The proposed project includes revisions to the previously approved reclamation plan, consistent with permits received from the County, State and federal regulatory agencies. The mining sites in this project include Vineyard I, Aspen III South and Aspen IV South. The previously approved reclamation plan consisted of a below grade, 600-foot wide riparian corridor/low-flow channel within the bottom of the mining pit in generally the same location as the existing creek and an at-grade trapezoidal bypass channel around the perimeter of the mining sites. The proposed project revises the previously approved reclamation plan by completely eliminating the at-grade trapezoidal bypass channel component and changing the below grade, 600-foot wide riparian corridor/low-flow channel to an at-grade mitigation corridor (Morrison Creek Realigned Channel) on the Vineyard I and Aspen III South mining properties. The Morrison Creek Realigned Channel has been designed to contain the 100-year flows within the flood control channel. On the Aspen IV South property, the existing Morrison Creek channel will be preserved and a raised bank flood control channel (Raised Bank Channel) is proposed to be constructed outside of the effective FEMA floodway. The Morrison Creek Realigned Channel will connect with the existing Morrison Creek channel on Aspen IV South. The connection of the Morrison Creek Realigned Channel to the Raised Bank Channel will require grading within the Mayhew Road right-of-way to contour the levees of the creek in order to maintain the flood protection banks across Mayhew Road.

The proposed project also consists of a request for a rezone and use permit amendment to allow aggregate mining of an additional 5.6 acres on the Vineyard I mining site (Vineyard I mining expansion). In addition, the Vineyard mining expansion will be incorporated into the previously approved reclamation plan, with revisions consistent with the requested reclamation amendments described above. The proposed project also includes an option for a retention basin on the Aspen IV South mining site (a retention basin was approved in 1999 as part of the prior project).

Impacts associated with groundwater quality and use of groundwater supplies are addressed in the Groundwater Hydrology and Quality Chapter (Chapter 6 of this SEIR).

SETTING

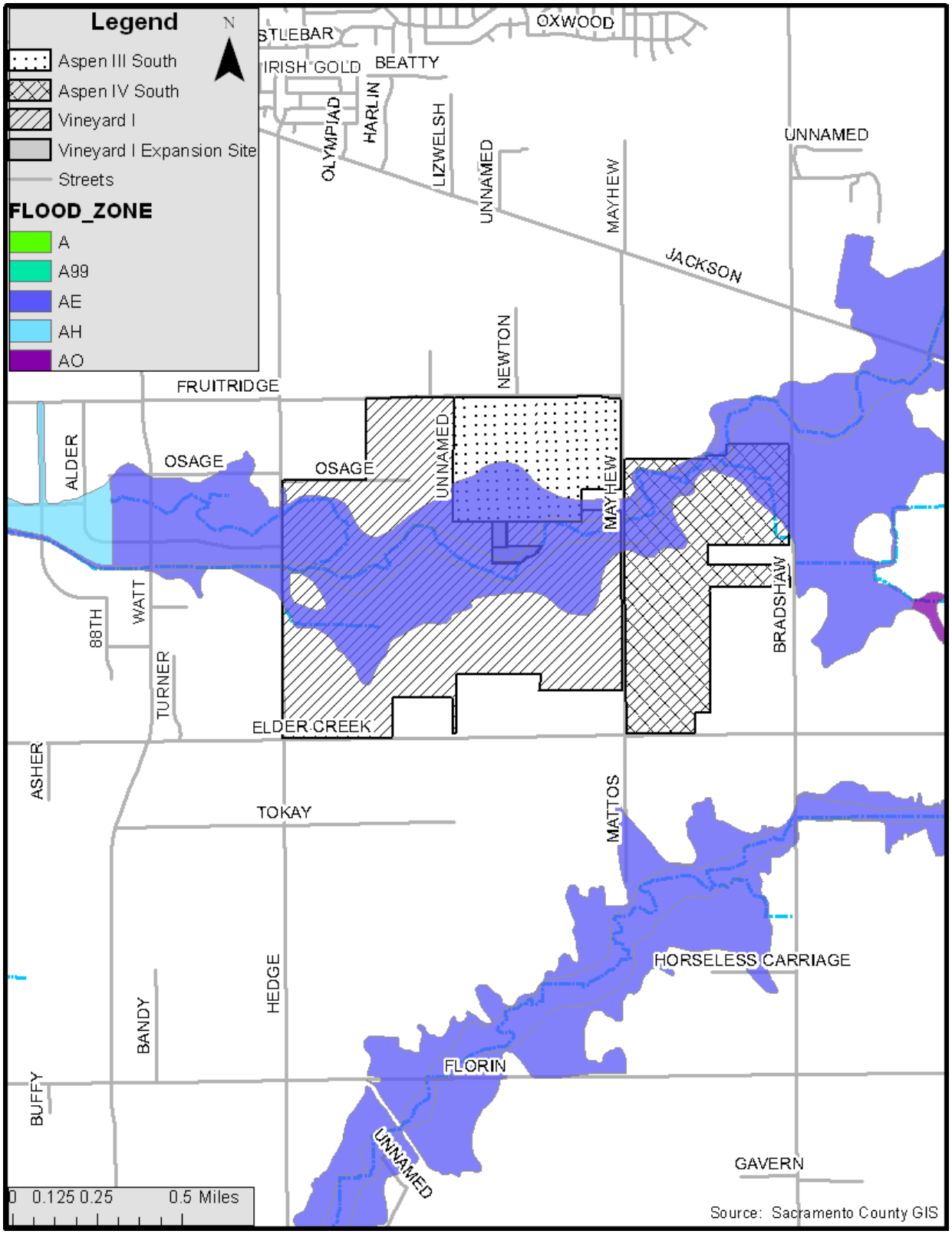
The prior FEIR/EIS provided the following hydrological setting:

> The project site is located in the upper Morrison Creek watershed in the reach between Jackson Highway and Hedge Road. Morrison Creek flows from the low foothills of eastern Sacramento County to the Sacramento River Delta at Snodgrass Slough. Elevations range between 170 feet above mean sea level (MSL) in the headwaters to below MSL at Snodgrass Slough. The watershed terrain is characterized by low rolling hills with an annual grassland cover, agricultural and urban development, vernal pools and seasonal wetland swales. The Morrison Creek corridor occupies a shallow valley with sparse riparian vegetation. The lower water is highly urbanized and Morrison Creek has been channelized. A good portion of the site is located within a federally designated floodplain, as shown on FEMA Flood Insurance Rate Map, panel number 060262-0215D, dated November 15, 1989.
>
> The project site experiences a Mediterranean climate with periods of precipitation in mild winter months (November through April) and hot, dry summers (May through October). Morrison Creek is presently classified as an intermittent stream where winter rains generate storm runoff and recharge moisture in shallow soils and alluvium. Although flow and soil moisture are unmeasured, visual observations indicate that residual winter runoff or baseflow dissipates in the early summer. Summer conditions are dry except for an unknown but important volume of urban and agricultural-irrigation tailwater flow. Fine-grained soils on the valley floor along Morrison Creek retain moisture into late spring.

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) used in the prior FEIR/EIS was dated 1989; however, the current FEMA Flood Insurance Rate Map is dated 1998 and the majority of the project site is still located within a federally designated floodplain. Refer to Plate HY-1.

The majority of the Granite Vineyard I mining site is located south of the existing Morrison Creek. This area has been partially mined and the area north of Morrison Creek has been mostly mined under existing entitlements and is proposed to be filled and reclaimed after mining is complete. The Teichert Aspen III South site is located north of Morrison Creek and mining on this site is almost completed, under existing entitlements. Mining on the Teichert Aspen IV South site is permitted under existing entitlements, but mining has not started.

Plate HY-1: Existing FEMA Flood Zone Designations in Project Area



Downstream of the project site, Morrison Creek flows westerly through the City of Sacramento before entering the Beach-Stone Lakes area at the Sacramento River. The proposed Reclamation Plan will recreate a natural low-flow channel on Vineyard I and Aspen III South mining sites and construct raised channel banks outside the effective FEMA floodway on all three mining sites.

REGULATORY FRAMEWORK

STATE REGULATIONS

THE OFFICE OF MINE RECLAMATION AND THE SURFACE MINING AND RECLAMATION ACT OF 1975 (SMARA)

The Office of Mine Reclamation (OMR) was created in 1991 to administer the Surface Mining and Reclamation Act of 1975 (SMARA). OMR provides assistance to cities, counties, state agencies and mine operators for reclamation planning. Successful reclamation includes maintaining water and air quality, minimizing flooding, erosion and damage to wildlife and aquatic habitats caused by surface mining. The goals of OMR is to have successful reclamation as it relates to environmental quality, as well as reclaim mined lands to a beneficial end-use through the implementation of SMARA and to minimize residual hazards to public health and safety through the Abandoned Mine Lands program.

STATE WATER RESOURCES CONTROL BOARD

The State Water Resources Control Board was created by the State Legislature in 1967 and has jurisdiction throughout California and aims to protect water quality by setting statewide policy, coordinating and supporting the Regional Water Board efforts and reviewing petitions that contest Regional Board activities. There are nine regional water quality control boards that were created as a result of the State Porter-Cologne Water Quality Act of 1970. The regional water quality control boards regulate surface and ground water and established the requirements for waste discharges.

The federal Clean Water Act prohibits discharge of pollutants to waters of the United States from any point source unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. Stormwater associated with industrial activities that discharge either directly to surface waters or indirectly through municipal storm sewers must be regulated by an NPDES permit. To obtain the NPDES General Permit, the facility operator must submit a Notice of Intent (NOI) to the State Water Resources Control Board. The General Permit generally requires facility operators to (1) eliminate unauthorized non-storm water discharges; (2) develop and implement a storm water pollution prevention plan (SWPPP); and (3) perform monitoring of storm water discharges and authorized non-storm water discharges. The State Water Resources Control Board issues the NPDES general permit.

LOCAL REGULATIONS

COUNTY OF SACRAMENTO

Sacramento County has a National Pollutant Discharge Elimination System (NPDES) Municipal Stormwater Permit issued by the Regional Board. The Municipal Stormwater Permit requires the County to reduce pollutants in stormwater discharges to the maximum extent practicable. The County complies with this permit in part by developing and enforcing ordinances and requirements to reduce the discharge of sediments and other pollutants in runoff.

The County has established a Stormwater Ordinance (Sacramento County Code 15.12). The Stormwater Ordinance prohibits the discharge of unauthorized non-stormwater to the County's stormwater conveyance system and local creeks. It applies to all private and public projects in the County, regardless of size or land use type. In addition, the Land Grading and Erosion Control Ordinance (Sacramento County Code 16.44) requires private construction sites disturbing one or more acres or moving 350 cubic yards or more of earthen material to obtain a grading permit. To obtain a grading permit, project proponents must prepare and submit for approval an Erosion and Sediment Control (ESC) Plan describing erosion and sediment control best management practices (BMPs) that will be implemented during construction to prevent sediment from leaving the site and entering the County's storm drain system or local receiving waters. Construction projects not subject to the Land Grading and Erosion Control Ordinance (SCC 16.44) are subject to the Stormwater Ordinance (SCC 15.12) described above.

Other County documents which contain standards and specifications for the regulation of water quality include:

- The County Stormwater Quality Improvement Standards;
- Standard Construction Specifications;
- Stormwater Quality Design Manual (May 2007);
- Sacramento County Industrial BMP Manual; and
- Sacramento County Stormwater Sampling Guidance.

SACRAMENTO COUNTY GENERAL PLAN

The Sacramento County General Plan has been updated and was approved and adopted on November 9, 2011 by the Sacramento County Board of Supervisors. The planning horizon of the previous General Plan was from 1990 to 2010. The updated General Plan has a planning horizon to the year 2030. Section I of the Conservation Element of the General Plan addresses Water Resources. Policies pertain to optimal use of surface water, sustainable yield of groundwater, efficient use of urban and

agricultural water, protection of ecosystems, managing runoff and the efficient use of municipal and industrial water. Updates to the policies in the General Plan that are applicable to the proposed project are as follows:

CO-24: Comply with the Sacramento Areawide National Pollutant Discharge Elimination System Municipal Stormwater Permit (NPDES Municipal Permit) or subsequent permits issued by the Central Valley Regional Water Quality Control Board (Regional Board) to the County, and the Cities of Sacramento, Elk Grove, Citrus Heights, Folsom, Rancho Cordova, and Galt (collectively known as the Sacramento Stormwater Quality Partnership [SSQP]).

CO-25: Support the preservation, restoration and creation of riparian corridors, wetlands and buffer zones.

Sacramento County Zoning Code

The Sacramento County Zoning Code includes Mining-Related regulations which outline permitted surface mining operations, requirements for a Work Authorization Permit, and mining application data, standards and guidelines.

Sacramento County Floodplain Management Ordinance

Sacramento County has participated in the National Flood Insurance Program since 1979. A County Floodplain Management Ordinance is required to meet or exceed the minimum standards of FEMA for participation in the National Flood Insurance Program. The Floodplain Management Ordinance specifically describes what types of development activities are allowed and how proposed development may be permitted. The purpose of floodplain management is to realize the extent of flood hazards and to manage the flooding in a manner so as to reduce damage to structures and infrastructure and to minimize the risk of human casualties.

All proposed development activity in a floodplain (those areas designated by FEMA on the Flood Insurance Rate Map for Sacramento County) and other areas subject to flooding, must be reviewed and permitted by the County's Floodplain Administrator (Water Resources) prior to construction. Per the Floodplain Management Ordinance, a Floodplain Management Permit must be obtained from the Floodplain Administrator before any new construction, substantial improvements or other development, including alteration of land, begins within any special flood hazard area or local flood hazard area established in Section 903-02 of the ordinance.

In addition, Section 905-06 provides that the Floodplain Administrator may impose conditions necessary to ensure compliance with the Floodplain Management Ordinance, other County ordinances, or state or federal laws. The Floodplain Administrator may also require that the owner of the property, the permit applicant, or both, enter into a written agreement with the County holding the County of Sacramento and the Sacramento County Water Agency free from liability for any harm that may occur to any real or personal property or person by flooding.

The Sacramento County Department of Water Resources has reviewed the proposed project and has submitted various comment letters pertaining to the project. The following memorandums have been submitted by DWR for the proposed project:

- July 15, 2008 (For Vineyard I)
- July 15, 2008 (For Aspen III South)
- August 3, 2011 (For Vineyard I, Aspen III South and Aspen IV South)
- December 23, 2011 (For Vineyard I, Aspen III South and Aspen IV South)

The memorandums have been included as Appendix B2.

The conditions of approval from the memorandums include for the provision of drainage easements, installation of drainage facilities, and floodplain easements pursuant to the Sacramento County Floodplain Management Ordinance. DWR also requests for a long term maintenance agreement between the miners and DWR to address funding and long term maintenance of drainage facilities.

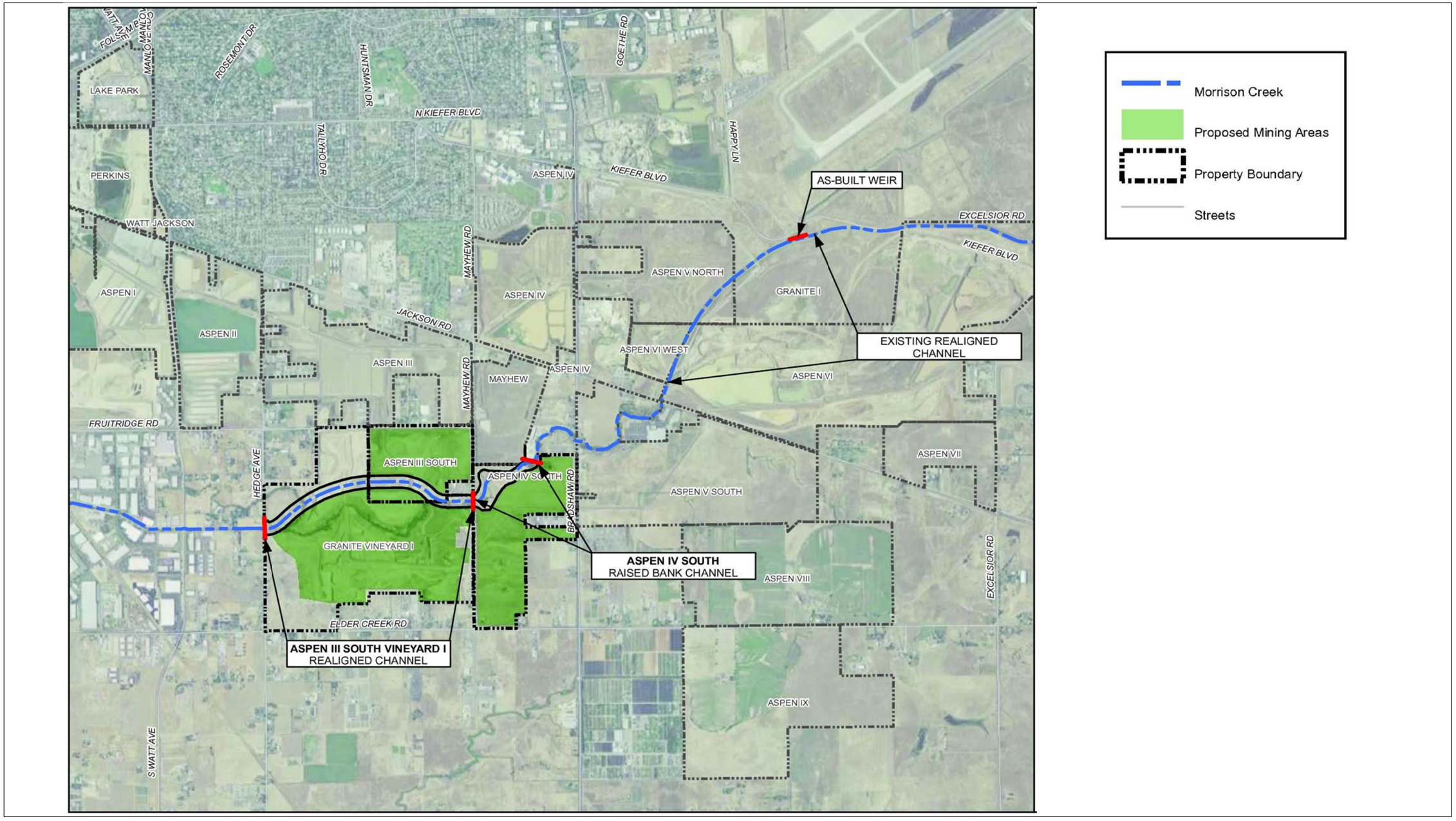
HYDROLOGIC AND HYDRAULIC CONDITIONS

BASELINE CONDITIONS

Wood Rodgers used the 1998 Effective FEMA Flood Insurance Study (FIS) for Sacramento County Unincorporated Areas (revised February 14, 1998) and the Revised 2000 FEMA Flood Insurance Rate Map (FIRM) for peak flow and water surface elevations to develop the baseline floodplain analysis for the Pre-Reclamation condition, which is used for comparison to the Post-Reclamation Channel Model.

Granite and Teichert constructed a weir, associated bypass channel and detention basin upstream of Jackson Highway in approximately 2001-2003 to mitigate flows in Morrison Creek (refer to Plate HY-2) pursuant to 1999 mining project approvals of Granite's Granite I and Teichert's Aspen VI mining projects. The Vineyard I, Aspen III South and Aspen IV South Post-Reclamation condition assumes that the weir on the Granite I property is in place and functioning. The function of the weir is to divert peak flood-related flow out of Morrison Creek and into the Granite I and Aspen VI mining pits for offline retention and detention. The current operation of the weir is considered the "As-Built Condition" and Teichert and Granite will be responsible to continue the ongoing operation and maintenance of the weir and basin on the Aspen VI and Granite I mining sites. Establishing the baseline condition allowed Wood Rodgers to analyze the impact of the proposed project on the hydrology and hydraulic conditions of Morrison Creek.

Plate HY-2: Morrison Creek in the Post Reclamation Condition (Including Upstream and Downstream of Project Site)



STUDY METHODOLOGY

Wood Rodgers has previously developed a HEC-RAS Model for Morrison Creek upstream of Jackson Highway for other projects. HEC-RAS is a computer program developed by the Hydrologic Engineering Center (HEC) of the Army Corps of Engineers. The HEC developed the River Analysis System (RAS) to aid hydraulic engineers in analyzing channel flows and identifying the extents of floodplains; the computer program models the hydraulics of water flow through natural rivers and other channels.

In order to determine the hydrological impacts of the proposed Morrison Creek Realigned Channel, Wood Rodgers developed a Post-Reclamation Channel model. The Post-Reclamation Channel model was developed by extending the HEC-RAS model downstream of Jackson Highway to South Watt Avenue by utilizing existing data from the FEMA FIRM and HEC-2 model cross sections (HEC-2 is an older hydraulic program). Utilizing these two data sets (FEMA FIRM and HEC-2) allowed Wood Rodgers to establish the existing conditions. For the HEC-RAS model upstream of project area, (from Mayhew Road to Jackson Highway), Wood Rodgers used the cross sections of the HEC-2 model and supplemented the HEC-2 data with current topography from Sacramento County LiDAR[1] data.

In developing the HEC-RAS model for the Post-Reclamation Channel Model, Wood Rodgers also used the grading contours (prepared by GC Wallace) of the proposed Morrison Creek Realigned Channel between Mayhew Road and Hedge Avenue.

In the 2011 H&H Analysis, the Post-Reclamation condition assumes that the mining operations on Aspen III South and Vineyard I properties are completed and ***the mining operations are complete on Aspen IV South where the natural Morrison Creek low-flow channel and floodway are preserved. It is also assumed that*** significant portions of the Vineyard I, Aspen III South, and Aspen IV South properties are mined below existing grade. The Post-Reclamation condition also assumes that the proposed Morrison Creek Realigned Channel (on the Vineyard I and Aspen III South mining sites) is constructed and connected to the constructed berms (Raised Bank Channel) on the Aspen IV South mining site where the natural Morrison Creek low flow channel and floodway has been preserved.

In the prior FEIR/EIS, a permanent retention basin was proposed (and later approved) to be located on the Vineyard I mining site, which would retain runoff from the three mining properties - Vineyard I, Aspen III South and Aspen IV South. Aspen IV South has the alternative (approved in 1999) to not convey stormwater runoff into the Vineyard I retention basin and instead retain stormwater runoff on-site in a 14-acre retention

[1] LiDAR (Light Detection and Ranging) is an optical remote sensing technology that uses pulses from a laser to measure the distance to a target or other features of the target. In geography, LiDAR data is used to determine contours of the land.

basin. The 2011 H&H Analysis analyzed the hydrological impacts of retaining Aspen IV South stormwater runoff on-site, in a 14-acre retention basin on the Aspen IV South property. The retention basin will be evacuated solely by infiltration into the soil and evaporation off the basin water surface. The 2011 H&H Analysis determined that the retention basin on Aspen IV South could store 30 ac-ft of local runoff and that the permanent retention basin on Vineyard I could store 267 ac-ft of local runoff from Vineyard I and Aspen III South properties. The two retention basins could store a combined total runoff of 297 ac-ft. The prior FEIR/EIS identified that there would need to be a total of 309 ac-ft of storage for the mining sites.

For additional information on the methodology used, please refer to Appendix B1.

MODELING RESULTS

The resulting HEC-RAS flow in the Post-Reclamation condition is shown in Table HY-1 below. The results are divided into three categories: upstream, on-site and downstream.

Table HY-1: Morrison Creek Flows (cubic feet per second)

		100 Year 24 hour	
		FEMA FIS*	**Post- Reclamation**
Upstream (off site)	Jackson Hwy.	2,755	1,032
	Bradshaw Rd.	2,755*	1,331
On-site	Mayhew Rd.	2,755*	1,494
	Hedge Ave.	2,755*	1,507
Downstream (off site)	S. Watt Ave.	2,755*	1,550
	CCTC RR	2,855	1,678

* FEMA FIS Flows are only reported at Jackson Hwy and the CCTC RR Crossing with an increase of only 100 cfs over 3.8 miles of channel. The lowest flow is assumed for the most conservative benchmark flow.
Source: Wood Rodgers, 2011

As shown on Table HY-1, there is a decrease in the upstream, on-site and downstream flows between the FEMA FIS baseline condition and the Post-Reclamation condition.

STANDARDS OF SIGNIFICANCE

Appendix G of the California Environmental Quality Act (CEQA) provides guidance for assessing the significance of potential environmental impacts. Relative to hydrology and water quality as it relates to surface water, a project will normally have a significant effect on the environment if it will:

- Violate any water quality standards or waste discharge requirements;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;
- Create or contribute runoff water, which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
- Otherwise substantially degrade water quality;
- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map, or other flood hazard delineation map;
- Place within a 100-year flood hazard area structures, which would impede or redirect flood flows;
- Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam; or
- Expose people or structures to inundation by seiche, tsunami, or mudflow.

IMPACTS AND ANALYSIS

IMPACT: INCREASE MORRISON CREEK FLOODPLAIN UPSTREAM IN THE POST-RECLAMATION CONDITION

In the Post-Reclamation condition, there would be a decrease in the upstream flows between the baseline condition and the Post-Reclamation condition, as a result the overall Post-Reclamation floodplain upstream is reduced.

The HEC-RAS modeling shows a decrease in the Morrison Creek upstream flows between the baseline condition and the Post-Reclamation condition (refer to Table HY-1). This decrease in upstream flows is due to the existing weir at Granite I which diverts peak flows out of Morrison Creek and into the Granite I/ Aspen VI detention/retention basin. As a result of this decrease of the upstream flows, the Post-Reclamation 100 year 24-hour floodplain is reduced when compared to the current Flood Zone AE floodplain, as shown on Plate HY-3.

Plate HY-3: Aspen IV South and Upstream Post-Reclamation Floodplain

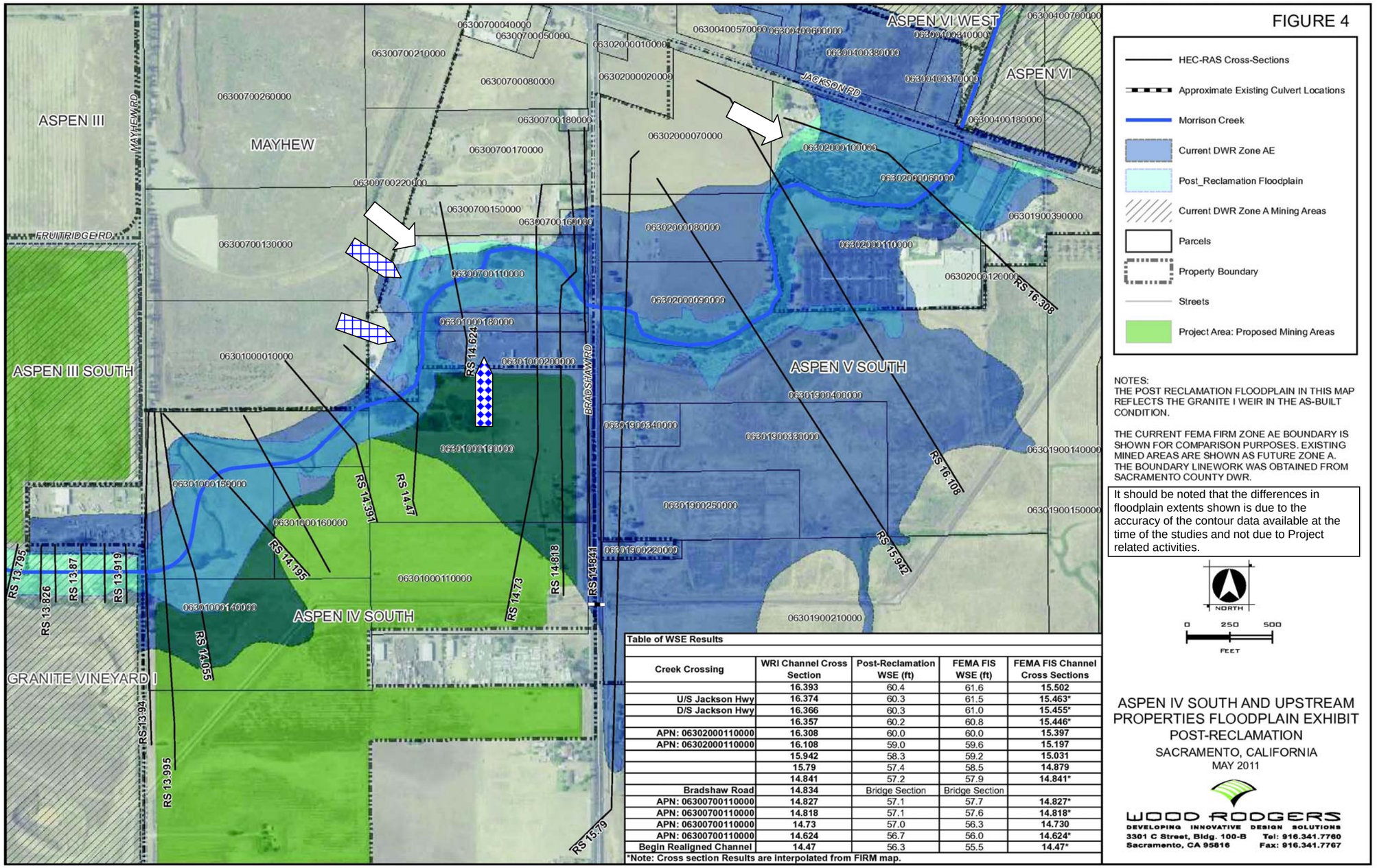


Table of WSE Results

Creek Crossing	WRI Channel Cross Section	Post-Reclamation WSE (ft)	FEMA FIS WSE (ft)	FEMA FIS Channel Cross Sections
	16.393	60.4	61.6	15.502
U/S Jackson Hwy	16.374	60.3	61.5	15.463*
D/S Jackson Hwy	16.366	60.3	61.0	15.455*
	16.357	60.2	60.8	15.446*
APN: 06302000110000	16.308	60.0	60.0	15.397
APN: 06302000110000	16.108	59.0	59.6	15.197
	15.942	58.3	59.2	15.031
	15.79	57.4	58.5	14.879
	14.841	57.2	57.9	14.841*
Bradshaw Road	14.834	Bridge Section	Bridge Section	
APN: 06300700110000	14.827	57.1	57.7	14.827*
APN: 06300700110000	14.818	57.1	57.6	14.818*
APN: 06300700110000	14.73	57.0	56.3	14.730
APN: 06300700110000	14.624	56.7	56.0	14.624*
Begin Realigned Channel	14.47	56.3	55.5	14.47*

*Note: Cross section Results are interpolated from FIRM map.

The white arrows represent locations where the Post-Reclamation Floodplain extent is greater than the Effective FEMA Zone AE Baseline floodplain.

The patterned arrows represent locations where the Effective FEMA Zone AE Baseline floodplain is reduced:

By 25%

By 84%

Please note that the colors in the legend are not accurately presented when this graphic is printed in black and white. This graphic can be found in color online at http://www.dera.saccounty.net/PublicNotices/SQLView/ProjectDetails/tabid/71/Default.aspx?ProjectID=33759

As shown on Plate HY-3 there are two locations (APN: 063-0200-010 and 063-0070-011) where the water surface elevation increases in the Post-Reclamation condition when compared to the Effective FEMA Zone AE Baseline water surface elevation. Although the water surface elevation slightly increases on a portion of the two properties, the water surface elevation is substantially reduced on other properties (refer to Plate HY-3). As described by Wood Rodgers in the 2011 H&H Analysis, when the Effective FEMA Zone AE Baseline Floodplain is compared to the Post-Reclamation floodplain, the area of inundated floodplain on the upstream property APNs 063-0070-011 and 063-0100-018 are reduced by 25% under the Post-Reclamation condition and the area of inundated floodplain on the upstream property APN 063-0100-020 is reduced by 84%. Wood Rodgers has noted that the difference in the floodplain extent is due to the differences in the accuracy of the contour data available at the time of the studies and not due to the proposed project structures (i.e., Morrison Creek Realigned Channel, Raised Bank Channel and retention basins).

The 2011 H&H Analysis assumed that the existing weir on Granite I would be operated and maintained in the "As-Built Condition", which results in the impacts of the proposed project to upstream flows of Morrison Creek to be considered less than significant. However, if the weir were not operated and maintained in its existing "As-Built Condition", there would be a potential that the water surface elevation upstream could be significantly affected. Therefore, DWR has recommended as a condition of approval to the proposed project, that the weir be maintained in the "As-Built Condition" by the mining companies and that any proposed changes to the weir must be substantiated with a hydrology and hydraulic analysis and must obtain approval from Sacramento County (refer to Appendix B2 for the December 2011 memorandum detailing the condition of approval). Implementation of this recommended condition of approval will ensure that impacts remain less than significant, consistent with what has been analyzed by this environmental document.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measures: None Required

IMPACT: INCREASE MORRISON CREEK DOWNSTREAM FLOWS IN THE POST-RECLAMATION CONDITION

> *In the Post-Reclamation condition, the flows downstream of the project site will not increase as a result of implementation of the proposed project.*

The peak flows downstream of the site would not increase in the Post-Reclamation condition due to the existing weir on Granite I operating in the "As-Built Condition". The recommended condition of approval from DWR requiring that the mining companies maintain the weir on Granite I operating in the "As-Built Condition" will ensure that the weir functions and operates as it is supposed to, which is to divert peak flood-related flow out of Morrison Creek and into Granite I and Aspen VI pits for offline detention and retention. Therefore, the 100-year storm flows leaving the project site would be less than the flows in the FEMA FIS Baseline study (refer to Table HY-1). The project will

not result in an increase in the peak flows downstream of the project site; impacts are considered less than significant.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measures: None Required

IMPACT: RESULT IN ON-SITE FLOODING IN THE POST-RECLAMATION CONDITION

> *The prior FEIR/EIS concluded that unchanneled flow from the Jackson Highway bridge to the bypass channel inlet at Aspen IV South could spill into the gravel pits proposed within the Aspen III, IV and V South and Vineyard parcels.*

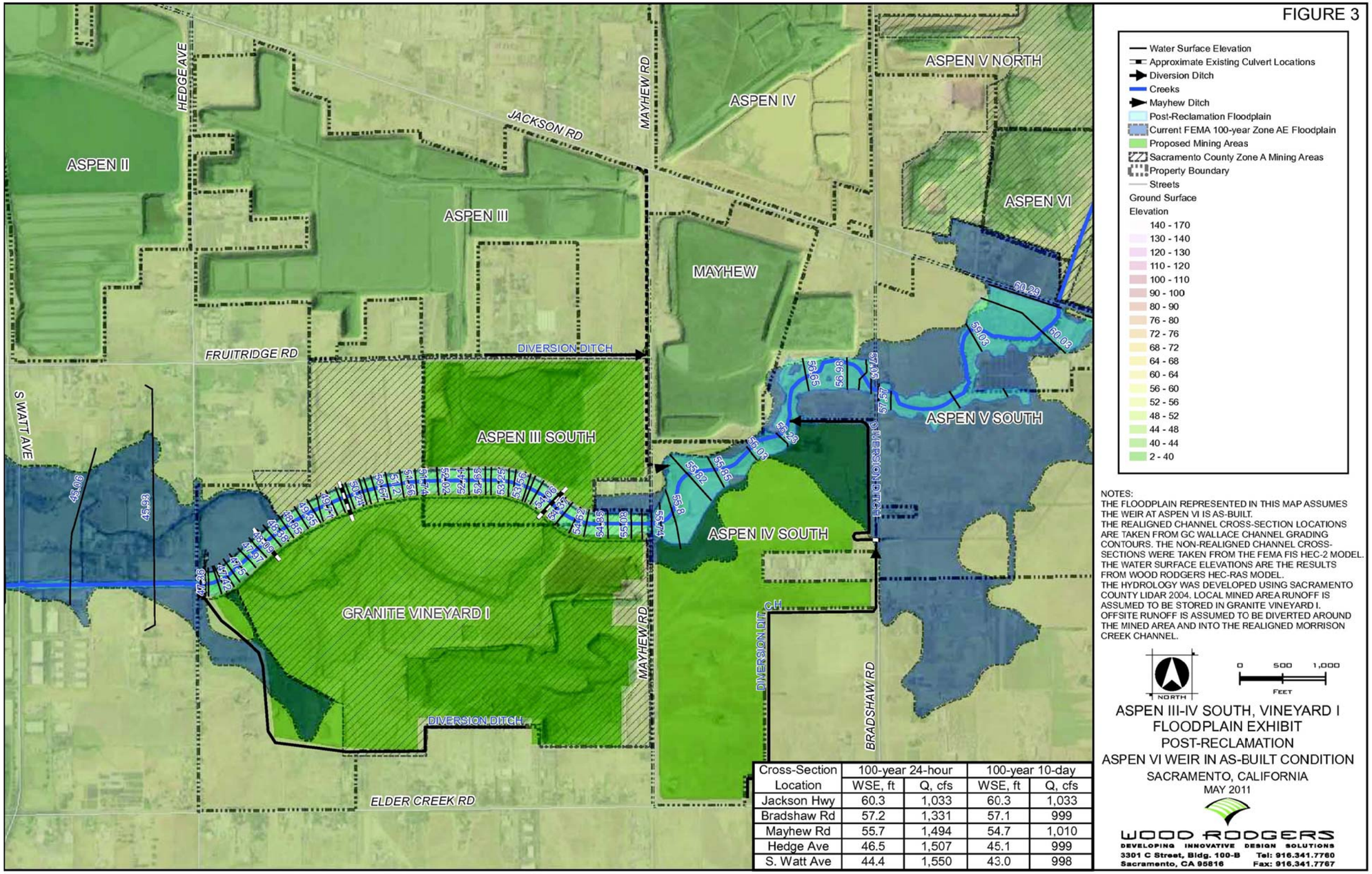
The proposed project eliminates the previously proposed bypass channel and instead constructs a Morrison Creek Realigned Channel on Vineyard I and Aspen III South properties and constructs a Raised Bank Channel, preserving the existing Morrison Creek channel, on Aspen IV South. The 100-year storm flows will be contained within the flood control banks of the both the Morrison Creek Realigned Channel and Raised Bank Channel, as shown on Plate HY-4. An analysis of the impact of embankment failure is analyzed separately.

The 2011 H&H Analysis determined the Morrison Creek flows in the Post-Reclamation Condition. This analysis assumes that the weir on Granite I will be operating in the "As-Built Condition". The result is that due to the existing weir on Granite I, upstream peak flows are diverted into the Granite I / Aspen VI retention basin.

In the Post-Reclamation condition, Morrison Creek on-site peak flows will be entirely contained within the banks and channel of the Morrison Creek Realigned Channel and Raised Bank Channel; therefore, on-site flooding due to peak flows overtopping the banks of the Morrison Creek Realigned Channel or the Raised Bank Channel is not expected. Based on modeling performed by Wood Rodgers for the 2011 H&H Analysis, the floodplain area in the Post-Reclamation Condition would be reduced from the FEMA Baseline Floodplain area by 81 percent (refer to Table HY-1).

On-site local runoff (100-year 10-day storm event) of 267 ac-ft for the Vineyard I and Aspen III South properties will be retained within a retention basin located on the Vineyard I property. For the Aspen IV South site, on-site local runoff (100 year 10-day storm event) of 30 ac-ft may either be retained on-site (as previously approved) within a potential 14-acre retention basin, or be conveyed to the Vineyard I retention basin. There will be a combined retention volume of 297 ac-ft of total runoff. The prior FEIR/EIS identified that there would need to be 309 ac-ft of storage for the three mining properties.

Plate HY-4: On-site Post Reclamation Floodplain



Cross-Section Location	100-year 24-hour		100-year 10-day	
	WSE, ft	Q, cfs	WSE, ft	Q, cfs
Jackson Hwy	60.3	1,033	60.3	1,033
Bradshaw Rd	57.2	1,331	57.1	999
Mayhew Rd	55.7	1,494	54.7	1,010
Hedge Ave	46.5	1,507	45.1	999
S. Watt Ave	44.4	1,550	43.0	998

Although the combined retention basin volume of 297 ac-ft is less than the prior FEIR/EIS volume of 309 ac-ft, Wood Rodgers has indicated that the 297 ac-ft storage is sufficient due to differences in the models, topographic data and assumption used between the prior FEIR/EIS and the 2011 H&H Analysis. The current model takes into account the revised configuration of the Morrison Creek Realigned Channel and Raised Bank Channel, the proposed grading contours, and current topography data. The differences between the current retention volume of 297 ac-ft and the prior FEIR/EIS determination of 309 ac-ft is within 4%, which is within the expected accuracy of the modeling and assumptions used; therefore, the current retention volume of 297 ac-ft is considered consistent with the prior FEIR/EIS of 309 ac-ft. The two retention basins will not have a pump (pump was previously proposed for only the Vineyard I retention basin); the basins will be evacuated solely by infiltration into the soil and evaporation off the basin water surface.

To determine the rate of evacuation out of the basins, Wood Rodgers conducted a Mean Annual Precipitation water balance analysis (100-year 10-day) for both the Vineyard I and Aspen IV South retention basins; it was concluded that the Vineyard I retention basin would infiltrate and evaporate the 100-year 10-day volume within 16 days and the Aspen IV South retention basin would infiltrate and evaporate the 100-year 10-day volume within 8 days. The result of the water balance analyses is that there will not be excess flows stored on site. However, the retention of local runoff volume for more than 48 hours has the potential to attract wildlife and pose a hazard to aircraft; this is further discussed in the Land Use Chapter (chapter 12) in the Consistency with Mather Airport Comprehensive Land Use Plan impact discussion.

The floodplain would not increase since excess on-site water will be retained in the retention basins and peak flows will be contained within the banks of the Morrison Creek Realigned Channel and the Raised Bank Channel. These results are based on the existing “As-Built Conditions” of the weir on Granite I property. This impact is considered less than significant.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measures: None Required

IMPACT: EMBANKMENT/LEVEE FAILURE

> *The embankments of the Morrison Creek Realigned Channel and the Raised Bank Channel have the potential to fail, which could result in on-site flooding, off-site flooding or reduced downstream flows and may result in a safety impact to employees and visitors of the mining site.*

The Morrison Creek Realigned Channel and Raised Bank channel will be constructed on an engineered fill embankment. The slopes of the Morrison Creek Realigned Channel and Raised Bank Channel are proposed to be 2:1. Mitigation in the Geology and Slope Stability Chapter requires that the engineered channel and embankment and foundation soils be certified by a California registered professional engineer

accompanied with the engineer's report addressing slope stability, soil compaction rates, foundation soils, potential failure mechanisms and contingencies for repairing failures (Mitigation Measure GS-2). In addition, the slopes of the recreated channel will be vegetated to reduce erosion and slope instability impacts. With implementation of Mitigation Measure GS-2 it is unlikely that the embankments would fail; however, in the extreme unlikely event that the embankments were to fail, there is a potential to create impacts on-site or downstream of the breach.

Wood Rodgers conducted an analysis of the effect to downstream flows and on-site impacts due to an embankment failure along Morrison Creek in the Post-Reclamation channel. For this analysis, a 100-year 10-day storm event was used and Wood Rodgers determined that the total volume of the 100-year 10-day storm event would be 7,140 ac-ft.

It is assumed that if the embankment were to fail, it would be near the peak Morrison Creek water surface elevation; therefore it is assumed that half of the storm flows would have passed downstream, past the breach location. The other half of the total storm volume would flow into the mined areas, as the mined areas would operate as offline storage retention basins until the embankment was rebuilt.

Wood Rodgers determined the available storage volume for the three mining sites, which is provided in Table HY-2 below.

Table HY-2: Morrison Creek Embankment Failure

Embankment Location	Estimated Available Storage* (ac-ft)	50% of 100-year 10-day Storm Volume (ac-ft)	Max Water Depth (ft)
Aspen IV South	4,410	3,570	30
Aspen III South	2,400	3,570	40+**
Vineyard I	7,890	3,570	17

*Based on 40 foot depth from existing ground and 2:1 slide slopes as shown in the Reclamation Plans
** Excess Volume is equalized between the mined area and the channel at the elevation of the downstream cross section adjacent to the mined areas
Source: Wood Rodgers, 2011

As shown in Table HY-2, if an embankment failure were to occur on the Aspen IV South or the Vineyard I property, the available storage volume of these two properties is greater than half of the 100-year 10-day storm volume; therefore, the storm volume would be contained within the mined area. The available storage volume was based on the cross sections in the Reclamation plan which portrayed a mining pit depth of 40 feet below existing ground surface with 2:1 side slopes. An embankment failure on Aspen IV South would result in a maximum water depth of 30 feet and on the Vineyard I

property the maximum water depth would be 17 feet. Since the mining pits would have a depth of 40 feet, the storm water volume would be contained within the mined area on these two properties.

Aspen III South has a storage capacity less than the half of the 100-year 10-day storm volume. Aspen III South and Vineyard I properties will be connected by culverts which would combine the available storage volume. This combined available storage volume exceeds the 100-year 10-day storm volume; therefore, it is unlikely that the combined mined area storage would be exceeded due to an embankment failure. If the these two mined areas were not connected by culverts and if there were an embankment failure on the Aspen III South property, the storm water would fill up the mined areas where it will eventually equalize with the water surface elevation within the channel and flows would resume to flow downstream at the same rate as the upstream flows; accordingly, under this condition, there would not be a significant impact of overland flow off the mining properties.

An embankment failure during a worst case scenario would be when more than half of the 100-year 10-day storm volume fills up the mined areas. Under this scenario, the mined areas would fill up until the capacity was exceeded, at which the water surface elevation in the mined area would then equalize with the water surface elevation in the channel and flows would resume downstream at the same rate as the upstream flows, and would not overtop the mining property boundaries. In addition, Wood Rodgers noted that due to the low velocity of flows in the creek, there would not be a total diversion of flows out of the creek. For the above reasons, an embankment failure on the project site would not increase off-site flooding potential or result in drying up of the creek channel downstream of the breach.

Safety and Evacuation Plan

Granite and Teichert have proposed a safety and evacuation plan in the unlikely event of embankment failure. These plans consist of preventative safety measures to alert employees and visitors of potential hazards associated with work areas; employees and visitors will be informed of evacuation and site access/exit routes; and during high flow events, those in proximity to the embankments will be informed of the risk of embankment failure and proper emergency procedures. In addition, embankments will be patrolled periodically during high water or heavy rainfall events to assess levee conditions and identify potential areas of concern. In the event of a failure or overtopping, all personnel and mobile equipment will be relocated away from the channel and to higher ground and if necessary, evacuated from the site. Emergency exit routes will take personnel to Fruitridge Road on the north and Mayhew Road on the east, which both connect to other arterial and major roadways in the area.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measures: None Required

IMPACT: DAMAGE TO THE JACKSON HIGHWAY BRIDGE DUE TO HIGH MORRISON CREEK FLOWS

In the Post-Reclamation Condition, there would be a decrease in the upstream flows between the baseline condition and the Post-Reclamation Condition.

The 2011 H&H analysis determined that the 100-year 24-hour water surface elevation at the Jackson Highway/ Morrison Creek crossing, upstream of the project site, is lowered by 1.9 feet in the Post-Reclamation Condition when compared to the FEMA FIS Baseline water surface elevation. This result is based on the operation of the Granite I weir in the existing "As-Built Condition". The weir was designed to mitigate flows in Morrison Creek upstream of Jackson Highway consistent with the conditions present prior to mining the Aspen VI and Granite I mining sites. This impact is considered less than significant.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measures: None Required

CUMULATIVE IMPACT

The design of the Morrison Creek Realigned Channel and the Raised Bank Channel, as well as the weir on Granite I operating and functioning the in the "As-Built Condition", results in no adverse drainage or surface water hydrological impacts. The project does not result in an increase of flows in Morrison Creek and therefore would not contribute incrementally to any flow related impacts. Cumulative impacts are considered **less than significant**.

6 GROUNDWATER HYDROLOGY AND WATER QUALITY

INTRODUCTION

This section describes the proposed Project's potential impact on groundwater hydrology and groundwater quality from water usage and potential contamination.

The proposed Project consists of a request for a rezone and use permit amendment to allow aggregate mining on an additional 5.6 acres (two parcels) to the Vineyard I mining site (referred as Vineyard I mining expansion). The proposed Project also includes revisions to the previously approved reclamation plan, consistent with permits received from the County, State and federal regulatory agencies. The mining sites in this project include Vineyard I, Aspen III South and Aspen IV South. The previously approved reclamation plan consisted of a below grade, 600-foot wide riparian corridor/low-flow channel and an at-grade trapezoidal bypass channel. The proposed project revises the previously approved reclamation plan by constructing an at-grade mitigation corridor (Morrison Creek Realigned Channel) on the Vineyard I and Aspen III South mining properties. The Morrison Creek Realigned Channel has been designed to contain the 100-year flood flows. On the Aspen IV South property, the existing Morrison Creek channel will be preserved and a raised bank flood control channel (Raised Bank Channel) is proposed to be constructed outside of the effective FEMA floodway. The Morrison Creek Realigned Channel will connect with the existing Morrison Creek channel on Aspen IV South. Impacts associated with channel failure and flooding potential are addressed in the Surface Water Hydrology and Quality Chapter (Chapter 5 of this SEIR).

SETTING

The prior FEIR/EIS provided the following groundwater setting:

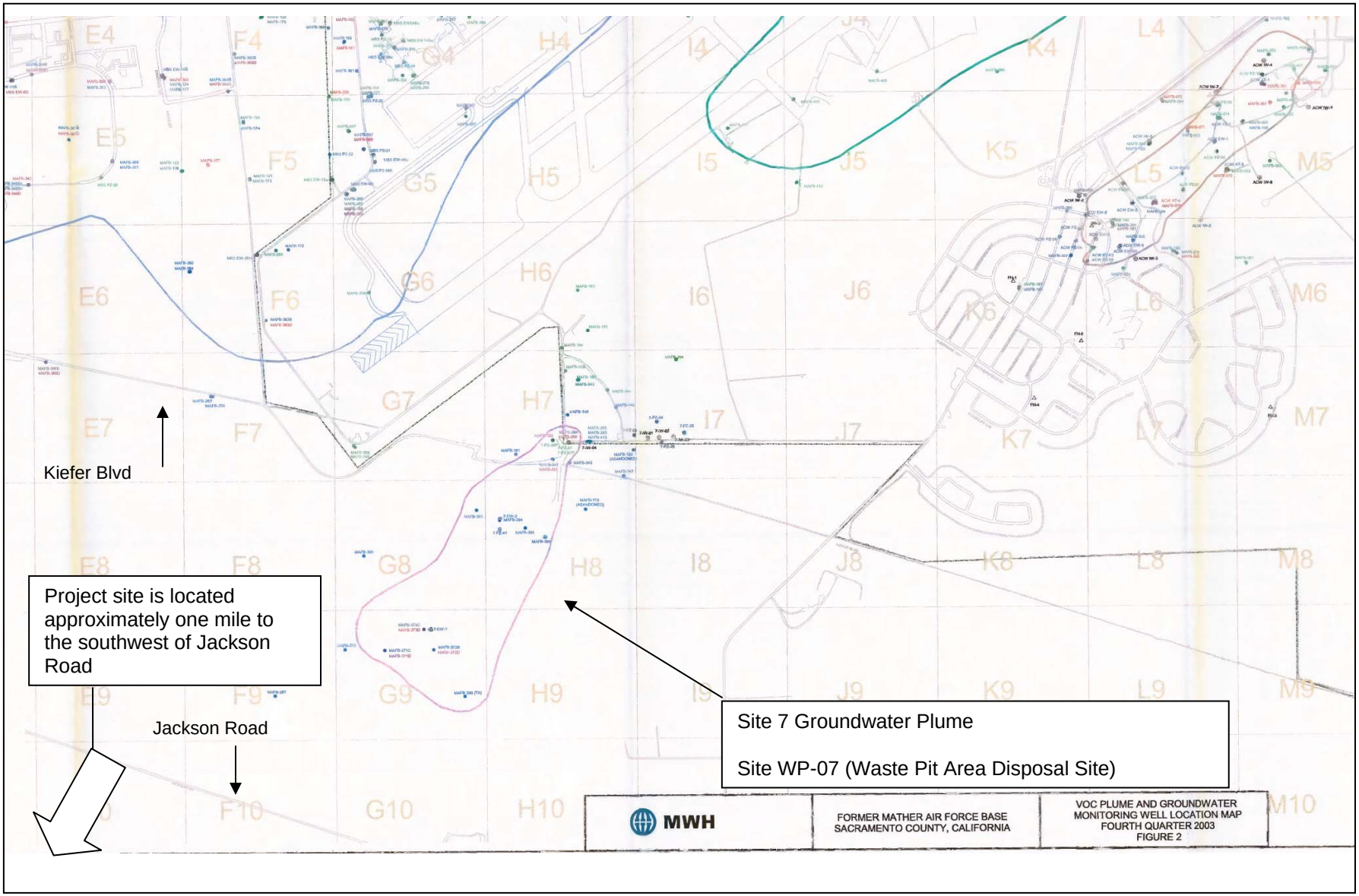
> *The project site is underlain by a portion of the Sacramento Valley Ground Water Basin (SVGWB) aquifer, a regionally important groundwater supply covering about 6,000 square miles. The aquifer is contained within Quaternary Central Valley sediments and provides domestic and agricultural water supply to a great portion of the southern Sacramento County. Groundwater flow is from east to west. Overdrafting over the past 11 years has lowered the groundwater table approximately ten feet.*
>
> *As of Spring of 1995, the groundwater table was measured 80 to over 100 feet below the present land surface within the project site. The proposed maximum depth of aggregate extraction is 45 feet, therefore the post-mining groundwater depth would be 35 to 55 feet below the pit floor. The groundwater appears semi-*

> *confined by fine grained layers in the project site area with less confinement to the east and greater confinement to the west as finer basin deposits occur. The presence of impermeable surface hardpan soils and relatively fine grained soils in the 15-foot surface overburden precludes percolation and recharge from the project site to the aquifer. Groundwater flow in the aggregate-producing zone is generally unsaturated flow. However, there may be seasonally perched pockets of shallower groundwater during the winter rainy season. Subsurface investigations by the project proponent indicate that the floor of the finished extraction pits is less permeable than the aggregate production zone but greater than the infiltration rates found in the hardpan soils and overburden. Precise infiltration rates are not known.*

The prior FEIR/EIS also described groundwater contamination from Mather Field, formerly Mather Air Force Base (located approximately 3 miles northeast of the current project site). This contamination was a result of dumping of waste chemicals associated with past Air Force operations.

The *Mather Air Force Base, Final Second Five-Year Review of Remedial Actions Conducted Under the Comprehensive Environmental Response, Compensation, and Liability Act* (September 24, 2004, Air Force Real Property Agency, Administrative Record #2157) is the second five-year review report that documents the assessment of whether each of the ongoing cleanup actions at the former Mather Air Force Base are protective of human health and the environment, pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). An Installation Restoration Program (IRP) began in 1982 to identify locations at Mather where hazardous substances or other pollutants might have been released to the environment. Mather was proposed for listing on the Superfund (CERCLA) National Priorities List (NPL) in July 1989 and was placed on the NPL in November 1989. IRP site WP-07 (Waste Pit Area Disposal Site) required a statutory review in this second five-year review report. Site WP-07 is located south of the Mather runway and was a gravel pit used for disposal of construction rubble as well as petroleum oil, and lubricant wastes during the time period from 1953 to 1966. WP-07 is the source of the groundwater plume (WP-07 Plume) that extends off the former base to the south/southwest for about half a mile (refer to Plate GW-1). The plume extends past Kiefer Boulevard, but not past Jackson Road. The plume is located under a portion of the Granite I mining site and near the Aspen V site. These mining sites are not a part of the proposed project. The proposed project is located further to the southwest and is not expected to encounter a Mather Air Force Base contaminated groundwater plume.

Plate GW-1: Mather Contaminant Plume



STANDARDS OF SIGNIFICANCE

Appendix G of the California Environmental Quality Act (CEQA) provides guidance for assessing the significance of potential environmental impacts. Relative to hydrology and water quality as it pertains to groundwater, a project will normally have a significant effect on the environment if it will:

- Violate any water quality standards or waste discharge requirements;
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted);
- Otherwise substantially degrade water quality;

IMPACTS AND ANALYSIS

IMPACT: ALTER DRAINAGE AND GROUNDWATER FLOW AND AFFECT GROUNDWATER QUALITY

The prior FEIR/EIS concluded that gravel extraction may alter drainage and groundwater flow and quality which could affect surrounding properties and domestic septic leachfield systems on adjacent surrounding properties. This was found to be a significant impact that could be reduced to less than significant with mitigation.

The proponents of the prior project were required to obtain all necessary permits from the Sacramento County Environmental Management Department (EMD) for the construction or removal/abandonment of any water wells and septic systems. The proponents were also required to revise the Mining Plan to specifically identify all sewage disposal systems within 300 feet of the proposed mining area. Mining setbacks from these sewage disposal systems were required. These mitigation measures were satisfied as part of the prior project.

The applicant submitted an exhibit that depicts the approximate location of wells/septic on the Vineyard I site. The exhibit does not specify if each location is a well or a septic. Based on the exhibit, there is one well/septic located within the 5.6-acre Vineyard I expansion site and two located south of the expansion site.

Staff (C. Hawkins) of EMD submitted comments (letter dated January 3, 2008) for the proposed use permit for the Vineyard I mining expansion and requested that any existing well that will not be operational be destroyed under permit from EMD. The

well/septic on the Vineyard I mining expansion site will have to be destroyed under permit from EMD. Compliance with EMD regulations will ensure that impacts to water wells and septic systems as a result of mining the additional 5.6 acre site are expected to be less than significant.

Mining of the additional 5.6 acres would reduce the depth to groundwater (measured from the bottom of the pit) in that area. The prior FEIR/EIS discussed similar impacts for the other mined areas and included mitigation that required the proponents to store contaminants in the gravel operation area in a manner that would contain any spills (i.e., containment berms) to reduce the potential to contaminate groundwater. This mitigation measure remains applicable to the Vineyard I mining expansion site.

Level of Significance Before Mitigation: Significant

Mitigation Measure:

This mitigation is from the prior FEIR/EIS and is applicable to the Vineyard I mining expansion site of the proposed project:

GW-1 The ***Vineyard I mining operator*** ~~proponents~~ shall store contaminants in the gravel operation area in a manner that will contain any spills (i.e., containment berms). Any spills occurring in operational areas should be cleaned up immediately.

Level of Significance After Mitigation: Less than Significant

IMPACT: DISRUPT OR ALTER MATHER FIELD GROUNDWATER CONTAMINATION MONITORING

The prior FEIR/EIS determined that the proposed mining operations could alter or disrupt any future monitoring of the contamination plume from Mather Field. This was found to be a significant impact that could be reduced to less than significant with mitigation.

As stated in the Setting section above, the contamination plume from Site WP-07 has not been detected to have migrated beyond Jackson Road, as of the last five year review (September 2004). As the proposed project's mining sites (Vineyard I, Aspen III South and Aspen IV South) are located approximately 1 mile southwest of Jackson Highway (as shown on Plate GW-1), the inclusion of 5.6 acres to the Vineyard I mining site would not affect the future monitoring efforts of contamination plumes from Mather Field. This impact is considered less than significant.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measures: None Required

CUMULATIVE IMPACTS

Mining the Vineyard I mining expansion site would reduce the depth to the groundwater in that area. This reduction, in combination with the prior project's four mining sites and other mining sites in the vicinity of the project site would not result in a cumulatively considerable incremental contribution to a cumulatively significant groundwater hydrology or groundwater quality impact. Additionally, since the contamination plume identified in the prior FEIR/EIS has not migrated beyond Jackson Road and Mather Field is located north of Jackson Road whereas the project site is located southwest of Jackson Road, the project does not contribute to a cumulatively adverse impact to the monitoring efforts of contamination at Mather Field. Impacts associated with groundwater hydrology and quality in the cumulative condition are considered **less than significant**.

7 CULTURAL RESOURCES

INTRODUCTION

Under CEQA, lead agencies must consider the effects of their projects on cultural resources. This chapter describes the potential impacts to cultural resources that could occur as a result of proposed project, which includes revisions to the previously approved reclamation plan and the inclusion of an additional 5.6 acres to the existing Vineyard I mining site. Cultural resources may include historic buildings and structures, historic districts, historic sites, culturally sacred sites, prehistoric and historic archaeological sites, and other prehistoric and historic objects and artifacts.

Overall, cultural resources that are known to exist and those that may be present in the project area could include the categories described in Table CR-1 below, identified pursuant to *California Code of Regulations, Title 14, Section 4852*.

The following analysis provides an overview of known cultural resources within the project area and identifies any potential adverse impacts to them associated with the project. Potential unknown resources are also addressed. The analysis also recommends mitigation measures to reduce impacts to cultural resources within the project area.

CULTURAL RESOURCES BACKGROUND

A cultural resources investigation was undertaken for the prior project located on the project site entitled “Morrison Creek Mining Reach Downstream (South) of Jackson Highway”. As part of the EIR/EIS process an extensive cultural resources survey was conducted to identify potential resources present within the project area and to provide recommendations to protect any resources. These surveys were conducted in accordance with the provisions of the California Environmental Quality Act Statutes and Guidelines and with provisions of Section 106 of the National Historic Preservation Act of 1966.

The prior survey identified 22 resources on the project site, as follows: 1) eight historic resources, consisting of eight complexes of standing structures; 2) thirteen historic archaeological sites, consisting of one deposit of historic domestic debris and the remains of twelve destroyed farmsteads; and 3) identification of a modern trash deposit. According to the EIR/EIS, none of these resources were considered to be “important” or “significant” per CEQA Guidelines and the regulations of Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation (36 CFR Part 60.4: Criteria for Evaluation).

Table CR-1
Categories of Cultural Resources

Category	Description	Example
Building	Structures created principally to shelter or assist in carrying out any form of human activity. May also refer to a historically and functionally related unit (e.g., courthouse and jail).	Houses, barns, churches, factories, and hotels
Site	A site is the location of a significant event, a prehistoric or historic occupation or activity, or a building or structure, whether standing, ruined, or vanished, where the location itself possesses historical, cultural, or archeological value regardless of the value of any existing building, structure, or object. A site need not be marked by physical remains if it is the location of a prehistoric event, and if no buildings, structures, or objects marked it at that time.	Trails, designed landscapes, battlefields, habitation sites, Native American ceremonial areas, petroglyphs, and pictographs
Structure	The term "structure" is used to describe a construction made for a functional purpose rather than creating human shelter.	Mines, bridges, and tunnels
Object	The term "object" is used to describe those constructions that are primarily artistic in nature or are relatively small in scale and simply constructed, as opposed to a building or a structure. Although it may be moveable by nature or design, an object is associated with a specific setting or environment. Objects should be in a setting appropriate to their significant historic use, role, or character. Objects that are relocated to a museum are not eligible for listing in the California Register.	Fountains, monuments, maritime resources, sculptures, and boundary markers
Historic District	Unified geographic entities which contain a concentration of historic buildings, structures, objects, or sites united historically, culturally, or architecturally. Historic districts are defined by precise geographic boundaries. Therefore, districts with unusual boundaries require a description of what lies immediately outside the area, in order to define the edge of the district and to explain the exclusion of adjoining areas.	---

Given that the 22 resources were not considered “important” or “significant”, the prior EIR/EIS concluded that the proposed project would have a less than significant impact on the identified resources. The prior project did identify a potentially significant impact to subsurface resources and provided mitigation to reduce the impact to less than significant.

Since the publication of the EIR/EIS, the project area identified in the environmental document has been mined for aggregate resources. All 22 resources were impacted during/prior to the subsequent mining efforts. Given that the project area has been mined well below grade, the proposed project would not result in further impacts to any of the previously identified resources. Additionally, it is not expected that the current proposal of amendments to the reclamation plan would have any impact on cultural resources. Essentially the existing proposal would have no measurable impact with the exception of the additional 5.6 acres that will be added to the existing Vineyard I mining site. Also, although unlikely, there may be potential impacts associated with subsurface resources with the excavation of the stormwater detention basin. These two potential impacts are the subject of the following discussions.

The Department of Environmental Review and Assessment retained PAR Environmental Services, INC (PAR), to conduct a cultural resources inventory for the additional 5.6 acres of un-mined land on the Vineyard I site (*Cultural Resources Inventory of Vineyard I Reclamation Plan Amendment, Rezone and New Mining Use Permit for Adjacent Property, Sacramento County, California,* June 2009). The following chapter is based on and contains portions of the inventory study.

CULTURAL RESOURCES SETTING: VINEYARD I

PREHISTORIC ARCHAEOLOGY

One of the earliest clearly dated contexts for human occupation in north central California is from site CA-SHA-475 located north of Redding on Squaw Creek, where a charcoal based C-14 date suggests initial Native American presence within this area around 6,500 years ago. Continuous use of the region is indicated on the basis of evidence from this and other regional sites, particularly within the Farmington area and along the Truckee River drainage east of Sacramento within the Sierra Nevada. Most of the artifactual material dating to this early time period suggests cultural affiliation with the Borax Lake area—the presence of large wide-stemmed projectile points and manos and metates being the most prominent and distinctive artifact types represented. The possibility exists that this early culture represents Hokan-speaking peoples who were also ancestral to those who subsequently expanded into the southern Cascade, the southern Klamath, the North Coast Range, and the lower reaches of the Sierra Nevada near Folsom and Sacramento.

Sometime around AD 200-400, the first major disruption of this early California culture is believed to have occurred. Arriving ultimately from Southern Oregon and the Columbia

and Modoc Plateau region and proceeding down the major drainage systems (including the Feather, Yuba and American Rivers), Penutian-speaking peoples began arriving in the area and soon occupied much of the Sacramento Valley floor and the margins of the Sacramento River. Presumably introduced by these later arrivals were more extensive use of bulbs and other plant foods, animal and fishing products more intensively processed with mortars and pestles, and perhaps the bow and arrow and associated small stemmed- and corner-notched projectile points. In the northernmost Sacramento Valley, the so-called Shasta (archaeological) Complex represents the material culture record of the local Penutian speakers. Generally similar archaeological expressions also define the Penutian-speaking occupants of the northern Sierra Nevada around Grass Valley and Nevada City, and the Nisenan ancestors who occupied the area in the foothills above and valley margins around, Sacramento, Folsom, Orangevale and Citrus Heights.

ETHNOLOGY

Ethnography is the written record of a culture. Archaeology can be combined with ethnography to identify groups more specifically. Ethnographic records (from missions and other documents) show that the groups that inhabited Sacramento County are the Nisenan, or Southern Maidu, and the Plains Miwok, a subgroup of the Eastern Miwok. The Plains Miwok traditional territory included the lower reaches of the Cosumnes and Mokelumne Rivers and extended west to the Sacramento River from Rio Vista north to Freeport (Levy 1978). Ethnographers generally agree that Nisenan territory included the drainages of the Bear, American, Yuba, and southern Feather Rivers and extended from the Sacramento River east to the crest of the Sierra Nevada (Beals 1933, Faye 1923, Gifford 1927, Kroeber 1925, Powers 1976, Wilson and Towne 1978). Thus, the proposed project is located within the territory commonly attributed to the ethnographic Nisenan.

NISENAN

The Nisenan built their villages on low, natural rises along streams and rivers or on gentle slopes with a southern exposure, usually in places protected from flooding. Village populations ranged from 15 to 500 people, with one village usually playing a dominant role in the sociopolitical organization of a particular area. The ethnographic village of Pusune or Pushuni (CA-SAC-26), located at the confluence of the American and Sacramento Rivers, served as the head village for the area (Wilson and Towne 1978).

Nisenan settlements varied from three to as many as 50 houses. Structures were dome-shaped; 10-15 feet in diameter; and covered with earth, tule mats, or grass. A variety of other structures, including sweat houses, dance houses, and acorn granaries, were also constructed (Kroeber 1925, Wilson and Towne 1978). Ethnographic village sites located along the American River area in Nisenan territory include Ekwo (on Sunrise Boulevard), Shiba (on Hazel Avenue), and Yodok (at Folsom) (Wilson and Towne 1978).

The Sacramento Valley and lower foothills were rich in natural resources, and the Nisenan took advantage of the wide variety of food sources. Waterfowl, fish, and freshwater mussels and clams were readily available in the rivers. Acorns were important to their diet and were supplemented with seeds, nuts, berries, herbs, and fruit. Except for lizards, snakes, and grizzly bears, virtually every animal was a food source, including tule elk, deer, and antelope. The Nisenan moved with the seasons, following game and collecting plants. Manzanita berries, pine nuts, block oak acorns, skins, bows and bow wood were traded to the valley people in exchange for fish, roots, grasses, shells, beads, salt, and feathers (Kroeber 1925, Wilson and Towne 1978).

Because early contact with the Spaniards was limited to the southern edge of their territory, the Nisenan were not affected by Spanish soldiers searching for mission converts in the late 1700s, although they often sheltered Plains Miwok who had escaped from the missions (Wilson and Towne 1978). In 1808, Gabriel Moraga crossed Nisenan territory, but it was not until the Hudson's Bay Company trappers journeyed through the region in the 1820s and 1830s that the first impacts on the native residents were felt. The fur trappers introduced malaria into the Central Valley, leading to an epidemic that decimated the local population in 1833. The Valley Nisenan were particularly affected by the disease, with entire villages wiped out (Wilson and Towne 1978). Cook (1955a) estimates that 75% of the Valley Nisenan population died during this epidemic.

John Sutter initiated further disruption when he introduced Plains Miwok into the region in the early 1840s and persuaded or forced the local Nisenan village people to either work for him or live peaceably with him. The Nisenan that had survived the epidemic and Sutter's working conditions had little chance against the gold miners that poured into the valley and foothills in the later 1840s. Most of the Nisenan population was completely eliminated by the mid-1850s (Wilson and Towne 1978). The survivors eked out a living working in agricultural activities, ranching activities, logging and/or in the domestic sphere (Wilson and Towne 1978).

HISTORICAL CONTEXT

The project area is located about one mile southwest of the intersection of Bradshaw Road and the Jackson Highway, which historically was the site of the small farming community of Walsh Station. Walsh Station was established in the latter half of the nineteenth century. The Enterprise Grange Hall was constructed by 1873 and J.M. Walsh settled there between 1874 and 1877. Gudde notes that the post office was established there in 1875 and named by the Postal Service for J.M. Walsh, the local storekeeper and first postmaster. Census and other evidence indicate that the area was never densely populated, with the grange having a peak membership of around 100 people in the 1880s.

Nineteenth-century land use focused on large scale grain farms. During the first half of the twentieth century dry farming declined and residents began leaving the vicinity. The area experienced a small growth spurt immediately following World War II. In the late 1940s and early 1950s large farms were divided into small 10 to 20-acre parcels,

occupied primarily by people who worked in Sacramento but chose to live in "the country." The house that once stood in the project site was built in 1947, during this population boom. By 1950, Walsh Station had only five structures, a change that reflects the increase use of supermarkets and strip malls in the County. This trend of scattered small residences surrounded by open space continued to define the project region into the 1990s, when suburban growth reached the area.

CULTURAL RESOURCES REGULATORY SETTING

FEDERAL REGULATIONS

Cultural resources are considered during federal undertakings chiefly under Section 106 of the National Historic Preservation Act (NHPA) of 1966 (as amended) through one of its implementing regulations, 36 CFR 800 (Protection of Historic Properties), as well as the National Environmental Policy Act (NEPA). Properties of traditional religious and cultural importance to Native Americans are considered under Section 101(d)(6)(A) of NHPA. Other federal laws pertinent to cultural resources include the Archaeological Data Preservation Act of 1974, the American Indian Religious Freedom Act (AIRFA) of 1978, the Archaeological Resources Protection Act (ARPA) of 1979, the Native American Graves Protection and Repatriation Act (NAGPRA) of 1989, among others. Below is a more detailed description of applicable federal regulations.

ANTIQUITIES ACT

The federal Antiquities Act of 1906 was created with the intent to protect cultural resources in the United States. The Act prohibits appropriation, excavation, injury, and destruction of "any historic or prehistoric ruin or monument, or any object of antiquity" located on lands owned or controlled by the federal government, without permission of the secretary of the federal department with jurisdiction. Accordingly, the Act provided early framework to protect cultural resources within the United States.

NATIONAL ENVIRONMENTAL POLICY ACT

NEPA requires that federal agencies assess whether federal actions would result in significant effects on the human environment. The Council on Environmental Quality's (CEQ's) NEPA regulations further stipulate that identification of significant effects should incorporate "the degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register for Historic Places or may cause loss or destruction of significant scientific, cultural, or historic resources" (40 CFR 1508.27[b][8]).

National Historic Preservation Act

Section 106 of NHPA (16 USC 470f) requires federal agencies to take into account the effects of their undertakings on any district, site, building, structure or object that is included in or eligible for inclusion in the NRHP and to afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment on such undertakings (36 CFR 800.1). Under Section 106, the significance of any adversely affected cultural resource is assessed and mitigation measures are proposed to reduce any impacts to an acceptable level. Significant cultural resources are those resources that are listed, or are eligible for listing, on the NRHP per the criteria listed at 36 CFR 60.4 (Advisory Council on Historic Preservation 2000) below.

The quality of *significance* in American history, architecture, archaeology, engineering and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling and association and that:

a. Are associated with events that have made a significant contribution to the broad patterns of our history; or

b. Are associated with the lives of persons significant in our past; or

c. Embody the distinctive characteristics of a type, period, or method of installation, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

d. Have yielded, or may be likely to yield, information important in prehistory or history.

State of California Regulations

California Environmental Quality Act

CEQA requires a lead agency to determine whether a project may have a significant effect on historical resources. If it can be demonstrated that a project will cause damage to a unique archaeological resource, the lead agency may require reasonable efforts to be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that they cannot be left undisturbed, mitigation measures are required (Section 21083.2 (a), (b), and (c)). Section 21083.2(g) describes a *unique archaeological resource* as an archaeological artifact, object, or site about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

(1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.

(2) Has a special and particular quality such as being the oldest of its type or the best available example of its type.

(3) Is directly associated with a scientifically recognized important prehistoric or historic event or person.

A *historical resource* is a resource listed, or determined to be eligible for listing, in the California Register of Historical Resources (CRHR) (Section 21084.1); a resource included in a local register of historical resources (Section 15064.5(a)(2)); or any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant (Section 15064.5 (a)(3)). Sacramento County does not currently have a local register.

Public Resources Code (PRC) Section 5024.1, Section 15064.5 of the Guidelines, and Sections 21083.2 and 21084.1 of the Statutes of CEQA were used as the basic guidelines for the cultural resources study. PRC Section 5024.1 requires evaluation of historical resources to determine their eligibility for listing on the CRHR. The purpose of the register is to maintain listings of the State's historical resources and to indicate which properties are to be protected from substantial adverse change. The criteria for listing resources on the California Register were expressly developed to be in accordance with previously established criteria developed for listing on the National Register of Historic Places (NRHP).

Native American Burials and Accidental Discoveries

California law protects Native American burials, skeletal remains and associated grave goods regardless of their antiquity and provides for the sensitive treatment and disposition of those remains (Section 7050.5 of the Health and Safety Code and Public Resources Code 5097.9).

When human remains are discovered, the protocol to be followed is specified in California Health and Safety Code, which states:

> *In the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered has determined, in accordance with Chapter 10 (commencing with Section 27460) of Part 3 of Division 2 of Title 3 of the Government Code, that the remains are not subject to the provisions of Section 27492 of the Government Code or any other related provisions of law concerning investigation of the circumstances, manner and cause of death, and the recommendations concerning treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative, in the manner provided in Section 5097.98 of the Public Resources Code.*

State CEQA Guidelines Section 15064.5, subdivision (e), requires that excavation activities be stopped whenever human remains are uncovered and that the county coroner be called in to assess the remains. If the county coroner determines that the remains are those of Native Americans, the Native American Heritage Commission (NAHC) must be contacted within 24 hours. At that time, the lead agency must consult with the appropriate Native Americans, if any, as timely identified by the NAHC. Section 15064.5 directs the lead agency (or applicant), under certain circumstances, to develop an agreement with the Native Americans for the treatment and disposition of the remains.

In addition to the mitigation provisions pertaining to accidental discovery of human remains, the State CEQA Guidelines also require that a lead agency make provisions for the accidental discovery of historical or archaeological resources. Pursuant to Section 15064.5, subdivision (f), these provisions should include "an immediate evaluation of the find by a qualified archaeologist. If the find is determined to be an historical or unique archaeological resource, contingency funding and a time allotment sufficient to allow for implementation of avoidance measures or appropriate mitigation should be available. Work could continue on other parts of the building site while historical or unique archaeological resource mitigation takes place."

LOCAL REGULATIONS

SACRAMENTO COUNTY GENERAL PLAN

The Sacramento County General Plan Conservation Element (adopted November 2011 with a planning horizon out to 2030), states under Section VI, Cultural Resources, the following goal:

> GOAL Promote the inventory, protection and interpretation of the cultural heritage of Sacramento County, including historical and archaeological settings, sites, buildings, features, artifacts and/or areas of ethnic historical, religious or socio-economical importance.

Also, the Cultural Resources section of the Conservation Element has specific objectives related to the protection of archaeological sites during development, historic structure preservation, and destruction of cultural resources sites. Following are the applicable General Plan Conservation Element cultural resources objectives that would be applicable to the proposed project:

> OBJECTIVE: Attention and care during project review and construction to ensure that cultural resource sites, either previously known or discovered on the project site, are properly protected with sensitivity to cultural and ethnic values of all affected.
>
> OBJECTIVE: Preserve structures such as buildings, bridges, or other permanent structures with architectural or historical importance to maintain contributing design elements.

OBJECTIVE: Protect any known cultural resources from vandalism unauthorized excavation, or accidental destruction.

OBJECTIVE: Increase public education, awareness and appreciation of both visible and intangible cultural resources.

The following policies may apply to the project:

CO-155 Native American burial sites encountered during preapproved survey or during construction shall, whenever possible, remain in situ. Excavation and reburial shall occur when in situ preservation is not possible or when the archeological significance of the site merits excavation and recording procedure. On-site reinterment shall have priority. The project developer shall provide the burden of proof that off site reinterment is the only feasible alternative. Reinterment shall be the responsibility of local tribal representatives.

CO-156 The cost of all excavation conducted prior to completion of the project shall be the responsibility of the project developer.

CO-157 Monitor projects during construction to ensure crews follow proper reporting, safeguards, and procedures.

CO-158 As a condition of approval of discretionary permits, a procedure shall be included to cover the potential discovery of archaeological resources during development or construction.

CO-164 Structures having historical and architectural importance shall be preserved and protected.

CO-171 Design and implement interpretive programs about known archeological or historical sites on public lands or in public facilities. Interpretation near or upon known sites should be undertaken only when adequate security is available to protect the site and its resources.

CO-172 Provide historic and cultural interpretive displays, trails, programs, living history presentations, and public access to the preserved artifacts recovered from excavations.

DISCLOSURE OF CULTURAL RESOURCES INFORMATION

Public disclosure of site specific cultural resources information is expressly exempt from the California Public Records Act, Government Code Sections 6250-6270. Furthermore, information obtained during Native American consultation or through consultation with the local and state agencies, including the North Central Information Center (NCIC), should remain confidential and is exempt from public disclosure under Senate Bill 922. Additionally Sacramento County staff has signed an “Agreement to

Confidentiality" with the NCIC that states that site specific information will not be distributed or released to the public or unauthorized individuals. An authorized individual is a professional archaeologist or historian that qualifies under the Secretary of Interior's standards to view confidential cultural resources materials.

METHODOLOGY

Archival research, consultation, and fieldwork were conducted to establish what cultural resources may be present within the 5.6-acre Vineyard I project area and, furthermore, may be impacted as a result of implementation of the proposed Vineyard I mining expansion project.

PRE-FIELD RESEARCH: VINEYARD I

INFORMATION CENTER RECORD SEARCH

Data maintained by the North Central Information Center (NCIC) of the California Historical Resources Information System (CSU-Sacramento) including State and federal listings of significant cultural resources and associated data bases was conducted by DERA on May 26, 2009. Standard references and lists consulted include the following:

- National Register of Historic Places (United States Department of the Interior [USDI] 1979, computerized updates through May 2009);
- California Register of Historic Resources (California Department of Parks and Recreation [DPR] 1998, computerized updates through May 2009);
- California Historical Landmarks (California DPR 1996, computerized updates through May 2009);
- California Inventory of Historic Resources (California DPR 1976, obsolete);
- Historic Properties Directory (California DPR, computerized updates through May 2009);
- California Points of Historical Interest (California DPR 1992, computerized updates through May 2009);
- Archaeological Site Records – computerized updates through May 2009, and
- NCIC, California Historic Resource Information System historic resource records and maps – May 2009.

The record search at the NCIC identified four previous cultural resources studies that include portions of the project area or directly adjacent to the project area. Two

resources were identified within the search radius by the NCIC. One of the resources was characterized as Asian ceramics (CA-SAC-790-H), while the other resource was a 1947 residence. Neither of these resources are located within the 5.6 acre Vineyard I expansion area. Historic GLO maps from the mid-nineteenth century illustrate residences and a road within the project vicinity

In addition to the background research conducted at the NCIC, PAR sent inquiries to the following individuals/agencies requesting any background information about the project area:

- Wayne Donaldson, State Historic Preservation Officer, State Office of Historic Preservation
- Jim Henley, President, Sacramento County Historical Society
- Dwight Dutschke, State Office of Historic Preservation
- Debbie Pilas-Treadway, Native American Heritage Commission

No responses have been received from any of the above individuals/agencies to date.

FIELD ASSESSMENT: VINEYARD I

PEDESTRIAN SURVEY

DERA requested that PAR conduct an intensive pedestrian survey on the 5.6 acre Vineyard I expansion site to identify any sensitive cultural resources that may exist on the project site. PAR Senior Archaeologist, John Dougherty, undertook the survey on June 4, 2009. Mr. Dougherty conducted a thorough reconnaissance of the site using transect intervals no greater than ten meters apart. The maximum physical footprint, the area of potential ground-disturbing activities, was surveyed. Ground surfaces and any cuts were carefully inspected for evidence of historical use such as fragments of ceramics, metal, and glass, and for indications of prehistoric use such as chipped stone artifacts and debitage, ground stone artifacts, bone fragments, and soil color changes. Boot scuffs and trowel scrapes were also employed to expose soil where possible.

PEDESTRIAN SURVEY RESULTS

After a thorough reconnaissance, PAR determined that there was no evidence of historic or prehistoric sites on the 5.6 acre Vineyard I expansion area. PAR did note that the 1947 house that was located on the northern portion of the project site had been bull-dozed into an unidentifiable pile and moved approximately 300 feet to the southern edge of the project site. The only identifiable remnants of the structure included milled lumber, plywood and asphalt roofing. In addition, PAR documented that a trailer, measuring 60 feet in length and dating to the 1970s, was located in the

southwest corner of the project site. PAR noted that the trailer was abandoned and damaged by vandalism.

SIGNIFICANCE CRITERIA

In order for a cultural resource to be considered a “historic property” under NRHP criteria (i.e., eligible for inclusion on the NRHP), it must be demonstrated that the resource possesses *integrity* of location, design, setting, materials, workmanship, feeling and association, and must meet at least one of the following four criteria delineated by Section 106 (Advisory Council on Historic Preservation 2000), as listed in 36 CFR 60.4:

> (a) That are associated with events that have made a significant contribution to the broad patterns of our history; or
>
> (b) That are associated with the lives of persons significant in our past; or
>
> (c) That embody the distinctive characteristics of a type, period or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
>
> (d) That have yielded, or may be likely to yield, information important in prehistory or history.

The criteria for listing resources on the CRHR were expressly developed to be in accordance with previously established criteria developed for listing on the NRHP, enumerated above, and require similar protection to what NHPA Section 106 mandates for historic properties. According to PRC Section 5024.1(c)(1-4), a resource is considered *historically significant* if it meets at least one of the following criteria:

> (1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
>
> (2) Is associated with the lives of persons important in our past;
>
> (3) Embodies the distinctive characteristics of a type, period, region or method of installation, or represents the work of an important creative individual, or possesses high artistic values; or
>
> (4) Has yielded, or may be likely to yield, information important in prehistory or history.

Under CEQA, if an archeological site is not a significant “historical resource” but meets the definition of a “unique archeological resource” as defined in PRC Section 21083.2,

then it should be treated in accordance with the provisions of that section. A unique archaeological resource is defined as follows:

> An archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:
>
> > (1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
> >
> > (2) Has a special and particular quality such as being the oldest of its type or the best available example of its type.
> >
> > (3) Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Resources that neither meet any of these criteria for listing on the NRHP or CRHR nor qualify as a “unique archaeological resource” under CEQA PRC Section 21083.2 are viewed as not significant. Under CEQA, “A nonunique archaeological resource need be given no further consideration, other than the simple recording of its existence by the lead agency if it so elects” (PRC Section 21083.2(h)).

Impacts to *significant* cultural resources (“historic properties” under NHPA and “historical resources” under CEQA) that affect the characteristics of any resource that qualify it for the NRHP or adversely alter the significance of a resource listed on or eligible for listing on the CRHR are considered a significant effect on the environment (CEQA guidelines 15065(a)(1)). Impacts to *significant* cultural resources from the proposed project are thus considered significant if the project physically destroys or damages all or part of a resource, changes the character of the use of the resource or physical feature within the setting of the resource which contribute to its significance or introduces visual, atmospheric, or audible elements that diminish the integrity of significant features of the resource.

IMPACTS AND ANALYSIS

IMPACT: IMPACT TO KNOWN CULTURAL OR HISTORIC RESOURCES ON THE VINEYARD I EXPANSION SITE

> *There are no significant cultural or historic resources on the 5.6 acre site. Mining of the additional 5.6 acre Vineyard I expansion area will not impact known cultural resources.*

The 5.6 acre Vineyard I expansion area was surveyed to determine if sensitive cultural are present on the project site and would be impacted by the proposed project. The

results of the survey indicated the only cultural materials located on the project site consist of the remains of a 1947 home and a modern, 1970s, trailer. PAR evaluated the cultural features and determined that they are not considered significant cultural resources and that no further cultural resources management is recommended for these features. They do not qualify as historical resources under CEQA Guidelines 15064.5 and impacts to these features would result in less than significant impact on the environment.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measures: None Required

IMPACT: IMPACT TO BURIED RESOURCES ON THE VINEYARD I EXPANSION SITE

Mining of the 5.6 acre expansion site could uncover subsurface archaeological materials.

Although no additional cultural resources management is recommended at this time for the Vineyard I expansion site, there is a possibility of uncovering subsurface archaeological materials during the implementation phases of the project. Buried resources may consist of historic remains such as structural features (foundations, cellars, etc.) or buried trash deposits containing glass, ceramics and metal, or the resources may be of prehistoric origin containing chipped stone, shell, bone and other remains. If such subsurface resources are encountered, work should halt in the vicinity of the discovery until its significance can be evaluated by a professional archaeologist. An impact to any subsurface resources is considered a potentially significant impact. Mitigation to reduce this impact is recommended below.

In unlikely circumstance that a human burial was encountered during implementation of the proposed project, this impact would be considered potentially significant. Section 5097.94 of the Public Resources Code and Section 7050 of the California Health and Safety Code protect Native American burials, skeletal remains and grave goods, regardless of age and provide method and means for the appropriate handling of such remains. If human remains are encountered, work should halt in that vicinity and the County coroner should be notified immediately. At the same time, an archaeologist should be contacted to evaluate the situation. If the human remains are of Native American origin, the coroner must notify the Native American Heritage Commission within 24 hours of such identification. Strict adherence to mitigation as outlined below would reduce this impact to a less than significant level.

Level of Significance Before Mitigation: Potentially Significant

Mitigation Measures:

CR-1 ***On the Vineyard I mining expansion site, if*** ~~If~~ subsurface deposits believed to be cultural or human in origin are discovered during construction, then all work

must halt within a 200-foot radius of the discovery. A qualified professional archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for prehistoric and historic archaeology, shall be retained at the ***Vineyard I mining operator's*** ~~Applicant's~~ expense to evaluate the significance of the find. If it is determined due to the types of deposits discovered that a Native American monitor is required, the Guidelines for Monitors/Consultants of Native American Cultural, Religious, and Burial Sites as established by the Native American Heritage Commission shall be followed, and the monitor shall be retained at the ***mining operator's*** ~~Applicant's~~ expense.

Work cannot continue within the 200-foot radius of the discovery site until the archaeologist conducts sufficient research and data collection to make a determination that the resource is either 1) not cultural in origin; or 2) not potentially eligible for listing on the National Register of Historic Places or California Register of Historical Resources.

If a potentially-eligible resource is encountered, then the archaeologist, ***the Environmental Coordinator*** ~~DERA~~, and project proponent shall arrange for either 1) total avoidance of the resource, if possible; or 2) test excavations or total data recovery as mitigation. The determination shall be formally documented in writing and submitted to ***the Environmental Coordinator*** ~~DERA~~ as verification that the provisions of CEQA for managing unanticipated discoveries have been met.

CR-2 Pursuant to Section 5097.98 of the State Public Resources Code and Section 7050.5 of the State Health and Safety Code, in the event of the discovery of human remains ***on the Vineyard I mining expansion site***, all work is to stop and the County Coroner shall be immediately notified. If the remains are determined to be Native American, guidelines of the Native American Heritage Commission shall be adhered to in the treatment and disposition of the remains.

Level of Significance After Mitigation: Less than Significant

CUMULATIVE IMPACTS

Significant impacts to cultural resources are considered cumulative impacts since each impact contributes to the overall loss of the cultural and historic setting. However, the proposed project does not result in an impact to known significant cultural resources; thus the proposed project does not contribute to the degradation of the overall cultural landscape. Therefore, the proposed project would not result in a cumulatively considerable incremental contribution to cultural resources.

8 AIR QUALITY

INTRODUCTION

This chapter will provide the current setting and evaluate the air quality impacts of the proposed project, specifically the request by Granite Construction for a use permit amendment to allow aggregate mining on an additional 5.6 acres, and to incorporate this new area into the previously approved Vineyard I mining plan (referred as Vineyard I mining expansion). Analysis of air quality impacts will include emissions associated with the operation of the mining equipment necessary to excavate the site and placement of mined material onto the existing conveyor (which will take the material to the existing plant and processing facility). In addition, air quality effects associated with soil disturbance from fugitive dust from trucks and equipment will be analyzed. What is not included in this analysis are the air quality impacts of the continued operation of the plant or processing facility since this was previously analyzed and the proposed project does not include an extension of the permitted timeline or increase in production. Furthermore, the analysis does not focus on air quality impacts of the aggregate haul trucks to and from the facility as those impacts were previously analyzed in the prior FEIR/EIS and the proposed project does not result in an increase in haul traffic (refer to the Traffic and Circulation chapter).

The proposed project includes revisions to the previously approved reclamation plan for Vineyard I, Aspen III South and Aspen IV South, consistent with permits received from the County, State and federal regulatory agencies. The previous reclamation plan consisted of a below grade, 600-foot wide riparian corridor/low-flow channel within the bottom of the mining pit in generally the same location as the existing creek and an at-grade trapezoidal bypass channel around the perimeter of the three mining sites. The proposed Project revises the previously approved reclamation plan by completely eliminating the at-grade trapezoidal bypass channel component and changing the below grade, 600-foot wide riparian corridor/low-flow channel to an at-grade mitigation corridor (Morrison Creek Realigned Channel) on the Vineyard I and Aspen III South mining properties. The Morrison Creek Realigned Channel has been designed to contain the 100-year flood flows. On the Aspen IV South property, the existing Morrison Creek channel will now be preserved and a raised bank flood control channel (Raised Bank Channel) is proposed to be constructed outside the effective FEMA floodway. The Morrison Creek Realigned Channel will connect with the preserved Morrison Creek channel on Aspen IV South.

ENVIRONMENTAL SETTING

The Vineyard I mining expansion site is located between the Vineyard I mining site and Aspen III South mining site. The site totals 5.6 acres and is surrounded by mining activities; the site is not currently being mined. The Morrison Creek Realigned Channel is located north of the existing Morrison Creek and is currently in the process of being constructed. The existing Morrison Creek channel has not been mined.

ATMOSPHERIC CONDITIONS

Air quality is a function of both the rate and location of pollutant emissions under the influence of meteorological conditions and topographic features that influence pollutant dispersal. Atmospheric conditions such as wind speed, wind direction, atmospheric stability, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants, and consequently affect air quality.

Sacramento County is located at the southern end of the Sacramento Valley, which is bounded by the Coast and Diablo Ranges on the west and the Sierra Nevada on the east. Sacramento County is 55 miles northeast of the Carquinez Strait, a sea-level gap between the Coast Range and the Diablo Range; the intervening terrain is flat. These mountain ranges channel winds through the Sacramento Valley but also inhibit dispersion of pollutant emissions.

The climate of the Sacramento Valley is Mediterranean in character, with mild, rainy winter weather from November through March, and warm to hot dry weather from April through October. The prevailing wind is from the south, primarily because of marine breezes through the Carquinez Strait, although during winter, the sea breezes diminish and winds from the north occur more frequently. There is no other source of significant marine air into the Sacramento Valley because the Carquinez Strait is the only break that exists in the Coastal Mountains. Occasionally a strong north or northeasterly pressure gradient develops, forcing air south and west from the plateau of the Great Basin, over the Sierra Nevada Range and into the Valley. This air is warmed by compression as it descends reaching the valley floor as a hot dry north wind. These winds are generally followed by afternoon cool southwest delta breezes.

The vertical and horizontal movement of air is an important atmospheric component involved in the dispersion and subsequent dilution of air pollutants. Without movement, air pollutants can collect and concentrate in a single area, increasing associated health hazards. For instance, in the winter months, Sacramento Valley typically experiences calm atmospheric conditions. These calm conditions result in stagnation of air and increased air pollution. Persistent inversions occur frequently in Sacramento Valley, especially during late fall and early spring and act to restrict vertical dispersion of pollutants released near ground level.

EXISTING AIR QUALITY

The amount of pollutants released and the atmosphere's ability to transport and dilute the pollutants affect a given pollutant's concentration in the atmosphere. Factors affecting transport and dilution include terrain, wind, atmospheric stability, and, for photochemical pollutants, sunlight. Sacramento's poor air quality can largely be attributed to emissions, geography, and meteorology.

In Sacramento, air pollutants of greatest concern are ozone precursors [reactive organic gases (ROG) and nitrogen oxides (NO_X)], carbon monoxide (CO), and particulate matter (PM_{10} and $PM_{2.5}$). The largest single source of air pollutants in the Sacramento area is automobile exhaust; ozone and carbon monoxide pollution are largely attributable to automobile use. Other sources, such as agriculture and construction/demolition activities (including mining), also contribute to high levels of suspended particulates.

Table AQ-1 identifies the attainment status for Sacramento County for various air pollutants. In the prior FEIR/EIS, Sacramento County was in nonattainment for ozone, PM10 and carbon monoxide. Sacramento County is currently in nonattainment for ozone, PM_{10} and $PM_{2.5}$. Sacramento County is now in attainment for the 1-hour and 8-hour standard for carbon monoxide.

The Sacramento Federal Nonattainment Area (SFNA) for ozone is comprised of five air districts in the southern portion of the Sacramento air basin. The SFNA air districts include all of Sacramento and Yolo Counties, and portions of El Dorado, Placer, Sutter and Solano Counties. With two exceptions, this area is in attainment for all State and national AAQS. However, the SFNA is designated a "serious" nonattainment area for federal eight hour AAQS for ozone, and is also a "serious" nonattainment area for the State one hour ozone standard. As a part of the SFNA, Sacramento County is out of compliance with the State and federal ozone standards.

OZONE

Ozone is not a directly emitted pollutant, but is formed by a chemical reaction between oxides of nitrogen (NO_X) and reactive organic gases (ROG) in the presence of heat and sunlight over time. Ozone is primarily a summer air pollution problem. The time required for ozone formation allows the reacting compounds to spread over a large area, producing a regional pollution concern. The principal sources of ozone precursors (ROG and NO_X) are the combustion of fuels and the evaporation of solvents, paints, and fuels.

Ozone is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections. Even at very low levels, ground-level ozone can trigger a variety of health problems including aggravated asthma, reduced lung capacity, and increased susceptibility to respiratory illnesses like pneumonia and bronchitis. Children and others who are physically active outdoors in the summertime are particularly susceptible to the effects of ozone.

Table AQ-1: Attainment Status for Sacramento County

Parameter	California Standard	Federal Standard
Ozone	Non-Attainment Classification = Serious (1 hour and 8 hour Standards)	Non-Attainment* Classification = Serious (8 hour Standard)
Particulate Matter 10 Micron (PM_{10})	Non-Attainment (24 hour Standard and Annual Mean)	Non-Attainment** Classification = Moderate (24 hour Standard)
Particulate Matter 2.5 Micron ($PM_{2.5}$)	Non-Attainment (Annual Standard)	Non-Attainment (24 hour Standard and Annual Mean)
Carbon Monoxide	Attainment (1 hour and 8 hour Standard)	Attainment (1 hour and 8 hour Standard)
Nitrogen Dioxide	Attainment (1 hour Standard)	Attainment (Annual Standard)
Sulfur Dioxide	Attainment (1 hour and 24 hour Standards)	Attainment (3 hour, 24 hour and Annual Standards)
Lead	Attainment (30 Day Standard)	Attainment (Calendar Quarter)
Visibility Reducing Particles	Unclassified (8 hour Standard)	No Federal Standard
Sulfates	Attainment (24 hour Standard)	No Federal Standard
Hydrogen Sulfide	Unclassified (1 hour Standard)	No Federal Standard

* A formal request for voluntary reclassification from “serious” to “severe” for the 8-hour ozone nonattainment area with an associated attainment deadline of June 15, 2019, was submitted from the Air Resources Board to EPA on February 14, 2008. EPA action to approve the reclassification request is pending.

** Air Quality meets Federal PM_{10} Standards. The AQMD must request redesignation to attainment and submit a maintenance plan to be formally designated to attainment.

California Area Designation based on AQ Data collected during 2001-2003

Source: SMAQMD website www.airquality.org: http://www.airquality.org/aqdata/attainmentstat.shtml

Carbon Monoxide

Carbon Monoxide (CO) is a public health concern because it combines readily with hemoglobin and thus reduces the amount of oxygen transported in the bloodstream. Individuals with cardiovascular limitations are sensitive to CO at low levels. At higher concentration levels anyone can experience visual problems, dizziness, and difficulty learning or performing complex tasks.

In the Sacramento area, high CO levels develop primarily during winter when winds are calm and a ground level temperature inversion is in place, resulting in reduced dispersion of vehicle emissions. Motor vehicles also exhibit increased CO emission rates at low air temperatures. CO is a directly emitted pollutant, with concentrations typically highest near major thoroughfares and heavily congested urban streets.

Particulate Matter

Health concerns associated with suspended particulate matter focus on particulate matter that is less than 10 microns in diameter (PM_{10}), since those particulates are small enough to reach the lungs when inhaled. Scientific studies have linked these particles with aggravated asthma, increases in respiratory symptoms like coughing and difficult or painful breathing, chronic bronchitis, decreased lung function, and premature death.

Particulate matter conditions in Sacramento County are a result of a mix of urban and rural sources, including vehicle exhaust emissions, dust suspended by vehicle traffic and construction activities, wood burning fireplaces, agricultural activities, industrial emissions, and secondary aerosols formed by reactions in the atmosphere.

Regulatory Context

Air quality in Sacramento County is regulated by several agencies, which include the U.S. Environmental Protection Agency (EPA), California Air Resources Board (ARB), and Sacramento Metropolitan Air Quality Management District (SMAQMD). Each of these agencies develops rules and/or regulations to attain the goals or directives imposed upon them through legislation. Although EPA regulations may not be superseded, both State and local regulations may be more stringent. In general, air quality is evaluated based upon standards developed by federal and State agencies. Mobile sources of air pollutants are largely controlled by federal and State agencies, while local air pollution control districts (APCD) or air quality management districts (AQMD) regulate stationary sources.

Ambient air quality standards (AAQS) define clean air. The federal and state AAQS establish the concentration above which a pollutant is known to cause adverse health effects to sensitive groups within the population, such as children and the elderly. Because AAQS have been established for specific pollutants using health-based

criteria, the pollutants for which standards have been set are known as “criteria” pollutants. For some of the criteria pollutants, the State standards are more stringent than the federal standards. The differences in the standards are due to variations in health studies and interpretations involved in the standard-setting process.

The EPA is responsible for establishing NAAQS, enforcing the federal Clean Air Act, and regulating aircraft, shipping, and certain locomotive emission sources.

The ARB is responsible for establishing CAAQS and implementing the California Clean Air Act, meeting state requirements of the federal Clean Air Act, and setting California vehicle emission standards.

Table AQ-2 summarizes the federal (NAAQS) and state (CAAQS) ambient air quality standards.

State standards for ozone have been set for a 1-hour averaging time and an 8-hour averaging time. The state 1-hour and 8-hour ozone standards are 0.09 parts per million (ppm) and 0.07 ppm, respectively, and are not to be exceeded. Federal standards have been set for the 8-hour averaging time and are 0.075 ppm. These standards are not to be met or exceeded more than three times during a 3-year period.

State and federal carbon monoxide (CO) standards have been set for both 1-hour and 8-hour averaging times. The state 1-hour standard is 20 ppm by volume, and the federal 1-hour standard is 35 ppm. Both State and federal standards are 9 ppm for the 8-hour averaging period.

There are both State and federal standards that apply to PM_{10} (particulate matter that is less than 10 microns in diameter) and $PM_{2.5}$ (particulate matter that is less than 2.5 microns in diameter. The state PM_{10} standards are 50 micrograms per cubic meter as a 24-hour average and 20 micrograms per cubic meter as an annual arithmetic mean. The federal PM_{10} standards are 150 micrograms per cubic meter as a 24-hour average. The federal $PM_{2.5}$ standards are 35 micrograms per cubic meter as a 24-hour average and 15 micrograms per cubic meter as an annual arithmetic mean. The state $PM_{2.5}$ standard is 12 micrograms per cubic meter as an annual arithmetic mean; there is no separate state 24-hour average standard.

The federal Clean Air Act requires states that exceed the NAAQS to prepare air quality plans (State Implementation Plans or SIPs) that show how the federal standards will be met. The California Clean Air Act generally requires regions that exceed the CAAQS to reduce harmful pollutants by five percent or more per year, or implement all feasible measures to meet the State air quality standards as expeditiously as possible. Regional air quality management districts are required to prepare air quality plans specifying how the federal and State AAQS will be met.

Table AQ-2: California and National Ambient Air Quality Standards

Pollutant	Averaging Time	CAAQS[a]	NAAQS[b]
Ozone (O_3)	1 hour	0.09 ppm[c]	NA
	8 hour	0.07 ppm	0.075 ppm
Carbon Monoxide (CO)	1 hour	20 ppm	35 ppm
	8 hour	9.0 ppm	9 ppm
Nitrogen Dioxide (NO_2)	1 hour	0.18 ppm	NA
	Annual	0.030 ppm	0.053 ppm
Sulfur Dioxide (SO_2)	1 hour	0.25 ppm	NA
	3 hour	NA	0.5 ppm
	24 hour	0.04 ppm	0.14 ppm
	Annual	NA	0.03 ppm
Inhalable Particulate Matter (PM10)	24 hour	50 µg/m^3[c]	150 µg/m^3
	Annual	20 µg/m^3	NA
Fine Particulate Matter (PM2.5)	24 hour	NA	35 µg/m^3
	Annual	12 µg/m^3	15 µg/m^3
Sulfates	24 hour	25 µg/m^3	NA
Lead (Pb)	30 day	1.5 µg/m^3	NA
	Calendar quarter	NA	1.5 µg/m^3
Hydrogen Sulfide	1 hour	0.03 ppm	NA
Vinyl Chloride	24 hour	0.010 ppm	NA

[a] The California ambient air quality standards (CAAQS) for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, PM10 and PM2.5 are values not to be exceeded. All other California standards shown are values not to be equaled or exceeded.

[b] The National Ambient Air Quality Standards (NAAQS), other than O_3 and those based on annual averages, are not to be exceeded more than once a year. The O_3 standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above the standard is equal to or less than one.

[c] ppm = parts per million by volume; µg/m^3 = micrograms per cubic meter.

NA = not applicable.

California ARB (http://www.arb.ca.gov/research/aaqs/aaqs2.pdf), 2010

The ARB requires local air quality management districts to develop their own strategies for achieving compliance with the State and federal air quality standards, but maintains regulatory authority over those strategies. The SMAQMD is responsible for administering federal and state air quality laws, regulations, and policies within Sacramento County. SMAQMD monitors regional air quality conditions; prepares regional air quality plans and programs for the attainment of federal and State ambient air quality standards; and adopts and enforces Rules and Regulations for the management of stationary and area source emissions. SMAQMD also sets thresholds to determine when a proposed project may have a significant adverse effect on air quality.

The federal Clean Air Act required states exceeding NAAQS to prepare air quality plans showing how the standards would be met by 1987. Sacramento is one of many urban areas that failed to attain the NAAQS by 1987 and, as a result, the EPA disapproved the Sacramento Air Quality Plan in 1988. The Clean Air Act was amended in 1990 to extend the deadline for compliance with the NAAQS, and to require states to prepare revised SIPs for attainment of standards.

The 1990 federal Clean Air Act amendments established new requirements for many areas, like Sacramento, that had not attained the NAAQS. Non-attainment area classifications were set according to the severity of an area's air pollution problem. The EPA classified the Sacramento metropolitan area, which includes all of Sacramento and Yolo Counties and parts of El Dorado, Placer, Solano and Sutter Counties, as a "severe" non-attainment area for ozone. All of Sacramento County was classified as a "moderate" non-attainment area for PM_{10}. The Sacramento urbanized area was classified as a "moderate" non-attainment area for carbon monoxide.

Prior to the 1990 amendments, non-attainment areas were only required to make "reasonable further progress" toward meeting the standards. The 1990 amendments were more stringent and defined each area's responsibilities in more detail. In the case of ozone, for example, non-attainment areas were to reduce volatile organic compound (VOC) emissions by 15 percent within six years. To ensure that an area would implement the necessary measures to achieve these emission reductions, the amendments established a number of specific requirements that were to be met over several years.

In response to the federal Clean Air Act Amendment requirements, the ARB submitted a State Implementation Plan (SIP) to the EPA in November 1994. The SIP strived for compliance with the federal ozone standard by 2005 through provisions that would (1) establish a buy-back program for older, polluting cars; (2) require minimum percentage requirements for low- and zero-emission vehicles in new car fleets; and (3) incorporate regional attainment plans from throughout the State into the SIP. In November 1994, the Sacramento Regional Ozone Attainment Plan (ROAP) was submitted to the ARB for inclusion in the State Implementation Plan. The ROAP was cooperatively prepared by five APCDs or AQMDs: the Sacramento Metropolitan AQMD, the Yolo-Solano APCD, the Feather River AQMD, the El Dorado County APCD, and the Placer County APCD. The ROAP focuses on reducing emissions of ozone precursors through stationary

source controls, motor vehicle emission controls, and transportation system improvement measures.

Sacramento County has been free of federal CO violations since 1993. The CARB found Sacramento to be in compliance with the state CO standards in November 1996 and forwarded a request to the EPA to be reclassified as an attainment area for federal standards. The EPA officially approved CO attainment status for the Sacramento region in March 1998.

Data from air monitoring stations in Sacramento County indicates that there have been no violations of the federal PM_{10} standards since 1995. Based on this, the SMAQMD has requested that the U.S. EPA amend the designation for PM_{10} to attainment. For the time being, however, Sacramento remains designated as a non-attainment area for the federal PM_{10} standards. In regards to $PM_{2.5}$, the U.S. EPA Administrator signed the final $PM_{2.5}$ nonattainment designation for Sacramento on October 8, 2009.

Sacramento Metropolitan Air Quality Rules and Regulations

As indicated previously, SMAQMD regulates air quality in Sacramento County through its permit authority over stationary sources of emissions, through its vehicle and fuels management program, and through planning and review activities.

All projects are subject to SMAQMD Rules and Regulations in effect at the time of construction. Several SMAQMD Rules pertinent to the project include:

Rule 201: General Permit Requirements

Any project that includes the use of equipment capable of releasing emissions to the atmosphere may require permit(s) from SMAQMD prior to equipment operation. The applicant, developer or operator of a project that includes an emergency generator, boiler, or heater should contact the District early to determine if a permit is required, and to begin the permit application process. Portable construction equipment (e.g. generator, compressors, pile drivers, lighting equipment, etc.) with an internal combustion engine over 50 horsepower are required to have a SMAQMD permit or a California Air Resources Board portable equipment registration.

Rule 402: Nuisances

A person shall not discharge from any source whatsoever such quantities of air contaminants or other materials which cause injury, detriment, nuisance or annoyance to any considerable number of person or the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause or have natural tendency to cause injury or damage to Business or property. (California Health & Safety Code, Section 41700)

RULE 403: FUGITIVE DUST

A person shall take every reasonable precaution not to cause or allow the emissions of fugitive dust from being airborne beyond the property line, from which the emission originates, from any construction, handling or storage activity, or any wrecking, excavation, grading, clearing of land or solid waste disposal operation. Reasonable precautions shall include, but are not limited to:

- Use, where possible, of water or chemicals for control of dust in the demolition of existing buildings or structures, construction operations, the construction of roadways or the clearing of land.
- Application of asphalt, oil, water, or suitable chemicals on dirt roads, materials stockpiles, and other surfaces which can give rise to airborne dusts;
- Other means approved by the Air Pollution Control Officer.

ZONING CODE POLICIES

The Sacramento County Zoning Code contains the following regulations relevant to the mining expansion:

> 235-48. Air Pollution Control Plan
>
> Applicant shall give proof of submission of an air pollution control plan to the Air Pollution Control District (APCD). The plan shall provide at least for dust control measure proposed for:
>
> (a) Moving aggregate from mine area(s) to processing plant(s) on the subject property.
>
> (b) Roads and other graded surfaces on the subject property.
>
> (c) Removal of aggregate from off-site public streets or roads used by trucks for a distance of 1500 feet along the public right-of-way from the point of ingress and egress to the subject property.
>
> The plan must be approved by the APCD before a work authorization is issued as provided in Section 235-75.

STANDARDS OF SIGNIFICANCE

Appendix G of the California Environmental Quality Act (CEQA) provides guidance for assessing the significance of potential environmental impacts. Relative to air quality, a project will normally have a significant effect on the environment if it will:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceeded quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations;
- Create objectionable odors affecting a substantial number of people

In addition, the SMAQMD has adopted significance thresholds for CEQA projects within the District. These thresholds are used to determine the significance of project-related air quality impacts. The thresholds are defined as follows:

- 85 pounds per day (lbs/day) of NOx for short-term construction emissions;
- 65 lbs/day of NOx and 65 lbs/day of ROG for long-term operational emissions;
- Emissions exceed a CAAQS or contribute substantially to an existing or projected violation of a CAAQS. An emission is considered to be a substantial contribution if it equals or exceeds 5% of the CAAQS. The CAAQS are shown in Table AQ-2 above.

ENVIRONMENTAL IMPACTS AND ANALYSIS

The reclamation plan amendment portion of the project consists of a revised Morrison Creek Realigned Channel on the Vineyard I and Aspen III South mining sites and a Raised Bank Channel on the Aspen IV South mining site. There are no new air quality impacts associated with this mitigation corridor since it is being constructed in phases and is occurring at the same time as the previously approved mining and reclamation activities and is consistent with the mass grading expected with the previously approved project.

The Vineyard I mining expansion would have air quality impacts associated with the use of heavy equipment on the new 5.6-acre site associated with overburden removal and gravel extraction.

INCREASE OF EXHAUST EMISSIONS

The prior FEIR/EIS determined that the initial removal of overburden would affect emissions of pollutants along roadways because the haul trucks would access

the roadway network to remove the overburden. The overburden from the Vineyard I mining expansion site would remain in the mining area and would not be distributed via the roadway network. The addition of 5.6 acres to the mining site would increase NO_x emissions in association with the use of heavy equipment.

In the prior FEIR/EIS it was determined that the mining projects would not generate additional auto or truck trips during operations, but would generate new truck trips during initial removal of 430,000 cubic yards of overburden. This was found to be a significant impact that would be reduced to less than significant with mitigation.

Information from Granite Construction indicates that mining of the Vineyard I expansion site would require three workers, each with a pickup truck, for up to six months time. Granite Construction estimates removal of approximately 120,833 cubic yards of overburden for the Vineyard I mining expansion site. The overburden and mined material of the Vineyard I mining expansion site will be hauled around onsite and then sent to processing facilities via the existing conveyor system. Overburden removal on the Vineyard I mining expansion site will not cause an increase in truck traffic; therefore, there would not be an increase in exhaust emissions associated with overburden removal within the air basin. This impact is now considered less than significant.

Operational Emissions Impact (ROG and NO_x emissions)

The SMAQMD thresholds identify short-term construction and long-term operational air quality emissions standards of significance for ROG and NOx. In the prior EIR/EIS the construction thresholds were used; however, in the 10+ years since the release of the prior FEIR/EIS, the methodologies for assessing emissions associated with mining activities have changed. In consultation with SMAQMD staff, it has been determined more appropriate to apply the long-term operational emission thresholds to ongoing mining operations due to the long term nature of mining. This means that instead of an 85 lbs/day threshold for NOx and no threshold for ROG, the project will be analyzed based on the operational thresholds of 65 lbs/day of ROG and 65 lbs/day of NOx.

Granite Construction has provided an equipment list for the Vineyard I mining expansion site. The equipment is grouped into phases of mining (clearing/grubbing activities; overburden stripping activities; gravel extraction activities; and move feeder/conveyor), with number of days corresponding to each phase. Based on this information, it has been estimated by Granite Construction that mining the 5.6 acres would take approximately 62 working days. However, Granite has verbally indicated that mining could take up to 6 months time. The equipment list provides the total number of hours equipment would run for each day, under each phase. In order to determine the operational emissions, URBEMIS version 9.2.4 was used. URBEMIS is an emissions model that calculates construction, area source and operational (vehicle) emissions.

Since mining is not a land use option in URBEMIS, mining was added to the blank land use category, and 5.6 acres was entered as the total area in acres. The construction tab allows the user to define phases, input date ranges and number/ type of heavy

equipment used during each phase. Based on the equipment list provided by Granite Construction, the clearing/grubbing phase would take two days, the overburden stripping phase would take 13 days, gravel extraction phase 45 days and use of the move feeder and conveyor would be a total of 2 days, for a total of 62 working days. The estimated project emissions are summarized in Table AQ-3 below.

Table AQ-3: URBEMIS Results – Estimated Emissions for Vineyard I Mining

Pollutant	Emission	Significance Threshold – Operational Emissions
ROG	12.18 lbs/day	65 lbs/day
NO_x	110.05 lbs/day	65 lbs/day

The standard of significance for operational emissions is 65 lbs/day of both NO_x and ROG emissions. Based on the emissions estimate from URBEMIS, mining activities associated with the Vineyard I mining expansion site would result in 110 lbs/day of NO_x emissions and 12 lbs/day of ROG emissions. Since ROG emissions are within the significance threshold, the project would not have a significant contribution of ROG emissions to the air basin. However, the project would exceed the threshold for NO_x emissions.

The prior FEIR/EIS reported that the NO_x emissions for the Vineyard I, Aspen III South, Aspen IV South and Aspen V South sites would result in 404 lbs/day of NO_x exhaust emissions. ROG daily exhaust emissions were estimated at 32 lbs/day. The prior FEIR/EIS concluded:

> …equipment used on the mining sites would be transferred from active mining areas when these areas are depleted. Therefore, the emissions from activities within the project site, though substantial, would be replacing emissions currently occurring in other mining areas. No net change in regional emissions would occur, so project impacts on regional air quality would be less than significant.

Although mining the Vineyard I mining expansion site would utilize the same heavy off-road equipment that is currently in use at the Vineyard I mining site and would be a continuation of mining activities for up to an additional six months time, as previously stated, since the release of the prior FEIR/EIS, the methodologies for assessing air quality impacts have changed; no longer are emission impacts considered to have a no net change if the emissions are a result of the continuation of an existing activity on a new site not previously included in the prior assessment. Therefore, as the Vineyard I mining expansion site is a new site not previously analyzed, air quality impacts will be assessed based on current methodologies.

Mining on the Vineyard I mining expansion site would result in 110 lbs/day of NOx emissions. Although mining of the site is subject to operational thresholds, the

SMAQMD has developed standard on-site construction mitigation that would be appropriate to apply to the proposed project. The standard on-site construction mitigation results in a project wide fleet average of 20 percent NO_x reduction and 45 percent particulate reduction compared to the most recent ARB (California Air Resources Board) fleet average at time of construction (or in this specific case, mining). Compliance with this standard mitigation for construction emissions would help reduce project NOx emissions by 20 percent. A 20 percent reduction in NO_x would result in NO_x emissions of 88 lbs/day. This is still above the threshold of 65 lbs/day. The project would be in excess of the standard by 23 lbs/day. The project will have a significant and unavoidable impact to air quality.

Level of Significance Before Mitigation: Significant

Mitigation Measures:

AQ-1 *Category 1*: Reducing NO_x emissions from off-road diesel powered equipment.

The ***Vineyard I mining expansion operator*** ~~proponent~~ shall provide a plan, for approval of the lead agency and the Sacramento Metropolitan Air Quality Management District (SMAQMD), demonstrating that the heavy-duty (50 horsepower or more) off-road vehicles to be used in the project ***(mining of the Vineyard I expansion site)***, including owned or leased and subcontracted vehicles, will achieve a project wide fleet-average 20 percent NO_x reduction and 45 percent particulate reduction[1] compared to the most recent California Air Resource Board (ARB) fleet average at time of each annual report; and

The ***mining operator*** ~~proponent~~ shall submit to the lead agency and SMAQMD a comprehensive inventory of all off-road equipment, equal to or greater than 50 horsepower, that will be used an aggregate of 40 or more hours per year during any portion of the project. The inventory shall include the horsepower rating, engine production year, and project hours of use or fuel throughput for each piece of equipment. The inventory shall be updated and submitted annually throughout the duration of the project. The ***mining operator*** ~~proponent~~ shall provide SMAQMD with the name and phone number of the project manager and/or on-site foreman.

Due to the long term nature of this project, the requirement for the emission reduction plan referenced herein will sunset on Month/date/year[2] due to existing SMAQMD and ARB rules that will affect ARB fleet averages at that time.

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[1] Acceptable options for reducing emissions may include use of late model engines, low-emissions diesel products, alternative fuels, engine retrofit technology, after-treatment products and/or other options as they become available.

[2] Project proponent should contact SMAQMD staff to determine appropriate sunset period.

And:

> *Category 2: Controlling visible diesel emissions from off-road diesel powered equipment*.
>
> Emissions from all off-road diesel powered equipment used on the project site shall not exceed 40 percent opacity for more than three minutes in any one-hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be repaired immediately, and the lead agency and the lead agency and SMAQMD shall be notified within 48 hours of identification of non-compliant equipment. The SMAQMD and/or other officials may conduct periodic site inspections to determine compliance. Nothing in this mitigation measure shall supersede other SMAQMD or State rules or regulations.

AQ-2 All vehicles ***utilized as part of the Vineyard I mining expansion*** shall be maintained in accordance with the manufacturers' recommendations, and all stationary equipment ***used on the site shall be*** maintained in compliance with emissions limitations established by a permit issued by the SMAQMD. ***The Vineyard I mining operator*** ~~Granite Construction~~ shall maintain records of equipment maintenance activities and records shall be provided to the County upon request.

AQ-3 Particulate filters and catalysts should be used where technically feasible to reduce NOx emissions from off-road heavy duty equipment ***associated with the Vineyard I mining expansion***. ~~Granite Construction~~ ***The mining operator*** should contact SMAQMD and/or ARB for assistance in determining appropriate emission reducing technologies.

Level of Significance After Mitigation: Significant and Unavoidable

PARTICULATE MATTER (PM_{10}) DUST EMISSIONS

> *Mining of the Vineyard I mining expansion site would not change the prior conclusion that trucks could track dirt or mud onto surface streets, thus increasing dust emissions in the area. This was found to be a significant impact, but with mitigation it was found to be less than significant. In addition, the use of heavy equipment has the potential to increase dust generation onsite.*

The prior FEIR/EIS determined that mining operations would create new sources of air pollutants. Specific to fugitive particulate emissions were activities associated with material loading and unloading; scraper travel over unpaved roads; and conveying of raw materials to the processing plant.

The proposed project would mine an additional 5.6 acres on the Vineyard I mining site. The use of heavy equipment for the above mentioned activities would result in dust generation on the project site, which would increase particulate emissions.

The SMAQMD "Guide to Air Quality Assessment in Sacramento County" (December 2009, revised May 2011, and referred hereinafter as the SMAQMD Guide) contains thresholds for air pollutants and particulate matter emissions (PM_{10} and $PM_{2.5}$) in a volume concentration (microgram per cubic meter), which the available URBEMIS model does not provide (URBEMIS provides particulate matter emissions as pounds per day). However, the SMAQMD Guide does provide information for lead agencies analyzing PM_{10} emission from construction activities. On page 3-12 of the SMAQMD Guide, it states that the Air District recommends lead agencies do a PM_{10} model to determine the emission concentrations; however, projects can be screened out of performing a PM_{10} model if the following conditions are met:

- The project would implement all Basic Construction Emission Control Practices, and
- The maximum daily disturbed area would not exceed 15 acres

Projects that meet the above two conditions are considered by the District to not have the potential to exceed the District's concentration-based threshold of significance for PM_{10} (and therefore $PM_{2.5}$) at an off-site location.

Dust abatement practices are required pursuant to SMAQMD Rule 403 and California Code of Regulations, Title 13, sections 2449(d)(3) and 2485; the SMAQMD Guide simply lays out the basic practices needed to comply. Since these are already required by existing rules and regulations, it is not necessary to include them as mitigation. The Basic Construction Emission Control Practices are consistent with the District Rule 403 and California regulations limit idling from both on-road and off-road diesel powered equipment. Therefore, those conditions of approval and mitigation measures from the prior FEIR/EIS that are consistent with SMAQMD Rule 403 (fugitive dust) and Rule 402 are not repeated as mitigation, but remain applicable to the proposed project. Mitigation Measure AQ-2 above is one of the listed Basic Construction Emission Control Practices.

In addition, Granite Construction submitted an Air Pollution Control Plan to the SMAQMD in February 2001 for the Vineyard I mining site. The SMAQMD reviewed the Air Pollution Control Plan and found that the plan fulfilled the requirements of SMAQMD's Rule 403. Granite will have to submit a revised Air Pollution Control Plan to SMAQMD for review for the Vineyard I mining expansion site. Compliance with existing rules and regulations and Mitigation Measure AQ-2 above would ensure that mining of the Vineyard I mining expansion site would not result in significant increases in particulate matter dust emissions. Impacts associated with particulate matter dust emissions are considered less than significant.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measures: None Required

CUMULATIVE IMPACTS

In the Cumulative No Project condition, mining of the three approved mining sites would be completed and the mining properties would be in the Post-Reclamation phase; the site would be returned to agricultural uses. The Reclamation Plan amendment portion of the proposed project (Morrison Creek Realigned Channel and Raised Bank Channel) would not contribute to any cumulative air quality impacts. There is no long term air quality impact associated with this portion of the proposed project.

Currently, mining activities on the Vineyard I mining site are coming to an end. The Vineyard I mining expansion site would result in the continuation of mining activities for three months up to six months time after completion of the approved portion of Vineyard I property. The continuation of mining for the additional three to six months was found to have a significant exhaust emission impact. However, there is not a long term operational impact of mining the Vineyard I mining expansion site since in the cumulative condition (e.g., 2020), mining activities on the Vineyard I mining expansion site would be complete and the project site would return to agricultural activities. The approval of the use permit for the Vineyard I mining expansion would not result in a cumulatively incremental increase in emissions to the Sacramento Valley air basin; therefore, the cumulative air quality impacts are considered **less than significant**.

9 GEOLOGY AND SLOPE STABILITY

INTRODUCTION

This chapter describes the existing soils and geology of the project site. It provides an analysis of slope stability, landform alteration and erosion impacts. Where appropriate, mitigation is included to reduce or eliminate impacts.

The proposed project includes revisions to the previously approved reclamation plan, consistent with permits received from the County, State and federal regulatory agencies. The previously approved reclamation plan consisted of a below grade, 600-foot wide riparian corridor/low-flow channel within the bottom of the mining pit in generally the same location as the existing creek and an at-grade trapezoidal bypass channel around the perimeter of the three mining sites. The proposed project revises the previously approved reclamation plan by eliminating the at-grade trapezoidal bypass channel component and changing the below grade, 600-foot wide riparian corridor/low-flow channel to an at-grade mitigation corridor (Morrison Creek Realigned Channel) on the Vineyard I and Aspen III South mining properties. The Morrison Creek Realigned Channel has been designed to contain the 100-year flood flows. On the Aspen IV South property, the existing Morrison Creek channel will be preserved and a raised bank flood control channel (Raised Bank Channel) is proposed to be constructed outside of the effective FEMA floodway. The Morrison Creek Realigned Channel will connect with the existing Morrison Creek channel on Aspen IV South. Impacts associated with channel failure and flooding potential are addressed in the Surface Water Hydrology and Quality Chapter (Chapter 5 of this SEIR). The project also consists of a request for a rezone and a use permit amendment to allow aggregate mining on an additional 5.61 acres and to incorporate this new area into the previously approved Vineyard I mining plan (referred as Vineyard I mining expansion). The impacts to slope stability, erosion and landform alteration on the Vineyard I mining expansion site is analyzed in this chapter.

GEOCON Consultants, Inc performed a Slope Stability Evaluation (September, 2011) for the Raised Bank Channel and their report is included as Appendix C.

PHYSICAL CONDITIONS

The Vineyard I mining expansion site totals approximately 5.6 acres and is surrounded by active mining operations. This area is similar in character to the area approved to be mined in the 1999 use permit. As stated in the prior FEIR/EIS the project site is located within two sections of the Victor Plain: the Riverbank Formation (lower member) and the

Laguna Formation. The project site is not indicated to be located across a mapped trace of any earthquake fault (FEIR/EIS, page 5-27).

The current project proposes amendments to the previously approved reclamation plan, including fill (overburden) to be added to portions of the pit floor to bring those areas to within 5 feet of original grade (for the Vineyard I properties) and raising selected pit floor elevations to within 2 feet of the original grade over the term of the use permit (i.e. 22 years) using the "drying bed" method (e.g., the accumulation, drying and compacting of silt-like material obtained from aggregate washings or direct import) for the Aspen III South and Aspen IV South properties. The Vineyard I mining expansion site is included within the proposed reclamation plan amendment.

The proposed Morrison Creek Realigned Channel is located on the Vineyard I and Aspen III South mining sites, north of the existing Morrison Creek, in an area where mining activity has been completed. This area has already been back filled and brought up to within 5 feet of original grade. Ultimately, the Morrison Creek Realigned Channel will be constructed at grade and contain a meandering stream channel with native trees and grasses. The Raised Bank Channel consists of modifying the natural floodplain of Morrison Creek by constructing earthen embankments (i.e., levees) on either side of Morrison Creek to contain the 100-year floodplain and the height of the levee embankments will generally vary from approximately 4 to 6 feet (with some isolated areas approaching 8 feet) in order to provide a minimum free board of 3 feet above adjacent floodplain elevation.

STANDARDS OF SIGNIFICANCE

Appendix G of the California Environmental Quality Act (CEQA) provides guidance for assessing the significance of potential environmental impacts. Relative to geology and soils and mineral resources, a project will normally have a significant effect on the environment if it will:

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
    - Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault
    - Strong seismic ground shaking
    - Seismic-related ground failure, including liquefaction
    - landslides;
- Result in substantial soil erosion or the loss of topsoil;

- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse;
- Be located on an expansive soil, as defined in Table 18-1B of the Uniform Building Code (1994), creating substantial risks to life or property;
- Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water;
- Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state;
- Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.

ENVIRONMENTAL IMPACTS AND ANALYSIS

PERMANENTLY ALTER THE LANDFORM

The prior FEIR/EIS concluded that the project would result in the permanent alteration of the project site's landform and identified this as a significant and unavoidable impact. The additional 5.6 acres of mining does not substantially change this impact. The recreated at-grade Morrison Creek Realigned Channel will better mirror a natural meandering creek, as opposed to the previously approved pit bottom riparian corridor and at-grade trapezoidal bypass channel.

The Vineyard I mining expansion site will increase the amount of land permanently altered by mining. The prior FEIR/EIS concluded that the permanent alteration to the land as a result of mining is a significant and unavoidable impact. This conclusion remains applicable to this project as there are no mitigation measures available to reduce impacts to less than significant.

Level of Significance Before Mitigation: Significant

Mitigation Measures: None Available

Level of Significance After Mitigation: Significant and Unavoidable

SLOPE STABILITY

The prior FEIR/EIS concluded that the project's reclaimed slopes (ranging from 1.5:1 to 2:1) would potentially be subject to slope instability, including potential

> *instability induced by earthquakes and/or ground shaking. This was considered a significant impact that could be reduced to less than significant with mitigation.*

The prior FEIR/EIS stated that the mining operations would utilize an unlined trapezoidal bypass channel at the existing (unmined) elevation around the mined pits. The bypass channel was to be constructed on top of a 35- to 40-foot high engineered fill embankment using the overburden materials. The slopes of the proposed embankments ***of the bypass channel*** were identified as 2:1.

The prior FEIR/EIS also stated that the foundation soils would experience a net unloading after construction of the embankments; therefore, settlement would be minimal from the standpoint of consolidation or compression of the foundation soils. It was noted that even a properly constructed embankment would experience some settlement of the engineered fill. Uniform and adequate compaction of the embankment soils would mitigate, but not eliminate, future differential settlement. These settlements are generally minor, and are not expected to affect the overall stability of the embankment. It was concluded that periodic inspection and maintenance of the channel, including repair of any minor cracks resulting from shifting of the embankment would be sufficient to allow the continued performance of the embankment.

On the Vineyard I mining site, the areas immediately to the east, west and south of the Vineyard I mining expansion site have not been mined to date. The additional 5.6 acres would be mined after completion of mining the surrounding Vineyard I mining areas***. Although the prior FEIR/EIS indicated that the mining pits were to have slopes of 1.5:1, the conditions placed on the use permit for the Vineyard I mining site required that the finished side slopes of the mining pits be 2:1 (horizontal:vertical) or flatter. Therefore, the finished slopes for the mining pits specified in Mitigation Measure GS-1 have been updated to be 2:1 for the Vineyard I mining expansion site.*** ~~mitigation regarding slope stability from the prior FEIR/EIS remains applicable to the Vineyard I mining expansion site~~.

The Morrison Creek Realigned Channel would be constructed on an engineered fill embankment. The *Wetland, Oak Woodland, and Riparian Mitigation Monitoring Plan* prepared for the Granite Vineyard I site by ECORP (revised July 20, 2007) (provided as Appendix C) provides contingency measures that state that the Morrison Creek Realigned Channel would be engineered to a minimum of 90% compaction and would be constructed to federal and local standards. Compaction testing will be performed throughout the course of construction to ensure adequate compaction is obtained (Section 8.2.2). This design and construction ensures that failure associated with the Morrison Creek Realigned Channel would not be likely. Phased construction of the Morrison Creek Realigned Channel on Vineyard I and Aspen III South has occurred and is nearing completion. The Morrison Creek Realigned Channel will contain a low flow channel that mirrors a meandering stream, which will be vegetated throughout. The slopes of the Morrison Creek Realigned Channel are proposed to be 2:1. Mitigation has been included that requires Granite Construction to submit a soils and engineering report identifying and certifying the compaction rates of the engineered fill embankment

and ensuring stability prior to redirecting the flows of the existing Morrison Creek to the recreated Morrison Creek ***Realigned Channel*** ~~Preserve Corridor~~.

The Raised Bank Channel on Aspen IV South will be an earthen levee. GEOCON Consulting has performed an analysis of the stability of the slopes using seepage conditions that were modeled based on conservative low-flow and high-flow conditions within the creek and constrained floodplain, respectively. The result of this analysis is that potential seepage conditions would not adversely impact slope stability. Furthermore, the proposed Raised Bank Channel and reclamation slopes for the proposed project, from a static and seismic viewpoint, would have a less than significant impact when the recommendations contained in the report are incorporated into the design and construction of the Raised Bank Channel and mining slopes. Therefore, mitigation is recommended that Teichert Aggregates implements the recommendations made by GEOCON.

In addition, Teichert ~~is requesting~~ ***was previously authorized (subject to submittal of a geotechnical report addressing slope stability)*** to mine closer than ~~the recommended~~ 25 feet from the Mayhew Road right-of-way on the Aspen IV South site. GEOCON conducted a geotechnical investigation to evaluate the long-term seepage and slope stability conditions during mining of the site. Based on the results of their study, the proposed reclamation slopes of the subsurface materials on the Aspen IV South site are anticipated to be stable under long-term static and seismic conditions. GEOCON concluded that based on their investigation, slope stability is expected to be adequate to allow mining up to 12 feet of the right-of-way assuming the soils encountered are consistent with conditions encountered in the investigation. GEOCON recommends that soil testing be conducted when mining approaches the 25-foot setback from the right-of-way to verify that conditions are consistent with what was anticipated from the investigation. GEOCON indicated that if the soils differ significantly from what was observed and/or anticipated, the mining setback will need to be modified accordingly. Mitigation requiring the preparation and submittal of a soil report and slope stability analysis within the 25-foot setback has been recommended to ensure impacts associated with slope stability within the Sacramento County right-of-way are less than significant.

Level of Significance Before Mitigation: Significant

Mitigation Measure:

The following mitigation ***(GS-1)*** ~~is~~ from the prior FEIR/EIS ~~and remains~~ ***is*** applicable to the Vineyard I mining expansion site of proposed project. With mitigation, this impact will be considered less than significant.

GS-1 For the Vineyard I mining expansion site, the ~~proponent~~ ***mining operator*** shall limit the finished side slopes ***of the Morrison Creek Realigned Channel and mining pit slopes*** to ~~1.5:1~~ ***2:1*** (horizontal:vertical) to ensure stability for existing soil conditions. ***For the slopes of the Morrison Creek Realigned Channel,*** ~~S~~***s***oils shall be placed and compacted to 90 percent of the maximum dry density,

at or near optimum moisture conditions, in all finished slopes. Since local stability of the slope is critically dependent upon proper compaction of the overburden soils, a qualified soils engineer shall be regularly present throughout grading operations to determine compliance with job specifications.

GS-2 Prior to allowing re-directed stream flows to the Morrison Creek Realigned Channel, ~~Granite Construction~~ ***the Vineyard I mining operator,*** shall submit a report prepared by a California registered professional engineer certifying the channel and embankment engineering and foundation soils of the Morrison Creek Realigned Channel. The engineer's report shall address slope stability, soil compaction rates, foundation soils, potential failure mechanisms and contingences for repairing failures. The report shall be submitted to the ***Department of Community Development*** ~~Community Planning and Development Department and the Division of Environmental Review and Assessment (DERA)~~ for approval. No flows shall be directed to the new channel until approval is granted by ***the Department of Community Development***.

GS-3 For the embankments of the Raised Bank Channel and the mining slopes on the Aspen IV South mining site, ***the Aspen IV South mining operator*** ~~Teichert Aggregates~~ shall follow the recommendations contained in the GEOCON Consulting, Inc report (September, 2011). At the completion of the construction of the Raised Bank Channel, a report, signed by a California registered professional engineer, shall be submitted to ***the Environmental Coordinator*** ~~DERA~~ indicating completion of the recommendations from the GEOCON report. During mining, a report, prepared and signed by a California registered professional engineer, shall be submitted indicating completion of the recommendations regarding the mining pit slopes.

GS-4 Prior to mining within 25 feet of the Mayhew Road right-of-way, ***the Aspen IV South mining operator*** ~~Teichert Aggregates~~ shall submit a report, prepared by a geotechnical engineer or engineering geologist, on the soils observed at 25 feet from the right-of-way and whether or not the soils observed are consistent with those anticipated. If the soils observed differ significantly from what was anticipated, the engineer shall increase the proposed 12-foot setback accordingly. This report shall be submitted to ***the Department of Community Development*** ~~DERA and the Community Planning and Development Department~~ for review and approval prior to commencement of mining within 25 feet of the Mayhew Road right-of-way.

Level of Significance After Mitigation: Less Than Significant

EROSION IMPACTS

The prior FEIR/EIS concluded that the project's reclaimed slopes would be subject to erosion if not adequately constructed and vegetated. It was determined that this was a significant impact that could be reduced to less than

significant with mitigation. The proposed project will result in similar reclaimed slopes.

The slopes of the mining pit and recreated channel would be subject to erosion and slope instability if not properly vegetated and maintained.

South of the Morrison Creek Realigned Channel there is an open pit, with 2:1 slopes down to the pit floor. At completion of reclamation, a drainage channel with mitigation plantings will be located at the pit floor. Portions of this pit have been vegetated. Mitigation from the prior FEIR/EIS remains applicable to the Vineyard I mining expansion site and has been included to ensure that once the remaining area is mined, the slopes of the pit walls will be vegetated to reduce erosion impacts.

The proposed Morrison Creek Realigned Channel is located at grade and is a 300-foot wide stream corridor, with varied slopes no steeper than 3:1 and as gentle as 7:1. The 300-foot corridor contains the meandering low flow channel (recreated creek) and raised benches of varying heights and widths. Information from G.C. Wallace (consultant for Granite Construction) states that some movement of this low flow channel is expected and has been included within the design. G.C. Wallace has indicated that a ten-year monitoring plan has been established. This ten-year monitoring plan outlines actions that are to be implemented if significant erosion were to occur during the monitoring period at a specific meander in the flow channel. Measures include strengthening of the channel, re-grading the channel, widening the channel to reduce scour velocities, or any other revision as approved by County staff to mitigate erosion. G.C. Wallace concluded that at the end of the monitoring period, the vegetation should be well established and thus minimize the chance for further meandering to occur. Mitigation requiring submittal and implementation of the ten-year monitoring plan has been included. With mitigation, impacts are considered less than significant.

Level of Significance Before Mitigation: Significant

Mitigation Measure:

GS-5 The ***Vineyard I mining expansion operator*** ~~proponents~~ shall ensure that the side slopes of the pit are vegetated following final slope placement to prevent excessive erosion and enhance slope stability. The side slopes shall be revegetated with an erosion control mix as specified in an Erosion Control Plan. The Erosion Control Plan shall be prepared by the ***mining operator*** ~~applicant~~ and submitted to the County prior to issuance of the work authorization permit. The species chosen for the erosion control mix shall be comprised of native stock and shall not contain any species considered to be invasive or noxious weeds. The Erosion Control Plan shall include performance standards that can be used to determine the success of erosion control measures and the revegetation effort, and shall discuss monitoring requirements. The plan shall include remedial measures to be implemented if revegetation is not successful.

GS-6 The ***mining operator for Vineyard I*** ~~applicant~~ shall submit to the ***Environmental Coordinator*** ~~Division of Environmental Review and Assessment (DERA)~~, a ten-year monitoring plan that outlines monitoring requirements and identifies mitigating steps for any significant erosion that may occur at a specific location in the ***Morrison Creek Realigned Channel (***flow channel***)***. If significant erosion is identified during monitoring, the ~~applicant~~ ***mining operator*** shall contact ***the Environmental Coordinator*** ~~DERA~~ and submit proof of corrective actions. Appropriate mitigation includes, but is not limited to; strengthening of the channel, re-grading the channel, widening the channel to reduce scour velocities, or any other revision as approved by County staff to mitigate significant erosion.

Level of Significance After Mitigation: Less Than Significant

LOSS OF AVAILABILITY OF MINERAL RESOURCES

Loss of mineral resource availability is not an impact of the project.

The proposed project is a post-mining reclamation plan amendment and request to expand the Vineyard I mining site to include an additional 5.6 acres. The project provides for the continued extraction of mineral resources.

Level of Significance Before Mitigation: Less Than Significant

Mitigation Measures: None Required

CUMULATIVE IMPACTS

At the completion of mining, the three mining sites will be in reclamation. In the Post-Reclamation condition, the Morrison Creek Realigned Channel and Raised Bank Channel would be completed and functioning. The project also proposes the use of the drying bed method for reclamation for the Aspen III South and Aspen IV South properties. The drying bed method has been approved by the County via a use permit associated with County Control Number 04-UPB-0230, which involves the accumulation of silt-like material obtained from washing aggregate and subsequent placement of this material on mined out areas to facilitate reclamation. Depending on the amount of silt-like material available, the pits could be raised to within 2 feet of the original adjacent grade. If there is enough silt-like material to bring elevations to within 2 feet of original adjacent grade, there would not be any long-term cumulative impact as it relates to slope stability. If the elevations of the pits are not raised to near existing grade, then the mitigations that have been recommended regarding slope stability would ensure no adverse long-term impact. In addition, the pits would not be accessible by the public; therefore, in the unlikely event that the slopes do fail, there would not be a safety hazard to people.

The mitigation measures recommended in this chapter will ensure that slope stability and erosion impacts remain less than significant. The project would not have a cumulative impact as it relates to soil stability or erosion.

10 BIOLOGICAL RESOURCES

INTRODUCTION

This chapter describes the biological resources that occur in the project area and analyzes the impact of the proposed project on biological resources and recommends mitigation measures to reduce or eliminate significant impacts.

The proposed project includes revisions to the previously approved reclamation plan, consistent with permits received from the County, State and federal regulatory agencies. The mining sites in this project include Vineyard I, Aspen III South and Aspen IV South. The previous reclamation plan consisted of a below grade, 600-foot wide riparian corridor/low-flow channel within the bottom of the mining pit in generally the same location as the existing creek and an at-grade trapezoidal bypass channel around the perimeter of the three mining sites. The proposed project revises the previously approved reclamation plan by completely eliminating the at-grade trapezoidal bypass channel component and changing the below grade, 600-foot wide riparian corridor/low-flow channel to an at-grade mitigation corridor (Morrison Creek Realigned Channel) on the Vineyard I and Aspen III South mining properties. The Morrison Creek Realigned Channel has been designed to contain the 100-year flood flows. On the Aspen IV South property, the existing Morrison Creek channel will now be preserved and a raised bank flood control channel (Raised Bank Channel) is proposed to be constructed outside the effective FEMA floodway. The Morrison Creek Realigned Channel will connect with the preserved Morrison Creek channel on Aspen IV South. The connection of the Morrison Creek Realigned Channel to the Raised Bank Channel will require grading within the Mayhew Road right-of-way to contour the levees of the creek in order to maintain the flood protection banks across Mayhew Road.

The proposed project also consists of a request for a rezone and a use permit amendment to allow aggregate mining on an additional 5.61 acres (two parcels) and to incorporate this new area into the previously approved Vineyard I mining plan (referred as Vineyard I mining expansion). In addition, the Vineyard I mining expansion will be incorporated into the previously approved reclamation plan, including revisions consistent with the requested reclamation amendments described above. The location of a retention basin on the Vineyard I mining site has been determined for the proposed project, as well an option for a retention basin on the Aspen IV South mining site.

ENVIRONMENTAL SETTING

The project site consists of an active mining site. Morrison Creek traverses the mining properties (located on Vineyard I and Aspen IV South sites; Aspen III South does not

contain any portion of the existing Morrison Creek). The creek has not been mined. The applicants have begun construction of the proposed Morrison Creek Realigned Channel, which spans across Vineyard I and Aspen III South, and is located generally north of the existing Morrison Creek. The Morrison Creek Realigned Channel will align and connect with the existing Morrison Creek located on Aspen IV South site, as Morrison Creek will now remain undisturbed when mining commences on Aspen IV South. The Morrison Creek Realigned Channel varies between 200 and 500 feet wide and contains a meandering stream channel, surrounded by native trees and grasses. There is a large open pit south of the corridor on the Vineyard I mining site which will contain an ephemeral drainage and will be vegetated with trees. This same pit will function as a stormwater retention basin. The trees planted within the Morrison Creek Realigned Channel, and within the bottom of the pit along the ephemeral drainage will be mitigation tree plantings for impacts of the prior project. The trees planted within the Raised Bank Channel on Aspen IV South will be mitigation tree plantings for impacts of the prior project as well as impacts of the current proposed project.

The proposed project also consists of a 5.6 acre expansion to the Vineyard I mining site. The Vineyard I mining expansion site consists of two parcels, which have not been mined and are surrounded by active mining.

Granite obtained Foothill Associates to prepare a tree inventory of the Vineyard I mining expansion site (May 2006). The report identified two native trees on this site. Foothill Associates identified a valley oak (*Quercus lobata*) tree (tree #224) and a Northern California black walnut (*Juglans hindsii*) tree (tree #225). The other trees on the site are limited to red gum eucalyptus with valley oak and walnut saplings. Other vegetation on the site is comprised of annual grasses, Himalayan blackberry, giant reed and coyote brush.

The Vineyard I mining expansion site does not contain any vernal pools. A portion of Morrison Creek is located within the expansion site and although the expansion site was not included within the use permit for mining activities for Granite's Vineyard I, the two properties were included when determining impacts to biological resources associated with the prior project.

In addition, the applicants have applied for, and have been issued, a Section 404 permit from the U.S. Army Corps of Engineers. The proposed Morrison Creek Realigned Channel is consistent with the issued Section 404 permit.

BACKGROUND

The project approved in 1999 consisted of 966.3 acres of undeveloped or sparsely developed land within the urban policy area of unincorporated Sacramento County. The prior FEIR/EIS identified the following habitat types within the 966.3 acre area:

- Riparian forest/riparian scrub
- Valley oak woodland

- Ruderal habitat
- Pasture
- Cultivated areas
- Disked areas
- Developed areas
- Wetlands
    - Drainages and streams
    - Seasonal wetlands
    - Irrigated seasonal wetlands
    - Vernal Pools

The prior FEIR/EIS identified various wildlife species that utilize the project site. The following excerpt is from the prior FEIR/EIS and describes the general wildlife of the project area, prior to mining activities:

> *The project site contains a variety of habitats for wildlife. As described above, the dominant habitat types are riparian forests/riparian scrub, pasture, ruderal habitats (including disced areas) and various wetland habitats. Morrison Creek (including the oxbow channel on the Vineyard I parcel) provides aquatic and wetland habitat for waterfowl, amphibians, and aquatic invertebrates during winter and spring. During the summer and fall months, when flows become reduced, persistent or even perennial pools may form in the creek channel and become small pockets of habitat. The creek bed and banks are also important to wildlife when dry as they offer loose, sandy loam for burrowing animals and movement corridors for mammalian predators and other species. The various tributary streams, drainage ditches, and other wetlands within the project site also provide seasonal aquatic habitats. The riparian forest and scrub habitats along Morrison Creek, as well as the oak woodlands and scattered trees, provide nesting habitat for raptors and other birds. The grasslands and ruderal areas offer foraging habitat for raptors, mammals and reptiles. Currently, much of the Aspen III South, IV South and V South parcels are used for cattle and horse grazing. A list of wildlife species observed at the project site is provided in Appendix B* (Appendix B of the prior FEIR/EIS which is provided on the CD)*. The field surveys conducted for most animal species were limited to brief reconnaissance surveys with slightly more intensive surveys conducted for special status reptiles and amphibians (page 5-43).*

The prior FEIR/EIS also identified special status plant species that may occur within the project site and special status wildlife species observed or potentially occurring on the site. The following special status plants were identified as having the potential to occur within the project site:

- San Joaquin spearscale (*Atriplex joaquiniana*)

- Dwarf downingia (*Downingia pusilla*)
- Boggs Lake hedge-hyssop (*Gratiola heterosepala*)
- Rose-mallow (*Hibiscus lasiocarpus*)
- Ahart's dwarf rush (*Juncus leiospermus* var. *ahartii*)
- Legenere (*Legenere limosa*)
- Hoary navarretia (*Navarretia eriocephala*)
- Pincushion navarretia (*Navarretia myersii*)
- Slender Orcutt grass (*Orcuttia tenuis*)
- Sacramento Orcutt grass (*Orcuttia viscida*)
- Sandford's arrowhead (*Sagittaria sandfordii*)

It was stated in the prior FEIR/EIS that none of the special status plants were observed on the site during surveys conducted by the project proponents. Vernal pools and seasonal wetlands are known to support the majority of the special status plant species identified above.

Three special status invertebrate species potentially occur within the project site: valley elderberry longhorn beetle (*Democerus californicus dimorphus*), vernal pool fairy shrimp (*Branchinecta lynchi*) and tadpole fairy shrimp (*Lepidurus packardi*). The valley elderberry longhorn beetle (VELB) was documented to be using the Vineyard I site; three of the seven elderberry bushes on the Vineyard I parcel were observed to contain beetle emergence holes typical of the VELB.

Plate BR-1, Plate BR-2, and Plate BR-3 shows the previously approved reclamation plan for Vineyard I, Aspen III South and Aspen IV South, respectively. The reclamation plan mitigated for impacts to Morrison Creek and other waters of the U.S. by (1) construction of an at-grade bypass channel and (2) construction of a below-grade, 600-foot wide riparian corridor/low-flow channel. A riparian corridor would have been located within the mining pit, and would have included a low-flow channel, perennial marsh, riparian woodlands, seasonal marsh and valley oak woodlands in a series of terraces. Plate BR-4 and Plate BR-5 shows the previous wetland mitigation plans for Vineyard I and Aspen IV South. There were no wetlands or waters of the U.S. located on the Aspen III South site.

Plate BR-1: Vineyard I Approved Reclamation Plan Details

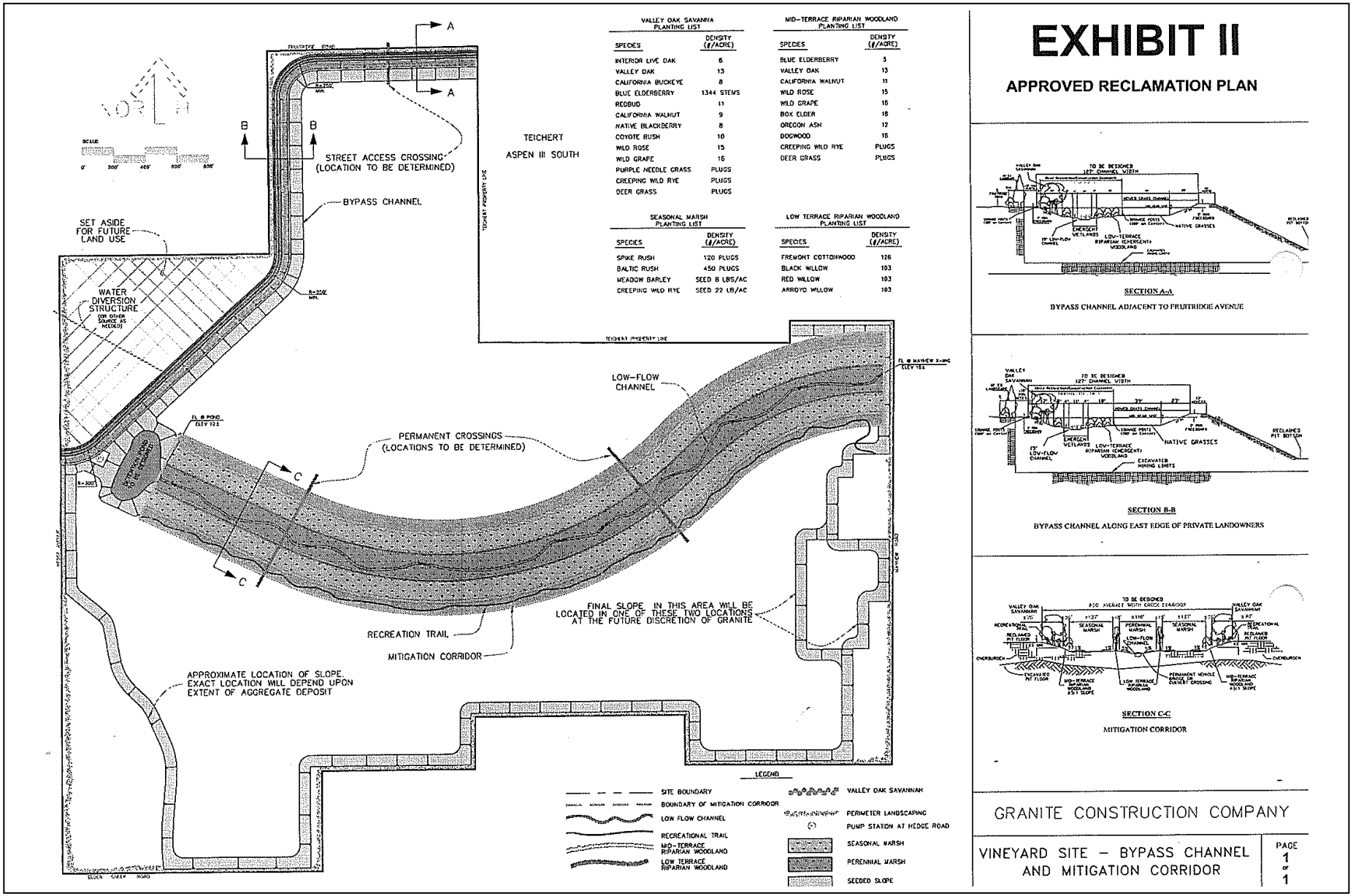


Plate BR-2: Aspen III South Approved Reclamation Plan Details

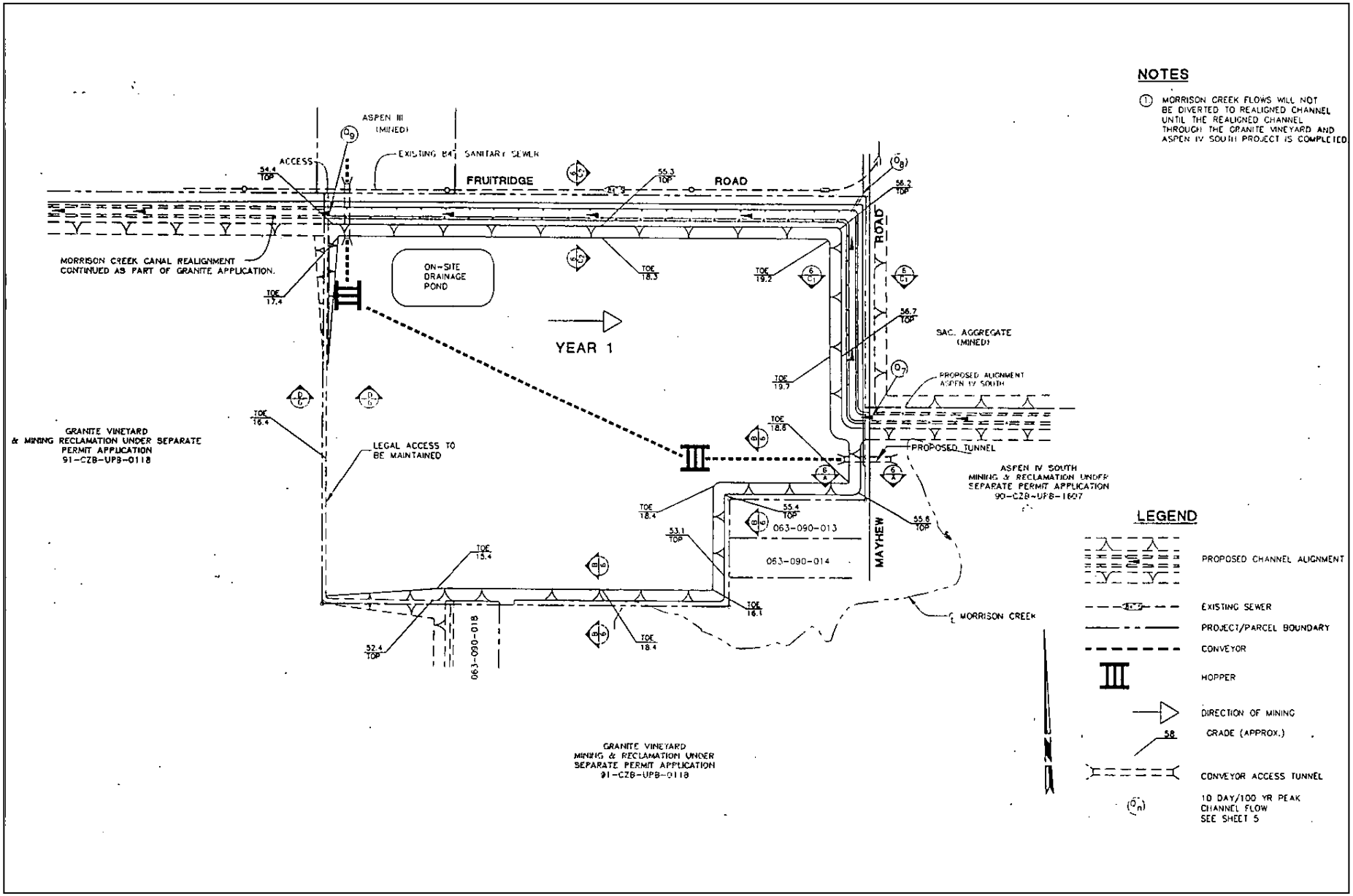


Plate BR-3: Aspen IV South Approved Reclamation Plan Details

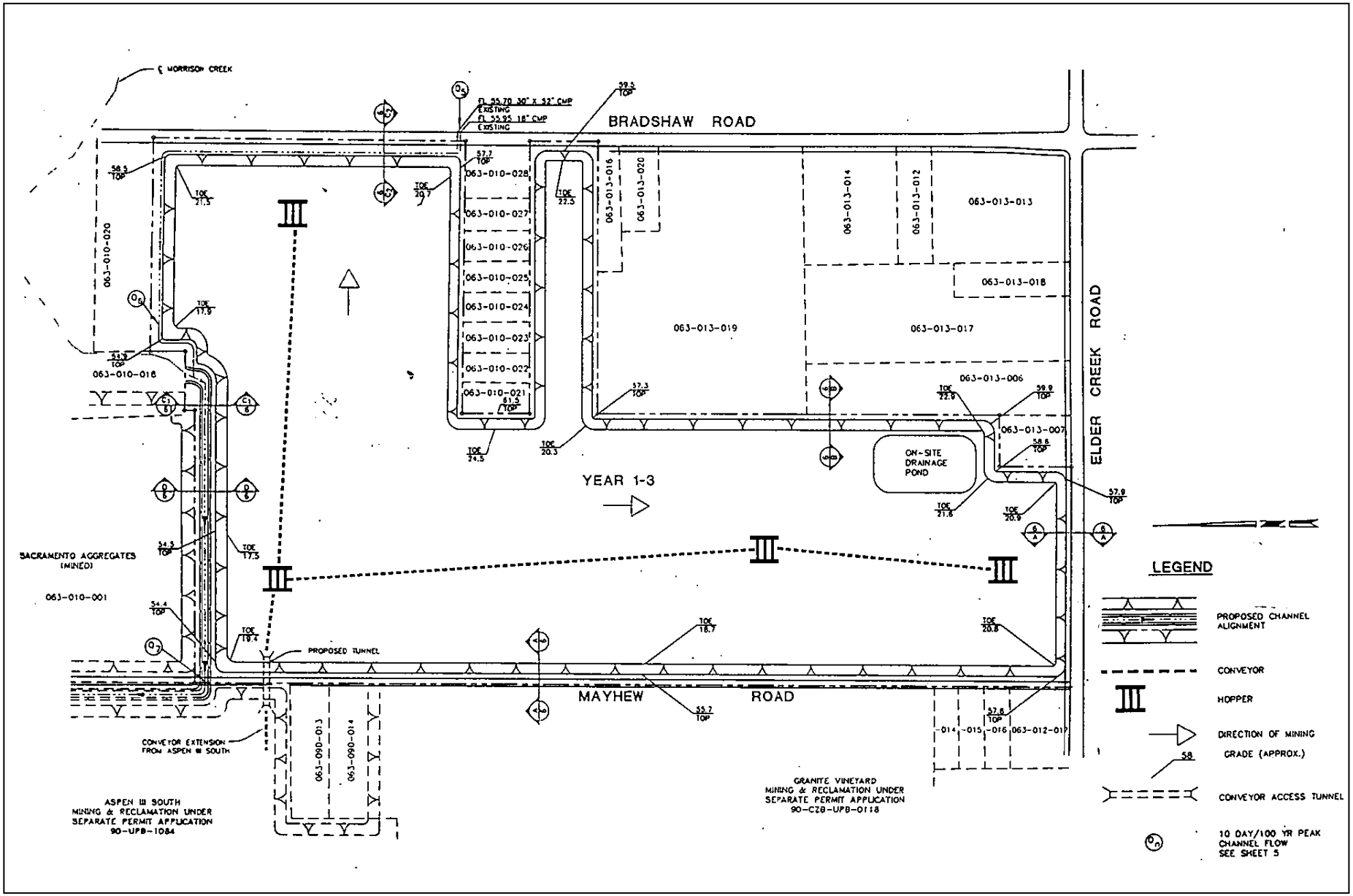


Plate BR-4: Prior Wetland Mitigation Plan for Vineyard I

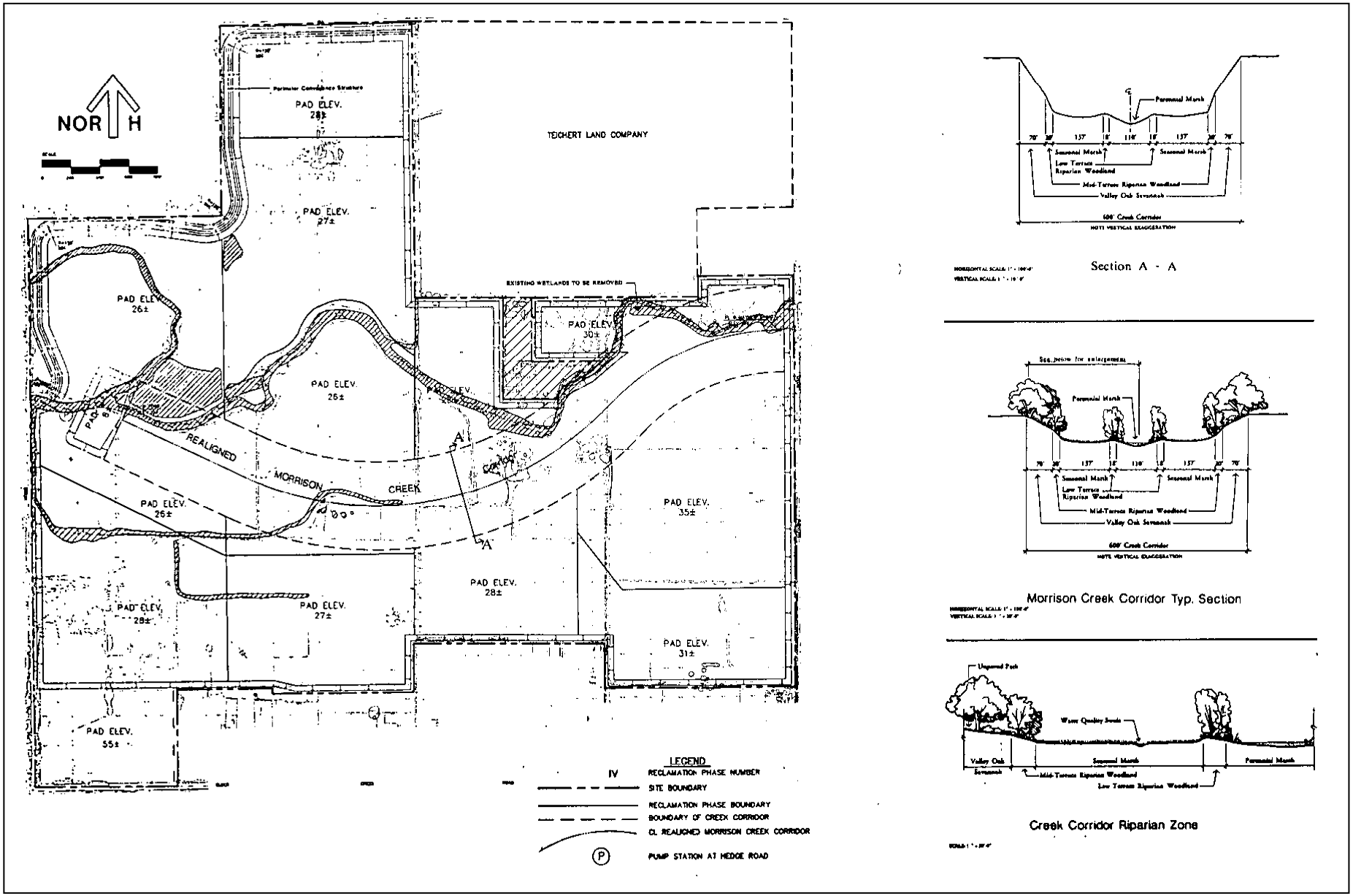
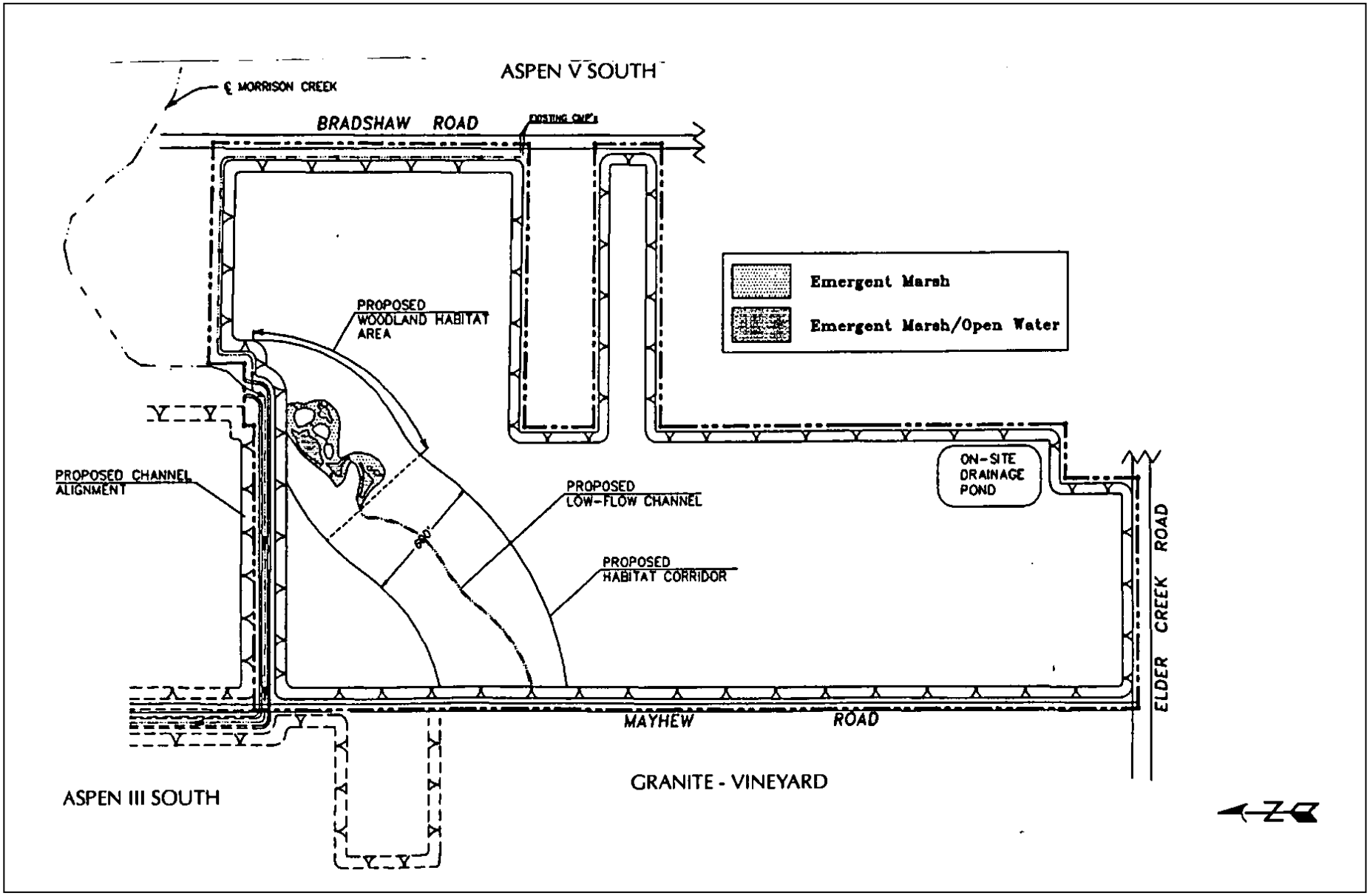


Plate BR-5: Prior Wetland Mitigation Plan for Aspen IV South



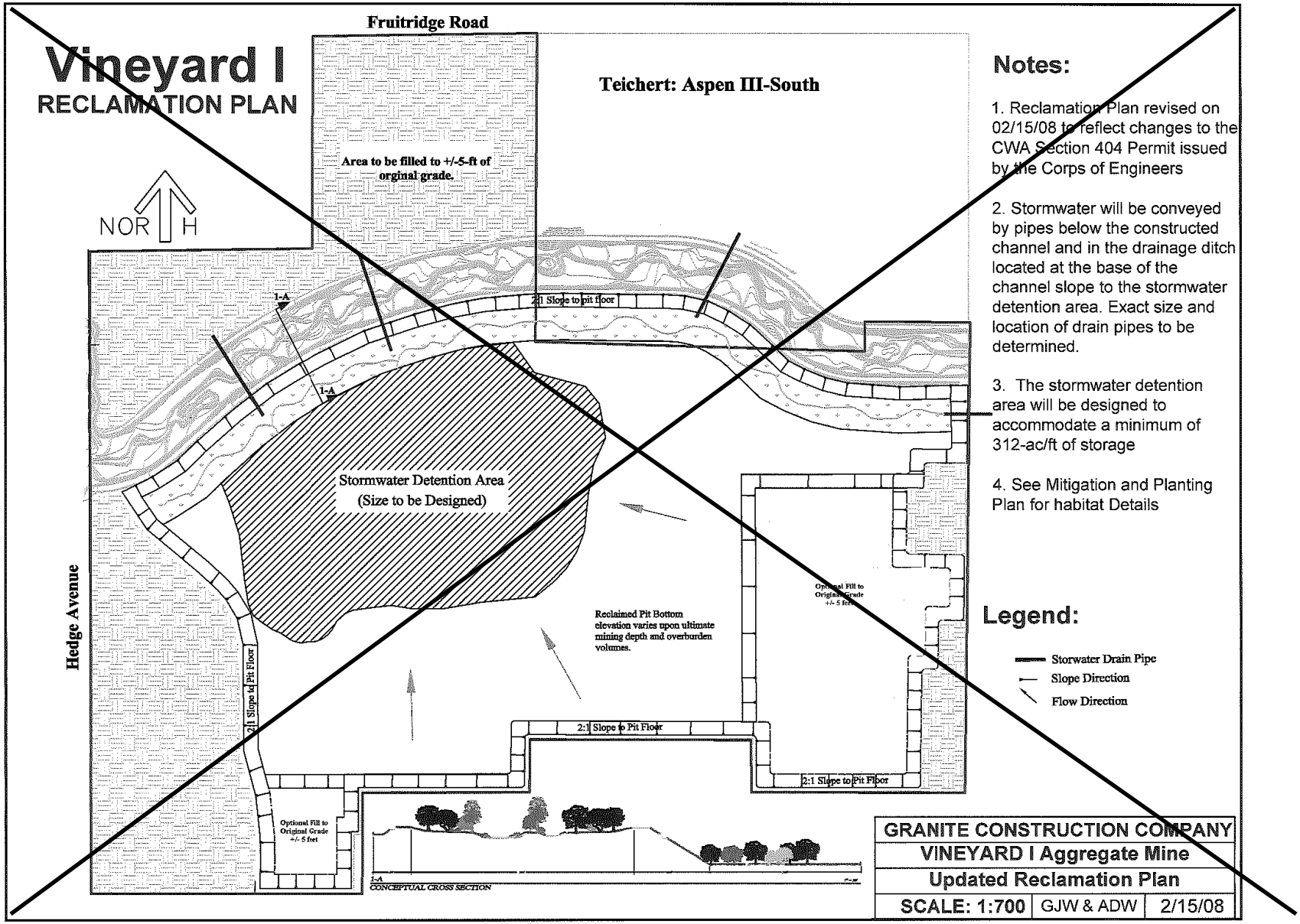
A pumping mechanism from the bypass channel would have been required in order to maintain sufficient water flows to support the various riparian habitats. This pumping requirement produced an operation dilemma for the two applicants, due to stricter water quality standards since project approval. The flaws in the approved reclamation plan brought the two mining companies together and they jointly collaborated in creating a new design.

The applicants obtained ECORP Consulting, Inc., to develop an at-grade mitigation corridor extending across the three mining sites (Vineyard I, Aspen III South and Aspen IV South), which reflects the proposed reclamation plans. However, subsequent to the project's submittal to the County, Teichert Aggregates decided rather than construct the recreated Morrison Creek channel on Aspen IV South property, Teichert will instead preserve the existing Morrison Creek channel on the Aspen IV South property and construct a Raised Bank Channel outside the floodplain. The proposed Morrison Creek Realigned Channel across Vineyard I and Aspen III South is shown on Plate BR-6 and Plate BR-7. The preserved Morrison Creek and Raised Bank Channel on the Aspen IV South site is shown on Plate BR-8.

ECORP determined that in order to ensure a feasible and functional creek corridor, a 300-foot wide corridor would be necessary. The prior reclamation plan required a 600-foot wide mitigation corridor located at the bottom of the mining pit. The applicants state that the proposed 300-foot wide restored creek corridor will contain the necessary mitigation to satisfy requirements of the various resource agencies. The agencies have indicated that from a biological standpoint, an at-grade creek with riparian habitat will have much higher functional values, compared to an isolated pit bottom habitat area (per Granite response to County initial review letter, dated June 26, 2006).

The U.S. Army Corps of Engineers issued a Section 404 Individual Permit to Granite Construction Company for the Vineyard I mining site on July 25, 2007 (Permit Number: 199400102) and to Teichert Aggregates for the Aspen IV South and Aspen V South mining sites on May 13, 2009 (Permit Numbers: 199400503 and 199400693). ***Teichert received an amended Section 404 permit from the U.S. Army Corps of Engineers on May 3, 2012 that reflects the current proposed change to now preserve Morrison Creek on Aspen IV South.*** The issued permits are herein incorporated by reference and are available for viewing at the ***Planning and Environmental Review*** Division ~~of Environmental Review and Assessment~~ office, 827 7th Street, Room 220, Sacramento, CA 95814. ~~Teichert's permit from the U.S. Army Corps of Engineers will be amended (under the same permit number) to reflect the current proposed changes of now preserving Morrison Creek on Aspen IV South~~.

Plate BR-6: Proposed Reclamation Plan for Vineyard I (Morrison Creek Realigned Channel)



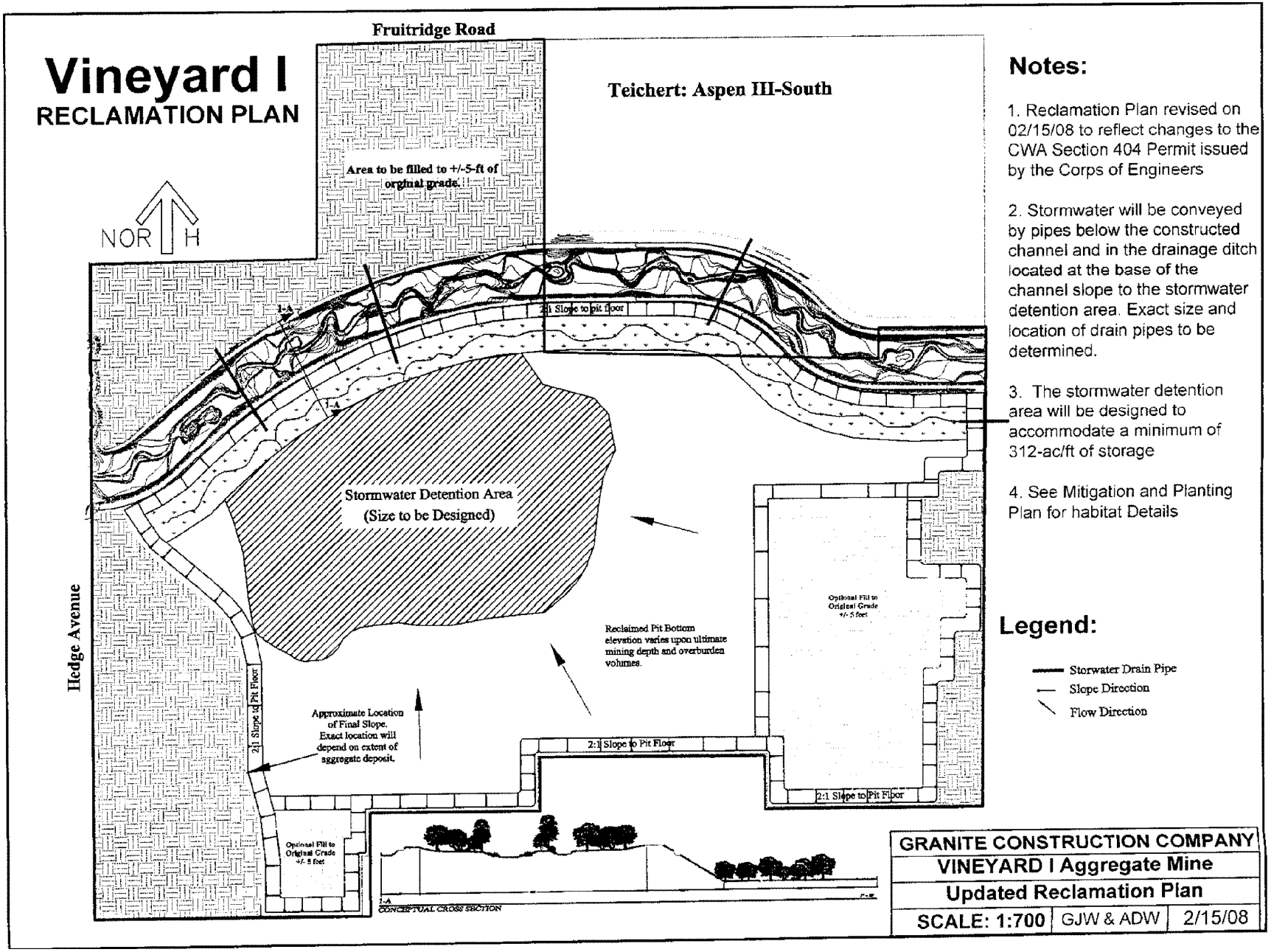

Vineyard I
RECLAMATION PLAN
NORTH
Fruitridge Road
Teichert: Aspen III-South
Area to be filled to +/-5-ft of orginal grade.
2:1 Slope to pit floor
Stormwater Detention Area
(Size to be Designed)
Reclaimed Pit Bottom elevation varies upon ultimate mining depth and overburden volumes.
Optional Fill to Original Grade +/- 5 feet
Approximate Location of Final Slope. Exact location will depend on extent of aggregate deposit.
2:1 Slope to Pit Floor
Hedge Avenue
CONCEPTUAL CROSS SECTION
Notes:
1. Reclamation Plan revised on 02/15/08 to reflect changes to the CWA Section 404 Permit issued by the Corps of Engineers
2. Stormwater will be conveyed by pipes below the constructed channel and in the drainage ditch located at the base of the channel slope to the stormwater detention area. Exact size and location of drain pipes to be determined.
3. The stormwater detention area will be designed to accommodate a minimum of 312-ac/ft of storage
4. See Mitigation and Planting Plan for habitat Details
Legend:
Storwater Drain Pipe
Slope Direction
Flow Direction
GRANITE CONSTRUCTION COMPANY
VINEYARD I Aggregate Mine
Updated Reclamation Plan
SCALE: 1:700
GJW & ADW
2/15/08

Plate BR-7: Proposed Reclamation Plan for Aspen III South (Morrison Creek Realigned Channel)

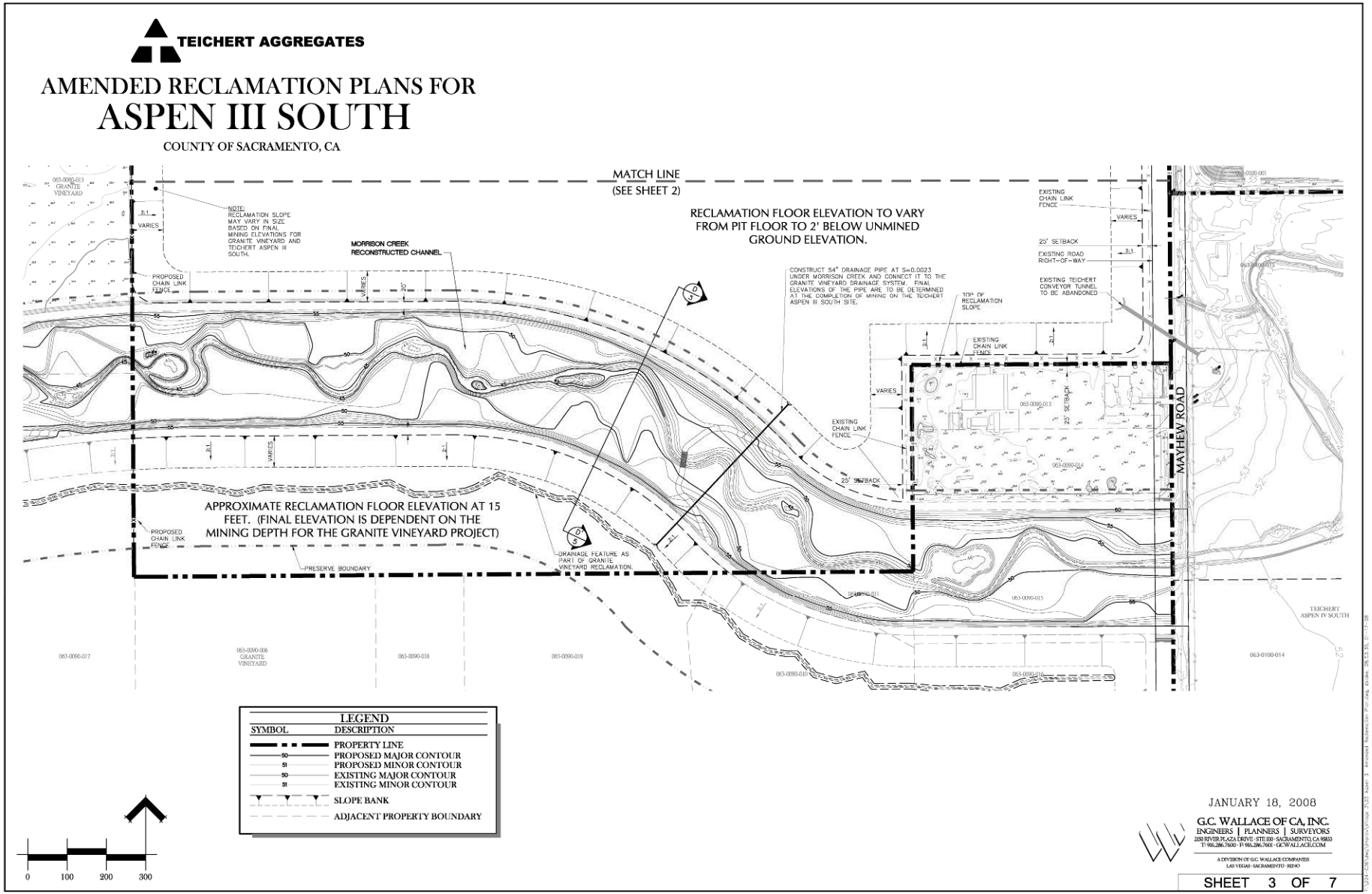
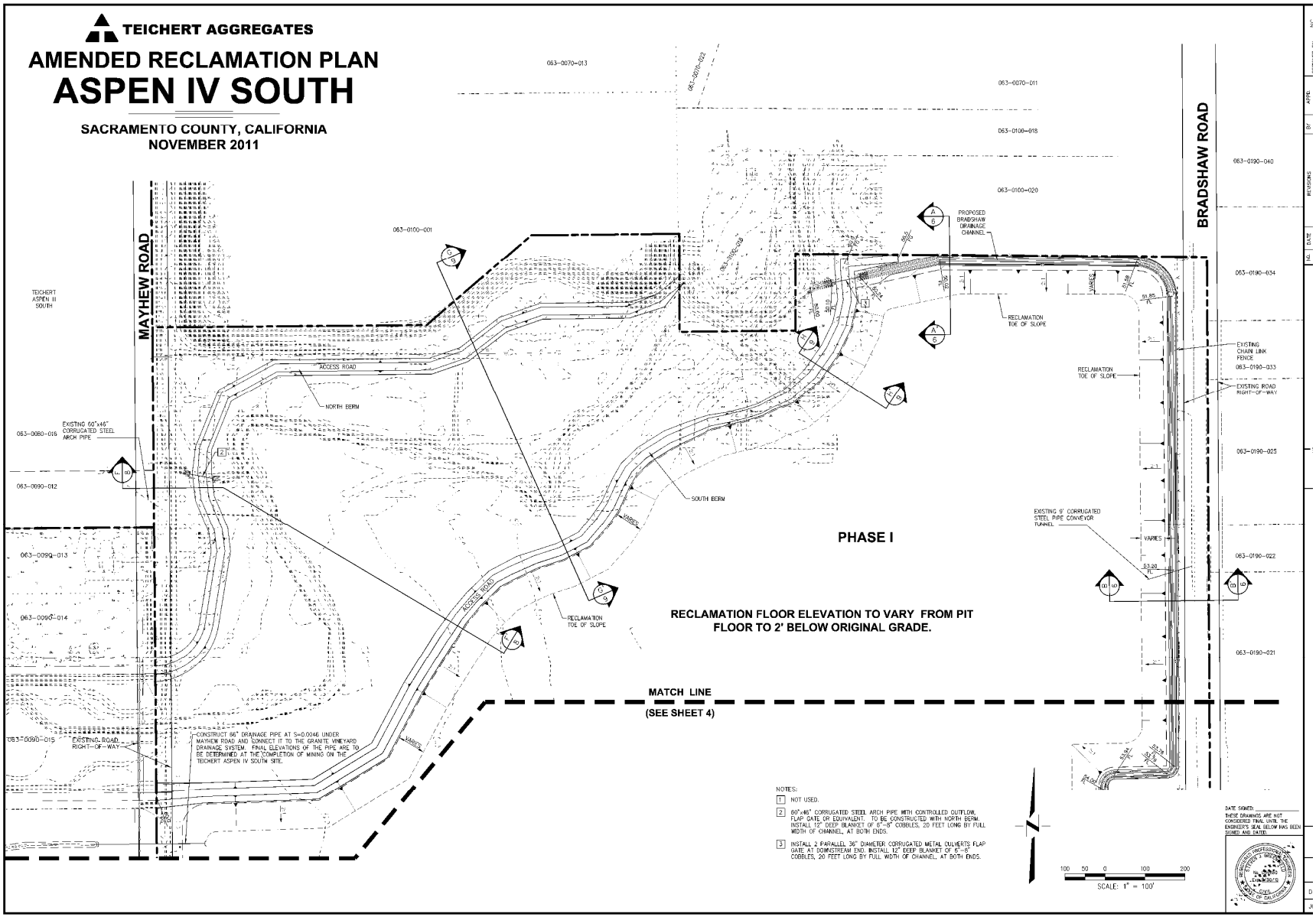


Plate BR-8: Proposed Reclamation Plan for Aspen IV South (Morrison Creek Raised Bank Channel)



STANDARDS OF SIGNIFICANCE

Appendix G of the California Environmental Quality Act (CEQA) Guidelines and the Sacramento County General Plan provide guidance for assessing the significance of potential environmental impacts. Relative to biological resources, a project will normally have a significant effect on the environment if it will:

- Have a substantial adverse effect, either directly or indirectly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service;

- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service;

- Have substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;

- Interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;

- Conflict with any local policies or ordinances protecting biological resources, such as tree preservation policy or ordinance; or

- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation.

ENVIRONMENTAL IMPACTS AND MITIGATION

In the following sections, the impacts as identified in the prior FEIR/EIS are presented and an analysis of the proposed Morrison Creek Realigned Channel in mitigating those impacts, as well as new impacts as a result of the Morrison Creek Realigned Channel and mining of the Vineyard I expansion site follows.

Table BR-1 below, is a summary of the comparison between the approved bypass channel/pit-bottom mitigation corridor (at 600 feet wide) and the proposed 300-foot wide Morrison Creek Realigned Channel.

Table BR-1: Comparison of the Approved and Revised Mitigation Corridor

Approved Bypass Channel/ Pit Bottom Mitigation Corridor	**Proposed Morrison Creek Realigned Channel * (Vineyard I and Aspen III South sites)**
127-foot perimeter bypass channel	N/A
600-foot wide pit-bottom mitigation corridor contains :	300-foot wide at-grade mitigation corridor contains:
12.24 acres of Morrison Creek	13.33 acres of Morrison Creek
11.74 acres of seasonal marsh	1.11 acres of seasonal marsh/wetland
N/A	300-foot wide Ephemeral Drainage corridor includes:
N/A	1.65 acres ephemeral drainage
8.76 riparian woodland	10 acres riparian woodland and marsh
16.12 acres Oak Savannah	30 acres of Valley Oak woodland
	36 acres grassland
Total mitigation: 49.24 acres	Total mitigation: 89 acres
* 3.79 acres of seasonal wetland/marsh and 0.53 acres of vernal pool credits were also purchased offsite.	

As shown in Table BR-1, the revised Morrison Creek Realigned Channel increases the acreage of recreated Morrison Creek, wetlands, and riparian/ oak plantings.

VEGETATION

The prior FEIR/EIS concluded that the proposed project would result in the systematic loss of all existing natural vegetation communities of 881.7 acres (or 91%) of the 966.3-acre project site. Plant communities adversely affected by the proposed project would include: most of the riparian forest/riparian scrub habitat (approximately 14 acres); wetland habitat and waters of the U.S. (19.83 acres);

> *ruderal habitats; pastures; and cultivated areas. This was found to be a significant Impact.*

Mitigation from the prior FEIR/EIS required that the project proponents implement a wetland mitigation plan. It was through this wetland mitigation plan, in consultation with the USFWS, the Corps, CDFG and the County, that it was determined that the flows were to be regulated and maintained within the mitigation corridor (now the proposed Morrison Creek Realigned Channel). The channel was required to be sufficient in size to support the mosaic of habitats proposed for the corridor.

The proposed Morrison Creek Realigned Channel effectively accomplishes the prior mitigation. The proposed Morrison Creek Realigned Channel was created at the request of the regulatory agencies, as well as various environmental groups since the prior reclamation proposal of a bypass channel and a channel at the bottom of the mining pit was not favorable to either group. The project proponents then consulted with ECORP to create a better mitigation corridor. The Morrison Creek Realigned Channel has been designed to provide increased and more diverse habitat value compared what was present prior to project impacts.

The Morrison Creek Realigned Channel will vary in width between 200 and 500 feet wide, will accommodate 100-year flood flows of Morrison Creek and is consistent with the issued Section 404 permit. The Morrison Creek Realigned Channel contains tree plantings which mitigates the riparian and oak woodlands lost by the prior project (further discussed below in the Native Trees section).

ECORP has prepared a *Wetland, Oak Woodland and Riparian Mitigation Monitoring Plan* for the both the Granite Vineyard I mining site (revised date July 20, 2007) and Teichert Aspen IV South and Aspen V South mining sites (revised date May 8, 2009). The *Wetland, Oak Woodland and Riparian Mitigation Monitoring Plans* for the two mining sites have been approved by the Corps and are included as Appendix D1 ***and Appendix D2***. In this plan, under Chapter 2.2 (Characteristics, functions and values of habitat prior to impact) is the following description:

> [t]he functional capabilities of Morrison Creek at the Vineyard I site were assessed. Using the Hydrogeomorphic methodology, the reach of Morrison Creek that intersects the project site was considered a ‘moderate value riparian wetland’ scoring a 0.55 out of a possible 1.0. According to Zentner and Zentner, Morrison Creek at the project site has been partially channelized, reducing the creek systems capability to provide geomorphologic and hydrologic functions. In addition, the site has been historically farmed or otherwise disturbed up to the edge of the channel, eliminating native riparian trees and decreasing the native biological functions of the site.

In Chapter 2.3, (Characteristics, Functions and Values of Habitat to be Created/ Enhanced) the following is provided:

Morrison Creek will be enhanced from its current state. As mentioned above, Morrison Creek prior to mining was partially channelized, with mostly sparse non-native riparian habitat. To create improved wildlife, creek and wetland habitat (i.e., increased functions and values) and a more aesthetic feature, the creek will be re-contoured and planted with native trees and shrubs both as mitigation for the removal of native oak and black walnut trees, and to enhance the overall habitat quality of the riparian system.

In addition, an ephemeral drainage will be constructed south of the restored creek corridor and planted with riparian species. The constructed ephemeral drainage is to provide additional functions and values (i.e., additional length) for the loss of channel length.

Impacts and mitigation efforts related to wetlands and the creek are discussed separately, in the Wetlands impact discussion below.

Although mining activities of the project will result in permanent impacts to various habitats at the site, the proposed Morrison Creek Realigned Channel will effectively replace the riparian and wetland habitats onsite. The overall goal of the Morrison Creek Realigned Channel is no net loss of wetland, riparian and oak woodland functions and values as a result of the project. The monitoring plan in the *Wetland, Oak Woodland and Riparian Mitigation Monitoring Plan* outlines monitoring requirements over a ten-year period and has determined the final success criteria for the creek, wetland habitats, vegetation and trees. The maintenance schedule states that there will be annual maintenance inspections of the mitigation site occurring concurrently with other monitoring activities for the first ten years or until mitigation monitoring obligations have been met. The prior mitigation required monitoring efforts for the riparian woodland, riparian scrub and Valley oak savanna habitats be performed for a period of ten years to ensure success of the plantings and development of the habitats anticipated; therefore, submittal of the annual monitoring reports to the ***Department of Community Development*** ~~Division of Environmental Review and Assessment (DERA)~~ will be required as mitigation.

In addition, the prior FEIR/EIS included mitigation that required that after the five year monitoring period, written determination was to be made as to the success or failure of the wetland and habitat mitigation. The Mitigation Monitoring Plan contains success criteria and satisfies this prior mitigation. The prior mitigation does not have to be reiterated.

Granite and Teichert will be responsible for the maintenance activities within the mitigation project area and the Corps-approved easement holder will be responsible for those items/inspections outlined in the Operations and Management Plan (OMP). Once the success monitoring is completed, the Corps-approved easement holder will take over all maintenance activities. In addition, through the OMP, monitoring/ maintenance will occur in perpetuity. Submittal of the recorded Conservation Easements has been included as mitigation.

Both the ~~The~~ Morrison Creek Realigned Channel ***and Raised Bank Channel*** ~~has~~ ***have*** been approved by the regulatory agencies. ~~The Raised Bank Channel portion of the project is currently undergoing slight revisions to the *Wetland, Oak Woodland and Riparian Mitigation Monitoring Plan* and will be reviewed by the Corps; Teichert desires to receive an amended Section 404 permit from the Corps at the completion of review~~. Implementation of the ***respective*** *Wetland, Oak Woodland and Riparian Mitigation Monitoring Plan* and recommended mitigation for submittal of annual reports will ensure that the loss of vegetative communities on the project site is adequately compensated. With mitigation, impacts are considered less than significant.

Level of Significance Before Mitigation: Significant

Mitigation Measures:

BR-1 ~~Prior to the issuance of a Work Authorization Permit,~~ ***Granite Construction shall*** submit to the ~~County Division of Environmental Review and Assessment (DERA)~~ ***Department of Community Development*** the recorded Conservation Easements for the ***Morrison Creek Realigned Channel*** ~~project sites.~~ ***by the date set in the issued U.S. Army Corps of Engineers Section 404 permit (November 30, 2013). Teichert Aggregates shall submit to the Department of Community Development the recorded Conservation Easement for the Raised Bank Channel by the date set in the issued U.S. Army Corps of Engineers Section 404 permit (May 13, 2017). In the event that the U.S. Army Corps of Engineers changes the date for either permit, a copy of the recorded Conservation Easement shall be submitted within five (5) days of the new approved date.***

BR-2 ***The mining operators for Vineyard I and Aspen IV South shall*** Implement the***ir respective*** *Wetland, Oak Woodland and Riparian Mitigation Monitoring Plan* (refer to Appendix D1 ***and Appendix D2***) ***and*** Submit to the ***Department of Community Development*** ~~County DERA~~ ***their respective*** annual monitoring reports ***as specified in their*** **Wetland, Oak Woodland and Riparian Mitigation Monitoring Plan**. The reports shall present the status of the creek, wetlands, drainage, oak woodland and riparian habitats, including individual wetland data, photo-documentation, status of the riparian and oak woodland plantings, and any recommended remediation. The report***s*** shall also include an assessment of the monitoring results against the success criteria described in the *Wetland, Oak Woodland and Riparian Mitigation Monitoring Plan.*

~~A~~ ***The*** monitoring report***s*** ~~will~~ ***shall*** be prepared and submitted to the ***Department of Community Development*** ~~County~~ (and Corps and CDFG) for each of the monitoring years by December 31st of each monitoring year. The report***s*** shall include:

a. A map showing the Preserve including wetland locations, location of various monitoring activities, and photo points;

b. Hydrology, vegetation, and photographic monitoring results as described in the ***respective*** *Wetland, Oak Woodland and Riparian Mitigation Monitoring Plan*;

c. An assessment of the monitoring results against the established success criteria;

d. A description of the overall site conditions and any management actions taken during that year; and

e. Any recommended management or remediation actions to be conducted (if necessary, a contingency plan, as described in Section 8.2 of the *Wetland, Oak Woodland and Riparian Mitigation Monitoring Plan* will be prepared).

If any revisions to the Morrison Creek Realigned Channel occur during the first ten years, a letter indicating proposed changes shall be submitted to ***the Department of Community Development*** ~~DERA~~. If changes require approval by either the Corps or CDFG an approval letter from the respective agency shall be submitted to ***the Department of Community Development*** ~~DERA~~.

At the end of the ten-year monitoring period***s***, monitoring will cease if the Morrison Creek Realigned Channel ***and Raised Bank Channel are*** ~~is~~ found by the ***Department of Community Development*** ~~County~~, Corps and CDFG to be in substantial compliance with the established success criteria. Monitoring will be extended beyond the ten-year period only for those habitats that are not meeting success criteria.

Level of Significance After Mitigation: Less than Significant

Native Trees

The prior FEIR/EIS did not indicate how many oak trees would be impacted as a result of the project. However, the prior FEIR/EIS included mitigation for compensation of trees to be removed and included preservation/ protection of oak trees that were to remain on the project site.

The prior FEIR/EIS included a mitigation measure for the proposed project (Part A), for impacts to native trees. Mitigation Measure 5 required that the project proponents comply with the County's standard tree preservation ordinance for all oak trees on the site to be preserved and protected from mining operations. This mitigation measure also required in-kind, inch-for-inch compensation for any oak tree greater than four inches dbh and all landmark size (19 inches dbh or greater) native trees (except cottonwoods and willows) proposed for removal.

NATIVE OAK TREES BACKGROUND

Over the years, a significant number of trees have been removed throughout Sacramento County to facilitate urban development, to accommodate agriculture, to provide fuel wood, or to be milled into building materials. It is clear that with continued urban and rural development, the County's woodlands and the variety of species they support will disappear unless concerted efforts are pursued to protect this valuable resource. Sacramento County has identified the value of its native and landmark trees and has adopted measures in its General Plan to provide for their preservation. The Tree Ordinance (Chapter 19.04 of the County Code) Section 19.04.030 (6) provides the following definition: "Landmark tree" means an especially prominent or stately tree on any land in Sacramento County, including privately owned land." Heritage trees are native oak trees that are 19" diameter at breast height (dbh) or larger. All native oak trees are protected under the Conservation Element of the County of Sacramento General Plan. When development requires removal of native oaks, replacement mitigation is required pursuant to County policy. The Conservation Element also requires the preservation of landmark trees, as well as non-oak natives, such as California black walnuts and California sycamores, wherever possible. It should be noted that to be considered a tree, as opposed to a seedling or sapling, the tree must have a diameter at breast height (dbh) of at least 6 inches or, if it has multiple trunks of less than 6 inches each, a combined dbh of 10 inches.

Native oaks, when young trees, are very tolerant of their environment and make excellent and adaptable landscape assets. The mature native oak is an invaluable part of our environment, but any substantial change in its environment will weaken a healthy specimen and may eventually kill it. Native oak trees have adapted to the long dry summers of the Sacramento Valley, primarily through the development of their root system. The initial root is a taproot extending deep for more dependable moisture. As the oak grows, the taproot is outgrown by an extensive lateral root system that spreads horizontally out from the trunk to, and well beyond, the dripline. For a mature oak, this horizontal root system is the primary supporter of the tree for the rest of its life. It includes the important feeder roots, which absorb moisture and nutrients. Nearly all of the lateral root system occurs within the top five feet of the soil surface. In shallower soils, the root system is concentrated in even a shallower zone, typically 1 to 2 feet below the surface. As oak trees mature, particularly in the summer-dry Sacramento Valley, deep growing vertical roots form off the laterals, usually within ten feet of the trunk. These are called "sinker" roots and they exploit deeper soil moisture and add stability to an increasingly massive tree. By the time the mature tree has established an elaborate root system designed for its environment and particular site conditions, it has lost the vigor of youth. It is less tolerant to change and/or damage and can less easily support its massive living structure.

The amount of soil that can be removed from beneath an oak before permanent root damage occurs varies depending on several factors including the individual tree size, species, location, and health. Although small amounts of soils may sometimes be removed without permanently damaging an oak, it is generally recommended that no soil be removed and the area beneath the tree remains undisturbed. The addition of fill

and the operation of heavy equipment beneath an oak tree which compacts the surface soils, prohibits the natural exchange of gases between the feeder roots and the atmosphere, and also restricts water percolation to the root zone.

Experience has found that encroachment of greater than 20 percent of an oak's dripline can be expected to adversely affect the tree's health and longevity; as such it is County policy to require partial mitigation when encroachment exceeds 20 percent, but less than 50 percent. More than 50 percent encroachment usually leads to the death of an oak tree, thus more than 50 percent encroachment requires full compensation.

Granite Construction Company received their Army Corps of Engineers Individual Permit (Permit Number: 199400102) on July 25, 2007. Teichert Aggregates received their Army Corps of Engineers Individual Permit (Permit Number: 199400503) on May 13, 2009. An amended Permit ~~will be~~ ***has been*** issued by the Corps for the now proposed Raised Bank Channel on Aspen IV South.

This section will separately analyze the impacts of the two mining companies. Based on the Mitigation Monitoring and Reporting Program (MMRP) file for the Aspen III South site, it has been documented that that there were no trees located on the Aspen III South site. This section analyzes the impacts to native trees on the Vineyard I and Aspen IV South properties. Impacts on the Vineyard I (Granite) mining site will be presented first, followed by impacts to the Aspen IV South site (Teichert).

Per the Section 404 Individual Permit Special Conditions requirements, Granite and Teichert were required to prepare Mitigation and Monitoring Plans. ECORP prepared a *Wetland, Oak Woodland, and Riparian Mitigation and Monitoring Plan* for Granite's Vineyard I mining site, revised date July 20, 2007. ECORP prepared a *Wetland, Oak Woodland, and Riparian Mitigation and Monitoring Plan* for Teichert's Aspen IV South and Aspen V South mining sites, revised date June 1, 2009. These documents outline the required mitigation of each company and describe the methods by which this mitigation will be accomplished and define how the success of the creation/restoration of the mitigation corridor will be monitored and judged. These documents are hereby incorporated by reference and are available for viewing at 827 7th Street, Room 220, Sacramento, CA, 95814. ECORP also prepared an *Oak Tree Mitigation and Monitoring Plan* for Aspen IV South (November 18, 2011, revision date January 24, 2012) that identifies impacted trees and outlines mitigation and monitoring. This document is included as Appendix D2.

VINEYARD I IMPACTS

Granite submitted an arborist survey conducted by Foothill Associates in February 2001. Based on the arborist report, there were 117 valley oak trees (four inches dbh or greater) and 106 California black walnuts (19 inches dbh or greater) on the Vineyard I site. It was determined that there would be 809 inches dbh of valley oak trees and 2,753 inches dbh of California black walnuts impacted by mining activities, for a total impact of 3,562 inches dbh of native trees removed.

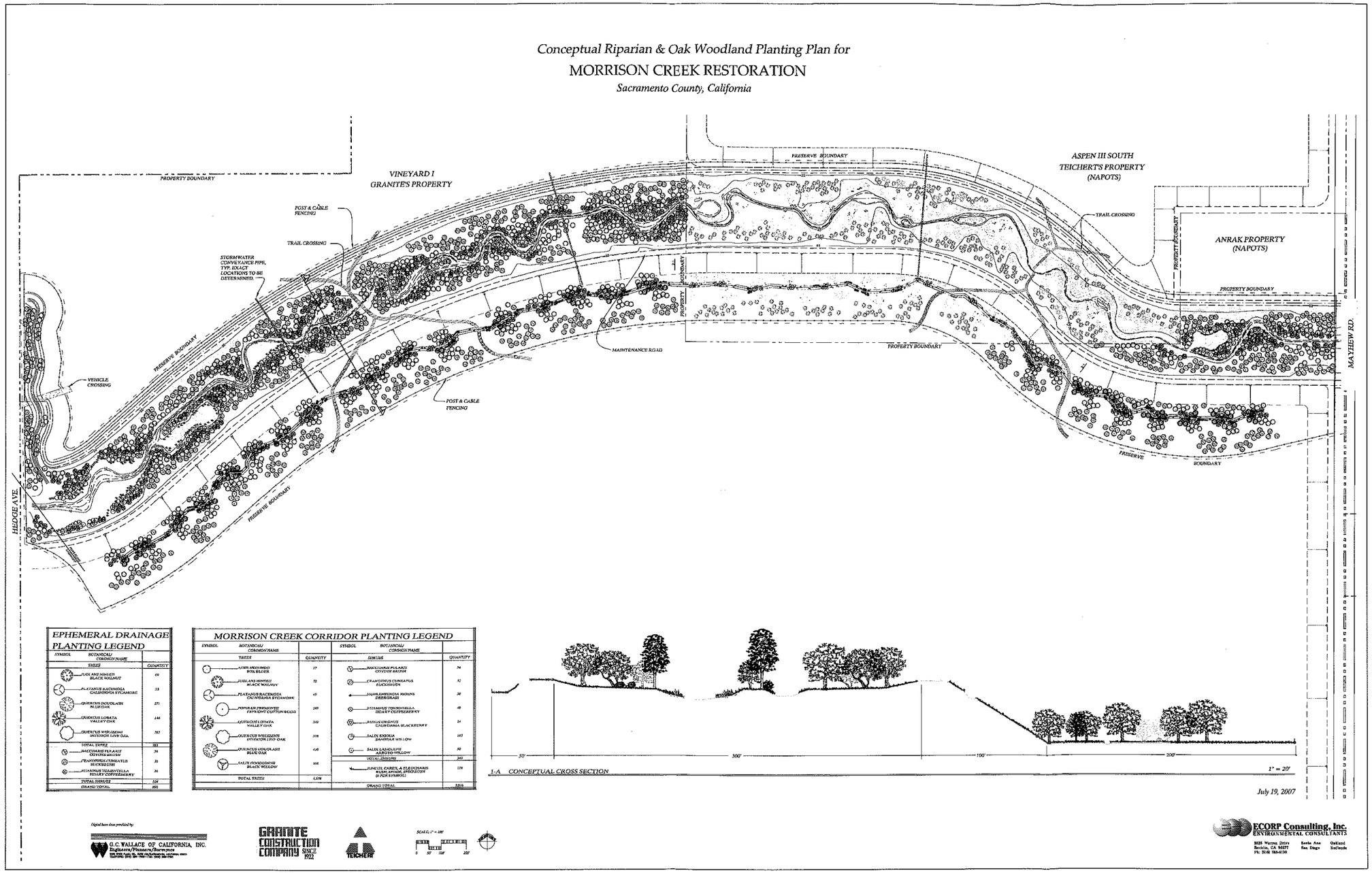
In the Mitigation Monitoring and Reporting Program (MMRP) file of the Vineyard I portion of the prior project is a document titled “Oak Tree Replacement Proposal” submitted by Granite Construction. In this document, it was determined that many of the California black walnuts on the site were non-native (e.g., planted); thus it was agreed that compensation for the California black walnuts could be made on an out-of-kind (rather than in-kind), inch-for-inch basis. Thus, plantings of other native trees (such as California sycamore or Fremont cottonwood) would count towards mitigating impacts to California black walnuts. In addition, it was stated in the letter of understanding that the 15-gallon trees (which would equal 1-inch dbh) for tree compensation could be replaced with 5-gallon size planter trees provided that the trees have grown to the equivalent size of a 15-gallon tree prior to impacts occurring. An establishment rate of 100% during the first three years after planting would be expected by DERA in return for allowing Granite to plant the smaller trees.

The proposed Morrison Creek Realigned Channel and ephemeral drainage constructed on the Vineyard I and Aspen III South mining sites includes riparian and oak woodland plantings that serve as mitigation for the original impacts of mining the Vineyard I site (refer to Plate BR -9). Based on the planting plan outlined in the *Wetland, Oak Woodland, and Riparian Mitigation and Monitoring Plan*, there will be a total of 2,515 trees planted within the Morrison Creek Realigned Channel and 1,055 trees planted in the ephemeral drainage, for a total of 3,570 trees (refer to Table BR-2 for the type and number of trees to be planted). There would be a total of 2,685 oak trees and 215 black walnuts planted within the mitigation corridors. The remaining 770 trees are riparian trees (box elder, California sycamore, Fremont cottonwoods, and black willow trees). Based on these numbers, the planting plan (which as been approved by the U.S. Corps of Engineers), satisfies the required mitigations for Vineyard I mining impacts.

Table BR-2: Vineyard I Mitigation Planting Plan within the Morrison Creek Realigned Channel and Ephemeral Drainage

Morrison Creek Preserve Corridor	
Total compensation required: 3,562 inches	
Riparian Tree Type	**Number of Plantings**
Box Elder (Acer negundo)	75
Black Walnut (Juglans hindsii)	115
California Sycamore (Platanus racemosa)	75
Fremont Cottonwood (Populus fremontii)	230
Black Willow (Salix Gooddingii)	240
Oak Tree Type	
Blue Oak (Quercus douglasii)	675
Valley Oak (Quercus lobata)	530
Interior Live Oak (Quercus wislizenii)	575
Ephemeral Drainage	
Riparian Tree Type	
Black Walnut (Juglans hindsii)	100
California Sycamore (Platanus racemosa)	50
Oak Tree Type	
Blue Oak (Quercus douglasii)	350
Valley Oak (Quercus lobata)	200
Interior Live Oak (Quercus wislizenii)	355
Total Planted	**3,570**
Source: Wetland, Oak Woodland, and Riparian Mitigation Monitoring Plan for the Granite Vineyard I Project, Sacramento County, California (revised date July 20, 2007) by ECORP Consulting, Inc.	

Plate BR -9: Conceptual Riparian and Oak Woodland Planting Plan for Morrison Creek Realigned Channel



The Morrison Creek Realigned Channel, as proposed, will adequately mitigate the original tree impacts due to mining the Vineyard I site.

Construction of the Morrison Creek Realigned Channel will result in tree impacts located within the Mayhew Road right-of-way. Correspondence between Granite and Teichert indicate that Granite will mitigate for their share of the Mayhew Road right-of-way tree impacts on the Teichert Aspen IV South preserve within the Raised Bank Channel. This will be addressed in the Aspen IV South Impacts discussion to follow.

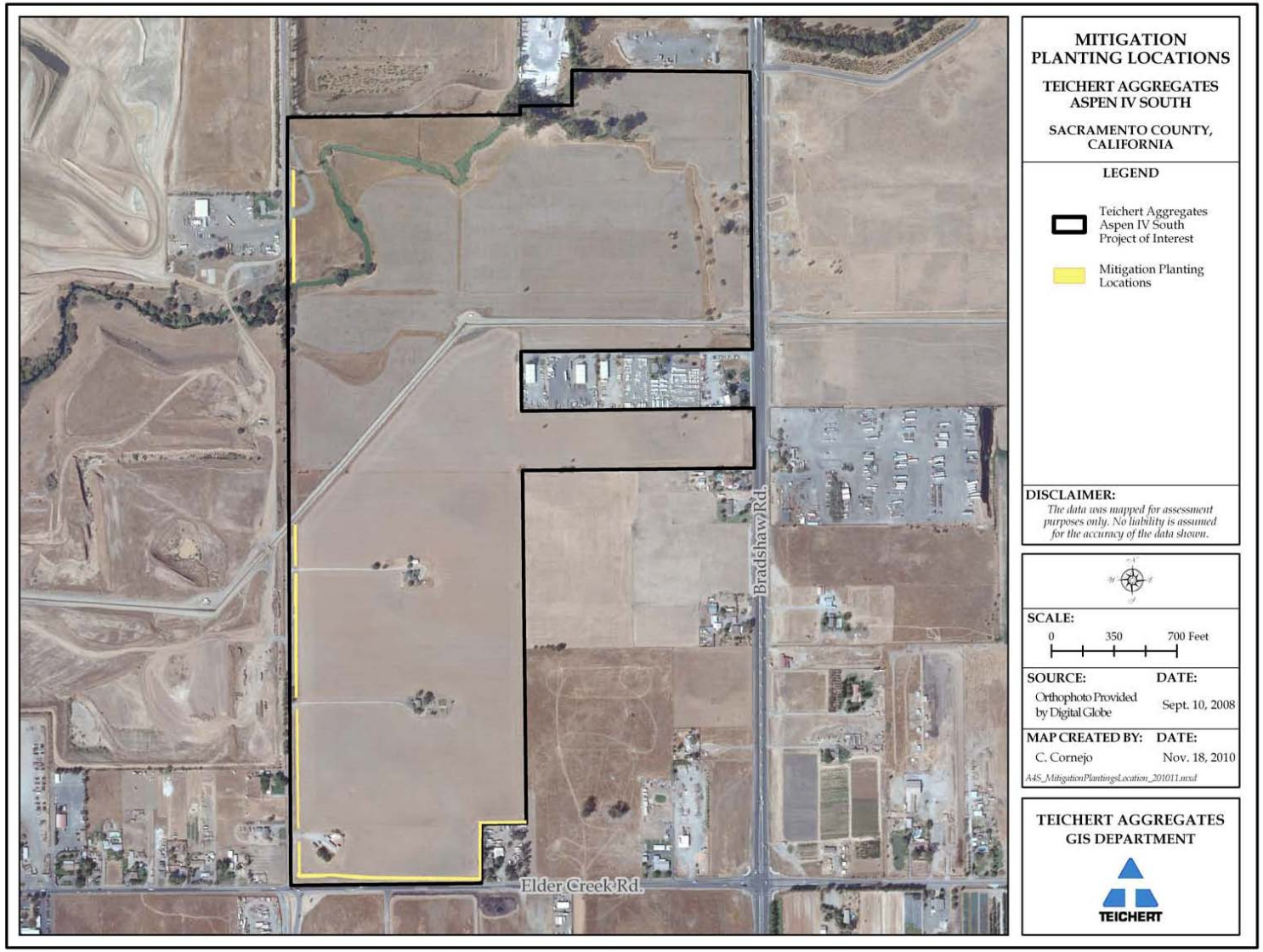
Mining the Vineyard I expansion site will result in additional tree impacts. Based on the Foothill Associates tree inventory (May 2006) of the Vineyard I expansion site, two native trees, greater than 6 inches dbh would be removed as a result of project approval. Tree #224 is a multi-trunk valley oak tree with an aggregate dbh of 13 inches and tree #225 is a multi-trunk Northern California black walnut with an aggregate dbh of 27 inches. Mining the Vineyard I expansion site would result in removal of 40 inches dbh of native trees. Mitigation for native tree compensation has been included for 40 inches dbh of native oak and black walnut trees.

ASPEN IV SOUTH IMPACTS

In the *Wetland, Oak Woodland, and Riparian Mitigation and Monitoring Plan*, it states that according to Teichert biologists, Teichert has planted 45 valley oaks and 95 interior oaks as perimeter plantings at the site. Plate BR-10 shows the locations of these 140 oak trees. These 140 oak tree plantings will count as mitigation towards impacts on the Aspen IV South mining site.

An arborist survey was conducted for the Aspen IV South property in 2005 by ECORP. ECORP and GC Wallace surveyed trees located in the Mayhew Road right-of-way during the winter of 2007. In November 2011, Teichert biologist (B. Baba) re-surveyed the trees on the Aspen IV South property, as well as the trees located in the Mayhew Road right-of-way and updated the respective arborist surveys to account for growth over the past four to six years. All trees grew and some trees that were not included in the prior arborist report because they were saplings (less than 6 inches dbh) in 2005 and 2007 have been recorded since they now meet the County's criteria as a County-regulated oak tree. A total of 875 additional inches dbh was recorded from updating the ECORP 2005 survey of native oak trees. The 2011 arborist survey conducted by Teichert addresses additional oak trees that would be impacted by mining activities associated with changes to the original project footprint

Plate BR-10: Teichert Aspen IV South Landscape and Perimeter Plantings



Based on the revised mining footprint on Aspen IV South, Teichert has provided a list of the trees expected to be impacted from mining activities and from construction of the Raised Bank Channel. Table BR-3 provides a list of the trees to be impacted on the Aspen IV South property.

Table BR-3: Aspen IV South Tree Impacts

Tree Number (From Updated Tree Survey, 2011)	2011 DBH Inches (Rounded to whole number)
801	15
802	16
803	12
804	38
805*	0
806	11
807	17
808	10
809	16
810	23
811	15
812	12
813	21
814	15
815	18
816	8
817	22
818	12
819	10
820	18
821	9
822	13
823	14
824	12
825*	0
826*	0
827	18

*Tree previously mitigated under Aspen IV South Tunnel Project (County Control Number: 90-1607)

Tree Number (From Updated Tree Survey, 2011)	2011 DBH Inches (Rounded to whole number)
828	13
829	24
830	16
831	55
832	32
833	26
834	13
843	12
846	11
847	10
2011-01	15
2011-02	7
2011-03	9
2011-04	7
2011-05	8
2011-06	7
2011-22	9
2011-23	7
2011-24	8
2011-25	8
2011-26	7
2011-29	9
2011-41	11
2011-42	13
2011-50	30
2011-51	29
2011-52	30
Total (51 Trees)	**801**

The list of impacted trees was based on the tree impact graphic and arborist data table provided by Teichert. The tree impact graphic of the Aspen IV South site is provided as Plate BR-11. The trees included in Plate BR-11 include trees that are expected to be directly impacted (i.e., removed), as well as trees that are expected to be indirectly impacted (e.g., cuts and fills within the dripline of the tree). For the purpose of this analysis, all trees are expected to have a direct impact since it is unknown how much fill or cut will occur within the dripline of the trees. As stated in the Background section above, impacts to 50 percent or more of the dripline of a tree could be detrimental to the health and survival ability of the tree. Since it is unknown if indirect impacts will result in less than 20 percent dripline encroachment (no mitigation would be required), or impacts between 20 percent and 50 percent encroachment (partial mitigation would be required), or greater than 50 percent encroachment (full mitigation required), it is assumed that indirect impacts are greater than 50 percent encroachment and full mitigation is required. However, at the time of grading for the construction of the Raised Bank Channel and Morrison Creek Realigned Channel, if grading plans indicate less than 50 percent dripline encroachment, then adjustments for mitigation requirements can be made at that time between staff of the Mitigation Monitoring and Reporting Program (MMRP) section and the applicant. A total of 51 trees would be impacted, resulting in a total of 801 inches dbh of native oak tree impacts.

To determine impacts within the Mayhew Road right-of-way, a centerline was drawn down the center of the right-of-way and trees located on the west side are considered to be a part of Granite's property and the trees located on the east side are considered to be a part of Teichert's property. An impact area was drawn within the right-of-way that corresponds to grading activities due to construction and connection of the Morrison Creek Realigned Channel and Raised Bank Channel (shown on Plate BR-12). The impacts within the Mayhew Road right-of-way have been defined as either a Vineyard I (Granite) or Aspen IV South (Teichert) impact; however, as stated in the Vineyard I impact discussion prior, the tree impacts occurring within the Mayhew Road right-of-way will be mitigated within the preserve of the Raised Bank Channel on the Aspen IV South property.

Plate BR-11: Trees on the Aspen IV South Property

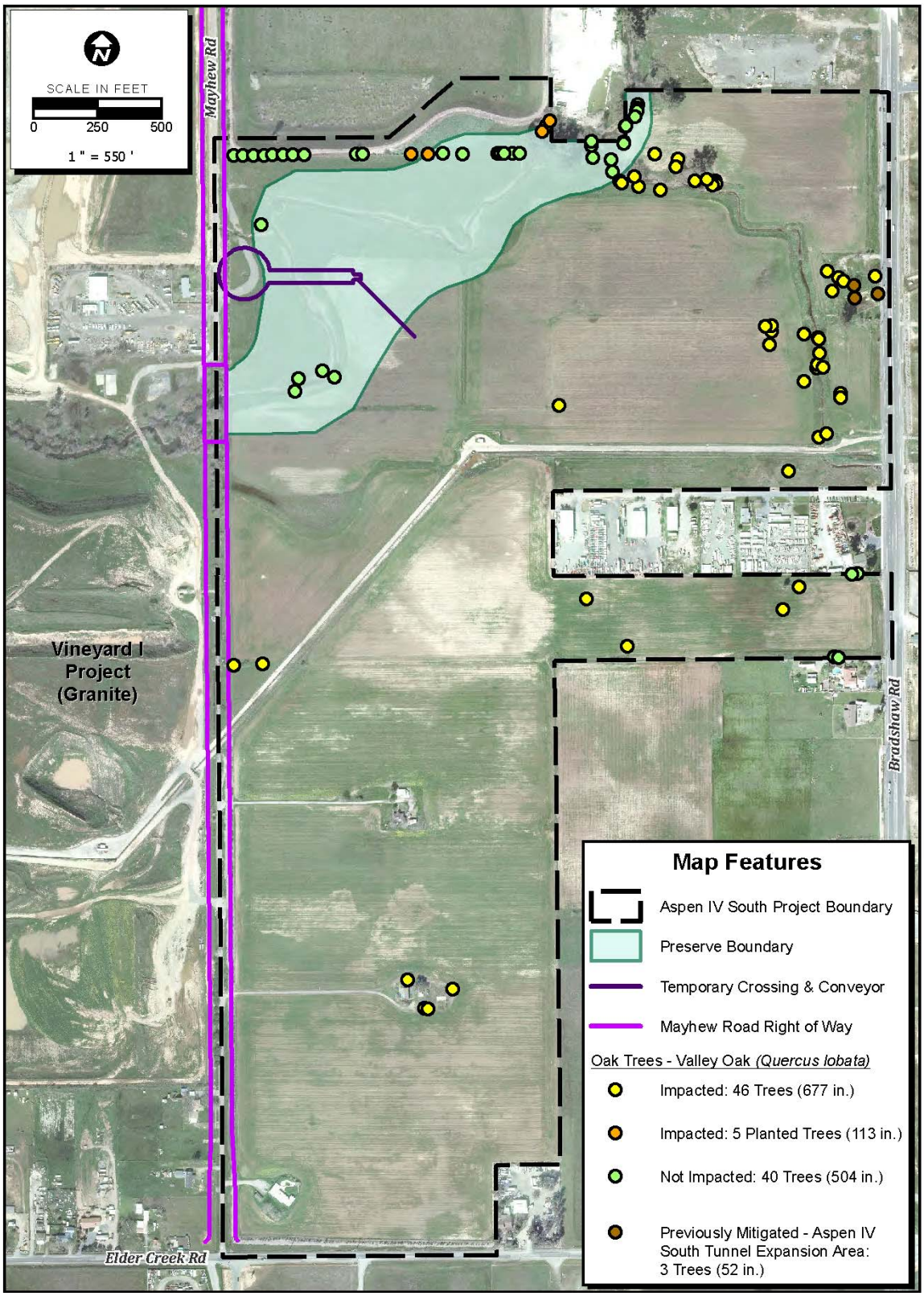
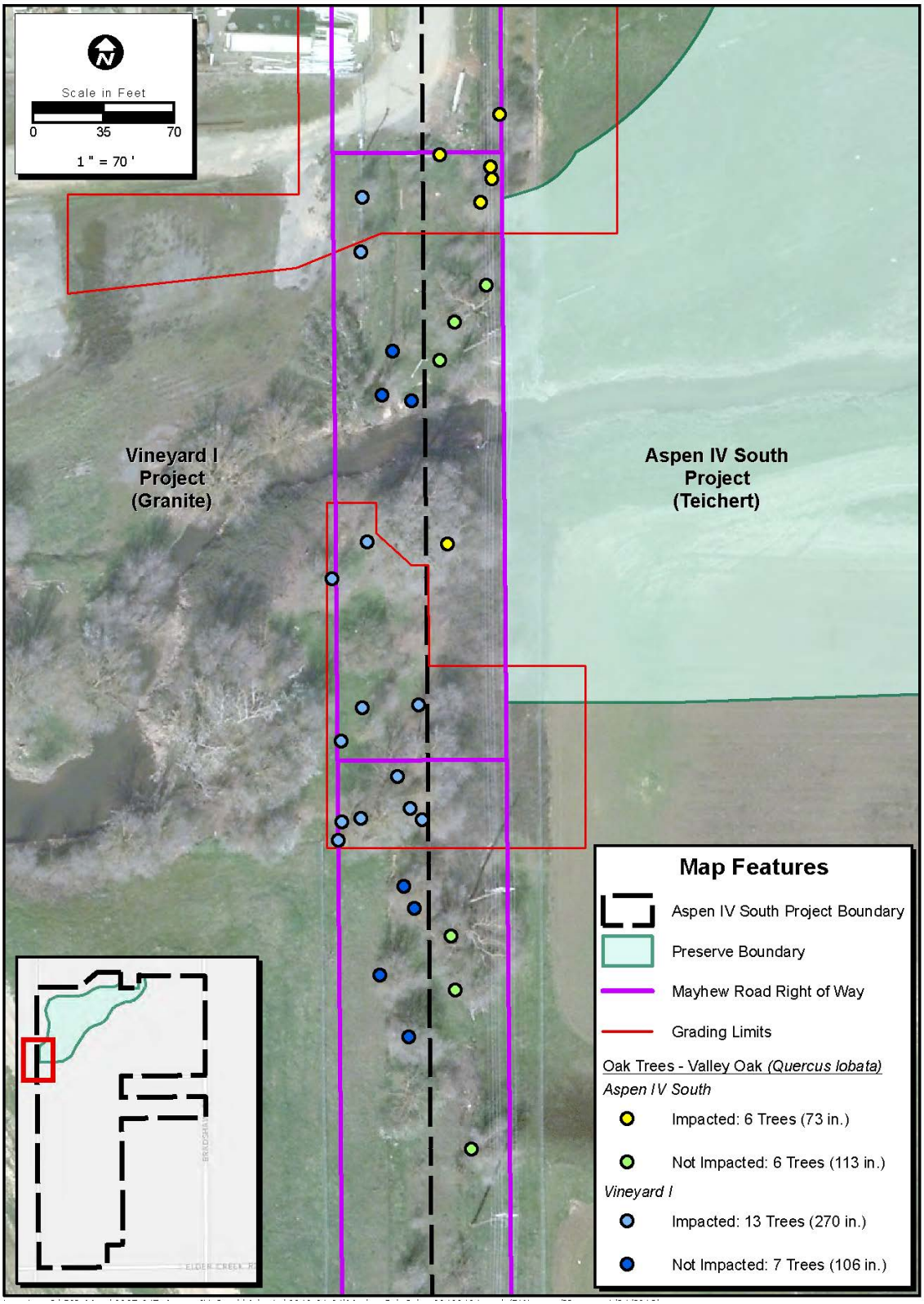


Plate BR-12: Trees Impacted in the Mayhew Road Right-of-Way



As shown on Table BR-4 below, within the Mayhew Road right-of-way impact area, Vineyard I tree impacts consist of 13 trees, for a total of 273 inches and Aspen IV South tree impacts consist of five trees for 74 total inches.

Table BR-4: Mayhew Road Right-of-Way Tree Impacts

Aspen IV South

Tree Number (From Updated Tree Survey, 2011)	2011 DBH Inches (Rounded to whole number)
T-3	16
T-4	10
T-5	20
EC-5	20
2011-53	8
Dead	0
TOTAL	**74**

Vineyard I

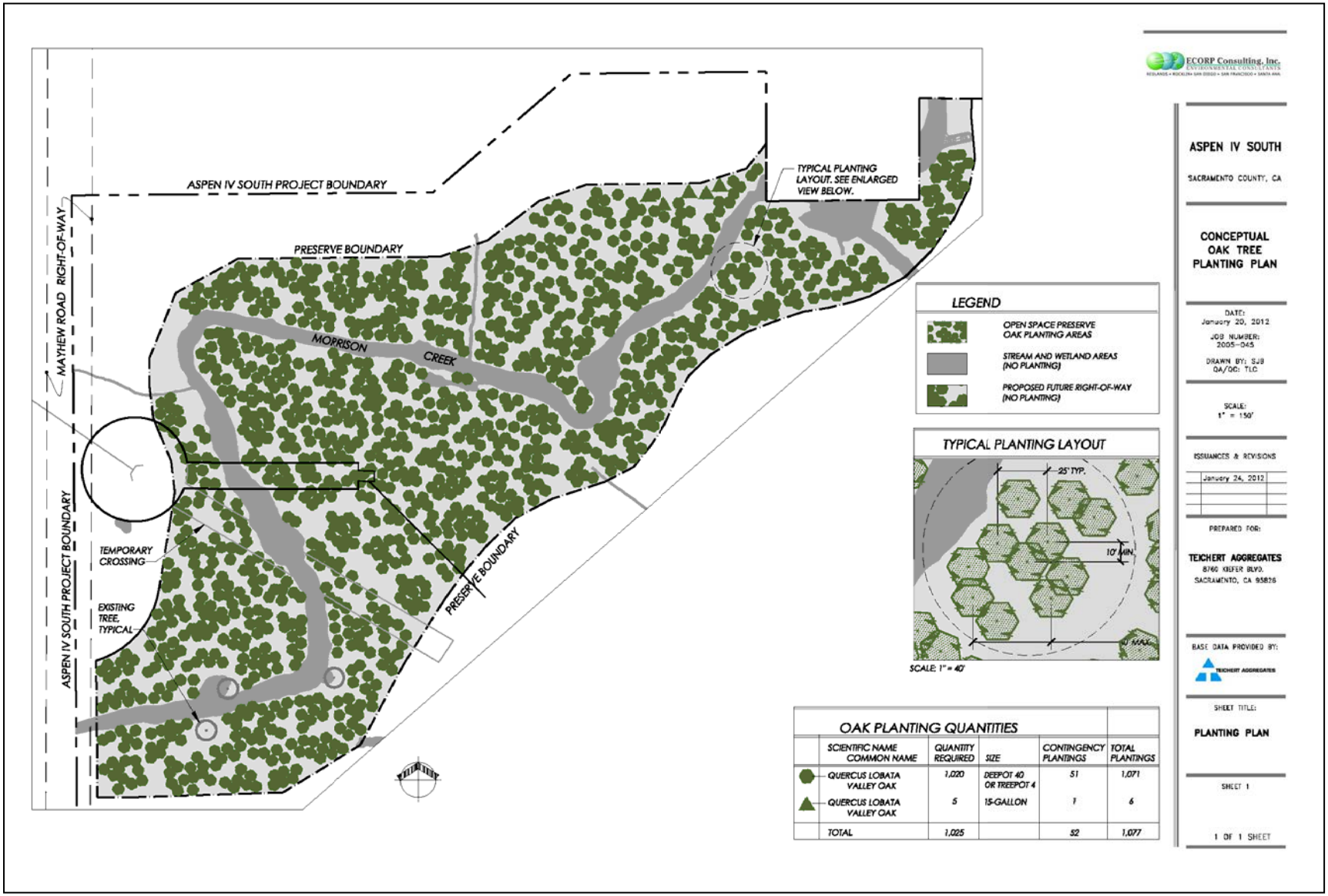
Tree Number (From Updated Tree Survey, 2011)	2011 DBH Inches (Rounded to whole number)
2011-54	8
2011-57	6
1	19
207	50
208	66
209	24
210	13
211	15
212	18
213	13
EC-3	19
EC-4	13
EC-6	9
Total	**273**

Total trees impacted in Mayhew Road Right-of-Way:
18 trees, aggregate 347 inches dbh – 347 inches to be mitigated on Aspen IV South property.

Based on the *Oak Tree Mitigation and Monitoring Plan for Aspen IV South* (revised January 24, 2012), the conceptual oak tree planting plan includes 1,071 deepot valley oak plantings, as well as an additional five (5) 15-gallon valley oak trees within the preserve corridor of the Raised Bank Channel (refer to Plate BR-13). The planting plan also provides for contingency plantings, resulting in a total of 1,077 oak tree plantings.

Total impacts within the Mayhew Road right-of-way (273 inches dbh) and on Aspen IV South (875 inches dbh) total 1,148 inches dbh. As previously stated, Teichert has already provided 140 native oak tree plantings that will apply towards satisfying mitigation requirements on Aspen IV South. Total impacts are now 1,008 inches dbh; the preserve will have 1,077 oak tree plantings which is sufficient to mitigate for tree impacts on Aspen IV South and within the Mayhew Road right-of-way.

Plate BR-13: Aspen IV South Conceptual Oak Tree Planting Plan



CONCLUSION

The revised Morrison Creek Realigned Channel provides for a mitigation preserve for native oak tree impacts due to mining activities on the Granite Vineyard I mining site. The proposed Raised Bank Channel will contain a mitigation preserve for native oak tree impacts associated with Teichert's Aspen IV South mining impacts and impacts within the Mayhew Road right-of-way (both Granite and Teichert impacts). The Morrison Creek Realigned Channel and the Raised Bank Channel adequately compensates for the loss of the riparian areas and oak woodlands that were on the project site prior to mining activities. Mitigation for impacts to vegetation communities requires that the applicant submit annual reports for ten years of monitoring (Mitigation Measure BR-3). This report will include success criteria and ensures no net loss of oak trees. Trees mitigated within the Morrison Creek Realigned Channel and Raised Bank Channel will be subject to this monitoring period.

The perimeter and landscape oak tree plantings that have been completed prior to mining the Aspen IV South mining site mitigates up to 140 inches dbh of oak tree impacts. Of the 1,148 inches expected to be impacted on the Aspen IV South mining site, 140 inches have therefore been compensated within the perimeter plantings. The remaining 1,008 inches dbh of oak trees will be adequately mitigated for within the Morrison Creek Raised Bank Channel preserve. No additional tree compensation will be required of Teichert for the Aspen IV South site.

Impacts to 3,562 inches dbh of native trees on the Vineyard I mining site will be adequately compensated within the proposed Morrison Creek Realigned Channel. The proposed reclamation plan amendment will add an additional 273 inches dbh of oak tree impacts within the Mayhew Road right-of-way, which will be mitigated on Aspen IV South. Mining of the Vineyard I expansion site will result in additional 40 inches dbh of native tree impacts. Granite will be required to compensate for 40 inches of new tree impacts consistent with the County tree ordinance. It should be noted that compensation mitigation for impacts to the additional 40 inches of oak trees by Granite, requires a three-year monitoring plan. The ten-year monitoring plan will apply to trees planted within the Morrison Creek Realigned Channel and Raised Bank Channel.

Upon compliance with the recommended mitigation, impacts will be reduced to less than significant.

Level of Significance Before Mitigation: Significant

Mitigation Measures:

BR-3 ***The mining operators for Vineyard I and Aspen IV South shall*** Implement Mitigation Measure BR-1 (submittal of recorded conservation easements) and BR-2 (implement the *Wetland, Oak Woodland, and Riparian Mitigation and Monitoring Plan for Vineyard I* [refer to Appendix D1] and the *Oak Tree Mitigation and Monitoring Plan for Aspen IV South* [refer to Appendix D2]*).*

BR-4 The removal of 40 inches ~~by Granite~~ for the Vineyard I expansion site shall be compensated by planting native oak trees (either valley oak/*Quercus lobata*, blue oak/ *Quercus douglasii* and/or interior live oak/*Quercus wislizenii*) equivalent to the dbh inches lost, based on the ratios listed below, at locations that are authorized by the ***Environmental Coordinator*** ~~Department of Environmental Review and Assessment~~. On-site preservation of native oak trees that are less than 6 inches (<6 inches) dbh, may also be used to meet this compensation requirement. A total of 40 inches ~~for Granite~~ will require compensation.

Equivalent compensation based on the following ratio is required:

- One preserved native oak tree < 6 inches dbh on-site = 1 inch dbh
- One D-pot seedling (40 cubic inches or larger) = 1 inch dbh
- One 15-gallon tree = 1 inch dbh
- One 24-inch box tree = 2 inches dbh
- One 36-inch box tree = 3 inches dbh

Replacement tree planting shall be completed prior to tree removal or a bond shall be posted by the ***Vineyard I mining expansion operator*** ~~applicant~~ in order to provide funding for purchase, planting, irrigation, and 3-year maintenance period, should the ***mining operator*** ~~applicant~~ default on replacement tree mitigation. The bond shall be in an amount equal to the prevailing rate of the County Tree Preservation Fund and will be due within one year of posting the bond.

Prior to the issuance of a Work Authorization Permit for the Vineyard I expansion site, a Replacement Oak Tree Planting Plan shall be prepared by a certified arborist or licensed landscape architect and shall be submitted to the Environmental Coordinator for approval. The Replacement Oak Tree Planting Plan(s) shall include the following minimum elements:

1. Species, size and locations of all replacement plantings and < 6-inch dbh trees to be preserved;
2. Method of irrigation;
3. If planting in soils with a hardpan/duripan or claypan layer, include the Sacramento County Standard Tree Planting Detail L-1, including the 10-foot deep boring hole to provide for adequate drainage;
4. Planting, irrigation, and maintenance schedules;

5. Identification of the maintenance entity and a written agreement with that entity to provide care and irrigation of the trees for a 3-year establishment period, and to replace any of the replacement oak trees which do not survive during that period; and

6. Designation of 20 foot root zone radius and landscaping to occur within the radius of oak trees < 6-inches dbh to be preserved on-site.

No replacement tree shall be planted within 15 feet of the driplines of existing oak trees or landmark size trees that are retained on-site. The minimum spacing for replacement oak trees shall be 20 feet on-center.

If oak tree replacement plantings are demonstrated to the satisfaction of the Environmental Coordinator to be infeasible for any or all trees removed, then compensation shall be through payment into the County Tree Preservation Fund. Payment shall be made at a rate of $325.00 per dbh inch removed but not otherwise compensated, or at the prevailing rate at the time payment into the fund is made.

Level of Significance After Mitigation: Less than Significant

WETLANDS

The prior FEIR/EIS concluded that the project would result in the phased destruction of all waters/wetlands on the Vineyard I and Aspen IV South sites. This was considered a Significant Impact.

The proposed project is a reclamation amendment for impacts to Vineyard I, Aspen III South and Aspen IV South mining sites. Table BR-5 below summarizes the impacts to waters of the U.S. associated with the three mining projects. The Aspen III South site does not contain waters of the U.S. Impacts as reported in the prior document to waters of the U.S. from Vineyard I and Aspen IV South sites total 19.0 acres.

Table BR-5: Impact on Waters of the U.S. (from the FEIR/EIS)

Type	Vineyard I	Aspen IV South*
Riparian (Morrison Creek)	12.24	1.09
Tributary	3.84	0.44
Seasonal Wetlands	1.14	0.25
Total	**17.22**	**1.78**

*Updated Aspen IV South wetland impacts are provided in Table BR-6.

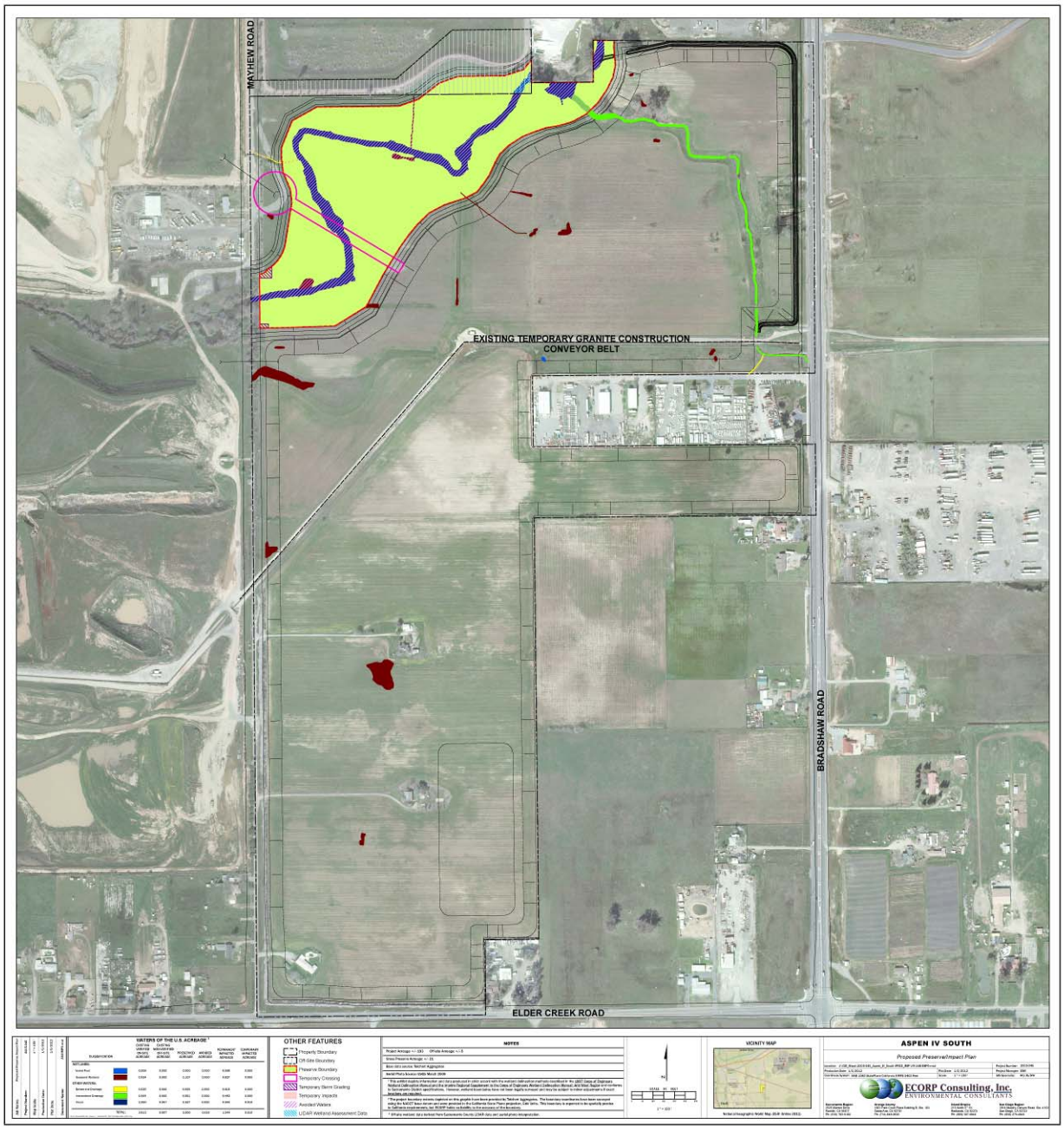
The revisions to the Aspen IV South site results in an overall decrease in impacts to waters of the U.S. An updated wetland delineation was provided by Teichert Aggregates and is provided on Plate BR-14. The wetland delineation shows the preservation area around Morrison Creek, which corresponds to the Morrison Creek floodplain. Table BR-6 provides the current acreages of water features on the Aspen IV South site and provides the impacts to waters of the U.S. of the prior project compared to impacts associated with the proposed project. Although impacts to the creek are eliminated, impacts to wetlands and drainage features have increased under the proposed project. This difference could be attributed to updated acreages of features since the last wetland delineation over 10 years ago. The impact to waters of the U.S. on the Aspen IV South site has decreased by 0.436 acres.

Table BR-6: Comparison of Impact to Waters of the U.S. on Aspen IV South of Prior Project and Proposed Project

Type	Existing Acreage (current acreages)	Prior Impact (in acres)	Proposed Impact (in acres)	Difference in Impact of Proposed Project
Vernal Pool/ Seasonal Wetland	0.942	0.25	0.835	+0.585
Ephemeral/ Intermittent Drainage	1.145	0.44	0.509	+0.069
Creek	2.290	1.09	0	-1.09
Total	3.812	1.78	1.344	-0.436

To mitigate impacts to waters of the U.S. the prior FEIR/EIS required that the project proponents secure a Streambed Alteration Agreement from CDFG and obtain a Section 404 permit pursuant to the federal Clean Water Act. Information from the project proponents indicate that a Streambed Alteration Agreement from CDFG, a Section 404 permit from the U.S. Army Corps of Engineers and a Section 401 Water Quality Certification from the Regional Water Quality Control Board have all been secured. ~~It should be noted that due to the revisions for Aspen IV South, Teichert is in the process of applying for a revision to their issued Section 404 permit~~.

Plate BR-14: Aspen IV South Wetland Delineation Map



The proposed project is a reclamation plan amendment to change the previously approved corridor and bypass channel to what is now proposed as the Morrison Creek Realigned Channel on Vineyard I and Aspen III South and the Morrison Creek Raised Bank Channel on Aspen IV South. The proposed Morrison Creek Realigned Channel eliminates the bypass channel around the mining site and places the recreated stream corridor "at-grade" rather than at the bottom of the mining pit (as previously proposed). The proposed Morrison Creek Realigned Channel has been approved by the Corps of Engineers as adequate compensation for impacts to waters of the U.S. In addition, the Morrison Creek Realigned Channel has been designed to meet the requirements outlined in the issued Biological Opinion from the USFWS.

Special Condition #2 of the issued Section 404 permit for Vineyard I mining site identified that the there would be a loss of 17.22 acres of waters of the U.S. This condition required that as mitigation for the loss of 17.22 acres of waters of the U.S. the applicant shall construct at minimum 13.33-acre Morrison Creek replacement channel (the proposed Morrison Creek Realigned Channel), including an ox-bow diversion channel, a 1.65-acre ephemeral drainage and 1.11 acres of in-channel and/or emergent seasonal and perennial wetland habitats within an approximately 89-acre and 650-foot wide onsite corridor. This is in addition to the 3.79 acres of seasonal wetland/marsh and 0.53 acres of vernal pool habitat credits already purchased. The off-site mitigation credits were purchased at the Laguna Creek Mitigation Bank in August of 2002.

The issued Section 404 permit for Aspen IV South ~~will be~~ ***has been*** updated to reflect to the current project's avoidance of Morrison Creek. Impacts are now 1.344 acres of direct impacts to waters of the U.S.

In the wetland delineation prepared by Zentner and Zentner (1997) for the prior project, there were no wetlands identified on the Vineyard I expansion site, therefore, the current proposal to mine the Vineyard I expansion site will not have any impacts to wetlands/waters of the U.S.

To ensure that the proposed Morrison Creek Realigned Channel adequately mitigates for impacts to waters of the U.S., mitigation measures BR-1 (submittal of recorded conservation easement) and BR-2 (implementation of ten-year monitoring plan) will be required. Implementation of the recommended mitigation measures will ensure impacts to waters are less than significant.

Level of Significance Before Mitigation: Significant

Mitigation Measures:

BR-5 Implement Mitigation Measures BR-1 and BR-2.

Level of Significance After Mitigation: Less than Significant

WILDLIFE

The project site is habitat to various wildlife species. The prior FEIR/EIS made the following conclusions regarding impacts to wildlife:

1. *The proposed project would result in the loss of most existing wildlife habitat and some individual animals within the project site (Significant Impact).*

2. *The loss of approximately two miles of the existing natural stream channel of Morrison Creek would disrupt the wildlife movement corridor across the project site (Less than Significant Impact).*

3. *Post mining/post reclamation activities such as agricultural practices and operation of the processing plant would likely increase human presence within the project site which may disrupt wildlife feeding and breeding (Less than Significant).*

The prior FEIR/EIS concluded that mining the properties would result in habitat loss and wildlife displacement. Habitat destruction and disturbance would displace species into adjacent areas, which may result in increased mortality due to competition for limited resources.

As mitigation, the applicants were required to implement their proposed reclamation plan as presented in their application for surface mining, including the wetland mitigation plans (Zentner and Zentner, 1994; Sugnet and Associates, 1994b and 1994c) to mitigate for impacts to the riparian forest/riparian scrub communities, wetlands and wildlife habitats within the project site. Included in the mitigation was the requirement for monitoring of the riparian woodland, riparian scrub, and Valley oak savanna habitats for ten years to ensure success of the plantings and development of the habitats anticipated. With mitigation, this impact was found to be less than significant.

Mining the Vineyard I expansion site will not change the prior conclusion that mining activities would result in habitat loss and wildlife displacement. The proposed Morrison Creek Realigned Channel will replace lost habitats. Mitigation Measures BR-1 and BR-2 have been recommended to ensure the recreated habitats function adequately. In the *Wetland, Oak Woodland, and Riparian Mitigation and Monitoring Plans,* a wildlife survey will occur once per year and will be conducted in conjunction with vegetation monitoring. Upon compliance, impacts to wildlife will be considered less than significant.

Level of Significance Before Mitigation: Significant

Mitigation Measures:

BR-6 Implement Mitigation Measures BR-1 and BR-2

Level of Significance After Mitigation: Less than Significant

INVERTEBRATES

> *The prior FEIR/EIS concluded that there would be no significant impacts to general invertebrate populations (i.e., non-special status species populations). This impact was considered less than significant.*

The proposed project is a reclamation plan amendment that places the Morrison Creek Realigned Channel at grade, rather than at the bottom of the mining pit, and eliminates the need for a bypass channel, since the Morrison Creek Realigned Channel and Raised Bank Channel will accept up to 100-year flood flows. This amendment to the reclamation plan does not change the prior conclusion that there would be no significant impacts to general invertebrate populations.

Mining the Vineyard I expansion site would also not result in significant impacts to general invertebrate populations (non-special status species; for an analysis of impacts to special status species, please refer to the Special Status Species section below). The prior conclusion remains applicable to the proposed project; impacts to invertebrate populations are considered less than significant.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measures: None Required

FISHERIES

> *The prior FEIR/EIS concluded the following:*
>
> 1. *The proposed project would result in the loss of existing, warmwater fisheries habitat within approximately two miles of Morrison Creek, including oxbow channel, and some individual fish within the project site (Significant Impact).*
>
> 2. *Loss of approximately two miles of the existing stream channel of Morrison Creek would disrupt fish migration (Significant Impact).*

The prior FEIR/EIS determined that habitat destruction and disturbance as a result of mining activities would displace fish species into upstream and downstream areas, which may result in increased mortality due to competition for limited resources. It was acknowledged that fish may become established in the wetland mitigation/restored creek corridor, but some of these fish may be lost if they are entrained in the pump that will be located at the sump pond at the downstream end of the corridor on Vineyard I project site.

The prior FEIR/EIS included mitigation that required the bypass channel to be designed to incorporate suitable habitat features, which were to be developed in consultation with the USFWS, CDFG, Corps and County and which were to provide opportunities for the native Sacramento blackfish as well as other species of aquatic wildlife, including special status amphibians and reptiles.

The revised Morrison Creek Realigned Channel has been designed to mimic a natural stream (meandering channel), will have riparian vegetation planted throughout, and will connect upstream on the Aspen IV South mining site and to the downstream portion of existing Morrison Creek.

The prior project included a pump on the Vineyard I mining site since the recreated creek channel was to be located at the bottom of the mining pit. The pump was necessary to connect the recreated creek channel to the existing Morrison Creek channel at the western boundary of the Vineyard I mining site. However, the proposed Morrison Creek Realigned Channel is now located "at-grade", rather than at the bottom of the mining pit, which eliminates the need for the pump on the Vineyard I mining site. In addition, Morrison Creek will not be impacted on the Aspen IV South mining site; therefore, the prior significant impact relating to the loss of two miles of existing warm water fishery habitats within Morrison Creek has been lessened.

This proposed change to the reclamation plan would not result in a loss of existing stream channel since existing Morrison Creek will not be diverted into the proposed Morrison Creek Realigned Channel until it is constructed and vegetated. The *Wetland, Oak Woodland, and Riparian Mitigation and Monitoring Plan* contains a section on Sacramento blackfish and finds that

> The realignment of the Morrison Creek channel on the Project site will not pose a threat to the Sacramento blackfish. As noted by Moyle and others, the ability of the Sacramento blackfish to survive in warm, turbid waters allows them to persevere despite changes in their environment. Given the relatively short period of stream alteration, coupled with the blackfish's physiological adaptability to extreme environments, construction of the new and temporary channel should not disrupt the propagation of the Sacramento blackfish.

As proposed, the project will not have a significant impact to fish and aquatic species; impacts are now considered less than significant.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measures: None Required

IMPACTS TO SPECIAL STATUS SPECIES

AMERICAN BADGER

> *The prior FEIR/EIS concluded that the proposed project would result in the loss of approximately 880 acres of existing suitable American badger habitat and may result in the loss of existing potential badger den sites. This impact was determined to be less than significant.*

The prior FEIR/EIS concluded that American badgers, which may utilize the site, would be forced to immigrate to adjacent areas during mining activities, which may result in

increased mortality due to competition; however, it is unlikely that individuals would be killed during mining.

The proposed project includes mining an additional 5.6 acres on the Vineyard I mining site, which is surrounded by active mining activities. Since the site is actively being mined, the American badger has likely fled the project site; therefore, mining on the Vineyard I expansion site will not impact the American badger. In addition, the recreated Morrison Creek Realigned Channel and Raised Bank Channel will provide suitable habitat for the badger at completion of mining. Since the project will only result in temporarily displacing the American badger, impacts to the American badger are considered less than significant.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measures: None Required

Pallid Bat and Townsend's Western Big-Eared Bat

> *The prior FEIR/EIS concluded that the project would result in the temporary loss of potential roosting habitat for the Pallid bat and Townsend's western big-eared bat due to impacts to riparian habitat. The project was also found to result in the loss of other potential bat roosting sites due to demolition of abandoned structures on the site.*

The proposed project does not change the conclusion of the prior FEIR/EIS regarding loss of roosting habitat for bats. The loss of roosting habitat was considered to be temporary for the pallid bat and Townsend's western big-eared bat; however, as the riparian habitat will be replaced via the Morrison Creek Realigned Channel and Raised Bank Channel, it is expected that the pallid bat and Townsend western big-eared bat would return to the site at completion of mining.

The Vineyard I mining site contains an abandoned building which will have to be removed prior to mining. The building is potential roosting habitat for bats in the area; removal of the building would be a loss of potential roosting habitat for bats. However, this is not considered a significant impact. Impacts to the pallid bat, Townsend's western big-eared bat and other bats are considered less than significant.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measures: None Required

Valley Elderberry Longhorn Beetle (VELB)

> *The prior FEIR/EIS concluded that the prior project would result in the loss of nine elderberry bushes, including at least three bushes that were observed to be used by the VELB and thus would result in the loss of individual beetles.*

The prior FEIR/EIS stated that there would be seven elderberry bushes removed from the Vineyard I parcel. Three of these were observed to contain emergence holes typical of the VELB. These seven elderberry bushes contained 448 stems with diameters of one inch or greater. Two elderberry bushes on the Aspen IV South site were to be removed due to mining activities. Mitigation required elderberry bushes to be planted within the mitigation corridor on the Aspen IV South parcel following USFWS *Mitigation Guidelines for the Valley Elderberry Longhorn Beetle* (September 19, 1996).

The proponents for the Aspen IV South mining site were issued a Biological Opinion from the USFWS in May 2009, completing their informal (Section 7) endangered species consultation for impacts to special status species. ECORP conducted surveys on May 3 and June 16, 2006 and B. Baba, a biologist for Teichert Aggregates, conducted a survey on April 27, 2009. Neither survey identified elderberry shrubs on the Aspen IV South mining site. Therefore, the Service concurred with the applicant (Teichert) that mining the Aspen IV South site would not affect the VELB.

The proponents for the Vineyard I mining site completed their Section 7 consultation with the USFWS for their impact to the VELB. The service issued a Biological Opinion on March 18, 2002. The Biological Opinion stated that the proposed project may adversely affect the VELB through the destruction of its habitat, as suitable habitat and evidence of the species was identified on the Vineyard I mining site.

The Service had determined that it was appropriate to append the Granite Construction Vineyard I Aggregate Mining project to the Service's September 19, 1996, *Programmatic Formal Consultation Permitting Projects with Relatively Small Effects on the Valley Elderberry Longhorn Beetle Within the Jurisdiction of the Sacramento Field Office, California* (Programmatic Consultation) (Corps File # 199600065). In the issued Biological Opinion for the Vineyard I mining site, the USFWS determined that the riparian habitat associated with Morrison Creek contained elderberry shrubs, the necessary habitat for the federally threatened valley elderberry longhorn beetle (VELB). The Service made the determination that the proposed project will adversely affect the beetle by removing seven elderberry shrubs with stems greater than one inch diameter at ground level from the project site. The USFWS required Granite Construction to either: (1) purchase beetle credits at a Service-approved conservation bank equivalent to compensate for 410 elderberry plantings and 782 associated native plant plantings or (2) establish a Service-approved beetle conservation area that contains at least 410 elderberry plantings and 782 associated native plant plantings within at least 4.93 acres. Granite purchased 120 VELB units representing 410 elderberry bush seedlings and 782 associated native plants.

Although the prior FEIR/EIS stated that impacts to VELB were significant and unavoidable, incidental take permits from the USFWS are only issued when the Service considers that the impacts of the project will not adversely affect the continued existence of the species, consistent with the Endangered Species Act. Since Granite received their incidental take permit for VELB from the Service for the Vineyard I mining site, and Granite completed compensatory mitigation via purchase of VELB credits at a

Service-approved conservation bank, impacts to VELB are now considered less than significant.

The Vineyard I expansion site does not contain any elderberry bushes. Inclusion of this site for mining activities will not result in the loss of elderberry bushes and will not affect the VELB. Mitigation from the prior project has been completed. No additional mitigation measures are required; impacts to VELB and their habitats are now considered less than significant.

Level of Significance Before Mitigation: Less than significant

Mitigation Measures: None Required – prior mitigation has been completed

Special Status Vernal Pool Invertebrates

> *The prior FEIR/EIS concluded that the proposed project would eliminate some of the existing potential habitat for the federally listed threatened and endangered fairy shrimp and tadpole shrimp and may result in the loss of individuals of these species. This was considered a significant impact.*

In the issued Biological Opinion for Granite Construction's Vineyard I mining site, the USFWS determined that the project would adversely affect the vernal pool fairy shrimp by destroying a 0.53 acre wetland (identified as Wetland #6). Consistent with the Crustacean Programmatic Consultation, Granite was required to purchase 1.06 acre of vernal pool preservation credits and 0.53 acre of vernal pool creation credits from a Service-approved conservation bank. Granite purchased 1.06 acres of vernal pool preservation credits and 0.53 acres of vernal pool creation credits at the Sunrise-Douglas Mitigation Bank in Sacramento County to mitigate for this impact.

For Teichert Aggregate's Aspen IV South mining site, surveys were conducted and no federally-listed vernal pool crustaceans were found to occupy any of the pools on the Aspen IV South site. In the issued Biological Opinion the Service did not concur that mining the Aspen IV South site would not effect vernal pool crustaceans, but instead concluded that the project is not likely to adversely affect vernal pool crustaceans.

In the wetland delineation prepared by Zentner and Zentner (1997) for the prior project, there were no wetlands on the proposed Vineyard I expansion site, therefore, mining the Vineyard I expansion site will not have any impacts to vernal pool fairy shrimp or tadpole shrimp not previously identified. The proposed project will not have an impact to special status vernal pool invertebrates. Although the proposed project does not result in a significant impact to vernal pool invertebrates, the prior conclusion remains applicable.

The project proponents have consulted with the USFWS and have purchased necessary vernal pool preservation and creation credits at an approved mitigation bank. The proposed Morrison Creek Realigned Channel will replace wetland habitats, and the *Wetland, Oak Woodland, and Riparian Mitigation and Monitoring Plan* contains

monitoring efforts to ensure that the mitigation corridor provides the necessary wetland habitats; therefore, implementation of mitigation measures BR-2 has been recommended. In addition, Mitigation Measure BR-1 (submittal of the recorded conservation easement prior to the issuance of a work authorization permit) has been included. These measures will ensure that impacts to vernal pool invertebrates are less than significant.

Level of Significance Before Mitigation: Significant

Mitigation Measures:

BR-7 Implement Mitigation Measures BR-1 and BR-2.

Level of Significance After Mitigation: Less than Significant

Swainson's Hawk and Other Special Status Birds (Burrowing Owl and Tricolored Blackbird)

> *The prior FEIR/EIS concluded that the proposed project would result in the temporary loss of approximately 880 acres of potential foraging habitat, with potential nesting sites, for Swainson's hawk (State threatened species) in those areas that would be reclaimed to agriculture and wetlands. This would also relate to losses in suitable foraging and nesting habitat for other special status birds, including burrowing owls and tricolored blackbirds. This was determined to be a significant impact.*

The loss of habitat for the special status birds was considered temporary since the post-reclamation use of the project site would include a wetland/habitat mitigation corridor with areas of riparian, marsh and oak savannah restoration and agriculture. The revised Morrison Creek Realigned Channel and Raised Bank Channel does not change the overall post-reclamation use of the site and as such, the prior conclusion does not change. The prior FEIR/EIS further stated that because mining would be phased, only 75 to 150 acres of the 966-acre project site would be disturbed at any one time. It was anticipated that the post-reclamation mining areas would provide potential nesting and foraging habitat for the Swainson's hawk and other raptors, assuming the crops planted are suitable for Swainson's hawk foraging (such as alfalfa, dry-land irrigated pasture, cereal grains, beet, tomato or other low-growing row or field crop).

The prior FEIR/EIS indicated that burrowing owls may also nest within the post-reclamation project site, within the mitigation corridor, the banks of the bypass channel and the side slopes of the individual mined sites, assuming that the rodents and small mammals remain to create potential den sites.

For impacts to tricolored blackbirds, it was determined that the project would result in a temporary loss of potential nesting habitat along the Morrison Creek corridor. Tricolored blackbirds utilizing the site would be forced to migrate to adjacent areas during the mining activities which may result in mortality due to competition. The post-reclamation

mitigation corridor is expected to provide suitable tricolored blackbird nesting habitat in the marsh and riparian habitats.

The Vineyard I expansion site is surrounded by mining activities. A portion of Morrison Creek is located along the eastern boundary of the Vineyard I expansion site (on APN: 063-0090-009). Riparian habitat along Morrison Creek provides potential habitat for the tricolored blackbird. This portion of Morrison Creek will eventually be mined; however, not until the recreated Morrison Creek Realigned Channel is in place. The Morrison Creek Realigned Channel is currently being constructed and will contain riparian, marsh and wetland habitats, which is suitable nesting habitat for the tricolored blackbird.

The proposed reclamation plan amendment eliminates the bypass channel and places the recreated Morrison Creek Realigned Channel at-grade, rather than at the bottom of the mining pit. However, the corridor retains the originally proposed riparian, marsh and wetland habitats as previously proposed. Therefore, the proposed reclamation plan amendment does not adversely affect the Swainson's hawk, burrowing owl or tricolored blackbird.

Mitigation to minimize the potential impacts to Swainson's hawk, burrowing owl and other special status birds was required. Mitigation included pre-construction surveys and avoidance measures remain applicable to the Vineyard I expansion site and has been included below; upon compliance, impacts to Swainson's hawk, burrowing owl and other bird species will be considered less than significant.

Level of Significance Before Mitigation: Potentially Significant

Mitigation Measures:

BR-8 Prior to the issuance of a Work Authorization Permit, if mining the Vineyard I expansion site is to occur between March 1 and September 15, a focused survey for Swainson's hawk nests on the site and on nearby trees shall take place within ½ mile for rural sites and ¼ mile for urban sites, and shall be conducted by a qualified biologist within 14 days prior to the start of construction work (including clearing and grubbing). If active nests are found, the California Department of Fish and Game (CDFG) shall be contacted to determine appropriate protective measures. If no active nests are found during the focused survey, no further mitigation will be required.

BR-9 Burrowing Owl Survey: Prior to mining activities ***on the Vineyard I mining expansion site***, a focused survey shall be conducted by a qualified biologist for burrowing owls where suitable habitat is present in the project area. Suitable habitat includes agricultural field margins, drainage ditches and fallow fields. Surveys shall be conducted no less than 14 days and no more than 30 days prior to commencement of construction activities. Surveys shall be conducted in accordance with CDFG protocol (CDFG, 1995).

a. If no occupied burrows are found in the survey area, a letter report documenting survey methods and findings shall be submitted to the County and no further mitigation is necessary.

b. If an occupied burrow is found, ***the Vineyard I expansion mining operator*** ~~the applicant~~ shall contact ***the Environmental Coordinator*** ~~DERA~~ and consult with CDFG, prior to construction or mining activities, to determine if avoidance is possible or if burrow relocation will be required.

c. If owls are to remain on-site, a minimum of 6.5 acres of foraging habitat for each occupied burrow needs to be permanently preserved according to CDFG guidelines.

d. In order to avoid direct impacts to owls, no activity shall take place within 160 feet of an active burrow from September 1 to January 31 (wintering season) or 250 feet from February 1 through August 31 (breeding season). Protective fencing shall be placed, at the distances above, around the active burrows and no activity shall occur within the protected buffer areas.

e. Any impact to active owl burrows, relocation of owls or mitigation for habitat loss shall be done in accordance with CDFG guidelines. Written evidence from CDFG staff shall be provided to ***the Environmental Coordinator*** ~~DERA~~ attesting to the permission to remove burrows, relocated owls, mitigate for lost habitat and provide a method for preservation habitat in perpetuity.

BR-10 Survey for Tricolored Blackbirds: If mining activities ***on the Vineyard I mining expansion site*** occur between March 1 and July 31, a pre-construction survey for nesting tricolored blackbird shall be performed by a qualified biologist. Surveys shall include the project site and areas of appropriate habitat within 300 feet of the site. Surveys shall be conducted no less than 14 days and no more than 30 days prior to commencement of mining activities. The biologist shall supply a brief written report (including date, time of survey, survey method, name of surveyor and survey results) to the ***Environmental Coordinator*** ~~Department of Environmental Review and Assessment (DERA)~~ prior to ground disturbing activity. If no tricolored blackbirds are found during the pre-construction survey, no further mitigation will be required. If an active tricolored blackbird colony is found on-site or within 300 feet of the project site, the ***Vineyard I expansion mining operator*** ~~project proponent~~ shall do the following:

a. Consult with the CDFG to determine if project activity will impact the tricolored blackbird colony(s). Provide ***to the Environmental Coordinator*** ~~DERA~~ with written evidence of the consult or a contact name and number from CDFG.

b. With CDFG permission, the ***mining operator*** ~~applicant~~ may avoid impacts to tricolored blackbirds by establishing a 300-foot temporary setback with fencing that prevents any project activity within 300 feet of the colony. A qualified biologist shall verify that setbacks and fencing are adequate and will determine when the colonies are no longer dependent on the nesting habitat (i.e., nestling have fledged and are no longer using habitat). The breeding season typically ends in July.

c. If the tricolored blackbird habitat is permanently destroyed, follow CDFG procedure to mitigate for habitat loss.

Level of Significance After Mitigation: Less than Significant

Special Status Plants

The prior FEIR/EIS concluded that the project would not significantly impact any special status plants since none were known to occur within the project site.

The prior FEIR/EIS stated that there were eleven special status plant species that had the potential to occur within the project site, but none were observed during surveys conducted by the project proponents. Vernal pools and wetlands that were on the site were considered suitable habitat for these special status plants. The proposed project replaces some of the wetland acreage that was lost as a result of mining the site; the proposed project will not impact wetlands or vernal pools since there are no wetlands or vernal pools on the Vineyard I expansion site. The proposed project will not impact special status plants; impacts are considered less than significant.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measures: None Required

Giant Garter Snake

The prior FEIR/EIS stated that the giant garter snake is not expected to use Morrison Creek in the project area; however, in the Aspen IV South issued Biological Opinion, the USFWS presumed the presence of the giant garter snake in the project area. Impacts to the giant garter snake are expected to be less than significant.

The prior FEIR/EIS stated that the giant garter snake is not expected to use Morrison Creek in this area (page 5-51 of FEIR/EIS). The giant garter snake is a federally threatened species. The issued Biological Opinion for the Aspen IV South site included the following discussion:

> In your initiation letter you did not include the snake in your consultation. However, due to a hydrologic connection between the proposed action area and the closest known occurrence approximately 7 miles away, the Service has

determined the proposed project may affect the snake. Morrison Creek which lies within the action area may provide dispersal habitat for the snake; however the project proponent has proposed minimization and avoidance measures which will reduce the effects of the proposed project down to a level of insignificance. Therefore, the Service has determined the proposed project is not likely to adversely affect the snake. The minimization and avoidance measures proposed by the applicant are:

- Prior to the start of construction for each year mining will occur within the creek, exclusion fencing will be installed along the western boundary of the project, extending 50 feet to the south and north of the creek. This fencing will consist of silt fencing trenched in such that snakes will be unable to gain access under the fence. The fencing will be removed at the end of each construction season.

- Prior to the start of construction for each year mining will occur within the creek, a pre-construction survey of the area to be mined will be conducted by a qualified biologist. If giant garter snakes are located, the Service will be contacted.

- Prior to the start of construction for each year mining will occur within the creek, worker awareness training will be conducted to educate workers regarding giant garter snake identification and procedures if a giant garter snake is located.

Revisions to the Aspen IV South mining site will not result in mining activities through or near Morrison Creek. The construction of the Raised Bank Channel will not impact the creek and in most locations will be constructed greater than 50 feet from the creek; therefore, the minimization and avoidance measures provided in the issued Biological Opinion are no longer applicable to this portion of the project on Aspen IV South.

The issued Biological Opinion for the Vineyard I mining site does not address the giant garter snake; therefore, it is assumed that there are no impacts to the giant garter snake on the Vineyard I mining site.

The proposed project will not have adverse impacts to the giant garter snake; impacts are considered less than significant.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measures: None Required

CUMULATIVE IMPACTS

The overall loss of a segment of Morrison Creek across Vineyard I does not result in a cumulative impact since the proposed recreated Morrison Creek Realigned Channel

replaces the creek by recreating the lost habitats and has been designed to mirror (function as) a natural creek. At the completion of mining, in the post reclamation condition, wildlife will return to the site since the habitats will be replaced and mining activities will have stopped. The loss of native oak trees would be replaced and fully mitigated. It has been determined through the federal permit process that pursuant to the Endangered Species Act, the continued existence of special status species would not be adversely affected. For these reasons, cumulative biological resources impacts are considered **less than significant**.

11 TRAFFIC AND CIRCULATION

INTRODUCTION

This chapter describes the project's potential to impact traffic and circulation in the project area.

The mining sites in this project include Vineyard I, Aspen III South and Aspen IV South. The proposed Project includes revisions to the previously approved reclamation plan, consistent with permits received from the County, State and federal regulatory agencies. The previous reclamation plan consisted of a below grade, 600-foot wide riparian corridor/low-flow channel within the bottom of the mining pit in generally the same location as the existing creek and an at-grade trapezoidal bypass channel around the perimeter of the three mining sites. The proposed Project revises the previously approved reclamation plan by completely eliminating the at-grade trapezoidal bypass channel component and changing the below grade, 600-foot wide riparian corridor/low-flow channel to an at-grade mitigation corridor (Morrison Creek Realigned Channel) on the Vineyard I and Aspen III South mining properties. The Morrison Creek Realigned Channel has been designed to contain the 100-year flood flows. On the Aspen IV South property, the existing Morrison Creek channel will now be preserved and a raised bank flood control channel (Raised Bank Channel) is proposed to be constructed outside the effective FEMA floodway. The Morrison Creek Realigned Channel will connect with the preserved Morrison Creek channel on Aspen IV South.

The proposed Project also consists of a request for a rezone and a use permit amendment to allow aggregate mining on an additional 5.61 acres (two parcels) and to incorporate this new area into the previously approved Vineyard I mining plan (referred as Vineyard I mining expansion). In addition, the Vineyard I mining expansion will be incorporated into the previously approved reclamation plan, including revisions consistent with the requested reclamation amendments described above. The Vineyard I mining expansion would be the only aspect of the proposed project that could affect traffic as the reclamation plan amendment will not have an impact on traffic.

ENVIRONMENTAL SETTING

The mining sites (Vineyard I, Aspen III South and Aspen IV South) are located in central Sacramento County, south of Jackson Highway (SR 16) and east of Bradshaw Road. Other major roadways in the vicinity of the project include Watt Avenue (2.5 miles to the west), Kiefer Boulevard (1 mile to the north) and Elder Creek Road (1.1 mile to the south). Highway 50 is 2.5 miles to the north.

Currently, surface mining is occurring on the Vineyard I, Aspen III South and Aspen V South sites. Aspen IV South is not currently being mined and is not expected to be mined until after mining is completed at Aspen V South.

REGULATORY SETTING

STATE

Jackson Highway (SR 16) is in the project area. The standard for Caltrans' (California Department of Transportation) SR 16 (Jackson Highway) is detailed in the SR 16 Route Concept Report. The minimum acceptable operating condition for SR 16 is LOS E.

REGIONAL AND LOCAL

METROPOLITAN TRANSPORTATION PLAN FOR 2035

The Metropolitan Transportation Plan (MTP) 2035 is a long range planning document for identifying and programming roadway improvements throughout the Sacramento region (Sacramento Area Council of Governments [SACOG] 2008). The MTP has a history of being able to fund and deliver Tier 1 projects through State and local funding. In 2002, SACOG adopted the MTP 2035 that involved funding programs, connector projects, and expansion of public transit. SACOG has developed a 2050 Blueprint Preferred Land-Use Alternative to develop a 2030 land use base for the next generation MTP.

METHODOLOGIES

LEVELS OF SERVICE

Roadway operating conditions are described in terms of levels of service (LOS). Level of service is a qualitative measure of the effect of a number of factors, which include speed and travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience and operating costs. LOS is represented by a letter designation, ranging from LOS A to LOS F, with LOS A representing the best operating conditions and LOS F as the worst. The LOS definitions are provided in Table TC-1.

Table TC-1: Level of Service (LOS) Definitions

LOS A	LOS A describes primarily free-flow operations at average travel speeds, usually 90 percent of the free-flow speed for the given street class. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Control delay at signalized intersections is minimal.
LOS B	LOS B describes reasonably free-flow operations at average travel speeds, usually 70 percent of the free-flow speed for the given street class. The ability to maneuver within the traffic stream is only slightly restricted and control delay at signalized intersections are not significant.
LOS C	LOS C describes stable operations; however, ability to maneuver and change lanes in midblock locations may be more restricted than at LOS B and longer queues, adverse signal coordination, or both may contribute to lower average travel speeds of about 50 percent of the free-flow speed for the street class.
LOS D	LOS D borders on a range in which small increases in flow may cause substantial increases in delay and decreases in travel speed. LOS D may be due to adverse signal progression, inappropriate signal timing, high volumes, or a combination of these factors. Average travel speeds are about 40 percent of the free-flow speed.
LOS E	LOS E is characterized by significant delays and average travel speeds of 33 percent or less of the free-flow speed. Such operations are caused by a combination of adverse progression, high signal delay, high volumes, extensive delays at critical intersections and inappropriate signal timing.
LOS F	LOS F is characterized by urban street flow at extremely low speeds, typically one-third to one-fourth of the free-flow speed. Intersection congestion is likely at critical signalized locations, with high delays, high volumes and extensive queuing.

Source: *Highway Capacity Manual*, Transportation Research Board, Special Report No. 209, Washington, D.C., 2000.

Sacramento County identifies LOS E as the minimum acceptable standard for intersection and roadway operations within the Urban Service Boundary (USB), and LOS D outside the USB. The project site is located within the USB; LOS E will be the minimum acceptable standard for the proposed project.

STANDARDS OF SIGNIFICANCE

Appendix G of the California Environmental Quality Act (CEQA) provides guidance for assessing the significance of potential environmental impacts. Relative to traffic and circulation, a project will normally have a significant effect on the environment if it will:

- Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections);
- Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways;
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);
- Result in inadequate emergency access; or
- Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks).

IMPACTS AND ANALYSIS

Following the review of the prior Draft EIR/EIS, project proponents were able to reach agreement on the easements necessary to allow the conveyor access proposed in the "Proposed Project Without Vineyard Processing Plant". In addition, new conditions of approval were recommended. The traffic model that was used in assessing the project's impacts was re-run for the preferred project ("Proposed Project Without Vineyard Processing Plant"), assuming the recommended conditions were in place. This analysis was included in the FEIR/EIS as "scenario 4a". Scenario 4a had its own mitigation measures and it is those measures that will be addressed in this analysis section.

ADDITIONAL HAUL TRUCKS ON THE ROADWAY SYSTEM

> *The prior FEIR/EIS determined that the existing LOS would deteriorate due to trips generated by removal of overburden material and by employees and maintenance vehicle activity. This was found to be a significant impact which could be reduced to less than significant with mitigation*.

It has been estimated by Granite that mining the expansion site would take approximately 6 months time and that removal of overburden would not require the use of on-road haul trucks, as the overburden would be moved around the Vineyard I mining site by mining equipment and transportation of the mined aggregate to the processing plant would be via the existing conveyor. There will be no new haul trucks on the local

roadway as a result of the proposed project. Mining the Vineyard I expansion site would not result in an increase in workers.

Caltrans submitted a comment letter during the NOP comment period for the proposed project and requested a Traffic Impact Study (TIS); however, it is the opinion of the preparers of this supplemental EIR that a TIS is not necessary since there will be no additional haul trucks on the local roadways as a result of project approval.

Sacramento County Department of Transportation (SacDOT) provides maintenance, planning and design services. Staff (T. Urquhart) of the Sacramento County Department of Transportation (DOT) reviewed the proposed project and submitted conditions of approval for the three mining sites (letters dated July 11, 2008 for Vineyard I, July 25, 2008 for Aspen III South and July 28, 2008 for Aspen IV South). DOT submitted the standard conditions of approval, such as right-of-way, public street improvements and driveway standards. These will be addressed in the ~~Planning Department's~~ staff report and they do not result in any significant environmental impacts.

The prior FEIR/EIS concluded that as a result of additional haul trucks on the roadway system, impacts would be considered significant. Mitigation was proposed to reduce this impact to less than significant. One of the recommended mitigation measures from the FEIR/EIS remains applicable to the proposed project. This measure required that transportation of mined aggregate material to the processing plants was to be by conveyor only. A new mitigation measure has been included for the proposed project to ensure that there are no additional trucks are added to the roadway system. This mitigation states that if overburden must be removed from the Vineyard I mining site, overburden must be transported by conveyor or internal vehicles only.

Level of Significance Before Mitigation: Potentially Significant

Mitigation Measures:

The following mitigation measure is from the prior FEIR/EIS and is applicable to the Vineyard I expansion site:

TC-1 The ***Vineyard I expansion mining operator*** ~~proponents~~ shall transport mined aggregate material to the processing plants only by conveyor and not by trucks.

TC-2 If overburden from the Vineyard I mining expansion site is to be removed from the site, overburden transport shall be by conveyor and internal vehicles only and not by on-road haul trucks.

Level of Significance After Mitigation: Less than Significant

IMPACTS ON TRAFFIC SAFETY

> *The prior FEIR/EIS concluded that the introduction of truck traffic on (1) roads not designed to accommodate truck traffic and (2) at access points to heavily traveled roads, would have a significant adverse impact on traffic safety. With mitigation, this impact was reduced to less than significant.*

The proposed project will not result in an increase in haul trucks. Two mitigation measures were recommended in the FEIR/EIS that would reduce this impact to less than significant; both measures have already been completed by the mining proponents. Impacts on traffic safety as a result of project approval are now considered to be less than significant.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measures: None Required

DETERIORATION OF PAVEMENT AND DAMAGE TO ROADWAY STRUCTURAL SECTIONS

> *The prior FEIR/EIS concluded that the increased truck traffic of the project may contribute to additional deterioration of the pavement on roadways near the project site entrances, and have the potential to damage the roadway structural section. This was found to be a significant impact that could be reduced to less than significant with mitigation.*

The proposed project will not result in the introduction of new trucks on the roadway system. Trucks that are currently traveling to and from the project sites will not increase as a result of the proposed project.

Mitigation from the prior FEIR/EIS required that the proponents repair any damages to structural paving material along sections of project site roadway segments upon which loaded trucks are routed; to the extent such damage is caused by traffic which occurs during the period of hauling operations. The mitigation measure required an agreement between DOT and the mining proponents to be formalized prior to the issuance of work authorization. This measure would reduce impacts to less than significant. This agreement went before the Sacramento County Board of Supervisors in December 2001 and was approved as a consent item. With the agreement in place, impacts are now considered less than significant.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measure: None Required

EXCEED LOS STANDARD

> *The prior FEIR/EIS concluded that under scenario 4a, there would not be a significant impact to the level of service for the area roadways. Under cumulative conditions, it was found that under scenario 4a, significant impacts could be reduced to less than significant.*

Since the proposed project will not result in an increase in truck traffic, the level of service for area roadways would not be impacted. The cumulative condition in the prior FEIR/EIS was considered to be the year 2010. Mitigation that could reduce significant impacts to less than significant in the cumulative condition has been completed. Since the mitigation is in place, and there is not an increase in truck traffic as a result of project approval, impacts to the level of service on area roadways in the existing and cumulative conditions are considered less than significant.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measures: None Required

CUMULATIVE IMPACT

The proposed project would not introduce new haul trucks to the local roadway network since the existing conveyor will be utilized to transport the mined material from the site to the processing plant located offsite. In addition, roadway improvements that were required through the prior FEIR/EIS have been completed; thus, there are no additional impacts as a result of the proposed project. The proposed project does not result in any significant traffic related impacts and the project will not generate any traffic in the cumulative condition as mining will be complete. Therefore, there are no cumulative traffic and circulation impacts as a result of project approval; cumulative traffic impacts are considered **less than significant**.

12 LAND USE

INTRODUCTION

This chapter describes the existing land uses within the vicinity of the project site and analyzes the potential land use impacts of the proposed project as well as the project's consistency with the Mather Field Comprehensive Land Use Plan (CLUP). Where appropriate, mitigation is included to reduce or eliminate land use impacts.

The mining sites in this project include Vineyard I, Aspen III South and Aspen IV South. The proposed project includes revisions to the previously approved reclamation plan, consistent with permits received from the County, State and federal regulatory agencies. The previous reclamation plan consisted of a below grade, 600-foot wide riparian corridor/low-flow channel within the bottom of the mining pit in generally the same location as the existing creek and an at-grade trapezoidal bypass channel around the perimeter of the three mining sites. The proposed project revises the previously approved reclamation plan by completely eliminating the at-grade trapezoidal bypass channel component and changing the below grade, 600-foot wide riparian corridor/low-flow channel to an at-grade mitigation corridor (Morrison Creek Realigned Channel) on the Vineyard I and Aspen III South mining properties. The Morrison Creek Realigned Channel has been designed to contain the 100-year flows. On the Aspen IV South property, the existing Morrison Creek channel will now be preserved and a raised bank flood control channel (Raised Bank Channel) is proposed to be constructed outside the effective FEMA floodway. The Morrison Creek Realigned Channel will connect with the preserved Morrison Creek channel on Aspen IV South.

The proposed project also consists of a request for a rezone and a use permit amendment to allow aggregate mining on an additional 5.61 acres (two parcels) and to incorporate this new area into the previously approved Vineyard I mining plan (referred as Vineyard I mining expansion). In addition, the Vineyard I mining expansion will be incorporated into the previously approved reclamation plan, including revisions consistent with the requested reclamation amendments described above. The location of a retention basin on the Vineyard I mining site has been determined for the proposed project, as well an option for a retention basin on the Aspen IV South mining site.

LOCATION

The proposed project is located within the Vineyard Community Plan Area in the unincorporated area of Sacramento County. The Vineyard I project parcels are located at the northeast corner of Hedge Road and Elder Creek Road. The Aspen III South project parcels are located in the southwest corner of Fruitridge Road and Mayhew

Road. The Aspen IV South project parcels are located at the northeast corner of Mayhew Road and Elder Creek Road. Plate LU-1 presents the regional location and Plate LU-2 presents the location of the project parcels and existing zoning.

ENVIRONMENTAL SETTING

The project parcels are part of a larger aggregate mining area. The project parcels are all zoned Industrial Reserve (IR) with a surface mining land use overlay, with the exception of one of the Vineyard I parcels with an assessor's parcel number, 063-0090-009. This is one of the two parcels that are the subject of a requested rezone and mining use permit request.

The Vineyard I mining expansion site is currently surrounded by active mining on the Vineyard I and Aspen III South mining sites. Mining on the Aspen IV South property has not yet commenced. The perimeter of Vineyard I and Aspen III South mining properties are enclosed by fencing and have vegetated screens in place.

REGULATORY SETTING

SACRAMENTO COUNTY GENERAL PLAN (GP)

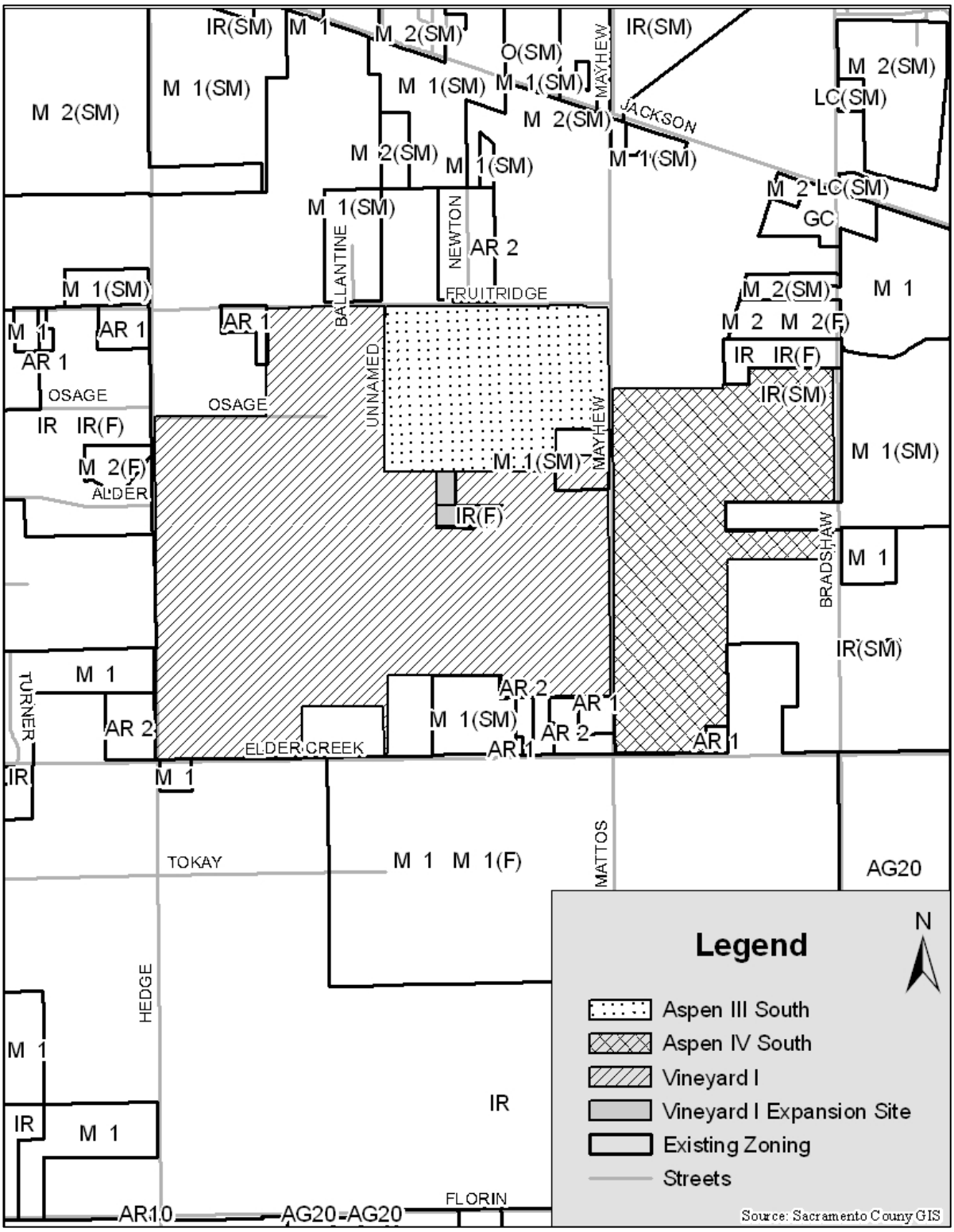
The current General Plan Land Use Diagram (adopted November 2011) designates the project area as Agricultural-Urban Reserve with an Aggregate Resource Area combining land use.

The Sacramento County General Plan provides the following descriptions of these land use designations:

Agricultural – Urban Reserve: This land use designation identifies areas for urban expansion after the 20-year planning period. One large area given this designation is reserved for aggregate resource mining. These areas will be evaluated for their development potential when the level of growth in the planned urban areas justifies their need, mining is completed, and the area is restored. Because most of this land is intended for mining it will receive no additional urban services (e.g. water and sewer systems) above the level existing when the land was first designated. Further, land divisions incompatible with orderly and well planned future urban development are not permitted.

Plate LU-1: Regional Project Location

Plate LU-2: Project Location and Zoning Map



Combining Land Use Designations

According to the General Plan Land Use Element, the Combining Land Use designations recognize the underlying zoning as the guide to land uses which are permitted on any particular piece of property. This approach preserves selected natural resources without imposing unnecessary restrictions on the use of the land.

> Aggregate Resource Area: The purpose of the Aggregate Resource Area combining designation is to identify areas with valuable mineral resources and protect those resources as open space until the area is mined. While surface mining is an industrial activity, its locational requirements are dependent upon the physical location of aggregate resources. Specific policies apply to these areas that encourage the conservation and efficient use of mineral resources, while ensuring the maximum feasible protection of the environment. This land use designation is combined with designations such as Industrial Extensive, Agricultural-Urban Reserve, Agricultural Cropland, and General Agriculture (20 and 80 acres). These areas may be ultimately reclaimed for residential, industrial or other uses.

COMMUNITY PLAN

The Vineyard Community Plan designates the approved Vineyard I, Aspen III South and Aspen IV South aggregate mining sites as Industrial Reserve (IR), with a combining zone designation of surface mining (SM). Granite has requested a Community Plan Amendment and corresponding rezone to designate the Vineyard I mining expansion properties as IR (SM) (F).

ZONING

The Vineyard I mining expansion parcels include APN 063-0090-018, previously known as the Cook property and APN 063-0090-009, previously known as the Smith property. The Cook parcel is currently zoned industrial reserve (IR) with a surface mining (SM) land use overlay and the Smith parcel is currently zoned industrial reserve (IR) with a tributary (T) combining land use. The project parcels of the Vineyard I, Aspen III South and Aspen IV South sites are all zoned Industrial Reserve (IR) with a surface mining (SM) land use overlay. In addition, a majority of the parcels have an additional flood combining zone, designated as (F), due to proximity to Morrison Creek.

THE SURFACE MINING COMBINING LAND USE ZONE

The Surface Mining (SM) combining land use zone is provided in Article 4 of Title II of the Zoning Code; Section 235-40 outlines the purpose of the SM Combining Zone as the following: the SM Combining Zone is designed to protect the natural resources of Sacramento County from incompatible land use; to manage these mineral resources; to assure the County of an adequate supply of these resources with due consideration for the environment; and to provide for the restoration of mined lands for future use.

Section 235-43 provides a list of the mining operations permitted in the SM Combining Zone subject to approval of a conditional use permit by the Board after recommendation by the Project Planning Commission and Section 235-45 outlines the requirements for the issuance of a Work Authorization Permit. In addition, aggregate mining application data, standards and guidelines are provided in Section 235-51 of the Zoning Code. These requirements address what information shall be contained in a mining application as they pertain to the following: mining plan; reclamation plan; soils, geologic and hydrologic data; traffic; air pollution control measures; noise data; waste data; drainage plan; hazardous materials; landscaping plan; lighting plan; and a regional analysis of ancillary uses.

The Zoning Code also provides operating standards for aggregate mining operations such as operating and haul out hours, fences, posting of warning and complaint information signs, visual screens, setbacks, noise standards, roadway repairs on loaded truck routes and standards for backfilling, regrading and slope stability.

COMPREHENSIVE LAND USE PLAN (CLUP) AND MATHER AIRPORT POLICY

The project site is located within the Mather Airport Comprehensive Land Use Plan (CLUP). The CLUP contains restrictions on land uses for properties adjacent to Mather Airport in three major areas: safety, noise and height restrictions. Refer to the Impacts and Analysis section below for a discussion regarding consistency with the Mather Airport CLUP.

STANDARDS OF SIGNIFICANCE

Appendix G of the California Environmental Quality Act (CEQA) provides guidance for assessing the significance of potential environmental impacts. Relative to land use, a project will normally have a significant effect on the environment if it will:

- Physically divide an established community;
- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect;
- Conflict with any applicable habitat conservation plan or natural community conservation plan; or
- Be incompatible with existing land use or planned growth in the vicinity of the project.

ENVIRONMENTAL IMPACTS AND ANALYSIS

CONFLICT WITH NEARBY LAND USES

The Morrison Creek Mining Reach Downstream (South) of Jackson Highway prior FEIR/EIS concluded that mining in the area would potentially conflict with on-site and nearby land uses. The addition of the 5.6 acres of mining land associated with the proposed project does not substantially change the prior conclusion.

The prior FEIR/EIS concluded that the "proposed mining operations would potentially conflict with on-site and nearby land uses, especially residences located on agricultural parcels surrounded by the project site, and the adjacent residences, religious temple and health club" (page 5-84 of FEIR/S). It was concluded that the adjacent uses would be directly exposed to several nuisances throughout the life of the project including: increased noise associated with aggregate mining and processing; increased heavy truck traffic and traffic noise during initial overburden removal and throughout the life of the project; windblown dust from mining operations and access roads; and adverse visual or aesthetic impacts resulting from changes in the adjacent landform. The FEIR/EIS concluded that this would be a significant and unavoidable impact.

The proposed project includes a request to add an additional 5.6 acres of mining to the previously approved Vineyard I mining site. The Vineyard I mining expansion site is entirely surrounded by active mining and there are no adjacent residences to these two parcels. Therefore, based on the existing land use setting, mining of the Vineyard I expansion site does not result in a conflict with nearby land uses and is not considered a significant impact. Although, the Vineyard I mining expansion site does not conflict with nearby land uses, it will become part of the previously approved mining project, which was found to have significant and unavoidable impacts related to conflicts with nearby land uses. Therefore, the conclusion of the prior FEIR/EIS still applies and impacts are considered significant and unavoidable.

Level of Significance before Mitigation: Significant

Mitigation Measure:

The following mitigation measure from the prior FEIR/EIS ~~remains~~ ***is*** applicable to the ~~proposed project~~ ***Vineyard I expansion site***:

LU-1 In order to mitigate potential impacts to surrounding land uses, the ***Vineyard I expansion mining operator*** ~~proponents~~ shall be required to comply fully with mitigation measures identified in the Noise; Traffic and Circulation; Air Quality; and Visual Resources sections of ***the prior FEIR/EIS as amended by*** this SEIR. These mitigation measures employ appropriate state-of-the-art techniques for erosion control, reclamation, nuisance prevention, and environmental impact mitigation relative to surface mining and processing operations.

Level of Significance After Mitigation: Significant and Unavoidable

CONVERSION OF PRIME FARMLAND, FARMLAND OF STATEWIDE IMPORTANCE AND FARMLAND OF LOCAL IMPORTANCE

The prior FEIR/EIS identified that the proposed project would disturb 31 acres of Prime Farmland, 435 acres of Farmland of Statewide Importance and 419 acres of Farmland of Local Importance. The FEIR/EIS concluded that this would be a significant impact which could be reduced to less than significant with mitigation. The current project would disturb an additional 2.0 acres of Prime Farmland and 3.6 acres of Farmland of Statewide Importance.

The prior FEIR/EIS concluded that all of the farmland located within the project site would only be temporarily disturbed during mining operations, since the proposed post-reclamation use of the project site would be primarily agriculture. The current proposed project will not change the post-reclamation use of the project site. The Vineyard I mining expansion site totals 5.6 acres and is currently surrounded by active mining and is not currently in agricultural production. The Vineyard I mining expansion site consists of three different soils: Columbia sandy loam, drained 0-2 percent slopes, occasionally flooded; Hedge loam, 0-2 percent slopes and San Joaquin-Xerarents complex, leveled, 0-1 percent slopes. The Columbia sandy loam is classified as Prime Farmland, and Hedge loam and San Joaquin-Xerarents complex are both classified as Farmland of Statewide Importance. Mining on the Vineyard I expansion site would disturb approximately 2 acres of Prime Farmland and 3.6 acres of Farmland of Statewide Importance.

The revised reclamation plan will locate the Morrison Creek Realigned Channel to the north of the existing Morrison Creek channel, the Vineyard I expansion site will not be a part of the recreated creek channel and consistent with the reclamation plan, the Vineyard I expansion site will be reclaimed to agricultural uses.

The prior FEIR/EIS included mitigation that the proponent prepare and implement an Agricultural Management Plan as part of the required work authorization. The plan was intended to describe the methods used to accomplish successful post-reclamation agricultural use of the project site. With the aforementioned mitigation the prior FEIR/EIS concluded that impacts would be reduced to less than significant. The mitigation remains applicable to the current proposed project.

Level of Significance Before Mitigation: Significant

Mitigation Measure:

LU-2 In order to mitigate potential impacts to agricultural uses, prior to issuance of the work authorization permit ***for the Vineyard I mining expansion site, the mining operator*** ~~Granite~~ shall revise/prepare a plan, that includes the Vineyard I mining expansion site (5.6 acres), for the preservation and salvage of topsoil resources suitable for sustaining economically viable agricultural uses, consistent

with the performance standards set forth in Sections 3708 and 3711 of the State Mining and Geology Board Reclamation Regulations.

Level of Significance After Mitigation: Less Than Significant

POST PROJECT DEVELOPMENT

The prior FEIR/EIS found that the proposed mining activities would restrict the possibility of utilizing the project site for future (post-project) development including recreational open space uses and recommended mitigation to reduce the impact to less than significant levels.

The prior FEIR/EIS identified that the post-reclamation use of the project site would be restricted to agriculture, flood control, and/or open space, because the mining pits would be within the 100-year floodplain. The project site would be primarily used for agricultural practices, with limited areas along the bottom of the pit used for stormwater retention ponds, wetlands and other natural habitats, including upland vegetation. No park facilities would be provided, and access to open space areas along the realigned Morrison Creek channel would not occur.

The proposed project includes a revision to the previous realigned Morrison Creek channel. The proposed reclamation plan includes the construction of a new Morrison Creek Realigned Channel that will be approximately 300 feet in width, at or near original grade (rather than at the bottom of the mining pit) and will include adjacent buffer lands for a total width of 650 feet (compared to the previously approved 600-foot wide pit floor riparian corridor). The requested reclamation plan amendment improves on the previously approved reclamation plan and the new design better mirrors natural creek conditions and will not require the need of a pump system.

A mitigation measure of the prior FEIR/EIS required that the project proponents dedicate to the County of Sacramento, a 600-foot wide open space easement that identified the limits of agricultural activity so as to guarantee sufficient area to allow for regeneration of the riparian corridor and allow for the subsequent establishment of a public trail system when deemed appropriate by the County. This mitigation reduced the identified significant impact to less than significant.

The County is no longer requesting an open space easement since the proposed project includes provision of a trail along the Morrison Creek Realigned Channel. This trail requirement was part of the permit received from the U.S. Army Corps of Engineers. Southgate Recreation and Park District reviewed the proposed project and submitted a comment letter to the Vineyard I portion of the proposed project (comment letter dated October 19, 2011). The Southgate Park District commented that the District has met with the project applicants and County staff regarding the open space and bicycle/pedestrian trail conditions. Southgate Park District is coordinating with Teichert for the Aspen III South and Aspen IV South properties in order to provide a continuous bicycle/pedestrian trail though the Morrison Creek Realigned Channel and Raised Bank Channel.

Southgate Park District submitted conditions of approval relating to the Morrison Creek Realigned Channel, the bicycle/pedestrian trail, improvements to the trail and perpetual funding for the trail. The Southgate Park District states that the District will accept easements for the U.S. Army Corps authorized 14-foot wide trail crossing through the Morrison Creek Realigned Channel and a 20-foot wide trail corridor easement along the entire northern property line and along the southern property line from Mayhew Road to the western most crossing, outside of the preserve, to allow for a 10-12 foot-wide paved trail. The final trail surfaces, width and public access points to the trail will be mutually determined by the Applicant and Southgate Park District. The Southgate Park District has not to date submitted final conditions of approval for the Teichert properties, Aspen III South and Aspen IV South. However, final conditions of approval from Southgate Park District are likely to be similar to the conditions submitted for Vineyard I; therefore, the final conditions regarding the trail easements, location, surface material and access points do not result in any significant environmental impacts. The final conditions of approval from Southgate Park District will be addressed in the ~~Planning Department's~~ staff report.

The prior FEIR/EIS had considered the lack of open space/recreational uses of the prior project a significant impact. Mitigation creating open space dedicated to the County was included in the prior FEIR/EIS. However as the post-reclamation use of the three mining sites now contains a recreational component (trail), this impact is no longer considered a significant impact. It should be noted that the preserve areas of the Morrison Creek Realigned Channel and Raised Bank Channel are not intended to be accessible to the public. Impacts regarding post-project development are now considered less than significant.

Level of Significance Before Mitigation: Less Than Significant

Mitigation Measures:

LU-3 ~~Prior to redirecting Morrison Creek to the Morrison Creek Realigned Channel, the applicants~~ ***Upon final reclamation, the mining operators*** shall provide copies to ~~DERA and the Planning Division~~ ***the Department of Community Development*** of executed trail easements dedicated to the Southgate Recreation and Park District, ***or a signed legal contract indicating future dedication of easements to the Southgate Recreation and Park District***.

Level of Significance After Mitigation: Less Than Significant

CONSISTENCY WITH THE MATHER AIRPORT COMPREHENSIVE LAND USE PLAN (CLUP)

The proposed project is consistent with the Mather Airport Comprehensive Land Use Plan (CLUP). A Bird Airstrike Hazard (BASH) Analysis has been completed and with inclusion of mitigation, the potential for bird airstrikes over the project site is low.

The project site is partially located within the 60-65 and 65-70 CNEL noise contours, as shown on Plate LU-3. The prior FEIR/EIS found that mining and quarry activities, including the proposed post-reclamation use of the site for agriculture, open space and potential trail use as being compatible within these noise contours. The proposed project will not introduce activities incompatible with the Mather CLUP noise contours.

A very small portion of the Aspen IV South site is located within the Overflight Zone (refer to Plate LU-3) of Mather Airport.

The Mather Airport CLUP defines mining and quarry activities as being compatible within the Overflight Zone subject to the following condition:

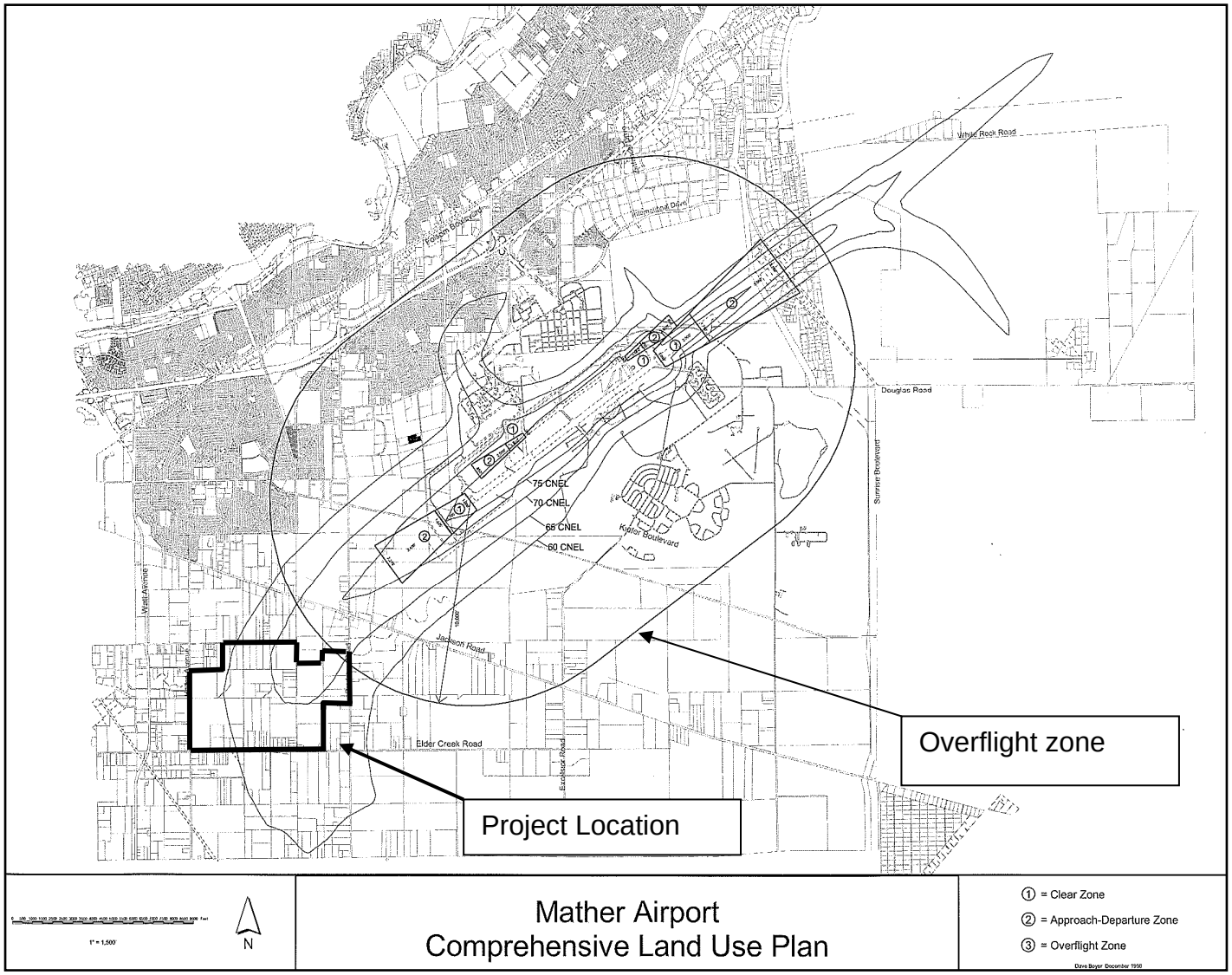
> (b) Uses compatible only if they do not result in a possibility that a water area may cause ground fog or result in a water hazard.

Sacramento County Airport System (Airports) reviewed the proposed project and submitted comments (G. Rickelton, letter dated August 15, 2008). Airports commented that the project site is located within 5 miles of Mather Airport and specific project components could potentially increase the exposure of aircraft operating at Mather Airport to bird strike hazards. Airports recommended the following: (1) BASH (Bird Airstrike Hazard) Analysis should be conducted to address the wildlife attractions and potential of bird-wildlife aircraft strike hazards; and (2) Agriculture activities that include irrigation are considered to pose a greater hazardous wildlife threat to aircraft operations. The Airport system recommended that only non-irrigated agricultural activities be accepted following reclamation.

The prior FEIR/EIS concluded that “the newly created wetland and open water habitat resulting from the proposed project could potentially attract additional birds in the project site. However, because the wetlands would be distant from the Mather Field runway and would not be located in critical airspace, the potential for bird hazards to aircraft utilizing Mather Field is low” (page 5-124 of FEIR/EIS).

The proposed project is substantially the same as the prior project. The proposed Morrison Creek Realigned Channel places a riparian/wetland corridor at-grade, as opposed to the prior approved reclamation plan that placed the riparian/wetland corridor at the bottom of the mining pit. The existing Morrison Creek channel on the Aspen IV South mining site would be preserved and a Raised Bank Channel would be constructed outside the floodplain. The Morrison Creek Realigned Channel will have essentially the same biological functions as the existing Morrison Creek corridor. And the existing Morrison Creek channel on Aspen IV South would remain untouched; therefore, the BASH potential of the proposed Morrison Creek Realigned Channel and Raised Bank Channel do not increase as a result of project implementation. It is expected that the use of the Morrison Creek Realigned Channel post-mining by birds or other mammals will be similar to pre-mining conditions.

Plate LU-3: Mather CLUP



The prior project included a permanent retention basin (somewhere on Vineyard I, but the exact location unknown) with a capacity of 309 acre-feet (ac-ft) that would contain runoff from all of the proposed mining sites. Approvals of the prior project allowed for runoff from the Aspen IV South mining property to be conveyed to this basin.

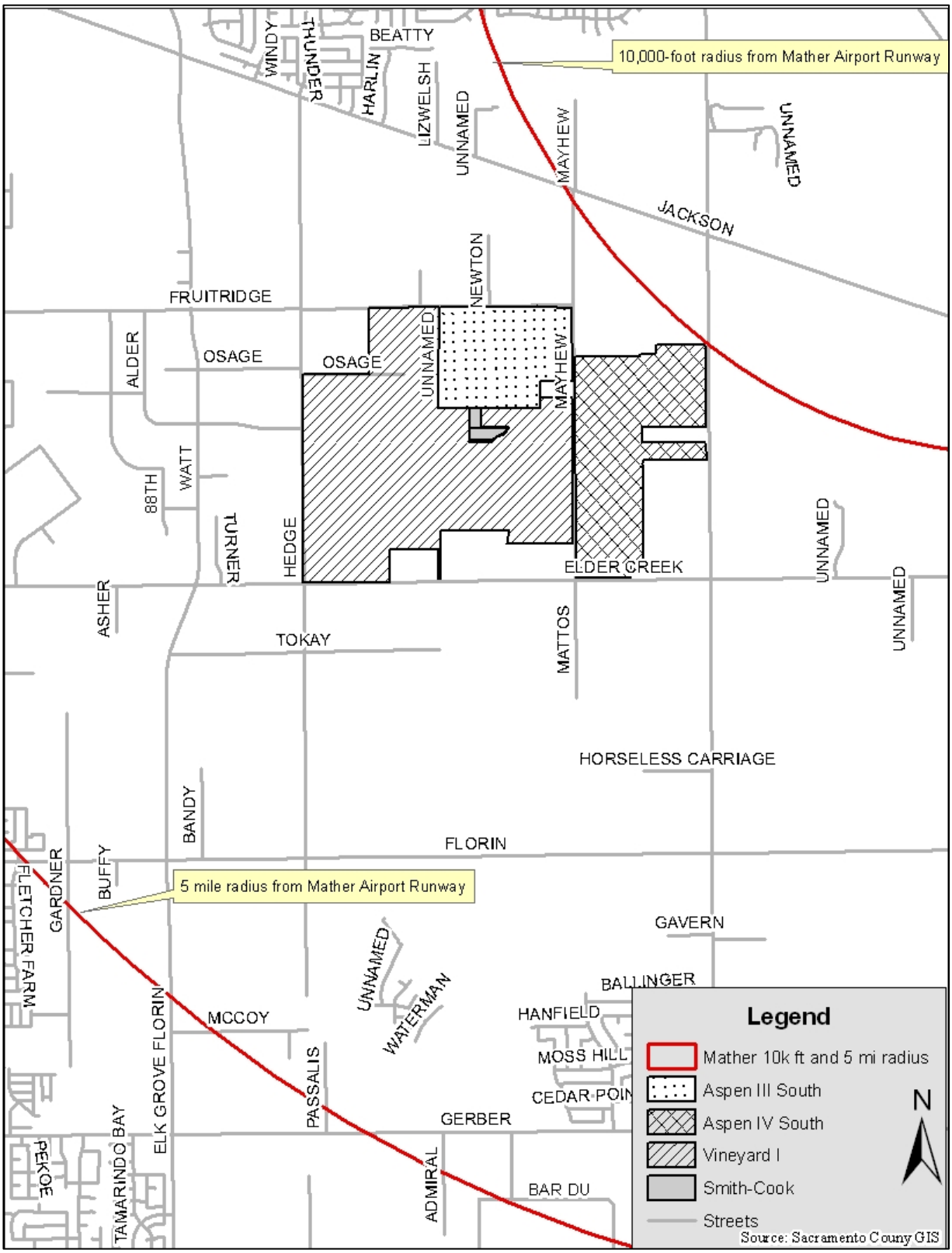
Under the proposed project, the permanent retention basin is located south of the Morrison Creek Realigned Channel on the Vineyard I mining site. The 2011 Hydrology & Hydraulics Analysis (2011 H & H Analysis) prepared by Wood Rodgers (refer to Appendix B1) evaluated an alternative to the original 309 ac-ft basin. The alternative in the 2011 H&H Analysis is to not convey runoff from Aspen IV South to the Vineyard I basin, but rather retain the runoff on the Aspen IV South property in a retention basin, with a volume of 30 ac-ft. The retention basin on the Vineyard I mining site will retain the onsite isolated local runoff volume of 267 acre-feet (for a 100-year 10-day storm event) from solely the Vineyard I and Aspen III South mining properties. The proposed combined 297 ac-ft retention basins will not increase in total overall surface area over the previously approved 309 acre-foot detention basin; therefore, this component of the project has not changed.

The mean annual precipitation water balance conducted in the 2011 H&H Analysis finds that the two retention basins will be evacuated within 16 days for the Vineyard I basin and 8 days for the Aspen IV South basin. Since the basins will not completely evacuate within 48 hours, and the project site is located within five miles of Mather Airport, there is a potential for bird airstrike hazards (BASH). The retention basins are not substantially different than what was previously approved, and the function of the Morrison Creek Realigned Channel will not be substantially different than the existing Morrison Creek corridor; therefore, the same determination that was made in the prior FEIR/EIS that bird air strike hazards are low remains applicable to the proposed project.

However, due to comments received by Airport staff, the following is a brief analysis of bird strike hazards at the project site as a result of the stormwater retention basins.

The proposed Morrison Creek Realigned Channel, Raised Bank Channel, and proposed retention basins, will be located approximately 2.5 to 3 miles southwest of the Airport Operations Area (AOA) of Mather Airport. According to the *Hazardous Wildlife Attractants on or Near Airports* (Air Circular No: 150/5200-33B, August 28, 2007), “the FAA recommends a distance of 5 statute miles between the farthest edge of the airport’s AOA and the hazardous wildlife attractant if the attractant could cause hazardous wildlife movement into or across the approach or departure airspace”. See Plate LU-4.

Plate LU-4: 10,000-foot and 5-mile Radius from Mather Airport Runway



Based on the FAA's circular, the project's retention basins could potentially attract wildlife hazardous to aircraft operations. In addition to the obvious safety concerns involving the risk of aircraft accidents resulting from wildlife strikes, Mather Airport is an FAA grant assured airport. Any airport that receives grant money from the FAA is required to comply with all guidance documents such as Cert Alerts and Advisory Circulars (ACs) in addition to adopted rules and regulations. Airport staff considers the "project" to fall within the regulation of the FAA; therefore compliance with the AC No. 150/5200-33B stated above will be required. Accordingly, Airport staff has required the applicant to prepare a Wildlife Hazard Assessment (WHA) to analyze the Bird Air Strike Hazard (BASH) associated with the proposed project.

The *Hazardous Wildlife Attractants on or Near Airports* (Air Circular No: 150/5200-33B, August 28, 2007) outlines requirements for new stormwater management facilities. This report states that off-airport stormwater management systems located within 5 miles of the AOA should be designed and operated so as not to create above ground standing water. Stormwater detention basins should be designed, engineered, constructed and maintained for a maximum 48-hour detention period after the design storm and should remain completely dry between storms.

The proposed stormwater retention basins will store localized runoff. The 2011 H & H Analysis states that the basins will be evacuated solely by infiltration into the soil and evaporation off the basin water surface. During a 100-year 10-day storm event, Wood Rodgers determined that it would take 16 days for the retention basin on Vineyard I to evacuate and it would take 8 days for the retention basin on Aspen IV South to evacuate. Pumping or draining water out of the stormwater retention basin in order to not hold water for more than 48 hours would not be feasible, as Morrison Creek will not be able to accept the water without having adverse effects downstream. Without the proposed stormwater retention basins there would be localized flooding, which could take at least 30 days to percolate and/or drain off the sites.

The FAA and United States Department of Agriculture (USDA) report titled *Wildlife Strikes to Civil Aircraft in the United States 1990-2008* (September 2009), finds that wildlife strikes between 1990 and 2008 totaled 89,727. The report finds that about 59 percent of the bird strikes occurred when the aircraft was at a height of 100 feet or less above ground level; 72 percent occurred at 500 feet or less above ground level and 92 percent occurred at or below 3,000 feet above ground level. The majority of bird strikes (59 percent) are occurring at heights of 100 feet or less above ground level, and only 20 percent of the bird strikes are occurring between 500 and 3,000 feet above ground level. The report also finds that most bird strikes (51 percent) occurred between July and October and that 60 percent occurred during the landing (descent, approach or land roll) phase of flight and 37 percent occurred during takeoff and climb.

Information regarding flight track patterns over the project site was obtained from the Aircraft Noise Information Office of the Sacramento County Airport System. The data sets provided flight data for departures, arrivals, touch-and-go and overflights for the month of August 2009 (since most bird strikes occur between July and October). A penetration gate was orientated over the project site, in the general location of the larger

stormwater retention basin (on Vineyard I) and the recreated Morrison Creek Realigned Channel. The penetration gate was located on parcel APN: 063-0090-001, which is a part of the Vineyard I mining site. The penetration gate spanned horizontally for 2 nautical miles and was orientated to capture the majority of the flights that directly overfly the parcel (refer to Plate LU-5).

Based on the provided data, there were 1,253 departures from Mather Airport. Of these, 188 flew within a one-nautical mile radius of the parcel and 143 penetrated the gate. These flights typically passed over the site at altitudes between 1,000 and 3,000 feet. For arrival flights, of the 1,225 flights arriving at Mather during August 2009, 73 penetrated the gate over the parcel and passed at altitudes between 500 and 2,500 feet. For touch-and-go flights, the penetration gate was re-orientated to capture the relative proximity of the flight tracks to the parcel center and there were 326 touch-and-go flights, of which 45 penetrated the gate over the parcel. These flights were at altitudes between 1,000 and 3,500 feet.

The flights that are passing over the parcel (through the penetration gate) are between 500 and 3,500 feet above ground level. As previously stated, based on the FAA/USDA report *Wildlife Strikes to Civil Aircraft in the United States 1990-2008* (September 2009), only 20 percent of bird strikes are occurring between 500 and 3,000 feet above ground level, compared to 59 percent occurring at 100 feet or less above ground level. Because the flights that are passing over the site are at higher altitudes where the percentage of bird airstrikes is low, the potential for bird airstrikes over the project site is therefore low.

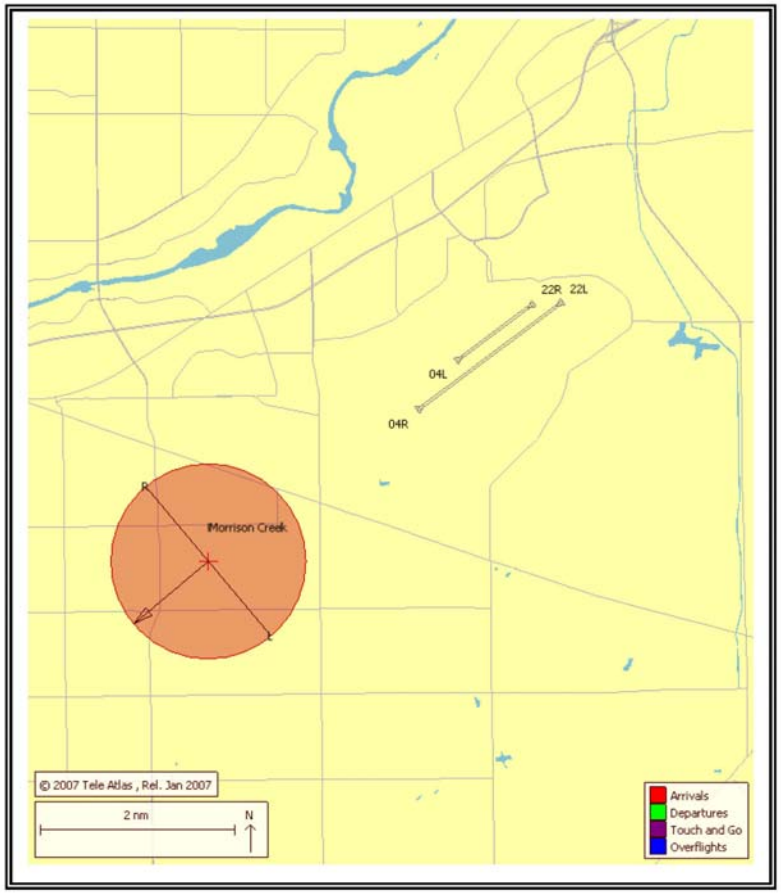
Current mining activities are likely preventing birds from utilizing portions of the site as habitat (e.g., nesting, breeding. roosting). However, at completion of mining, it is recognized the site would provide potential bird habitat, similar to how the conditions were prior to mining (the proposed Morrison Creek Realigned Channel and Raised Bank Channel will function similar to how the existing Morrison Creek channel functioned prior to mining activities).

To facilitate the control of hazardous wildlife, the Federal Aviation Administration (FAA) recommends the use of steep-sided, rip-rap lined, narrow, linearly shaped water detention basins. In addition, the FAA recommends that all vegetation in or around detention basins that provide food or cover for hazardous wildlife should be eliminated. These design modifications to the proposed retention basins are feasible measures to reduce the use of the retention basins by birds and has been included as mitigation, to the extent practicable. With mitigation, the BASH risk remains low.

Plate LU-5: Penetration Gate for Flight Path Data (from SCAS)

Sacramento County Airport System
Aircraft Noise Information Office
Sacramento International Airport Flight Altitudes Near Morrison Creek Project
Flight Track Analysis

Basic Penetration Gate



Geographic Representation of the Gate

The penetration gate is located on APN 063-0090-001, spans it horizontally for 2 nautical miles and is oriented to capture the majority of the flights that directly overfly the parcel.

The same conclusion was made for a similar project, titled Aspen IV Special Planning Area (SPA) (County Control No. 2006-0396), which is located within 0.8 and 1.5 miles of airport property. A Wildlife Hazard Assessment (WHA) was conducted and prepared by D. Airola of Airola Environmental Consulting (dated August 2, 2007). The Aspen IV SPA site is located closer to the airport than the proposed project site. For the BASH analysis, data from Sacramento County Airports System was collected and it was found that most flights occurred at heights 500-2,000 feet above the Aspen IV SPA project site. The analysis concluded that the overall BASH potential for the site under the proposed project would remain low. The primary factor responsible for keeping BASH risk low is the high altitudes (500+ feet) at which aircraft crosses the site. Therefore, with inclusion of mitigation, the conclusion that the potential for bird airstrikes over the project site is low is a reasonable conclusion.

Level of Significance Before Mitigation: Potentially Significant

Mitigation Measures:

LU-4 The retention basins on Vineyard I and Aspen IV South shall include the following design criteria to the maximum extent practicable, while still adhering to the federal agency regulations:

a. The basin shall incorporate steep side slopes (3:1 or greater)

b. The basin shall be designed to remain clear of vegetation that may provide nesting, roosting or foraging opportunities for birds. Only herbaceous vegetation necessary for erosion control purposes will be allowed.

Level of Significance After Mitigation: Less than Significant

CUMULATIVE IMPACTS

At the completion of mining activities on the three mining sites, portions of the pit floors are expected to be near original grade due to the “drying bed” method (Teichert Aggregates) on Aspen III South and Aspen IV South and the use of overburden as fill on the Vineyard I mining site to bring portions of the pit floor to within five feet of original grade. At the completion of mining, the site will be returned to agricultural production and the Morrison Creek Realigned Channel and Raised Bank Channel will be a riparian corridor with a trail easement.

In the 2010 Bikeway Master Plan, there are Class II bike lanes proposed for Elder Creek Road and Fruitridge Road, located south and north of the project site. In the draft 2025 Sacramento County Bikeway System, Class II bike lanes are proposed for Hedge Avenue and Mayhew Road. A trail system along the Morrison Creek Realigned Channel would eventually connect to a larger system of trails in the vicinity of the project site. This is beneficial for future recreational uses of the site and is a positive outcome of the proposed project.

Since the project site will return to agricultural uses (the land use prior to mining activities) and there will be beneficial recreational opportunities in the future, there are no adverse significant impacts in the cumulative condition. The cumulative land use impacts of the proposed project are considered **less than significant**.

13 NOISE

INTRODUCTION

This chapter describes the existing noise environment at the project site and analyzes the noise generating potential of the project and its potential impacts to surrounding land uses. Where appropriate, mitigation is included to reduce or eliminate noise impacts.

The mining sites in this project include Vineyard I, Aspen III South and Aspen IV South. The proposed project includes revisions to the previously approved reclamation plan, consistent with permits received from the County, State and federal regulatory agencies. The previous reclamation plan consisted of a below grade, 600-foot wide riparian corridor/low-flow channel within the bottom of the mining pit in generally the same location as the existing creek and an at-grade trapezoidal bypass channel around the perimeter of the three mining sites. The proposed project revises the previously approved reclamation plan by completely eliminating the at-grade trapezoidal bypass channel component and changing the below grade, 600-foot wide riparian corridor/low-flow channel to an at-grade mitigation corridor (Morrison Creek Realigned Channel) on the Vineyard I and Aspen III South mining properties. The Morrison Creek Realigned Channel has been designed to contain the 100-year flows. On the Aspen IV South property, the existing Morrison Creek channel will now be preserved and a raised bank flood control channel (Raised Bank Channel) is proposed to be constructed outside the effective FEMA floodway. The Morrison Creek Realigned Channel will connect with the preserved Morrison Creek channel on Aspen IV South.

The proposed project also consists of a request for a rezone and a use permit amendment to allow aggregate mining on an additional 5.61 acres (two parcels) and to incorporate this new area into the previously approved Vineyard I mining plan (referred as Vineyard I mining expansion). In addition, the Vineyard I mining expansion will be incorporated into the previously approved reclamation plan, including revisions consistent with the requested reclamation amendments described above. The location of a retention basin on the Vineyard I mining site has been determined for the proposed project, as well an option for a retention basin on the Aspen IV South mining site.

SETTING

The project site is generally located south of Fruitridge Road, west of Bradshaw Road, east of Hedge Avenue, and north of Elder Creek Road. Mayhew Road is between Vineyard I and Aspen IV South mining sites. Jackson Highway is located approximately

1 mile north of the Vineyard I expansion site and Bradshaw Road is located approximately 4,165 feet (0.7 mile) east of the Vineyard I expansion site.

The project mining sites are actively mined and there are barriers (consistent with the previous project's mitigation measures for noise and aesthetics) in place around the perimeter of the mining properties to shield mining operation noise from sensitive receptors.

When Mather Air Force Base was in operation, the average ambient noise levels within the project as a result of aircraft overflights historically ranged from 70-80+ CNEL (daily average), with single event noise levels when aircraft flew over the project site much higher than this average. Since the closure of the Air Force Base and conversion of the airport to civilian uses, noise levels have substantially reduced.

Another source of noise in the project area is from nearby roadways, such as Jackson Highway and Bradshaw Road.

REGULATORY SETTING

COUNTY GENERAL PLAN NOISE ELEMENT

The Noise Element of the Sacramento General Plan establishes noise exposure criteria to aid in determining land use compatibility. The goal of the Noise Element is to:

> "…protect the citizens of the county from exposure to excessive noise." Further, the Noise Element must protect the economy of the county by preventing encroachment of noise sensitive land uses upon noise producing developments. Both of these tasks are accomplished through policies that limit the noise levels received in residential or other noise sensitive areas, and describe a process for regulating noise."

The policies in the Noise Element of the General Plan define the limits of noise exposure for sensitive land uses. The policies of the Noise Element are organized based on: traffic and railroad noise sources, aircraft noise sources, non-transportation noise sources, construction noise, noise from transportation projects, and general noise policies.

The following policy for non-transportation noise sources from the Noise Element of the General Plan applies to the project:

> NO-6 Where a project would consist of or include non-transportation noise sources, the noise generation of those sources shall be mitigated so as not exceed the interior and exterior noise level standards of Table 2 at existing noise-sensitive areas in the project vicinity.

Table 2
Non-Transportation Noise Standards
Sacramento County Noise Element
Median (L50) / Maximum (Lmax)[1]

	Outdoor Area[2]		Interior[3]	
Receiving Land Use	Daytime	Nighttime	Day & Night	Notes
All Residential	55 / 75	50 / 70	35 / 55	
Transient Lodging	55 / 75	---	35 / 55	4
Hospitals & Nursing Homes	55 / 75	---	35 / 55	5, 6
Theaters & Auditoriums	---	---	30 / 50	6
Churches, Meeting Halls, Schools, Libraries, etc.	55 / 75	---	35 / 60	6
Office Buildings	60 / 75	---	45 / 65	6
Commercial Buildings	---	---	45 / 65	6
Playgrounds, Parks, etc.	65 / 75	---	---	6
Industry	60 / 80	---	50 / 70	6

Notes:

1. The Table 2 standards shall be reduced by 5 dB for sounds consisting primarily of speech or music, and for recurring impulsive sounds. If the existing ambient noise level exceeds the standards of Table 2, then the noise level standards shall be increased at 5 dB increments to encompass the ambient.
2. Sensitive areas are defined in the acoustic terminology section.
3. Interior noise level standards are applied within noise-sensitive areas of the various land uses, with windows and doors in the closed positions.
4. Outdoor activity areas of transient lodging facilities are not commonly used during nighttime hours.
5. Hospitals are often noise-generating uses. The exterior noise level standards for hospitals are applicable only at clearly identified areas designated for outdoor relaxation by either hospital staff or patients.
6. The outdoor activity areas of these uses (if any), are not typically utilized during nighttime hours.
7. Where median (L50) noise level data is not available for a particular noise source, average (Leq) values may be substituted for the standards of this table provided the noise source in question operates for at least 30 minutes of an hour. If the source in question operates less than 30 minutes per hour, then the maximum noise level standards shown would apply.

SACRAMENTO COUNTY ZONING CODE

Section 235-52 of the Sacramento County Zoning Code outlines standards for aggregate mining operations (including sand and gravel mines, hard rock quarries and dredger tailing mining operations). Section 235-52(f) pertains to noise standards and states the following:

> Noise Standards. Unless otherwise provided by the Sacramento County Code the sound level created by the mining use at the boundary line of the authorized mining area shall not exceed 70 dBA except along a boundary contiguous to another area authorized to mine for sand or aggregates. A violation of the noise standard will occur if the noise level at the property line exceeds:
>
> (1) The noise limit for a cumulative period of more than thirty (30) minutes in any hour, or;
>
> (2) The noise limit plus 5 dBA for a cumulative period of more than 1 minute in any hour, or the noise limit plus 20 dBA for any period of time.

MATHER AIRPORT COMPREHENSIVE LAND USE PLAN AND MATHER AIRPORT POLICY AREA

The project site is located approximately 2 miles southwest of the southwest end of Mather Airport's runway, a primary source of noise in the project area.

STANDARDS OF SIGNIFICANCE

Appendix G of the California Environmental Quality Act (CEQA) provides guidance for assessing the significance of potential environmental impacts. Relative to noise, a project will normally have a significant effect on the environment if it will:

- Exposes persons to or generation of noise levels in excess of standards established in the Sacramento County General Plan and Zoning Code,
- Exposes persons to or generation of excessive groundborne vibration or groundborne noise levels,
- Results in a substantial permanent increase in ambient noise levels in the Project vicinity above levels existing without the Project, or
- Results in a substantial temporary or periodic increase in ambient noise levels in the Project vicinity above levels existing without the Project.

ENVIRONMENTAL IMPACTS AND ANALYSIS

The prior FEIR/EIS concluded that the aggregate processing plant would increase noise levels at the project site boundary line and found that this would be considered a significant impact. Mitigation was proposed for this impact; however the mitigation measure did not apply to the Proposed Project Without the Vineyard I Processing Plant Alternative. The prior project did not construct the processing plant on the Vineyard I site; therefore, this impact no longer exists and the mitigation measure is no longer applicable to the proposed project.

NOISE LEVELS IN EXCESS OF THE NOISE STANDARDS OF THE ZONING CODE AND NOISE ELEMENT

> *The prior FEIR/EIS concluded that noise levels in excess of 75 dBA may occur at nearby residences and other sensitive off-site receivers due to scrapers and other mobile mining equipment, and that the noise standard could be exceeded when mining equipment is operating close to the mining site boundary. This was considered a significant impact that could be reduced to less than significant with mitigation measures. The proposed project includes two properties for mining, which are located within the previously approved mining site and are not located adjacent to sensitive receptors.*

The prior FEIR/EIS identified a mitigation measure that required noise barriers along the residential/project property lines, that would reduce significant noise impacts to less than significant. The barriers are in place for the Vineyard I mining site; therefore the inclusion of 5.6 acres for mining on the Vineyard I site would not cause noise levels in excess of standards for sensitive land uses in the vicinity of the project site. The Reclamation Plan amendment portion of the proposed project will not generate noise in excess of the standard. The prior mitigation measure is no longer applicable to the proposed project, since it has been completed through the prior project.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measure: None Required – Prior Mitigation has been completed through the prior project.

POTENTIAL VIOLATION OF THE ZONING CODE NOISE STANDARD DUE TO THE CONVEYOR SYSTEM

> *The prior FEIR/EIS found that the noise impact from the conveyor system would be a less than significant impact. The proposed project would utilize the existing conveyor system.*

The prior FEIR/EIS stated that the conveyor system was proposed to be located at least 250 feet from the nearest residential property line and over 500 feet from the nearest residence. Worst case conveyor system noise level at the nearest residential property

line was determined to be 57 dB, and at the nearest residence the noise level was determined to be 51 dB. It was concluded that the temporal nature of this aspect of the project's operation, coupled with the comparatively low amounts of anticipated noise, makes this a less than significant impact.

The proposed project does not change this conclusion, as there are no changes to the uses or location of the conveyor system. Impacts remain less than significant.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measure: None Required

HEAVY TRUCK TRAFFIC AND OPERATION OF PROCESSING PLANT MAY CONSTITUTE A NOISE SOURCE

> *The prior FEIR/EIS concluded that the project's increased truck traffic along area roadways is not expected to result in significant noise impacts. The proposed project does not involve heavy trucks on roadways (all trucks will remain onsite) and there is not a processing plant associated with the mining project.*

The prior FEIR/EIS concluded that there would be approximately 28,600 truckloads associated with overburden removal and operation of the processing plant would produce an average rate of 600 trips per day and a peak rate of 800 trips per day, generally occurring from 6:00 a.m. to 3:30 p.m. The short term increase in noise levels on Jackson Highway is estimated to be less than 2 dB during the peak hour. Typically, a 3-5 dB change in Ldn is needed before the change in noise level becomes noticeable. In addition, the General Plan Noise Element indicates that residential uses in agricultural areas such as the project vicinity are considered compatible with noise levels of up to 65 dB Ldn.

The processing plant was never built as part of the prior project; there is no longer a potential for noise impacts as a result of the processing plant.

The proposed project includes a reclamation plan amendment and inclusion of 5.6 acres to the previously approved Vineyard I mining site. The reclamation plan amendment does not result in the potential for heavy truck traffic or operational noise impacts.

Since the additional 5.6 acres for mining will not require any truck trips on local roadways (all mined material will be sent to an offsite processing plant via the conveyor system) there is no potential for noise impacts associated with heavy truck traffic; impacts remain less than significant.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measure: None Required

CUMULATIVE IMPACTS

The proposed project will not contribute to any significant noise impact. The project, in combination with other projects in the area will not result in a cumulatively considerable contribution to the noise environment. In addition, in the post reclamation condition of the project site, the project will not contribute to noise in excess of standards. Accordingly, the proposed project will not result in a cumulative noise impact; cumulative impacts are considered **less than significant**.

14 PUBLIC SAFETY

INTRODUCTION

This chapter discusses the public safety impacts associated with the project. The primary public safety issues for the project include slope stability and hazards posed by mining operations should a member of the public inadvertently enter the project site during mining operations. Slope stability is further discussed in the Geology and Slope Stability Chapter of this SEIR.

The mining sites in this project include Vineyard I, Aspen III South and Aspen IV South. The proposed project includes revisions to the previously approved reclamation plan, consistent with permits received from the County, State and federal regulatory agencies. The previous reclamation plan consisted of a below grade, 600-foot wide riparian corridor/low-flow channel within the bottom of the mining pit in generally the same location as the existing creek and an at-grade trapezoidal bypass channel around the perimeter of the three mining sites. The proposed project revises the previously approved reclamation plan by completely eliminating the at-grade trapezoidal bypass channel component and changing the below grade, 600-foot wide riparian corridor/low-flow channel to an at-grade mitigation corridor (Morrison Creek Realigned Channel) on the Vineyard I and Aspen III South mining properties. The Morrison Creek Realigned Channel has been designed to contain the 100-year flood flows. On the Aspen IV South property, the existing Morrison Creek channel will now be preserved and a raised bank flood control channel (Raised Bank Channel) is proposed to be constructed outside the effective FEMA floodway. The Morrison Creek Realigned Channel will connect with the preserved Morrison Creek channel on Aspen IV South.

The proposed project also consists of a request for a rezone and a use permit amendment to allow aggregate mining on an additional 5.61 acres (two parcels) and to incorporate this new area into the previously approved Vineyard I mining plan (referred as Vineyard I mining expansion). In addition, the Vineyard I mining expansion will be incorporated into the previously approved reclamation plan, including revisions consistent with the requested reclamation amendments described above.

SETTING

The project site consists of three active mining sites, Vineyard I, Aspen III South and Aspen IV South. These three mining sites were previously approved for mining in 1999. The Vineyard I mining expansion site is located within the Vineyard I mining site and is surrounded by active mining. The existing Morrison Creek channel has not been mined to date.

The revised Morrison Creek Realigned Channel has been constructed in phases on the Vineyard I and Aspen III South mining sites and consists of a meandering channel and is vegetated with native grasses and trees.

The prior FEIR/EIS identified that public safety would be an issue if there were no fencing to keep the public out of the mining sites. The prior FEIR/EIS reiterated the Zoning Code regulation regarding fences and warning signs.

Mitigation for the project required that there be perimeter fencing in place at the project site until a post-reclamation /future use of the project site occurred.

REGULATORY CONTEXT

The Sacramento County Zoning Code and the Surface Mining and Reclamation Act (SMARA) contain regulations pertaining to surface mining. Many of these regulations focus on the safe operation of the mine. For example Sections 235-54 of the Zoning Code addresses fences and requires that they be at least six feet in height, meet the ground within four inches and be kept in good repair with gates installed to fence height at all entrances. Other requirements are for a reclamation plan and financial bonding mechanism to ensure the future reclamation of the site back to a safe and stable landform.

STANDARDS OF SIGNIFICANCE

Appendix G of CEQA provides guidance for assessing the significance of potential environmental impacts. Appendix G does not contain specific public safety standards; however, impacts to public safety would be similar to those impacts found for geology/slope stability, hazardous materials and hydrology (drainage and flooding). These impacts are analyzed in the respective chapters of this environmental document. In addition, there are many local, State and federal safety regulations pertaining to mine safety that must be in place for mining operations. Therefore, for this chapter, a significant impact to public safety would result if the proposed project did not protect the public from inadvertent entry into the active mining sites.

IMPACTS AND ANALYSIS

HAZARDOUS CONDITIONS DURING MINING OPERATIONS

The prior FEIR/EIS concluded that mining operations at the project site had the potential to create hazardous conditions. This was found to be a significant impact that could be reduced to less than significant with mitigation.

The prior FEIR/EIS stated that due to the use of heavy equipment such as bulldozers, scrapers, and front-end loaders, and the creation of a 25± foot deep, steep-sided pit, inadvertent public entry to the mining site could create a public safety hazard. The inclusion of mitigation that requires retention of perimeter fencing until post-reclamation development or future use of the site occurs, was found to reduce this impact to public safety to less than significant.

The project was required to install fences and warning/trespass signs that comply with Section 235-54 and 235-55 of the Zoning Code. The Smith-Cook properties are located within the boundaries of the existing Vineyard I mining site. Appropriate fencing and warning signs are already in place that prevents the inadvertent entry of the public into the mining areas.

If the Vineyard I expansion site is approved for inclusion to the Vineyard I site for mining, the project would be required to comply with all local, State and federal regulations pertaining to mine safety. Since this is an area of alluvial and not hard rock deposits, no blasting or storage of explosives is expected. The Geology and Slope Stability chapter provides analysis of the slope stability of the active and reclaimed pit walls and stability of the embankment of the revised Morrison Creek Realigned Channel and Raised Bank Channel. Mitigation would ensure that stable slopes are achieved; therefore, no public safety impacts are expected from slope instability. Compliance with existing local, State and federal regulations will ensure that no significant public safety impacts are generated by the proposed project.

The proposed project does not change the prior conclusion that this impact is significant. The prior mitigation remains applicable to the proposed project and has been included below. This mitigation was found to reduce impacts to less than significant.

Level of Significance Before Mitigation: Significant

Mitigation Measures:

The following mitigation measure is from the prior FEIR/EIS and is applicable to the Vineyard I mining expansion site:

PS-1 All perimeter fencing shall be retained until post-reclamation development/ future use of the project site occurs.

Level of Significance After Mitigation: Less than Significant

HAZARDOUS CONDITIONS POST-RECLAMATION

The prior FEIR/EIS concluded under the Part B Alternative, a different ultimate land use potential could be considered, including park areas. Public facilities within the mining pits after the completion of mining would require more stringent

construction standards to protect public health, safety, or general welfare. This was found to be a less than significant impact.

The proposed project consists of a revised reclamation plan that creates an open space recreation area opportunity (trail) within the Morrison Creek Realigned Channel and Raised Bank Channel. As proposed, there will be public access and use of the trail after mining operations cease. The Morrison Creek Realigned Channel is constructed at grade; however, just south of the corridor is an open mine pit. At the bottom of this pit, it has been proposed that there would be an ephemeral drainage with a riparian vegetation community. As discussed in the Land Use chapter, Southgate Recreation and Park District requests that a trail easement be dedicated to Southgate for public recreational uses. Slopes of the Morrison Creek Realignment Channel, Raised Bank Channel and mining pits will not have slopes steeper than 2:1 (horizontal:vertical). Slope stability has been analyzed in the Geology and Slope Stability Chapter of this EIR. Furthermore, the Post-Reclamation use of the site would be limited to public recreational uses along the trail and agricultural activities. There are no hazardous conditions post-reclamation. Impacts are considered less than significant.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measure: None Required

CUMULATIVE IMPACTS

The proposed project in combination with other mining projects in the area does not result in a significant public safety impact due to the controls in place to assure that the general public is protected from inadvertent entry into active mining sites. Additionally, the requirement that all mines have a reclamation plan and financial bond assures a stable safe landform after the conclusion of mining. Cumulative public safety impacts are considered **less than significant**.

15 AESTHETICS AND VISUAL RESOURCES

INTRODUCTION

This chapter describes the visual characteristics of the project site and vicinity and analyzes the impact of the project on visual resources. Visual resource impacts include changes to the visual character of the area, the degree of screening by vegetation, and introduction of new sources of light or glare. Mitigation, where appropriate, is included to reduce or eliminate visual resources impacts.

The proposed project includes revisions to the previously approved reclamation plan, consistent with permits received from the County, State and federal regulatory agencies. The mining sites in this project include Vineyard I, Aspen III South and Aspen IV South. The previously approved reclamation plan consisted of a below grade, 600-foot wide riparian corridor/low-flow channel within the bottom of the mining pit, in generally the same location as the existing creek and an at-grade trapezoidal bypass channel around the perimeter of the three mining sites. The proposed project revises the previously approved reclamation plan by eliminating the at-grade trapezoidal bypass channel component and changing the below grade, 600-foot wide riparian corridor/low-flow channel to an at-grade mitigation corridor (Morrison Creek Realigned Channel) on the Vineyard I and Aspen III South mining properties. The Morrison Creek Realigned Channel has been designed to contain the 100-year flood flows. On the Aspen IV South property, the existing Morrison Creek channel will be preserved and a raised bank flood control channel (Raised Bank Channel) is proposed to be constructed outside the effective FEMA floodway. The Morrison Creek Realigned Channel will connect with the preserved Morrison Creek channel on Aspen IV South.

The proposed Project also consists of a request for a rezone and a use permit amendment to allow aggregate mining on an additional 5.61 acres (two parcels) and to incorporate this new area into the previously approved Vineyard I mining plan (referred as Vineyard I mining expansion). These two sites are located between Vineyard I and Aspen III South mining sites.

ENVIRONMENTAL SETTING

The project site consists of the previously approved mining sites known as Vineyard I, Aspen III South and Aspen IV South. These three mining sites are bordered by Jackson Highway and Fruitridge Road to the north, Bradshaw Road to the east, Elder Creek Road to the south, and Hedge Avenue to the west. The mining sites are inset within a rural setting.

The prior FEIR/EIS provided the following discussion of aesthetic and visual resources in the project vicinity.

> *Landscape characteristics of the project area consist of gently sloping rangeland in a rural setting. Single family residences, a religious temple, and commercial properties, including a former health club (*now a church and school)*, are located on properties adjacent to the project site, and would be subjected to views of the mining operations, and eventually the reclaimed pit areas, unless screening occurs. Travelers along Jackson Highway, Bradshaw Road, Eider Creek Road, Hedge Avenue, and Fruitridge Road would also have a view of the operations. Less sensitive receptors, including adjacent surface mining operations and industrial uses also surround the property.*
>
> *The following policies in the Conservation Element of the Sacramento County General Plan provide for orderly extraction of minerals and subsequent reclamation of mined areas with minimal adverse impacts on surrounding residential uses and scenic values:*
>
> *CO-44. Surface mining shall maintain substantial minimum set backs from adjoining rural residential land uses.*
>
> *CO-45. Surface mining shall not be allowed without adequate plans for reclamation of mined areas.*
>
> *These policies are largely implemented through existing Zoning Code provisions and CEQA. The Zoning Code outlines standards for sand and gravel mines that provide minimal buffering for adjacent properties. Unless otherwise provided by condition of the use permit, the Zoning Code requires standard chain link fencing (Section 235-54), a 25-foot minimum setback from unmined land adjacent to public roadways, and a 25-foot setback (Section 235-59) along all other property lines around the mining site (the first five feet to consist of unmined land and the remainder to be reclaimed to original grade within one year of mining). The Board of Supervisors is also allowed to require, as a condition of the use permit, visual screening through the use of berms, screen fences, landscaping, setbacks, or combinations thereof (Section 235-56).*

The prior FEIR/EIS described the following possible reactions by the observer:

> *The aesthetic value assigned to changed landforms resulting from mining activities is very subjective. To some viewers from the perimeter rim roads, the reclaimed pits would be seen as an interesting mosaic of cropland, uplands, wetlands, ponds, and riparian canopy. The visual contrast of water with irregular shoreline, undulating topography, and corresponding variable patterns of natural and agricultural vegetation would create an aesthetically pleasing viewshed from all sides of the pit perimeter. Inclusion of forest canopy throughout the basin would screen and soften the artificially steep sides of the pit. To others, especially those few properties that would remain within the noncontiguous site*

area, the changed landforms resulting from the proposed projects mining activities, pits, and bypass channel may be visually objectionable.

The mining sites are fenced from the public and visual screening is provided either by these screen fences or through vegetation.

STANDARDS OF SIGNIFICANCE

Appendix G of the California Environmental Quality Act (CEQA) provides guidance for assessing the significance of potential environmental impacts. Relative to aesthetics and visual resources, a project will normally have a significant effect on the environment if it will:

- Have a substantial affect on a scenic vista;
- Substantially damage scenic resources, including but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway;
- Substantially degrade the existing visual character or quality of the site and its surroundings; or
- Create a new source of substantial light or glare, which could adversely affect day or nighttime views in the area.

ENVIRONMENTAL IMPACTS AND MITIGATION

DEGRADATION OF THE VISUAL CHARACTER OR QUALITY OF THE SITE AND ITS SURROUNDINGS

The prior FEIR/EIS concluded that unless visual screening is adequate there would be a significant impact associated with the views of the mining operations. The inclusion of the Vineyard I mining expansion site to the Vineyard I mining site does not change this impact. The mitigation from the prior project is in place.

The prior FEIR/EIS noted that the value assigned to changed landforms resulting from mining activities is very subjective. It was noted that the mining project could create an aesthetically pleasing viewshed from all sides of the pit perimeter due to visual contrasts and undulating topography. On the other hand, it was recognized that the mining activities, pits, and bypass channel may be visually objectionable.

The proposed Project revises the previously approved Reclamation Plan, which eliminates the bypass channel and creates a new Morrison Creek Realigned Channel on the Vineyard I and Aspen III South mining properties, which will be constructed at-

grade, with a meandering low flow channel, creating a more natural creek corridor compared to its previously approved location at the bottom of the mined pit area. The creek will meander similar to how a natural creek would. In addition, the new Morrison Creek Realigned Channel will be planted to recreate a riparian and oak woodland habitat. There will be trail crossings over the main preserve and maintenance will occur in perpetuity. The proposed project will increase the habitat value of the Morrison Creek corridor which could be seen by most people as aesthetically positive. In addition, on the Aspen IV South site, the existing Morrison Creek will be preserved and a Raised Bank Channel will be constructed outside of the floodway. The Morrison Creek Realigned Channel will connect with the existing Morrison Creek channel on Aspen IV South. As Teichert Aggregates will not be mining through the existing Morrison Creek channel on the Aspen IV South, there are no adverse aesthetic impacts to this portion of the Morrison Creek channel.

Mining activities on the Vineyard I mining expansion site do not substantially change the prior FEIR/EIS conclusion. There are no homes or roadways adjacent to these two properties that could be affected by the additional mining.

Mitigation was included in the prior document that required the proponents to screen mining operations from public roadways, private property and other sensitive receptors by providing a combination of visual screens. These screens were to include 25-foot minimum buffers, chain link fencing, berming and landscaping with fast-growing, closely spaced shrubs. In addition, landscaping was to be initiated at least one year prior to commencement of mining operations to allow plant establishment and sufficient screening growth. The landscaping plan for Vineyard I (where the additional mining activities are to take place) was signed off as complete and acceptable in January 2001.

The two small parcels proposed for inclusion into the Vineyard I mining site will be screened from the public view by the existing visual screenings installed by the proponents; impacts are considered less than significant.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measures: None Required – Prior Measures have been completed

CREATE A NEW SOURCE OF SUBSTANTIAL LIGHT OR GLARE AFFECTING NIGHTTIME VIEWS IN THE AREA

The prior FEIR/EIS concluded that the nighttime landscape in the vicinity of the project would be changed. Urban type lighting will exist on the project site which has not existed in the past and will be visible to existing residents and travelers passing by. This was found to be a significant impact. Mitigation reduced the impact to less than significant. The proposed project does not substantially change this conclusion and impacts can be mitigated to less than significant.

The prior FEIR/EIS stated that most of the lighting would be located in the vicinity of the proposed processing plant. The light within the mining area would vary in setback and height relative to adjacent uses, depending upon which area of the site is actively being mined at any particular time and the depth to which the mining of that particular area has proceeded. The processing plant was not constructed as part of the prior project. The lighting associated with the mining is the only nighttime lighting impact associated with the project.

The reclamation amendment of the proposed project will not require any lighting and the Vineyard I mining expansion site will be located on the existing Vineyard I mining site, which is currently being mined. There are lights currently associated with the mining activities; therefore, there are no new impacts associated with the inclusion of the 5.6 acres for mining.

Mitigation measures included below were proposed in the prior FEIR/EIS and remain applicable to the proposed project. With mitigation, impacts will be considered less than significant.

Level of Significance Before Mitigation: Significant

Mitigation Measure:

With minor changes, the mitigation measure from the FEIR/EIS below is applicable to ***the Vineyard I mining expansion site*** ~~the proposed Project~~.

AV-1 Any lighting shall be arranged and controlled so as not to illuminate public rights-of-way or adjacent properties. In order to reduce direct and reflected light pollution, lighting at the project site shall be equipped with shields that concentrate the illumination downward such that no direct light is cast off the site. Energy efficient lights shall be used, similar to the types used as residential outdoor security lights. The candle power of the illumination at ground level shall not exceed what is required by any safety or security regulations of any government agency with regulatory oversight of the mining operation.

Level of Significance After Mitigation: Less Than Significant

CUMULATIVE IMPACTS

The project, in combination with other projects in the vicinity of the project site, would not create an adverse aesthetic impact. At the completion of mining, the three mining sites (Vineyard I, Aspen III South and Aspen IV South) would return to agricultural production, which is the approved Post-Reclamation use of the site.

At the completion of mining, the Morrison Creek Realigned Channel on Vineyard I and Aspen III South would be completed and planted with riparian and oak vegetation. The Morrison Creek Realigned Channel would connect to the preserved Morrison Creek and proposed Raised Bank Channel on Aspen IV South. Vegetation and oak tree mitigation

plantings would be within this Raised Bank Channel. The proposed Morrison Creek Realigned Channel and Raised Bank Channel would have a higher aesthetic value compared to the No Project condition since the new channel will mirror a natural creek more than the previously approved bypass channel and pit bottom riparian corridor/low-flow channel. In addition, a pedestrian trail is proposed within the Morrison Creek Realigned Channel and Raised Bank Channel, which ultimately is planned to connect a larger network on recreational trails in the area. This also increases the aesthetic value of the proposed project.

16 PUBLIC SERVICES

INTRODUCTION

This chapter discusses the public services available at the project site and identifies any impact associated with the provision of public services.

The proposed project includes revisions to the previously approved reclamation plan, consistent with permits received from the County, State and federal regulatory agencies. The previous reclamation plan consisted of a below grade, 600-foot wide riparian corridor/low-flow channel within the bottom of the mining pit in generally the same location as the existing creek and an at-grade trapezoidal bypass channel around the perimeter of the three mining sites. The proposed project revises the previously approved reclamation plan by completely eliminating the at-grade trapezoidal bypass component and changing the below grade, 600-foot wide riparian corridor/low-flow channel to an at-grade mitigation corridor (Morrison Creek Realigned Channel) on the Vineyard I and Aspen III South mining properties. The Morrison Creek Realigned Channel has been designed to contain the 100-year flood flows. On the Aspen IV South property, the existing Morrison Creek channel will now be preserved and a raised bank flood control channel (Raised Bank Channel) is proposed to be constructed outside the effective FEMA floodway. The Morrison Creek Realigned Channel will connect with the preserved Morrison Creek channel on Aspen IV South.

The proposed project also includes a request for Granite to incorporate two small properties, totaling 5.6 acres, to their Vineyard I site for mining activities. The Vineyard I mining expansion site is located within the Vineyard I mining site and is surrounded by mining activities.

SETTING

The project site is located within the Sacramento County Urban Services Boundary (USB) and is within the active service area of a variety of public utility and service districts. Service providers were provided an opportunity to review and comment on the proposed project through the NOP process and through application distribution by the Planning Department. The following agencies commented on the proposed project and have been addressed below:

- Sacramento Metropolitan Fire District (letter dated July 8, 2008)
- Southgate Recreation and Park District (letter dated October 19, 2011)
- Sacramento Area Sewer District (letter dated July 7, 2008)

- Sacramento Regional County Sanitation District (letter dated June 20, 2008)
- Environmental Management Department (letter dated January 3, 2008)

FIRE PROTECTION

The project site is serviced by the Sacramento Metropolitan Fire District. Staff (M. Keehn) submitted comments and recommended conditions of approval for the Vineyard I portion of the proposed project. These requested appropriate Fire District access to all unimproved and recreational areas, firebreaks and fencing for wetland, open space and unimproved and recreational areas as wells as a recommendation that fencing be constructed on non-combustible materials. All conditions of approval will be included within the staff report ~~prepared by the Planning Department~~.

PARKS AND RECREATION

Staff of the Southgate Recreation and Park District (M. Casey) reviewed the proposed Project and submitted comments and conditions of approval (letter dated October 19, 2011) for the Vineyard I portion of the project. The Southgate Park District commented that the District has met with the project applicant and County staff regarding the open space and bicycle/pedestrian trail conditions. Southgate Park District is coordinating with Teichert for the Aspen III South and Aspen IV South properties in order to provide a continuous bicycle/pedestrian trail though ***(or nearby)*** the Morrison Creek Realigned Channel and Raised Bank Channel.

Southgate Park District submitted conditions of approval relating to the Morrison Creek Realigned Channel, the bicycle/pedestrian trail, improvements to the trail and perpetual funding for the trail. The Southgate Park District states that the District will accept easements for the U.S. Army Corps authorized 14-foot wide trail crossing through the Morrison Creek Realigned Channel and a 20-foot wide trail corridor easement along the entire northern property line and along the southern property line from Mayhew Road to the western most crossing, outside of the preserve, to allow for a 10-12 foot-wide paved trail. The final trail surfaces, width and public access points to the trail will be mutually determined by the Applicant and Southgate Park District. The Southgate Park District has not to date submitted final conditions of approval for the Teichert properties, Aspen III South and Aspen IV South. However, final conditions of approval from Southgate Park District is likely to be similar to the conditions submitted for Vineyard I; therefore, the final conditions regarding the trail easements, location, surface material and access points do not result in any significant environmental impacts. The final conditions of approval from Southgate Park District will be addressed in the ~~Planning Department's~~ staff report.

The Land Use chapter includes mitigation that requires that the Morrison Creek Realigned Channel be dedicated to a third party entity and that funding be provided for the maintenance and monitoring in perpetuity.

SOLID WASTE SERVICE

Public sewer service within Sacramento County is provided by the Sacramento Regional County Sanitation District (SRCSD) and the Sacramento Area Sewer District (SASD), formally County Sanitation District No. 1 (CSD-1). The project site lies within the existing boundaries of both service districts. Each of the districts provides a distinct service.

SASD operates, maintains and constructs sewage trunks and collection lines that carry between 1 and 10 million gallons per day. SASD provides collection and transport of sanitary sewage and industrial wastes from its facilities to the major transmission, treatment, and disposal facilities operated by SRCSD.

The SRCSD provides sewage transport via interceptor lines with capacities exceeding 10 million gallons per day. Sewage collected locally by the SASD (along with other public agencies) is transported by SRCSD via one of four interceptor sewers to the Regional Treatment Plant near the town of Freeport. The Regional Plant provides secondary sewage treatment through a pure oxygen activated sludge process and then discharges treated effluent into the Sacramento River downstream from domestic water supply intake facilities.

Both agencies, SASD and SRCSD, reviewed the proposed Vineyard I expansion of the proposed project and submitted comments and conditions which are included in the Impacts and Analysis section below.

ENERGY SERVICE

Existing electrical service is provided from the Sacramento Municipal Utility District (SMUD). No comment letter has been received to date from SMUD.

STANDARDS OF SIGNIFICANCE

The criteria used to evaluate the significance of public services and utility impacts resulting from the proposed project were developed based on CEQA Guidelines and on professional standards. Impacts of the proposed project on public service and utilities were considered significant if implementation of the project would:

- Result in inadequate wastewater treatment and disposal facilities for full buildout of the project;
- Result in substantial adverse physical impacts associated with the provision of electric or natural gas service;

- Result in substantial adverse physical impacts associated with the provision of emergency services such as to substantially increase emergency response times;
- Result in substantial adverse physical impacts associated with the provision of park and recreation services

IMPACTS AND ANALYSIS

IMPACTS TO SRCSD AND SASD (FORMALLY CSD-1) SEWAGE LINES

The prior FEIR/EIS concluded that the proposed mining operations would eliminate possible routes for gravity sewers being considered by SRCSD and CSD-1, which was considered a significant impact that could be reduced to less than significant with mitigation.

The prior FEIR/EIS noted that SRCSD and CSD-1 completed a *Sewerage Expansion Study* and a *1994 Update Expansion Study*, in part to investigate the most feasible trunk and interceptor alignment to serve areas within the USB. The 1994 Update provided for an interceptor alignment through the project site. This was identified as the Bradshaw Interceptor alignment, which was proposed adjacent to Bradshaw Road. The Bradshaw Interceptor was proposed to be constructed through the area by 2005. It was noted in the prior FEIR/EIS that the mining operations would most likely not be started prior to the construction of the planned sewer lines. Therefore, it was concluded that excavation activities associated with mining would have the potential to effect and/or eliminate possible routes for gravity sewers being considered by SRCSD and CSD-1.

The Bradshaw Interceptor has been installed and completed in the project area. The proposed project would not have an impact to this sewer facility.

In 2002, CSD-1 prepared a Master Plan (approved in 2004), and in 2006 CSD-1 conducted a Master Plan Update to the 2002 Master Plan. The Master Plan Update sought to establish the future capital needs of the CSD-1 trunk sewer system, addressing capacity relief projects for the existing system, as well as expansion projects to serve newly developed areas. Based on the 2006 Master Plan Update, a trunk expansion is proposed at the intersection of Elder Creek Road and South Watt Avenue, where it travels east along Elder Creek Road and appears to travel north up Mayhew Road. This trunk expansion is proposed for the years 2011 to 2020.

Elder Creek is the southern limit of the project site. The CSD-1 Master Plan and Master Plan Update have identified future trunk and interceptor locations. Based on the Master Plan Update, the proposed project will not adversely impact any planned sewer facilities.

SRCSD Staff (R. Armstrong) reviewed the proposed project and commented (letter dated June 20, 2008) that the SRCSD Northwest Interceptor, Section 1, which is an 84-inch line located on the north side of Fruitridge Road, is located within the proposed project boundaries. SRCSD further commented that improvements associated with the proposed project do not appear to conflict with this facility.

Staff (S. Khan) of SASD commented (letter dated July 7, 2008) that the subject property is outside the boundaries of SASD and would be subject to the Environmental Management Department (EMD) approval for on-site waste disposal facilities. The proposed project would not require an on-site waste disposal facility.

As there are no new sewer facilities planned through the project site and new facilities are located along existing roadways, mining and excavation of the project sites will not affect planned sewer facilities. This impact is now considered less than significant.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measures: None Required

IMPACTS TO EXISTING SEPTIC SYSTEMS

> *The prior FEIR/EIS concluded that seepage from septic systems could cause adverse impacts when excavation occurs near a septic system site, especially in areas with gravelly soils. This was found to be a significant impact that could be reduced to less than significant. In addition, the prior FEIR/EIS determined that proposed mining operations would require the removal of onsite septic systems, which was found to be a less than significant impact.*

The prior FEIR/EIS identified the locations of known septic systems on the project site. It was concluded that excavation near an existing septic system site could have adverse impacts (especially where excavation occurs in areas of gravelly soils) and this was considered a significant impact. However, compliance with the Zoning Code regarding mining setbacks for sewerage systems was found to reduce this impact to less than significant.

Mining setbacks for sewerage systems are provided in the Sacramento County Zoning Code, Section 235-52(e)(5) [old Zoning Code Section 235-59(d), as stated in the prior FEIR/EIS], which states:

> In the event there are individual sewage disposal systems near or within the mining site, the mining setbacks shall conform to the provisions of the Sacramento County Code, Chapter 6.32 and shall be subject to the approval of the Sacramento County Environmental Management Department and the Regional Water Quality Control Board. Approval of these agencies must be obtained on the minimum mining setbacks before a Work Authorization Permit can be obtained, per Section 235-45(a)(2). If setbacks of the mining use permit are established which exceed the setbacks prescribed in this Section, the Board

> shall specify in writing reasons for requiring the additional setback and the setbacks shall become conditions of the use permit.

The applicant for Vineyard I mining site has submitted an exhibit that shows the location of dust control wells, landscape irrigation wells and the approximate location of other wells/septic. The proposed Vineyard I expansion site contain a dust control well and a well/septic. There are no septic systems located near the Morrison Creek Realigned Channel.

The prior FEIR/EIS concluded that the mining operations would require the removal of onsite septic systems in compliance with Sacramento County EMD and Building Department guidelines. This was found to be a less than significant impact. Conditions from the prior FEIR/EIS required that the proponents submit a site plan for review to the Sacramento County EMD showing the exact locations of existing wells and septic systems within 300 feet of the project site. Wells proposed to be used during mining operations, wells and/or septic systems proposed for abandonment and any proposed well(s) must be indicated on the plans. Furthermore, the project proponents were required to abandon any existing septic systems according to EMD procedures and standards.

Compliance with the Sacramento County Code and Zoning Code will ensure that mining and excavation activities would not have an adverse impact to septic systems. Impacts on septic systems as a result the Vineyard I expansion mining site are considered less than significant.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measures: None Required

USE OF ONSITE WATER

> *The prior FEIR/EIS concluded that mining activities would require water to be used for dust control and landscaping. The rate of use would depend upon dust control and plant needs. Aggregate processing incorporates both well water from new wells constructed within the project site and recycled settling pond water. This was found to be a less than significant impact.*

The prior FEIR/EIS included a condition that required the proponents to submit for review by EMD, a site plan showing the exact location of existing wells and septic systems within 300 feet of the project site. The plan is to also indicate the wells proposed for use during the mining operation, wells and/or septic systems proposed for abandonment and the proposed location of any new wells.

Although it was determined that this impact was less than significant, mitigation was included that required all new wells constructed within the project site be located and designed to minimize interference with existing wells within and outside the project site, to the satisfaction of EMD.

The prior FEIR/EIS concluded that there are no plans to provide public water to the project site or surrounding area during or following mining operations. The proposed project does not change the prior conclusion. Impacts remain less than significant.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measure: None Required

REMOVAL OF WATER WELLS

> *The prior FEIR/EIS concluded that mining operations would require the removal of water wells. However, since removal of wells would have to be in compliance with regulations of EMD and the Building Department guidelines, this was found to be a less than significant impact*.

There is one dust control water well located within the Vineyard I expansion site. There are also existing wells located on Aspen III South and Aspen IV South mining sites.

Staff (C. Hawkins) of EMD reviewed the proposed project and submitted a comment letter (letter dated January 3, 2008) requesting that "any existing well that will not be operational must be destroyed under permit from EMD" be included as a condition for the proposed project. Removal of water wells prior to excavation would be in compliance with EMD regulations, which will ensure impacts associated with removal of water wells are less than significant.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measures: None Required

ELECTRIC FACILITIES

> *The prior FEIR/EIS concluded that electrical facilities would need to be installed to serve the proposed project, including those for the aggregate processing facility. This was considered a less than significant impact.*

The processing facility was not included as part of the prior project. The mined material was to be sent to existing processing facilities via the conveyor system. It was determined in the prior FEIR/EIS that electricity needed for the project site would be supplied from SMUD's Sunrise/Jackson substation. Even with the inclusion of the processing facility, it was determined that the electric power demand would not constitute a significant increase in demand.

Although this impact was considered less than significant, there were two mitigation measures included for this impact. One mitigation measure pertained to the proposed processing facility on the Vineyard I mining site. That mitigation measure is not applicable to the project. The other mitigation measure required that any existing overhead power lines shall remain, and if necessary be relocated at the proponents'

expense as the operation proceeds. The Vineyard I expansion site does not have any overhead power lines located on the site. This mitigation measure is not applicable to the proposed project.

The Morrison Creek Realigned Channel, Raised Bank Channel and the Vineyard I expansion site will not require additional electric facility use over what was originally permitted. This impact remains less than significant.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measures: None Required

NATURAL GAS FACILITIES

> *The prior FEIR/EIS concluded that the installation of natural gas facilities would need to be installed to serve the proposed project, including the hot asphalt plant. This was considered to be a less than significant impact.*

The processing plant that was previously proposed for Vineyard I was not built as part of the previous project, since Granite was able to obtain the necessary easements for a conveyor system to their existing off-site plant. The proposed project will not require the use of natural gas; therefore, natural gas facilities will not need to be installed. This is no longer an impact.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measures: None Required

PARK SERVICES

> *The project site is within the boundaries of Southgate Recreation and Park District. The proposed project will provide trails through the mitigation corridor for public use.*

The revised reclamation plan creates a wetland/riparian stream corridor and includes trails for public use/ open space. Southgate Recreation and Park District reviewed the proposed project and submitted comments and recommended conditions of approval. The District requests for a trail easement within the Morrison Creek Realigned Channel and Raised Bank Channel.

The provision of trails and open space on the project site is addressed in the Land Use Chapter. The use of the project site as open space was found to not have a significant impact on the post development and use of the project site. The provision of park services to the project site is considered a less than significant impact. Although impacts are considered less than significant, mitigation consistent with the Land Use Chapter has been included.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measures: Implement Mitigation Measure LU-3

EMERGENCY SERVICES

> *The proposed project will provide public use of the mitigation corridor. The Sacramento Metropolitan Fire District provides fire protection service to the project area and provided conditions of approval. The project will not adversely affect the provision of fire services.*

The project proposes to have trails through the proposed Morrison Creek Realigned Channel and Raised Bank Channel. These trails will eventually connect to future bike trails, as shown on the 2010 Bikeway Master Plan. The trails will be considered open space, to be used by the general public. The Sacramento Metropolitan Fire District reviewed the proposed project and submitted comments and recommended conditions of approval. Upon compliance with recommendations of the Fire District, the project as proposed is not expected to adversely affect the provision of fire services. Impacts are considered less than significant.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measures: None Required

CUMULATIVE IMPACTS

Service providers were given the opportunity to comment on the proposed project and none identified existing deficiencies in capacity or ability to provide service to which the proposed project would contribute. Based on this information, the proposed project would not result in a cumulatively considerable incremental contribution to a public service impact; cumulative impacts are considered **less than significant**.

17 CLIMATE CHANGE

INTRODUCTION TO CLIMATE CHANGE AND GLOBAL WARMING

The average surface temperature of the Earth has risen by about 1 degree Fahrenheit in the past century, with most of that occurring during the past two decades (World Meteorological Organization, 2005). To the layperson, this apparently small amount of warming may appear insignificant. Correspondingly, the probable increases in average temperatures of between 3 to 8 degrees Fahrenheit (Cayan, et al., 2006a) may appear noticeable, but still insignificant. The word *average* is of critical importance to understanding climate change and global warming. In July, the average high temperature in Sacramento is 94 degrees Fahrenheit (The Weather Channel website, 2007). This number is created by averaging temperatures over decades, not just for one particular year. Although the average is 94 degrees Fahrenheit, residents know that the individual days and weeks making up that average are as much as 20 degrees warmer or cooler in the extreme cases and up to 10 degrees warmer or cooler on a more regular basis. Therefore, applying an average increase of 8 degrees in a strictly linear way (omitting forcing effects) would mean that the *average* July temperature in Sacramento would be 102 degrees, and that temperatures could get as hot as 122 degrees in an extreme event (the current record is 114) and could regularly reach 112 degrees. This kind of temperature shift would have significant consequences to citizens and the environment alike.

The principal greenhouse gases (GHGs) that enter the atmosphere because of human activities are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and fluorinated gases. From 1750 to 2004, concentrations of CO_2, CH_4, and N_2O have increased globally by 35, 143, and 18 percent, respectively. Other greenhouse gases, such as fluorinated gases, are created and emitted solely through human activities. (EPA 2006) Carbon dioxide is the gas that is most commonly referenced when discussing climate change because it is the most commonly emitted gas. While some of the less common gases do make up less of the total greenhouse gases emitted to the atmosphere, some have a greater climate-forcing effect per molecule and/or are more toxic than carbon dioxide.

"In order to stabilize the concentration of GHGs in the atmosphere, emissions would need to peak and decline thereafter. The lower the stabilization level, the more quickly this peak and decline would need to occur. Mitigation efforts over the next two to three decades will have a large impact on opportunities to achieve lower stabilization levels." (IPCC 2007c)

CARBON DIOXIDE

Carbon dioxide emissions are mainly associated with combustion of carbon-bearing fossil fuels such as gasoline, diesel, and natural gas used in mobile sources and energy-generation-related activities. The U.S. EPA estimates that CO_2 emissions accounted for 84.6% of greenhouse gas emissions in the United States in 2004 (EPA 2006). The California Energy Commission (CEC) estimates that CO_2 emissions account for 84% of California's anthropogenic (manmade) greenhouse gas emissions, nearly all of which is associated with fossil fuel combustion (CEC 2005). Total CO_2 emissions in the United States increased by 20% from 1990 to 2004 (EPA 2006).

METHANE

CH_4 has both natural and anthropogenic sources. Landfills, natural gas distribution systems, agricultural activities, fireplaces and wood stoves, stationary and mobile fuel combustion, and gas and oil production fields categories are the major sources of these emissions. The U.S. EPA estimates that CH_4 emissions accounted for 7.9% of total greenhouse gas emissions in the United States in 2004. (EPA 2006) The CEC estimates that CH_4 emissions from various sources represent 6.2% of California's total greenhouse gas emissions (CEC 2005). Total CH_4 emissions in the United States decreased by 10% from 1990 to 2004 (EPA 2006).

NITROUS OXIDE

N_2O is produced by microbial processes in soil and water, including those reactions which occur in fertilizers that contain nitrogen. Global concentration for N_2O in 1998 was 314 ppb, and in addition to agricultural sources for the gas, some industrial processes (fossil fuel fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load. (EPA 2006)

The U.S. EPA estimates that N_2O emissions accounted for 5.5% of total greenhouse gas emissions in the United States in 2004 (EPA 2006). The CEC estimates that nitrous oxide emissions from various sources represent 6.6% of California's total greenhouse gas emissions (CEC 2005). Total N_2O emissions in the United States decreased by 2% from 1990 to 2004 (EPA 2006).

FLUORINATED GASES (HFCS, PFCS, AND SF_6)

Fluorinated gases, such as hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulfur hexafluoride (SF_6), are powerful greenhouse gases that are emitted from a variety of industrial processes. The primary sources of fluorinated gas emissions in the United States include the production of HCFC-22, electrical transmission and distribution systems, semiconductor manufacturing, aluminum production, magnesium production and processing, and substitution for ozone-depleting substances. The U.S. EPA estimates that fluorinated gas (HFC, PFC, and SF_6) emissions accounted for 2.0% of total greenhouse gas emissions in the United States in 2004. (EPA 2006) The CEC estimates that fluorinated gas emissions from various sources represent 3.4% of

California's total greenhouse gas emissions (CEC 2005). Total fluorinated gas emissions in the United States increased by 58% from 1990 to 2004 (EPA 2006).

WORLDWIDE, NATIONAL AND STATEWIDE EMISSIONS

Table CC-1 presents estimated GHG emissions from California, the United States, and from worldwide sources. The results are presented in units of million metric tons per year of CO_2 equivalents ($MMTCO_2Eq$).

Table CC-1:
Greenhouse Gases Emissions Worldwide, United States, and California

Geographic Region	CO_2	CH_4	N_2O
	$MMTCO_2Eq$[a]	$MMTCO_2Eq$[b]	$MMTCO_2Eq$[c]
Worldwide GHG Emissions for calendar year 2000[1]	38,000	5,434	3,002
United States GHG Emissions for calendar year 2004[2]	5,973.0	639.5	353.7
California GHG Emissions for calendar year 2004[3]	427.4	25.9	15.1

Notes:

[a]$MMTCO_2Eq$ means million metric tons per year of CO_2 equivalent, using Global Warming Potential (GWP) values provided by IPCC in its Fourth Assessment Report (TAR) (IPCC 2007a). The GWP for CO_2 is 1.

[b]The GWP from IPCC's TAR for CH_4 is 21.

[c]The GWP from IPCC's TAR for N_2O is 310.

CO_2 = carbon dioxide; N_2O = Nitrous oxide; CH_4 = Methane.

[1] Worldwide GHG emissions taken from Intergovernmental Panel on Climate Change 4th Assessment Report, Climate Change 2007: Synthesis Report, page 36.

[2]United States GHG emissions taken from *Emissions of Greenhouse Gases in the United States 2004*, Energy Information Administration, U.S. Department of Energy, Washington, DC, December 2005.

[3]California GHG emissions taken from *Inventory of California Greenhouse Gas Emissions and Sinks: 1990 to 2004*, California Air Resources Board, November 2007.

SACRAMENTO COUNTY EMISSIONS

The ICLEI (Local Governments for Sustainability) Clean Air and Climate Protection Model (CACP) was used to estimate unincorporated Sacramento County emissions, along with the emissions of all of the incorporated cities in the County. This complete inventory was done to provide a regional picture, but the County does not have control over incorporated city emissions (http://www.sustainability.saccounty.net/ReportsPublications/default.htm, click on the

Reports and Publications link to download the full Greenhouse Gas Emissions Inventory for Sacramento County). The baseline year 2005 was chosen based on availability of information. In cases where 2005 data was unavailable, 2006 or other recent-year data was substituted. The software inventories community GHG emissions for all operations, with a separate government analysis tab that determines GHG emissions of local government operations as a subset of the community analysis. The community analysis divides GHG emissions among residential (energy usage), commercial and industrial (energy usage), transportation (exhaust emissions), off-road vehicle use (exhaust emissions), waste (landfill emissions), wastewater treatment (energy usage), agriculture (fertilizers, enteric fermentation, etc), High GWP (high global warming potential, such are refrigerants), and airport (emissions from County buildings and fleets – does not include fleet owned by airlines) sectors. The government analysis divides emissions among buildings, vehicle fleet, employee commute, streetlights, water/sewage, and waste sectors.

For the community analysis, energy use was obtained for the Sacramento Municipal Utility District (SMUD) and the Pacific Gas and Electric Company (PG&E). Community waste generation for Sacramento County was collected through the California Integrated Waste Management Board (CIWMB) web site and through consultation with staff of Sacramento County Municipal Services Agency. The SMUD reported its 2005 GHG emissions and an emissions factor for all electricity sold to customers that was verified and certified by the California Climate Action Registry. This emissions factor was input into the model as a replacement for the statewide emissions factor for electricity consumption to generate more accurate GHG emissions estimates for Sacramento County electricity consumption. The analysis also uses localized vehicle miles traveled information using the outputs from the Sacramento Regional Travel Demand Model (SACMET) and the emissions factors from the Emission Factors Model 2007 (EMFAC 2007). The software default emissions factors for other GHGs, which are based on statewide averages, were used in all other instances.

As shown in Table CC-2, the County 2005 emission baseline is approximately 5.2 MMT per year, with the transportation sector as the largest contributor at 40% of the total. The emissions per sector drop precipitously from there, with the residential sector emitting only half of the transportation sector total. However, the residential and commercial sectors can be combined to give a more overarching view, because though these sectors operate differently, the source of emissions are the same: private building and interior equipment energy usage. Combining these sectors, transportation accounts for 40% of emissions, and operation of residential, commercial, and industrial buildings accounts for 35% of emissions. The off-road vehicle, waste, wastewater, agriculture, and high global warming potential greenhouse gases (High GWP GHG) sectors combined are responsible for only 21% of the County emissions, with the airport as an additional 4%.

Table CC-2: 2005 Community Emissions by Sector

Sector	CO_2e (metric tons)	Percent
Residential	1,033,142	19.9
Commercial and Industrial	772,129	14.8
Transportation	2,046,617	39.3
Off-Road Vehicle Use	236,466	4.5
Waste	435,348	8.3
Wastewater Treatment	70,662	1.4
Agriculture	197,132	3.8
High GWP GHGs	203,528	3.9
Airport	200,404	3.9
Total	**5,201,313**	**100**

EMISSIONS THRESHOLDS

The United Nations Intergovernmental Panel on Climate Change (IPCC) constructed several emission trajectories of carbon dioxide needed to stabilize global temperatures and climate change impacts. It concluded that a stabilization of greenhouse gases at 400 – 450 ppm carbon dioxide-equivalent concentration is required to keep global mean warming below 2°C, which in turn is assumed to be necessary to avoid dangerous climate change (IPCC 2007a). The California Climate Change Center (CCCC) at UC Berkeley has determined that an 11 percent reduction of greenhouse gases from 2005 levels is required by year 2010, a 25 percent reduction is required by 2020, and an 80 reduction by 2050 in order to stabilize greenhouse gases at 400 – 450 ppm carbon dioxide-equivalent concentrations and avoid potentially dangerous climate change impacts (CCCC 2006). The California Legislature required these reduction levels by enacting Assembly Bill 32.

Though reduction rates were established in California law (AB 32), as of the writing of this document there are no established statewide CEQA thresholds for greenhouse gases. AB 32 requires ARB to adopt a statewide greenhouse gas emissions limit equivalent to the statewide greenhouse gas emissions levels in 1990 to be achieved by 2020, as specified.

AB 1493 – GREENHOUSE GAS EMISSION STANDARDS FOR AUTOMOBILES

California Assembly Bill (AB) 1493 in 2002 required the California Air Resources Board (ARB) to develop and adopt the nation's first GHG emission standards for automobiles. The legislature declared in AB 1493 that global warming was a matter of increasing concern for public health and environment in the state. It cited several risks that

California faces from climate change, including reduction in the state's water supply, increased air pollution creation by higher temperatures, harm to agriculture, and increase in wildfires, damage to the coastline, and economic losses caused by higher food, water energy, and insurance prices. Further the legislature stated that technological solutions to reduce GHG emissions would stimulate California economy and provide jobs.

The State of California in 2004 submitted a request for a waiver from federal clean air regulations (as the State is authorized to do under the Clean Air Act) to allow the State to require reduced tailpipe emissions of CO_2. In late 2007, the EPA denied California's waiver request and declined to promulgate adequate federal regulations limiting GHG emissions. In early 2008, the State brought suit against EPA related to this denial.

A recent ARB study (ARB 2008a) showed that in calendar year 2016, AB 1493 (also referred to as the Pavley standard or the Pavley rules) would reduce California's GHG annual emissions by 16.4 million metric tons (MMT) of carbon dioxide equivalents (CO_2e). This is almost 50% more than the 11.1 MMT reduction produced by currently proposed federal fleet average standards for model years 2011 – 2015.

Further, by 2020, California is committed to implement revised, more stringent GHG emission limits, the Pavley Phase 2 rules (See discussion of scoping plan below). California's requirements would reduce California GHG emissions by 31.7 $MMTCO_2e$ in calendar year 2020, 45 percent more than the 21.9 MMTs reductions under the proposed federal rules in that year. Since the California rules are significantly more effective at reducing GHGs than the federal CAFE (fuel economy) program, they also result in better fuel efficiency – roughly 43 miles per gallon (mpg) in 2020 for the California vehicle fleet as compared to the new CAFE standard of 35 mpg.

EXECUTIVE ORDER S-3-05

Executive Order S-3-05 was the precursor to Assembly Bill 32 (AB 32 is described in the next section) and was signed by Governor Schwarzenegger in June 2005. This Executive Order was significant because of its clear declarative statements that climate change poses a threat to the State of California. The Executive Order states that California is "particularly vulnerable" to the impacts of climate change, and that climate change has the potential to reduce Sierra snowpack (a primary source of drinking water), exacerbate existing air quality problems, adversely impact human health, threaten coastal real estate and habitat by causing sea level rise, and impact crop production. The Executive Order also states that "mitigation efforts will be necessary to reduce greenhouse gas emissions".

To address the issues described above, the Executive Order established emission reduction targets for the state: reduce GHG emissions to 2000 levels by 2010, to 1990 levels by 2020 and to 80% below 1990 levels by 2050. The Secretary of the California Environmental Protection Agency was named as coordinator for this effort, and the Executive Order required a progress report by January 2006 and biannually thereafter. As a result, the Climate Act Team was created by the California Environmental

Protection Agency. The first report from the Climate Act Team was released in March of 2006, which proposed to meet the emissions targets through voluntary compliance and state incentive and regulatory programs.

Currently only the 2020 target has been adopted by the state through legislation (see Assembly Bill 32, below). As a result, all of the impact discussions, mitigation, and strategies are based on meeting the 2020 target, not the longer-term 2050 target.

ASSEMBLY BILL 32

In September 2006, Assembly Bill (AB) 32 was signed by Governor Schwarzenegger of California. AB 32 requires that California GHG emissions be reduced to 1990 levels by the year 2020, just like Executive Order S-3-05. However, AB 32 is a comprehensive bill that requires ARB to adopt regulations requiring the reporting and verification of statewide greenhouse gas emissions, and it establishes a schedule of action measures. AB 32 also requires that a list of emission reduction strategies be published to achieve emissions reduction goals.

As of this writing, the first six critical path items have occurred. AB 32 is in effect and the list of early action measures was adopted by the ARB on June 21, 2007 (Resolution 07-25), and many other measures were added at a hearing on October 25, 2007. The Scoping Plan was adopted on December 11, 2008. Regulations to implement various early action measures have been adopted (such as the Low Carbon Fuel Standard).

SENATE BILL 375

On September 30, 2008, Senate Bill (SB) 375 was signed by Governor Schwarzenegger of California. SB 375 combines regional transportation planning with sustainability strategies in order to reduce greenhouse gas emissions in California's urbanized areas. Existing law requires each regional transportation planning agency, which in Sacramento County's case is the Sacramento Area Council of Governments (SACOG), to adopt a Metropolitan Transportation Plan. SB 375 required the California Air Resources Board (CARB) to set performance targets for reduction of passenger vehicle emissions per capita in each of 16 Metropolitan Planning Organizations (MPOs) in the state for 2020 and 2035. For the SACOG MPO, these targets were set at 7% below 2005 per capita emissions for 2020 and 16% below 2005 per capita emissions for 2035. MPOs are not required to meet the greenhouse gas emission targets established by ARB, but if they conclude it is not feasible to do so, they must prepare an Alternative Planning Scenario to demonstrate what further land use and/or transportation actions would be required to meet the targets. SB 375 also requires that the Metropolitan Transportation Plan for each MPO include a Sustainable Communities Strategy (SCS) that integrates the land use and transportation components, and amends CEQA to provide incentives for housing and mixed use projects that help to implement an MTP/SCS that meets the ARB targets.

SENATE BILL 97 CHAPTER 185, STATUTES OF 2007

Senate Bill 97 (SB 97) requires that the Office of Planning and Research (OPR) prepare guidelines to submit to the California Resources Agency regarding feasible mitigation of greenhouse gas emissions or the effects of GHG emissions as required by CEQA. The California Resources Agency is required to certify and adopt these revisions to the State CEQA Guidelines by January 1, 2010. The Natural Resources Agency adopted the amendments on December 30, 2009. On February 16, 2010, the Office of Administrative Law approved the Amendments, and filed them with the Secretary of State for inclusion in the California Code of Regulations. The Amendments became effective on March 18, 2010.

ENDANGERMENT FINDING

On December 7, 2009, the U.S. EPA made an Endangerment Finding and a Cause or Contribute Finding related to greenhouse gases. The U.S. EPA Administrator found that the current and projected concentrations of the six key well-mixed greenhouse gases – carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6) – in the atmosphere threaten the public health and welfare of current and future generations (endangerment). The Administrator also found that the combined emissions of these well-mixed greenhouse gases from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas pollution which threatens public health and welfare (Cause or Contribute).

STATE OF CALIFORNIA EMISSION REDUCTION/ADAPTATION STRATEGIES

Several strategies to reduce vehicle emissions have been identified by the California Environmental Protection Agency's Climate Action Team. These include, but are not limited to, the following:

VEHICLE CLIMATE CHANGE STANDARDS

With the passage of AB 1493, Pavley, Chapter 200, Statutes of 2002, California moved to the forefront of reducing vehicle climate change emissions. This bill required the state to develop and adopt regulations that achieve the maximum feasible and cost-effective reduction of climate change emissions emitted by passenger vehicles and light duty trucks. Regulations were adopted by the ARB in September 2004. The ARB analysis of this regulation indicates emissions savings of 1 million tons CO_2 equivalent ($MMTCO_2e$) by 2010 and 30 million tons CO_2 equivalent by 2020.

DIESEL ANTI-IDLING

Reduced idling times and the electrification of truck stops can reduce diesel use in trucks by about 4 percent, with major air quality benefits. In July 2004 the ARB adopted a measure to limit diesel-fueled commercial motor vehicle idling. AB 32 analysis indicates that anti-idling measures could reduce climate change emissions by 1.2 $MMTCO_2e$ in 2020.

OTHER NEW LIGHT DUTY VEHICLE TECHNOLOGY IMPROVEMENTS

In September 2004 the California Air Resources Board approved regulations to reduce climate change emissions from new motor vehicles. The regulations apply to new passenger vehicles and light duty trucks beginning with the 2009 model year. The standards adopted by the Board phase in during the 2009 through 2016 model years. When fully phased in, the near term (2009 – 2012) standards will result in about a 22 percent reduction as compared to the 2002 fleet, and the mid-term (2013 – 2016) standards will result in about a 30 percent reduction.

New standards would be adopted to phase in beginning in the 2017 model year (following up on the existing mid-term standards that reach maximum stringency in 2016). Assuming that the new standards call for about a 50 percent reduction, phased in beginning in 2017, this measure would achieve about a 4 MMT reduction in 2020. The reduction achieved by this measure would significantly increase in subsequent years as clean new vehicles replace older vehicles in the fleet – staff estimates a 2030 reduction of about 27 MMT.

EXECUTIVE ORDER S-01-07

This Executive Order was signed by Governor Schwarzenegger on January 18, 2007 and directed the Climate Action Team to determine whether the items in the Order could be established as an early action measure pursuant to AB 32 – which the Climate Action Team has now done. The Executive Order states that the State of California relies on petroleum-based fuels for 96% of its transportation needs, there were more than 24 million motor vehicles registered in California, and statewide gasoline consumption was almost 16 billion gallons in 2005. To address the carbon emitted by this use of fuel, the Executive Order states that a statewide goal must be established to reduce the “carbon intensity of California’s transportation fuels” by at least 10% by the year 2020 and that a Low Carbon Fuel Standard for transportation fuels be established. The Low Carbon Fuel Standard applies to all “refiners, blenders, producers or importers of transportation fuels in California”.

CALIFORNIA CLIMATE ADAPTATION STRATEGY

In December 2009, the California Resources Agency, in coordination and partnership with multiple other state agencies, released their California Climate Adaptation Strategy. This document summarizes the best known science on climate change impacts in

seven specific sectors, including: public health, biodiversity-habitat, ocean & coastal resources, water management, agriculture, forestry, and transportation and energy infrastructure. The strategy provides recommendations on how to manage against threats to these sectors. The strategy is in direct response to Gov. Schwarzenegger's November 2008 Executive Order S-13-08 that specifically asked the Natural Resources Agency to identify how state agencies can respond to rising temperatures, changing precipitation patterns, sea level rise, and extreme natural events.

SACRAMENTO COUNTY EMISSION REDUCTION EFFORTS

CLIMATE ACTION PLAN

In May of 2009 Sacramento County published a Phase I Draft Climate Action Plan (Phase I CAP). The Phase I CAP provides a framework and overall policy strategy for reducing greenhouse gas emissions and managing our resources in order to comply with AB 32. It also highlights actions already taken to become more efficient, and targets future mitigation and adaptation strategies. This document is available at http://www.sustainability.saccounty.net/ClimateActionPlan/default.htm. The draft Phase I CAP contains policies/goals related to agriculture, energy, transportation/land use, waste, and water.

Goals in the section on agriculture focus on promoting the consumption of locally-grown produce, protection of local farmlands, educating the community about the intersection of agriculture and climate change, educating the community about the importance of open space, pursuing sequestration opportunities, and promoting water conservation in agriculture. Actions related to these goals cover topics related to urban forest management, water conservation programs, open space planning, and sustainable agriculture programs.

Goals in the section on energy focus on increasing energy efficiency and increasing the usage of renewable sources. Actions include implementing green building ordinances and programs, community outreach, renewable energy policies, and partnerships with local energy producers.

Goals in the section on transportation/land use cover a wide range of topics but are principally related to reductions in vehicle miles traveled, usage of alternative fuel types, and increases in vehicle efficiency. Actions include programs to increase the efficiency of the County vehicle fleet, and an emphasis on mixed use and higher density development, implementation of technologies and planning strategies that improve non-vehicular mobility.

Goals in the section on waste include reductions in waste generation, maximizing waste diversion, and reducing methane emissions at Kiefer landfill. Actions include solid waste reduction and recycling programs, a regional composting facility, changes in the

waste vehicle fleet to use non-petroleum fuels, carbon sequestration at the landfill, and methane capture at the landfill.

Goals in the section on water include reducing water consumption, emphasizing water efficiency, reducing uncertainties in water supply by increasing the flexibility of the water allocation/distribution system, and emphasizing the importance of floodplain and open space protection as a means of providing groundwater recharge. Actions include metering, water recycling programs, water use efficiency policy, water efficiency audits, greywater programs/policies, river-friendly landscape demonstration gardens, participation in the water forum, and many other related measures.

Publication of a Phase II CAP is anticipated to occur one year from the adoption of the 2030 Sacramento County General Plan. This Phase II CAP is intended to flesh out the strategies involved in the Phase I CAP, and will include economic analysis, intensive vetting with all internal departments, community outreach/information sharing, timelines, and detailed performance measures.

CHICAGO CLIMATE EXCHANGE

In February 2007, the County joined the Chicago Climate Exchange. The Chicago Climate Exchange is the world's first and North America's only voluntary, legally binding rules-based greenhouse gas (GHG) emission reduction and trading system. Chicago Climate Exchange Phase I members commit to reduce GHG emissions 1% per year over the years 2003 through 2006 relative to a 1998 through 2001 average baseline. Members agree to reduce GHG emissions by a total of 4% below the baseline by 2006. Chicago Climate Exchange Phase II members commit to reduce GHG emissions from 1¼% to ½% per year through the years 2007 through 2010 for grand total of 6% below the baseline.

ENERGY CONSERVATION/ENERGY EFFICIENCY PROGRAM

The Board of Supervisors approved an Energy Conservation/Energy Efficiency Program in 2001. The essence of the program is to reduce electrical energy usage during peak periods of the day. The program contains ten measures such as participating in Sacramento Municipal Utility District's Voluntary Emergency Curtailment Program, setting building temperatures to 78° F to decrease cooling demand and dual switching of lights. The preliminary baseline for direct and indirect emissions for the County is 226,700 metric tons of CO_2.

CALIFORNIA CLIMATE ACTION REGISTRY

The County joined the California Climate Action Registry (Registry) in December 2006. The Registry is a non-profit public/private partnership that serves as a voluntary GHG registry to protect, encourage and promote early actions to reduce GHG emissions. Registry participants agree to calculate, certify and publicly report GHG emissions. The Registry provides a reporting tool, standards and protocol for reporting GHG emissions.

AB32 recognizes participation in the Registry in a number of ways. First, AB 32 requires the ARB to incorporate the standards and protocols developed by the Registry in the rulemaking process. Second, AB 32 provides that entities that join the Registry prior to December 31, 2006 and report their emissions according to the Registry protocols will not be required to significantly alter their reporting program.

LOCAL GOVERNMENTS FOR SUSTAINABILITY (ICLEI)

The Local Governments for Sustainability is administered under the International Council for Local Environmental Initiatives (ICLEI), which the County joined in 2007. Cities for Climate Protection™ (CCP) is ICLEI's flagship campaign. The program is designed to educate and empower local governments worldwide to take action on climate change. CCP is a performance-oriented campaign that offers a framework for local governments to reduce greenhouse gas emissions and improve livability within their municipalities. This campaign would give Sacramento County a framework and tools to develop a plan for greenhouse emissions. The basic framework is called the 5 Milestones and consists of the following steps: completion of a baseline emissions inventory and forecast, adoption of an emissions reduction target, development of a Local Action Plan, implementation of policies and measures, and monitoring and verification of results.

The County has completed the emissions inventory and it is available on the Department of Environmental Review and Assessment website at www.dera.saccounty.net (see the home page under special studies).

GREEN FLEETS

The City and County of Sacramento have adopted a heavy-duty low-emission vehicle (LEV) acquisition policy. The policy goal is to reduce oxides of nitrogen (NOx) emissions from heavy-duty fleet vehicles to meet the year 2005 standard for ozone in the Sacramento Federal Ozone Non-attainment area. The efforts will focus on the conversion of the on-road, heavy-duty equipment fleets to certified low-emission vehicles as these vehicles are replaced as part of regular systematic replacement programs. As of 2004 the County has committed to replace 50% off the fleet to low-emission vehicles.

COOL COUNTIES INITIATIVE

On July 16, 2007 at the National Association of Counties Annual Conference in Richmond, Virginia, 12 pioneering counties representing 17 million people launched “Cool Counties.” The Cool Counties initiative seeks to marshal the resources of all 3,066 counties across the nation to address the challenges climate change poses to our communities. On May 27, 2008 the Sacramento County Board of Supervisors approved a resolution to become a Cool County and participate in the initiative.

Participating counties commit to four smart actions:

1. reducing our own contributions to climate change through our internal operations;
2. demonstrating regional leadership to achieve climate stabilization and protect our communities;
3. helping our community become climate resilient;
4. urging the federal government to support our efforts.

These actions are consistent with the state requirements under Assembly Bill (AB) 32 and Executive Order S-3-05, including:

- Assessing local operations that impact greenhouse gas emissions;
- Working to reduce greenhouse gas emissions 80% below current levels by 2050;
- Identifying local vulnerabilities to climate change and creating a plan to address them;
- Working with counties nationally to urge the federal government to adopt legislation to reduce greenhouse gas emissions 80% below current levels by 2050.

SIGNIFICANCE CRITERIA

CEQA Guidelines section 16064.4 states that an agency should make a "good faith effort . . . to describe, calculate, or estimate the amount of greenhouse gas emissions resulting from a project". It is left to the lead agency's discretion to use a quantitative or qualitative approach. Factors that should be considered when determining significance are:

1. The extent to which the project may increase or decrease greenhouse gas emissions compared to the baseline;
2. whether the project exceeds any applicable significance threshold; and
3. the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions.

The guidelines do not include a numeric significance threshold, but instead defer to the lead agency to determine whether there are thresholds which apply to the project. With regard to the third item, statewide plans include AB 32 and SB 375, as described in the Regulatory setting. The underlying strategy and assumptions of the AB 32 Scoping Plan were used to develop County thresholds. AB 32 requires emissions be reduced to 1990 levels by the year 2020, which is estimated in the AB 32 Scoping Plan to be 15% below *existing (2005) emissions*. The text is emphasized to note that the goal is not

15% below what is known as "business-as-usual" conditions or unmitigated project emissions; it is 15% below the emissions which were existing in California as of the year 2005.

As previously discussed, Sacramento County prepared a GHG emissions inventory for the County, and as an offshoot of that process has published a Draft Climate Action Plan. Thresholds have been developed based on the County inventory (see Table CC-3). As shown below, separate thresholds have been included for each sector. The purpose of this division is to provide additional information about the source of emissions. When making a final determination of significance, these thresholds can be combined to generate a total emissions threshold; it is this total threshold that will ultimately determine whether impacts are found to be significant.

Table CC-3: Greenhouse Gas Significance Thresholds, in Metric Tons

Sector	2005 Baseline	2020 Target	Thresholds
Residential Energy	1,033,142	877,883	1.33 per capita
Commercial & Industrial Energy	772,129	656,660	7.87 per Kft^2
Transportation	2,046,617	1,740,000	2.64 per capita
Trucks	*488,806*	*415,218*	*0.10 per 100 VMT*

Also note that the transportation sector is expressed in per capita, which is not applicable to non-residential projects. The determination was made that, in general, non-residential projects redistribute existing trips made by passenger vehicles – they do not generate new trips. The majority of trips to and from a commercial project are generated by residential uses. Residential projects are already being required to account for transportation emissions, so including them for commercial projects as well would result in double-counting. Therefore, only the truck-trips generated by a commercial project itself will be subject to analysis. An exception to this rule is any commercial project which is a regional draw or unique draw, and thus may cause the redistribution of existing trips in a manner that will increase total existing VMT.

Thresholds applicable to construction activities have not been developed. Emissions resulting from the usage of off-road vehicles is only 4.5% of the total inventoried emissions in Sacramento County, which includes recreational and other vehicles, not just construction fleets. Furthermore, while emissions from the actual use of newly constructed buildings adds to existing building stock and thus results in a cumulative year-on-year increase in emissions, the amount of construction in a region does not result in cumulative additions. Though construction may increase or decrease in a given year due to market demand, the average amount of construction undertaken does

not tend to increase over time. For this reason, even without mitigation the amount of annual emissions resulting from construction is expected to decrease over time as a result of the implementation of existing regulations (such as the low carbon fuel standard) and fleet turnover. An analysis of the data for construction equipment within the EMFAC (Emissions Factor Model) 2011 indicates that construction fleet emissions will reduce by approximately 11% between 2005 and 2020. Standard mitigation applied for the purpose of reducing other air pollutants (see the Air Quality chapter) will further reduce emissions. For the foregoing reasons, it was determined that construction emissions would not contribute to a significant climate change impact, and no threshold is necessary.

METHODOLOGY

The applicant provided estimated fuel usage over the life of the Project. Carbon dioxide emissions were directly calculated from the fuel data by using Environmental Protection Agency estimates of CO_2 emissions per unit of fuel consumed. According to "Direct Emissions from Mobile Pollutant Sources" (May 2008)[1], a total of 22.38 pounds of CO_2 is emitted for each gallon of diesel fuel consumed.

IMPACTS AND ANALYSIS

According to data provided by the applicant, the project will result in the consumption of 19,628.62 gallons of diesel fuel for the mining of 5.6 additional acres. Multiplied by the emissions factor of 22.38, this results in approximately 199 metric tons of CO_2 emissions. Though these emissions result from the operation of a quasi-industrial enterprise, the emissions will only occur over a time period of six months and will then cease. The purpose of the significance thresholds is to reduce the cumulative effect of a year-on-year buildup of emissions, which is not what the Project will cause. Project emissions are more alike to construction emissions in this way, which result in only a temporary source of emissions. Given that the project will not cause an increase in year 2020 emissions – the emissions will have ceased long before then – no mitigation or further analysis is necessary. Project impacts are short-term, like construction impacts, and will not impede the ability of the County or the State to achieve 2020 target year emissions; impacts are *less than significant*.

CUMULATIVE IMPACTS

As stated above, since mining of the Vineyard I mining expansion site is short-term in nature and will not impede the ability of the County or the State to achieve 2020 target year emissions, the project will not have a cumulative greenhouse gas emission impact; the cumulative greenhouse gas emission impacts are considered **less than significant**.

[1] http://www.epa.gov/climateleaders/documents/resources/mobilesource_guidance.pdf

18 SUMMARY OF IMPACTS AND THEIR DISPOSITION

SIGNIFICANT EFFECTS WHICH CANNOT BE AVOIDED

Approval of the project will result in significant effects in the areas of air quality, geology and slope stability and land use that cannot be avoided. These effects are as follows:

AIR QUALITY

Mining the Vineyard I expansion site would not increase exhaust emissions as a result of overburden removal. However, the use of heavy equipment would increase NOx emissions above established thresholds. Mitigation has been recommended to reduce impacts; however, not below significant levels.

GEOLOGY AND SLOPE STABILITY

The prior project was found to have a significant and unavoidable impact due to the permanent alteration of the project site's landform. Mining the Vineyard I expansion site would increase the amount of land permanently altered by mining. The proposed project does not lessen the prior impact. There is no feasible mitigation to reduce this impact.

LAND USE

The prior FEIR/EIS concluded that that mining area would potentially conflict with onsite and nearby land uses and this was considered a significant and unavoidable impact. The Vineyard I expansion request does not result in a conflict with onsite and nearby land uses since the expansion site is currently surrounded by mining operations; however, as the Vineyard I mining expansion site will be included to the approved Vineyard I mining site, the prior conclusion remains. Although mitigation was recommended in the prior FEIR/EIS and is applicable to the proposed project; the mitigation measure does not reduce impacts to less than significant.

SIGNIFICANT EFFECTS WHICH COULD BE AVOIDED WITH IMPLEMENTATION OF MITIGATION MEASURES

Approval of the project would result in the following significant effects in the areas of aesthetics and visual resources, airport compatibility, cultural resources, groundwater hydrology and quality, land use, public safety and traffic and circulation, which could be avoided with implementation of mitigation measures:

AESTHETICS AND VISUAL RESOURCES

The project was found to have a significant impact as a result of creating a new source of substantial light or glare affecting nighttime views in the area. The proposed project does not create any new impacts to nighttime lighting or glare; however this impact remains significant. Mitigation from the prior project remains applicable and includes controlling the lighting so as not to create unnecessary light pollution.

BIOLOGICAL RESOURCES

The project would have a significant effect as a result of the loss of natural vegetative communities on the site from prior mining activities. Mining of the Vineyard I mining expansion site does not change this conclusion. Mitigation requiring implementation of the *Wetland, Oak Woodland and Riparian Mitigation Monitoring Plan* will ensure the success of replacement habitats and will reduce this impact.

Prior approval of mining the Vineyard I site resulted in the loss of 3,562 inches of native oak and black walnut trees. This impact is fully mitigated with the incorporation of the oak tree planting plan within the Morrison Creek Realigned Channel across the Vineyard I and Aspen III South mining sites. The Vineyard I mining expansion site would result in an additional 40 inches of native oak and black walnut trees to be removed. Mitigation requiring planting of oak trees on an inch-for-inch basis has been included and reduces this impact.

The revision to the Aspen IV South site results in the loss of 801 inches of native oak trees. Impacts due to the connection and construction of the Morrison Creek Realigned Channel and Raised Bank Channel within the Mayhew Road right-of-way would result in 74 inches of oak tree impacts on Aspen IV South and 273 inches on Vineyard I. The total 875 inches of impacts on the Aspen IV South mining site and the 273 inches on the Vineyard I site will be mitigated within the preserve of the Raised Bank Channel located on Aspen IV South.

The project will result in the loss of Morrison Creek on the Vineyard I mining site; however, the reclamation plan revision to recreate a Morrison Creek Realigned Channel mitigates for the loss of Morrison Creek. Mining will not occur through Morrison Creek on the Aspen IV South site; the project revision eliminates prior impacts to the creek.

The prior project resulted in the loss of wildlife habitat due to mining activities. The proposed project does not change this impact; however, with the reclamation plan amendment to construct the Morrison Creek Realigned Channel, impacts will be reduced to less than significant.

The prior project was found to have a significant impact to vernal pool invertebrates. Although the Vineyard I expansion site does not contain any wetlands and there are no impacts to vernal pool invertebrates under the proposed project; the prior conclusion remains applicable. However, vernal pool preservation credits have been purchased,

and the Morrison Creek Realigned Channel will replace lost vernal pool habitats. Impacts are reduced to less than significant.

Impacts to Swainson's Hawk and other special status birds (burrowing owl and tricolored blackbird) were found to be a potentially significant impact under the prior project. The proposed project does not change this impact; however, the recreated Morrison Creek Realigned Channel will recreate suitable habitats for these birds/raptors in the post reclamation condition and will therefore not result in an adverse impact to these birds/raptors. Mitigation requiring pre-construction surveys remain applicable to the proposed project and impacts are reduced to less than significant.

CULTURAL RESOURCES

Mining the Vineyard I expansion site could uncover subsurface archaeological materials. This was found to be a potentially significant impact. Mitigation has been included that requires construction work to stop and notification to a professional archeologist if a subsurface deposit believed to be cultural or human in origin is discovered during construction. An additional mitigation measure is recommended that requires the applicant to contact the County Coroner in the event human remains are discovered. These measures reduce the cultural resources impacts to less than significant.

GROUNDWATER HYDROLOGY AND QUALITY

The prior FEIR/EIS concluded that gravel extraction may alter drainage and groundwater flow and quality which could affect surrounding properties and domestic septic leachfield systems on adjacent surrounding properties. Mitigation from the prior FEIR/EIS ***is*** ~~remains~~ applicable ***to the Vineyard I mining expansion site*** that requires the storing of contaminants in a manner that will contain any spills and that any spills in the operating areas should be cleaned up immediately.

GEOLOGY AND SLOPE STABILITY

The prior FEIR/EIS concluded that the project's reclaimed slopes would be subject to slope instability. The proposed project does not change this prior significant impact. Mitigation has been included requiring side slopes at a minimum of ~~1.5:1~~ ***2:1*** and proper soil compaction. In addition, mining on Aspen IV South will be within 25 feet of the Mayhew Road right-of-way and it is anticipated that the subsurface materials on the Aspen IV South site are stable under long-term static and seismic conditions. However, soil testing is recommended for this potentially significant impact to ensure that mining within the right-of-way does not result in a significant impact. Implementation of the recommended mitigation measures will reduce the level of significance.

The slopes of the mining pit and recreated channel of the proposed project would be subject to erosion and slope instability if not properly vegetated and maintained. Mitigation to ensure that the slopes of the pit are vegetated to reduce excessive erosion

and enhance slope stability has been recommended. An additional measure, requiring a ten-year monitoring plan that outlines monitoring requirements and identifies mitigating steps for any significant erosion should it occur in a specific location along the flow channel, has also been recommended. Implementation of the recommended mitigation measures will reduce impacts to less than significant.

LAND USE

The prior project was found to disturb 31 acres of Prime Farmland, 435 acres of Farmland of Statewide Importance and 419 acres of Farmland of Local Importance. The proposed Vineyard I expansion site will disturb an additional 5.6 acres of Prime Farmland and Farmland of Statewide Importance. Mitigation to prepare/revise a plan for the preservation and salvage of topsoil resources suitable for sustaining economically viable agricultural uses has been recommended, consistent with the State Mining and Geology Board's Reclamation Regulations. This mitigation will reduce impacts to less than significant.

AIRPORT COMPATIBILITY

The proposed project is consistent with the Mather Airport Comprehensive Land Use Plan (CLUP). A Bird Airstrike Hazard (BASH) Analysis has been completed for the proposed project and the potential for bird airstrikes over the project site is low. Impacts were found to be potentially significant. Mitigation that outlines design standards for the stormwater detention basin has been recommended to reduce this impact to less than significant.

PUBLIC SAFETY

The use of heavy equipment, the creation of a 25± foot deep, steep-sided pit and inadvertent public entry to the mining site could create a public safety hazard. Mitigation from the prior project requiring fences and warning/trespass signs around the perimeter of the mining sites has been completed. Mitigation requiring perimeter fencing until post-reclamation development or future use of the site occurs remain applicable to the proposed project and would reduce this impact to less than significant.

TRAFFIC AND CIRCULATION

The prior FEIR/EIS concluded that the additional haul trucks on the roadway system would significantly degrade the existing level of service. Removal of the overburden from the Vineyard I expansion site would not result in additional haul trucks on the roadway system and would not result in a significant increase in worker trips. In order to ensure that there is not an increase in haul trucks on the roadways related to overburden removal and mined aggregate material, mitigation is recommended requiring that the mined material be transported to the processing plant by conveyor only. With implementation, this impact will be reduced to less than significant.

EFFECTS FOUND NOT TO BE SIGNIFICANT

AESTHETICS AND VISUAL RESOURCES

The prior FEIR/EIS concluded that unless there is adequate visual screening, the mining project would have a significant impact associated with views of the mining operations. The prior required mitigation for visual screening is in place and mining of the Vineyard I expansion site does not change this conclusion.

BIOLOGICAL RESOURCES

The prior project was found to not have significant impacts to general invertebrate populations, fisheries and special status species such as the American Badger, Pallid bat, Townsend's Western big-eared bat, giant garter snake and special status plants. This conclusion remains applicable under the proposed project.

The prior project was found to have a significant impact to the valley elderberry longhorn beetle (VELB) due to removal of seven elderberry bushes on the Vineyard I mining site. Mitigation requiring consultation with the U.S. Fish and Wildlife Service for impacts to VELB has been completed and compensatory mitigation has been purchased for this impact. In addition, there are no elderberry bushes located on the Vineyard I expansion site. Impacts to VELB are now less than significant.

SURFACE WATER HYDROLOGY AND DRAINAGE

The proposed revisions to the previously approved reclamation plan would not result in increasing the Morrison Creek floodplain upstream of the site; will not result in an increase in the peak flows downstream of the site; will not result in flooding onsite; and will not result in damage to the Jackson Highway bridge due to high Morrison Creek flows. In addition, the embankments/levees of the proposed Morrison Creek Realigned Channel and Raised Bank Channel are not likely to fail; however, in the extreme unlikely event that the embankments/levees do fail, the downstream flows would not be reduced significantly and there would not be offsite flooding. A safety and evacuation plan will address embankment failure and will be in effect during mining operations to ensure safety to workers and visitors.

GROUNDWATER HYDROLOGY AND WATER QUALITY

The prior FEIR/EIS determined that mining operations could alter or disrupt future monitoring of contamination plumes at Mather Airport. This was found to be a significant impact that could be reduced with mitigation. The contamination plume of question has not migrated beyond Jackson Road. As the project site is located approximately one mile south of Jackson Road, mining operations on the Vineyard I mining expansion site will not affect future monitoring efforts at Mather Airport. This impact is now considered less than significant.

CULTURAL RESOURCES

There are no significant or historical resources on the Vineyard I mining expansion site. Impacts to known cultural resources are less than significant.'

AIR QUALITY

The prior FEIR/EIS concluded that mining operations would create new sources of air pollutants. The use of heavy equipment would result in dust generation on the project site, which would increase particulate emissions. However, Basic Construction Emission Control Practices will be implemented and the mining activities on the Vineyard I mining expansion site would not exceed 15 acres which, according to the Sacramento Metropolitan Air Quality Management District, the project will not have the potential to exceed the District's concentration-based threshold of significance for PM_{10} (and $PM_{2.5}$) at an offsite location.

CLIMATE CHANGE

The purpose of the significance threshold for greenhouse gas emissions is to reduce the cumulative effect of a year-on-year buildup of emissions, which is not what the proposed project will create since the duration of mining the Vineyard I expansion site will take up to six months timeframe. The emissions associated with the project are considered temporary and does not impede the ability of the County or State to achieve 2020 target year emissions.

GEOLOGY AND SLOPE STABILITY

The loss of the availability of a mineral resource is not an impact of the proposed project since the project is provides for the continued extraction of mineral resources.

TRAFFIC AND CIRCULATION

The prior FEIR/EIS found significant impacts to traffic safety due to increased truck traffic on roads not designed to accommodate truck traffic. The proposed project will not result in an increase in haul trucks. Prior mitigation for this impact has been completed; this impact is now considered less than significant.

The proposed project will not result in the introduction of new trucks on the roadway system and will not result in the deterioration of pavement or damage to roadway structural sections.

The level of service (LOS) in the prior FEIR/EIS was found to be significant and reduced to less than significant with mitigation. The proposed project will not result in a degradation of the LOS since the improvements to roadways from the prior project have been constructed and there is not an increase in truck traffic associated with the proposed project. This impact is now considered less than significant.

LAND USE

The prior project was found to have a significant impact as the post-project development of the site was limited and lacked open space/ recreational uses of the site. The proposed project now includes for a trail to be used by the public; this impact is now considered less than significant.

PUBLIC SAFETY

The prior project was found to not create hazardous conditions post reclamation. The proposed project does result in hazardous conditions post reclamation and the prior conclusion remains.

PUBLIC SERVICES

The proposed project will not have a significant impact to the following public services:

- Sewer services
- Existing septic systems
- Water supply (use of onsite well water and removal of water wells)
- Electric facilities
- Natural gas facilities
- Park services
- Emergency services

IRREVERSIBLE ENVIRONMENTAL CHANGES

An irretrievable commitment of natural resources, including aggregate harvested for urban uses, the use of petrochemicals during mining and the overall change of the landform are considered irreversible changes.

GROWTH INDUCING IMPACTS

The project site is located in close proximity to urban growth areas and resources harvested from the Vineyard I expansion site would be used to supply development consistent with adopted land use plans and policies within Sacramento County, adjacent cities and possibly beyond. The contribution of growth to the region resulting from the project is considered minimal and since extension of urban infrastructure would not be necessary to facilitate the project, growth-inducing impacts would be considered less

than significant. In addition, there would not be a growth-inducing impact associated with the Reclamation Plan amendment component of the proposed project.

CUMULATIVE IMPACTS

Title 14, CCR § 15355 defines cumulative impacts as the following:

> "Cumulative impacts" refers to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.
>
> (a) The individual effects may be changes resulting from a single Project or a number of separate projects.
>
> (b) The cumulative impact from several projects is the change in the environment which results from the incremental impacts of the Project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

Cumulative impacts are discussed in each respective individual chapter and there were no significant cumulative impacts identified. A summary of the cumulative impact discussion from each chapter is provided below.

- Aesthetics and Visual Resources
  - The project, in combination with other projects in the vicinity of the project site, would not create an adverse aesthetic impact. During mining operations, the mining site is screened from the public and at the completion of mining, the three mining sites will be returned to agricultural production. The Morrison Creek Realigned Channel will be planted with riparian and oak trees (as part of mitigation) and the Raised Bank Channel will contain oak tree mitigation plantings. The Morrison Creek Realigned Channel and Raised Bank Channel will have a higher aesthetic value compared to the prior approved reclamation plan (approved bypass channel and pit bottom riparian corridor/ low-flow channel).
- Surface Water Hydrology and Drainage
  - The design of the Morrison Creek Realigned Channel and the Raised Bank Channel, as well as the weir on Granite I operating and functioning in the "As-Built Condition" results in no adverse drainage or surface water hydrological impacts. The proposed project does not contribute incrementally to any flow related impacts; therefore the proposed project does not have a cumulative hydrological impact.

- Groundwater Hydrology and Water Quality
    - Mining the Vineyard I expansion site will reduce the depth to the groundwater in the project area. This reduction, in combination with the prior project's four mining sites and other mining sites in the vicinity of the project site would not result in a cumulatively considerable incremental contribution to a cumulatively significant groundwater hydrology or groundwater quality impact.
- Cultural Resources
    - The proposed project does not result in an impact to known significant cultural resources; therefore the project does not contribute to the degradation of the overall cultural landscape. The proposed project would not result in a cumulatively considerable incremental contribution to cultural resources.
- Geology and Slope Stability
    - The proposed project will not have a long-term adverse impact due to slope stability. The mining pits, if not brought back to within two feet of original grade at the completion of mining, would not be accessible by the public. The project will not have a cumulative impact as it relates to soil stability or erosion.
- Biological Resources
    - The overall loss of a segment of Morrison Creek across Vineyard I does not result in a cumulative impact since the proposed created Morrison Creek Realigned Channel replaces the creek by recreating the lost habitats and has been designed to mirror, and function as, a natural creek. At the completion of mining, in the post-reclamation condition, wildlife will return to the site since the habitats will be replaced and mining would have ceased. The loss of native oak trees would be replaced and fully mitigated. It has been determined through the federal permit process that pursuant to the Endangered Species Act, the continued existence of special status species would not be adversely affected. For these reasons, the identified biological resources impacts of the proposed project do not contribute to a cumulatively significant biological resource impact.
- Traffic and Circulation
    - The proposed project does not result in an increase of truck traffic or other significant traffic related impacts. The project will not generate any traffic in the cumulative condition as mining will be complete. The proposed project will not have cumulative traffic and circulation impacts.

- Air Quality
    - The Vineyard I mining expansion site would result in the continuation of mining activities for three months, up to six months time after completion of the approved portion of the Vineyard I property. Although the continuation of mining for an additional six months time was found to have a significant exhaust emissions impact, there is not a long term operational impact of mining the Vineyard I mining expansion site since the cumulative condition (e.g., 2020), mining activities on the Vineyard I expansion site will be complete and the site would be returned to agricultural activities. In addition, the reclamation plan amendment component of the proposed project would not contribute emissions. The approval for the use permit for the Vineyard I mining expansion site and reclamation plan amendment would not result in a cumulatively incremental increase in emissions to the Sacramento Valley air basin.
- Land Use
    - The project site will be returned to agricultural uses (the land use prior to mining activities) and the proposed trail will provide for beneficial recreational opportunities in the future. There are no adverse cumulative land use impacts of the proposed project.
- Noise
    - The project, in combination with other projects in the area, will not result in a cumulatively considerable contribution to the noise environment. In addition, in the post-reclamation condition of the project site, the project will not contribute to noise in excess of standards. Accordingly, the proposed project will not result in a cumulative noise impact.
- Public Safety
    - The proposed project, in combination with other mining projects in the area, does not result in a significant public safety impact due to the controls in place to assure that the general public is protected from inadvertent entry into active mining sites.
- Public Services
    - The proposed project will not result in a cumulatively considerable incremental contribution to a public service impact.
- Climate Change
    - Mining of the Vineyard I expansion site is short-term in nature and will not impede the ability of the County or the State to achieve 2020 target year

emissions. The project will not have a cumulative greenhouse gas emission impact.

19 RESPONSE TO COMMENTS

INTRODUCTION

Individual responses to comments received on the Draft SEIR are provided in this chapter of the Final SEIR. Four comment letters were received on the Draft SEIR. Each Draft SEIR reviewer that submitted written comments is listed below. The letters are listed by respondent, in alphabetical order. The comments contained in the letters have been repeated below, separated and numbered (where necessary) with responses immediately following each comment. The comment letters are reproduced in their original form at the end of this chapter.

In some cases the response to the comment is "comment noted". This response indicates that the comment was a statement that did not require an answer. While no further response to the comment is provided, the comment letters are forwarded to the Board of Supervisors for consideration via this Final EIR. Pursuant to Section 15088 of the CEQA Guidelines, no written responses are provided for those letters or comments that did not address the adequacy of the Draft EIR.

When comments have resulted in changes to the text of the Draft SEIR, added text is provided in ***bold italics*** and deleted text is provided in ~~strikethrough~~ format. Minor typographical errors and punctuation corrections are not tracked in this manner unless the corrections are germane to a comment or analysis.

The following comment letters were received:

1. Central Valley Flood Protection Board
2. Granite Construction Company
3. Southgate Parks and Recreation District
4. Taylor & Wiley Attorneys

LETTER #1 – CENTRAL VALLEY FLOOD PROTECTION BOARD

COMMENT 1.1

The proposed project is located within the regulated areas of Morrison Creek under the jurisdiction of the Central Valley Flood Protection Board. The Board is required to

enforce standards for the construction, maintenance, and protection of adopted flood control plans that will protect public lands from floods. The jurisdiction of the Board includes the Central Valley, including all tributaries and distributaries of the Sacramento River and the San Joaquin River, and designated floodways (Title 23 California Code of Regulations (CCR), Section 2).

A Board permit is required prior to starting the work within the Board's jurisdiction for the following:

- The placement, construction, reconstruction, removal or abandonment of any landscaping, culvert, bridge, conduit, fence, projection, fill, embankment, building, structure, obstruction, encroachment, excavation, the planting, or removal of vegetation, and any repair or maintenance that involves cutting into the levee (CCR Section 6);

- Existing structures that predate permitting or where it is necessary to establish the conditions normally imposed by permitting. The circumstances include those where responsibility for the encroachment has not been clearly established or ownership and use have been revised (CCR Section 6);

- Vegetation plantings will require the submission of detailed design drawings; identification of vegetation type; plant and tree names (i.e., common name and scientific name); total number of each type of plant and tree; planting spacing and irrigation method that will be utilized within the project area; a complete vegetative management plan for maintenance to prevent the interference with flood control, levee maintenance, inspection and flood fight procedures (CCR Section 131).

Vegetation requirements in accordance with Title 23, Section 131(c) states "Vegetation must not interfere with the integrity of the adopted plan of flood control, or interfere with maintenance, inspection, and flood fight procedures."

Response 1.1

Comment noted. The project proponents will be conditioned in the Staff Report to secure any necessary permit(s) from the Central Valley Flood Protection Board prior to diversion of Morrison Creek into the Morrison Creek Realigned Channel.

Comment 1.2

The accumulation and establishment of woody vegetation that is not managed has a negative impact on channel capacity and increases the potential for levee over-topping. When a channel develops vegetation that then becomes habitat for wildlife, maintenance to initial baseline conditions becomes more difficult as the removal of vegetative growth is subject to federal and State agency requirements for on-site mitigation within the floodway.

Response 1.2

The vegetation proposed within the Morrison Creek Realigned Channel and the Raised Bank Channel will be maintained and managed as outlined in the *Wetland, Oak Woodland and Riparian Mitigation and Monitoring Plan* for Vineyard I and Aspen IV South. In addition, the hydrology report (refer to Chapter 5, Surface Water Hydrology) analyzed the impacts of the proposed vegetated channel/corridor on upstream and downstream flows and flooding potential and found that the increased vegetation does not result in adverse hydrological impacts.

Comment 1.3

Hydraulic Impacts – Hydraulic impacts due to encroachments could impede flood flows, reroute flood flows, and/or increase sediment accumulation. The DEIR should include mitigation measures for channel and levee improvements and maintenance to prevent and/or reduce hydraulic impacts. Off-site mitigation outside of the State Plan of Flood Control should be used when mitigating for vegetation removed within the project location.

Response 1.3

Refer to Responses 1.1 and 1.2. In addition, Mitigation Measure GS-2 requires submittal of a report prepared by a California registered professional engineer certifying the channel and embankment engineering and foundation soils of the Morrison Creek Realigned Channel. The report is to address soil stability, soil compaction rates, foundation soils, potential failure mechanisms and provide contingencies for repairing failures. Furthermore, Mitigation Measure BR-2 requires implementation of the *Wetland, Oak Woodland and Riparian Mitigation and Monitoring Plan* which includes reports on the status of the creek (hydrology and vegetation) within the Morrison Creek Realigned Channel and if required based on the reports, any recommendations needed for remediation. These measures will effectively reduce the potential for hydraulic impacts.

Comment 1.4

The permit application and Title 23 CCR can be found on the Central Valley Flood Protection Board's website at http://www.cvfpb.ca.gov/ Contact your local, federal and State agencies, as other permits may apply.

Response 1.4

Comment Noted.

LETTER #2 – GRANITE CONSTRUCTION COMPANY

COMMENT 2.1

Mitigation Measure GS-1 (pp 2-7, 9-5): This measure should be modified to provide clarification that the 90% compaction requirement applies to the slopes of the Morrison Creek Realigned Channel, and not all perimeter slopes at the Vineyard I property. This modification remains consistent with the explanation on Page 9-4 that states that the "*Wetland, Oak Woodland, and Riparian Mitigation Monitoring Plan* prepared for the Granite Vineyard I site by ECORP (revised July 20, 2007) (provided as Appendix C) provides contingency measures that state that the Morrison Creek Realigned Channel would be engineered to a minimum of 90% compaction and would be constructed to federal and local standards."

RESPONSE 2.1

Mitigation Measure #1 has been clarified as follows:

> GS-1: For the Vineyard I mining expansion site, the mining operator shall limit the finished side slopes of the Morrison Creek Realigned Channel and mining pit slopes to 2:1 (horizontal:vertical) to ensure stability for existing soil conditions. For the slopes of the Morrison Creek Realigned Channel, soils shall be placed and compacted to 90 percent of the maximum dry density, at or near optimum moisture conditions, in all finished slopes. Since local stability of the slope is critically dependent upon proper compaction of the overburden soils, a qualified soils engineer shall be regularly present throughout grading operations to determine compliance with job specifications.

COMMENT 2.2

Mitigation Measure BR-1 (pp 2-9, 10-18): Timing for submittal of recorded Conservation Easements should correspond to the requirements of the Section 404 permits issued by the U.S. Army Corps of Engineers, and not the Work Authorization Permits issued by Sacramento County. As a condition of Granite's current federal entitlements, a Conservation Easement should be recorded prior to November 30, 2013.

RESPONSE 2.2

Mitigation Measure BR-1 has been updated to require the proponents (both Granite and Teichert) to submit recorded Conservation Easements per the timing set in the Section 404 permits.

Comment 2.3

Plate PD-6 (p 3-11) and BR-6 (p 10-11): These plates should be replaced with the correct Proposed Reclamation Plan for Vineyard I, attached to this letter.

Response 2.3

Correction made to Plate PD-6 and Plate BR-6.

Letter #3 – Southgate Recreation and Park District

Comment 3.1

Chapter 10 – Biological Resources: Biological resources are a critical element of the recreation and park resources that the District has been appointed to manage and protect. Impacts to these resources are of primary concern to the District. As part of the mitigation measures for this project, the loss of native oak trees are to be compensated for by planting oak trees equivalent to the dbh (diameter at breast height) inches lost, based on the required ratios. The District requests that these trees be planted within the dedicated project corridor open space if feasible.

Response 3.1

The mitigation measures for the three mining sites provide for native oak tree compensation on an inch-for-inch basis and the majority of oak tree replacement will occur within the mitigation corridors (Morrison Creek Realigned Channel and Raised Bank Channel).

As stated on page 10-21 of the Draft SEIR, for the Vineyard I mining site, impacts to native oak trees totaled 809 inches dbh. On page 10-24, mining the Vineyard I expansion site would result in the removal of an additional 40 inches dbh of native oak trees. This is a total of 849 inches dbh of native oak trees. Table BR-2 on page 10-22 shows that within the preserve corridor there will be 1,780 oak trees (combination of blue oak, valley oak and interior live oak) planted. An additional 905 oak trees would be planted within the ephemeral drainage portion of the preserve corridor. The oak trees are fully mitigated within the Morrison Creek Realigned Channel. In addition, the Morrison Creek Realigned Channel contains riparian tree plantings to compensate for the impacts to California Black Walnuts. The number of trees planted exceeds the number of inches dbh of impacted trees.

For the impacts to trees on the Aspen IV South site, 140 inches of native oak trees have been compensated through perimeter plantings. Within the Raised Bank Channel on Aspen IV South, there will be oak trees planted equivalent to 1,008 inches dbh. The majority of the trees planted as mitigation will occur within the Raised Bank Channel (preserve).

The request by the District has been met. Comment noted.

Comment 3.2

Chapter 12 – Land Use, Morrison Creek Preserve Corridor: The District understands that the 650-foot wide Morrison Creek Preserve Corridor proposed in the Revised Reclamation Plan will be owned and managed by the Project Applicant and a conservation easement will be recorded and granted to an easement holder accredited by the Land Trust Alliance and approved by the Army Corps of Engineers. The District requests copies of all Army Corps of Engineers, U.S. Fish and Wildlife Service, California Department of Fish and Game and any other permitting agency final permits, conditions and restrictions, management plans and/or wetland delineations as they pertain to the bicycle/pedestrian trail crossings within the 650-foot wide open space corridor.

Response 3.2

This is a not a comment on the adequacy of the environmental document. This comment has been forwarded to the staff writer for consideration in the final Staff Report as a condition of approval. Comment noted.

Comment 3.3

Chapter 16 – Public Services: The District is working with the project applicant and County staff regarding the open space and bicycle/pedestrian trail conditions for this project and visited the Morrison Creek Preserve Corridor site on June 16, 2010. In September 2011 the applicant submitted a proposed trail alignment to the District. Based on these meetings, the site visit, and the new trail proposal the District has revised their comments previously submitted for this project. The District will continue to coordinate with the project applicant, in order to provide a continuous bicycle/pedestrian trail acceptable to the District through the Morrison Creek open space corridor.

Response 3.3

As stated on page 16-2 of the Draft SEIR, the final recommended conditions of approval from the Southgate Recreation and Park District do not result in any significant environmental impacts and the final recommended conditions of approval from the District will be addressed in the Staff Report. This comment has been forwarded to the staff writer for consideration in the Staff Report. Comment noted.

Comment 3.4

Chapter 16 – Public Services, Morrison Creek Preserve Corridor Bicycle/Pedestrian Trail: The District shall accept easements for the authorized 14-foot wide trail crossings through the Primary Preserve Area and a 20-foot wide trail easement, adjacent to but,

outside of the preserve, to allow for a 12-foot wide trail. The final trail easement location, appropriate buffers and setbacks from adjacent land uses and structures, trail surfacing and width and public access points to the trial will be mutually determined by the project applicant and the District.

Response 3.4

This was stated on page 16-2 of the Draft SEIR. This comment has been forwarded to the staff writer for consideration in the Staff Report. Comment noted.

Comment 3.5

Chapter 16 – Public Services, Morrison Creek Preserve Corridor Bicycle/Pedestrian Trail Improvements: The project applicant shall adjust the grade and the side slopes of the trail corridor to provide for safe use and entry and exit to the trail. The District requires fencing along the trail where side slopes within 20 feet of the 20-foot wide easement are steeper than 4:1, for the safety of trail users. The ACOE 404 permit requires appropriate permanent fencing to be constructed and maintained along any authorized publicly accessible trails within the preserve. The project applicant is required to install and maintain fencing once the 10-year monitoring period is completed and the trails are opened for public access or according to ACOE 404 permit requirements, whichever comes first.

The District prefers 12-foot wide paved trails for multi-use trails and understands that surfacing for the trail crossing segments within the preserve must be authorized by the ACOE. It is understood that the project applicant shall install a crushed rock base for the trail. The plans and specifications for the trail, as well as the buffers and setbacks, shall be approved by the District in advance. The District will execute the easement for the completed trail corridor and crossings only after the trail improvements have passed County inspections and are accepted by the District and the Army Corps of Engineers (if applicable).

If the ACOE authorizes asphalt, or other overlay paving material, over the aggregate base of the trail for the crossings with the Preserve, the District will be responsible for securing funding for the future installation of this overlay paving for the trail.

Response 3.5

Comment noted. This comment has been forwarded to the staff writer for inclusion in the Staff Report.

Comment 3.6

Chapter 16- Public Services, Maintenance Funding for the Bicycle/Pedestrian Trail: The District understands that the trail within the Preserve will not be open for public use until the 10 year monitoring period is complete. The District also understands that the

Operations and Management (O&M) Plan for Morrison Creek Nature Preserve dated July 20, 2007 requires the Preserve Manager to be responsible for monitoring and general inspections of the preserve as well as maintenance of gates, fences, and signs, coordinating trash removal and plant management. It is also understood that funding for the perpetual monitoring and maintenance of the Preserve will be provided through an endowment. The O&M plan requires that adequate funds be included in the endowment to insure that trails within the preserve are appropriately fenced and that these fences are maintained.

The District will be responsible for identifying future funding sources to ensure that adequate funding is available to pay for costs associated with the installation, repair and maintenance of the bicycle/pedestrian trail outside of the Preserve and any asphalt or other overlay paving material on the trail, including the trail crossing sections within the Preserve (as authorized by ACOE). Maintenance funding for trail paving maybe established through the provision of an endowment and/or the annexation to financing districts or participation in any future financing plans.

Upon final reclamation, the SRPD reserves the option to defer acceptance of the easement, and construction of the public bicycle/pedestrian trail until an urban land use plan has been approved by the Board of Supervisors on adjacent properties or until development takes place adjoining or nearby the preserve, to help the SRPD determine appropriate alignment.

Response 3.6

Comment noted. This condition does not result in an environmental impact not previously identified in the Draft SEIR. This comment has been forwarded to the staff writer for consideration in the Staff Report.

LETTER #4 – TAYLOR & WILEY ATTORNEYS

COMMENT 4.1

As mentioned in the Preface, the DSEIR analyzes the use permit and reclamation plan amendments for Vineyard I, Aspen III South, and Aspen IV South together, i.e., as a single "Project." (see DSEIR, p. 1-1) However, many of the mitigation measures identified in the DSEIR do not apply to all three properties or to both applicants (Teichert and Granite). In order to avoid confusion and simplify future implementation of these conditions, the SDEIR's mitigation measures should be revised to clearly identify the property subject to the specified mitigation as well as the applicant responsible for satisfaction of each condition. Our page-specific comments, below, identify where these revisions should be made. In addition, the following table summarizes the property and applicant subject to each of the mitigation measures specified in the DSEIR:

Mitigation Measure	Company Responsible	Affected Property
GW-1	Granite	Vineyard I Expansion
CR-1	Granite	Vineyard I Expansion
CR-2	Granite	Vineyard I Expansion
AQ-1	Granite	Vineyard I Expansion
AQ-2	Granite	Vineyard I Expansion
AQ-3	Granite	Vineyard I Expansion
GS-1	Granite	Vineyard I Expansion
GS-2	Granite	Vineyard I
GS-3	Teichert	Aspen IV South
GS-4	Teichert	Aspen IV South
GS-5	Granite	Vineyard I
GS-6	Granite	Vineyard I
	Teichert	Aspen III South
BR-1	Granite	Vineyard I
	Teichert	Aspen III South Aspen IV South
BR-2	Granite	Vineyard I
	Teichert	Aspen III South Aspen IV South
BR-3	Granite	Vineyard I
	Teichert	Aspen IV South
BR-4	Granite	Vineyard I Expansion
BR-5	Granite	Vineyard I
	Teichert	Aspen IV South
BR-6	Granite	Vineyard I
	Teichert	Aspen IV South
BR-7	Granite	Vineyard I
	Teichert	Aspen IV South
BR-8	Granite	Vineyard I Expansion

BR-9	Granite	Vineyard I Expansion
BR-10	Granite	Vineyard I Expansion
TC-1	Granite	Vineyard I Expansion
TC-2	Granite	Vineyard I Expansion
LU-1	Granite	Vineyard I
LU-2	Granite	Vineyard I Expansion
LU-3	Granite	Vineyard I
LU-4	Granite	Vineyard I
	Teichert	Aspen IV South
PS-1	Granite	Vineyard I
	Teichert	Aspen III South Aspen IV South
AV-1	Granite	Vineyard I
	Teichert	Aspen III South Aspen IV South

Response 4.1

With the exception of the following clarifications, the suggested changes have been made to the mitigation measures so that responsibility of each mitigation measure is clear. Mitigation Measure LU-3 is applicable to both mining operators. Mitigation Measure GS-6 is applicable to the Vineyard I mining operator since it applies only to the Morrison Creek Realigned Channel. Mitigation Measure PS-1 requires that the Vineyard I mining expansion site operators maintain all perimeter fencing until post-reclamation development of the site occurs. This measure is not repeated for the Teichert Aspen III South and Aspen IV South since a similar measure is already applicable to these mining sites through the prior use permit. The same rational for PS-1 is applied to Mitigation Measure AV-1.

Comment 4.2

Throughout the DSEIR, there are references to a single “reclamation plan”. (See, e.g., p. 2-1, third paragraph.) In fact, there are three separate reclamation plan amendments being analyzed in the DSEIR: Vineyard I, Aspen III South, and Aspen IV South. Where appropriate, please revise all references to a single reclamation plan to identify the specific reclamation plan being discussed.

Response 4.2

All mining sites (Vineyard I, Aspen III South and Aspen IV South) are requesting the elimination of the originally approved reclamation plan that consisted of constructing a bypass channel around the mining sites (drainage mitigation plan) and placing a mitigation corridor at the bottom of the mining pits (wetland mitigation plan and reclamation plan). The following specifications for each mining site are as follows:

Granite Construction is requesting approval for the construction of a Morrison Creek Realigned Channel which mitigates for the original impacts to wetlands and trees and

amends the drainage mitigation plan by eliminating the previously approved elevated bypass channel. Granite's mitigation channel (Morrison Creek Realigned Channel) is located across Granite's Vineyard I mining site and on a portion of Teichert Aggregates' Aspen III South site. The Morrison Creek Realigned Channel will connect upstream with the existing Morrison Creek on the Aspen IV South mining site and downstream at Hedge Road (on the Vineyard I mining property) at the boundary of the City of Sacramento and Sacramento County.

Teichert Aggregates is requesting amendments for two mining sites. The Aspen III South mining site did not have any wetland or tree impacts as a result of mining activities. Therefore, the reclamation amendment for the Aspen III South site is the elimination of the previously approved elevated bypass channel (drainage mitigation plan) and elimination of the previously approved pit bottom 600-foot wide riparian corridor (wetland mitigation plan/reclamation plan) and instead requests approval of the construction of the Morrison Creek Realigned Channel (Granite's mitigation corridor) on a portion of the Aspen III South mining site.

The reclamation plan amendment for the Aspen IV South mining site consists of the request to eliminate the previously approved elevated bypass channel (drainage mitigation plan) and pit bottom 600-foot wide riparian corridor (wetland mitigation plan/reclamation plan) and instead requests to construct a raised flood control berm (referred to as the Raised Bank Channel) outside of the Morrison Creek floodway to preserve the existing Morrison Creek. Through this project approval, Teichert will not be approved to mine through existing Morrison Creek on Aspen IV South and instead will preserve the creek and its floodway.

The above project description clarification has only been updated for the Project Description and Executive Summary chapters. These changes have not been made to the other chapter introductions as all other chapters are corrected via this response.

Comment 4.3

It should be clarified throughout the DSEIR that <u>most</u> of the Raised Bank Channel on Aspen IV South will be constructed outside the <u>floodway</u> (as opposed to the <u>floodplain</u>) of Morrison Creek. The Channel will overlap with a small portion of the <u>floodway</u> near Mayhew Road because doing so is necessary to connect with the Realigned Channel on the Vineyard I site. By contrast, some mining on Aspen IV South will occur within the <u>floodplain</u> of Morrison Creek.

Response 4.3

The project descriptions do note that the Raised Bank Channel on Aspen IV South will be constructed outside of the effective FEMA floodway (the project descriptions do not state floodplain). A clarification that there will be some encroachment to the floodway for the connection of the Morrison Creek Realigned Channel with the Raised Bank Channel has been noted in the project description revisions in the Project Description,

and Executive Summary chapters. This correction has also been made on page 5-9 of the Final SEIR.

Comment 4.4/Response 4.4

The remaining comments are specific to certain pages or sections within the Draft SEIR. The comments pertain specifically to clarification on which mining operator is responsible for carrying out certain mitigations. The recommended changes are consistent with the request found in Comment 4.1 and clarification of which mining operator is responsible for mitigation measures has been made in the Final SEIR. The original comment letter is included at the end of this chapter where the individual specific comments can be found.

Comment Letter #1

CA

STATE OF CALIFORNIA – CALIFORNIA NATURAL RESOURCES AGENCY EDMUND G. BROWN JR., GOVERNOR

CENTRAL VALLEY FLOOD PROTECTION BOARD
3310 El Camino Ave., Rm. 151
SACRAMENTO, CA 95821
(916) 574-0609 FAX: (916) 574-0682
PERMITS: (916) 574-2380 FAX: (916) 574-0682

RECEIVED
MAR 9 2012
DEPARTMENT OF ENVIRONMENTAL REVIEW AND ASSESSMENT

March 6, 2012

Ms. Catherine Hack
Sacramento County
827 7th Street, Room 220
Sacramento, California 95814

Subject: Vineyard I, Aspen III South and Aspen IV South Reclamation Plan Amendment
SCH Number: 1995102057
Document Type: DEIR - Draft Environmental Impact Report

Dear Ms. Hack:

Staff of the Central Valley Flood Protection Board (Board) has reviewed the subject document and provides the following comments:

The proposed project is located within the regulated areas of Morrison Creek under the jurisdiction of the Central Valley Flood Protection Board. The Board is required to enforce standards for the construction, maintenance and protection of adopted flood control plans that will protect public lands from floods. The jurisdiction of the Board includes the Central Valley, including all tributaries and distributaries of the Sacramento River and the San Joaquin River, and designated floodways (Title 23 California Code of Regulations (CCR), Section 2).

A Board permit is required prior to starting the work within the Board's jurisdiction for the following:

- The placement, construction, reconstruction, removal, or abandonment of any landscaping, culvert, bridge, conduit, fence, projection, fill, embankment, building, structure, obstruction, encroachment, excavation, the planting, or removal of vegetation, and any repair or maintenance that involves cutting into the levee (CCR Section 6);
- Existing structures that predate permitting or where it is necessary to establish the conditions normally imposed by permitting. The circumstances include those where responsibility for the encroachment has not been clearly established or ownership and use have been revised (CCR Section 6);
- Vegetation plantings will require the submission of detailed design drawings; identification of vegetation type; plant and tree names (i.e. common name and scientific name); total number of each type of plant and tree; planting spacing and irrigation method that will be utilized within the project area; a complete vegetative management plan for maintenance to prevent the interference with flood control, levee maintenance, inspection, and flood fight procedures (CCR Section 131).

Comment Letter #1 – Page 2

Ms. Catherine Hack
March 6, 2012
Page 2 of 2

Vegetation requirements in accordance with Title 23, Section 131 (c) states "Vegetation must not interfere with the integrity of the adopted plan of flood control, or interfere with maintenance, inspection, and flood fight procedures."

The accumulation and establishment of woody vegetation that is not managed has a negative impact on channel capacity and increases the potential for levee over-topping. When a channel develops vegetation that then becomes habitat for wildlife, maintenance to initial baseline conditions becomes more difficult as the removal of vegetative growth is subject to federal and State agency requirements for on-site mitigation within the floodway.

Hydraulic Impacts - Hydraulic impacts due to encroachments could impede flood flows, reroute flood flows, and/or increase sediment accumulation. The DEIR should include mitigation measures for channel and levee improvements and maintenance to prevent and/or reduce hydraulic impacts. Off-site mitigation outside of the State Plan of Flood Control should be used when mitigating for vegetation removed within the project location.

The permit application and Title 23 CCR can be found on the Central Valley Flood Protection Board's website at http://www.cvfpb.ca.gov/. Contact your local, federal and State agencies, as other permits may apply.

If you have any questions, please contact me by phone at (916) 574-0651, or via email at jherota@water.ca.gov.

Sincerely,

James Herota
Staff Environmental Scientist
Flood Projects Improvement Branch

cc: Governor's Office of Planning and Research
State Clearinghouse
1400 Tenth Street, Room 121
Sacramento, California 95814

Comment Letter #2

GRANITE CONSTRUCTION COMPANY SINCE 1922
NORTHERN CALIFORNIA

VIA U.S. AND ELECTRONIC MAIL

April 9, 2012

Ms. Catherine Hack
Environmental Coordinator
County of Sacramento
Dept. of Environmental Review & Assessment
827 7th Street, Suite 220
Sacramento, California 95814

Subject: Draft SEIR Comments on Vineyard I Community Plan Amendment, Rezone, Use Permit, Reclamation Plan Amendment, and Zoning Agreement Amendments

Dear Catherine:

Granite Construction Company (Granite) appreciates the opportunity to provide comment on the February 2012 Draft Supplemental Environmental Impact Report (Draft SEIR) for its Vineyard I Community Plan Amendment, Rezone, Use Permit, Reclamation Plan Amendment, and Zoning Agreement Amendments. Granite respectfully requests the following changes be made:

1. **Mitigation Measure GS-1 (pp 2-7, 9-5):** This measure should be modified to provide clarification that the 90% compaction requirement applies to the slopes of the Morrison Creek Realigned Channel, and not all perimeter slopes at the Vineyard I property. This modification remains consistent with the explanation on Page 9-4 that states that "The *Wetland, Oak Woodland, and Riparian Mitigation Monitoring Plan* prepared for the Granite Vineyard I site by ECORP (revised July 20, 2007) (provided as Appendix C) provides contingency measures that state that the Morrison Creek Realigned Channel would be engineered to a minimum of 90% compaction and would be constructed to federal and local standards."

2. **Mitigation Measure BR-1 (pp 2-9, 10-18):** Timing for submittal of recorded Conservation Easements should correspond to the requirements of the Section 404 permits issued by the U.S. Army Corps of Engineers, and not the Work Authorization Permits issued by Sacramento County.

Sacramento Area Office
4001 Bradshaw Road
Sacramento, CA 95827
P. O. Box 15287
Sacramento, CA 95851
916/855-4400
Fax 916/369-0429

North Bay Area Office
1500 Grove Street
Healdsburg, CA 95448
707/433-0299
Fax 707/433-1799

North Coast Area Office
1324 South State Street
Ukiah, CA 95482
707/467-4100
Fax 707/467-4154

Oroville Area Office
4714 Pacific Heights Road
P. O. Box 1630
Oroville, CA 95965
530/534-7616
Fax 530/534-9420

NORTHERN CALIFORNIA BRANCH OFFICE
4001 Bradshaw Road
Sacramento, CA 95827
P. O. Box 15287
Sacramento, CA 95851
916/855-4400
Fax 916/369-0429

Comment Letter #2 – Page 2

Ms. Catherine Hack
April 9, 2012
Page 2

As a condition of Granite's current federal entitlements, a Conservation Easement should be recorded prior to November 30, 2013.

3. **Plate PD-6 (p 3-11) and BR-6 (p 10-11):** These plates should be replaced with the correct Proposed Reclamation Plan for Vineyard I, attached to this letter.

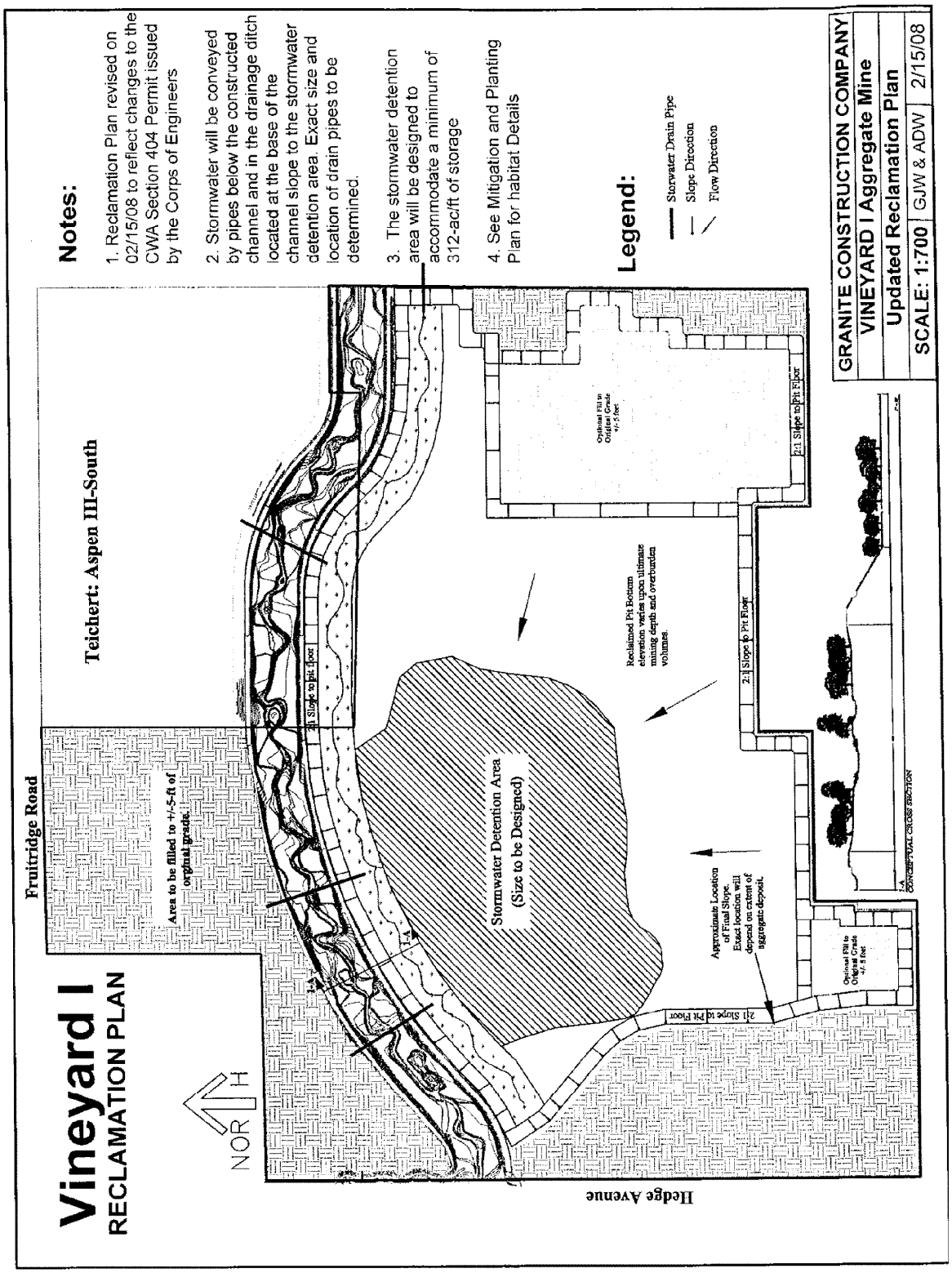
We look forward to working with the County to answer any questions the public may have on these entitlement requests, and to assist with the preparation of responses to comments as needed. Please do not hesitate to contact me should you have any further comments or questions.

Regards,

Yasha Saber
Resource Development Project Manager
Granite Construction Company
yasha.saber@gcinc.com

Enclosure.

Comment Letter #2 – Page 3



Comment Letter #3

RECEIVED
APR 19 2012
DEPARTMENT OF ENVIRONMENTAL REVIEW AND ASSESSMENT

April 14, 2012

Catherine Hack
County of Sacramento
Planning & Community Development
Division of Environmental Review
827 – 7th Street, Rm. 220
Sacramento, CA 95814

SOUTHGATE
RECREATION & PARK DISTRICT

Sheldon Administrative Headquarters
6000 Orange Avenue
Sacramento, CA 95823-3225
Phone 916-428-1171
Facsimile 916-428-7334
www.southgaterecandpark.net

Board of Directors
Rolfe P. Appel
John E. Cockerham
Phyllis Evans
Edwin A. Smith
Christine Thompson

General Manager
Ward Winchell

Assistant General Manager
Maureen Casey

Subject: Comments on Draft Supplemental Environmental Impact Report Control No. 05-0062, 08-0016 and 08-0017, Vineyard I Community Plan Amendment, Rezone, Use Permit, Reclamation Plan Amendments and Zoning Agreement Amendments; and Aspen III South Reclemation Plan and Use Permit Amendments and Aspen IV South Reclamation Plan, Use Permit, and Zoning Agreement Amendments

Dear Catherine,

Southgate Recreation and Park District would like to thank the County of Sacramento for the opportunity to review and comment on this Draft Environmental Impact Report (DEIR) dated February 2012. The current proposed project consists of three separate Reclamation Plan projects; Vineyard I, Aspen III South and Aspen IV. Since these three projects are interrelated, they have been incorporated as one proposed project. The District previously submitted comments on the Draft Environmental Impact Report for Morrison Creek Mining Reach South of Jackson Highway project to the County of Sacramento, on May 23, 1997. The district submitted comments to the County on Vineyard I, Aspen III and Aspen IV South projects on July 16, 2008.Most recently, the District submitted comment amendments regarding the Vineyard I Community Plan Amendment, Rezone, Use Permit, Reclamation Plan and Zoning Agreement Amendments on October 19, 2011.

This proposed Project includes a Use Permit and Reclamation Plan Amendment to allow aggregate mining of an additional 5.61 acres on the previously approved Vineyard I mining and reclamation plan; and a Revised Reclamation Plan to allow: realignment and construction of a new Morrison Creek Preserve Corridor including an at-grade realigned channel section, through Vineyard I and Aspen III South which will connect with the preserved Morrison Creek channel on Aspen IV South. The Project also includes a storm water retention basin. This Project site is in the area bounded by Hedge Avenue on the west, Fruitridge Road on the north, Mayhew Road on the east, and Elder Creek Road on the South, in the Vineyard Community.

The District requests that the following comments, which were approved by the Southgate Board of Directors at their April 17, 2012 meeting, be considered and included by the County of Sacramento in the Final Environmental Impact Report for this project.

1

Comment Letter #3 – Page 2

CHAPTER 10 – BIOLOGICAL RESOURCES

Biological resources are a critical element of the recreation and park resources that the District has been appointed to manage and protect. Impacts to these resources are of primary concern to the District. As part of the mitigation measures for this project, the loss of native oak trees are to be compensated for by planting oak trees equivalent to the dbh (diameter at breast height) inches lossed, based on the required ratios. The District requests that these trees be planted within the dedicated project corridor open space if feasible.

CHAPTER 12 – LAND USE

Morrison Creek Preserve Corridor

The District understands that the 650-foot-wide Morrison Creek Preserve Corridor proposed in the Revised Reclamation Plan will be owned and managed by the Project Applicant and a conservation easement will be recorded and granted to an easement holder accredited by the Land Trust Alliance and approved by the Army Corps of Engineers.

The District requests copies of all Army Corps of Engineers, U.S. Fish and Wildlife Service, California Department of Fish and Game and any other permitting agency final permits, conditions and restrictions, management plans, and/or wetland delineations as they pertain to the bicycle/pedestrian trail crossings within the 650-foot-wide open space corridor.

CHAPTER 16 – PUBLIC SERVICES

The District is working with the Project Applicant and County staff regarding the open space and bicycle/pedestrian trail conditions for this project and visited the Morrison Creek Preserve Corridor site on June 16, 2010. In September 2011 the Applicant submitted a proposed trail alignment to the District. Based on these meetings, the site visit, and the new trail proposal the District has revised their comments previously submitted for this Project. The District will continue to coordinate with the Project Applicant, in order to provide a continuous bicycle/pedestrian trail acceptable to the District through the Morrison Creek open space corridor.

Morrison Creek Preserve Corridor Bicycle/Pedestrian Trail

The District shall accept easements for the authorized 14 foot-wide trail crossings through the Primary Preserve Area and a 20 foot-wide trail easement, adjacent to but, outside of the preserve, to allow for a 12 foot-wide trail. The final trail easement location, appropriate buffers and setbacks from adjacent land uses and structures, trail surfacing and width and public access points to the trail will be mutually determined by the Project Applicant and the District.

Morrison Creek Preserve Corridor Bicycle/Pedestrian Trail Improvements

The Project Applicant shall adjust the grade and the side slopes of the trail corridor to provide for safe use and entry and exit to the trail. The District requires fencing along the trail where side slopes within 20 feet of the 20 foot-wide easement are steeper than 4:1, for the safety of trail users. The ACOE 404 permit requires appropriate permanent fencing to be constructed and maintained along any authorized publicly accessible trails

2

Comment Letter #3 – Page 3

within the preserve. The Project Applicant is required to install and maintain fencing, once the 10-year monitoring period is completed and the trails are opened for public access or according to ACOE 404 permit requirements, whichever comes first.

The District prefers 12 foot-wide paved trails for multi-use trails and understands that surfacing for the trail crossing segments within the Preserve must be authorized by the ACOE. It is understood that the Project Applicant shall install a crushed rock base for the trail. The Plans and specifications for the trail, as well as the buffers and setbacks, shall be approved by the District in advance. The District will execute the easement for the completed trail corridor and crossings only after the trail improvements have passed County inspections and are accepted by the District and the Army Corps of Engineers (if applicable).

If the ACOE authorizes asphalt, or other overlay paving material, over the aggregate base of the trail for the crossings with the Preserve, the District will be responsible for securing funding for the future installation of this overlay paving for the trail.

Maintenance Funding for the Bicycle/Pedestrian Trail

The District understands that the trail within the Preserve will not be open for public use until the 10 year monitoring period is complete. The District also understands that the Operations and Management (O&M) Plan for Morrison Creek Nature Preserve dated July 20, 2007 requires the Preserve Manager to be responsible for monitoring and general inspections of the Preserve as well as maintenance of gates, fences and signs, coordinating trash removal and plant management. It is also understood that funding for the perpetual monitoring and maintenance of the Preserve will be provided through an endowment. The O&M plan requires that adequate funds be included in the endowment to insure that trails within the preserve are appropriately fenced and that these fences are maintained.

The District will be responsible for identifying future funding sources to ensure that adequate funding is available to pay for costs associated with the installation, repair and maintenance of the bicycle/pedestrian trail outside of the Preserve and any asphalt or other overlay paving material on the trail, including the trail crossing sections within the Preserve (as authorized by ACOE). Maintenance funding for trail paving may be established through the provision of an endowment and/or the annexation to financing districts or participation in any future financing plans.

Upon final reclamation, the SRPD reserves the option to defer acceptance of the easement, and construction of the public bicycle/pedestrian trail until an urban land use plan has been approved by the Board of Supervisors on adjacent properties or until development takes place adjoining or nearby the preserve, to help the SRPD determine appropriate alignment.

Should you have any questions please do not hesitate to contact me at 428-1171 ext. 14 or at ejones@southgaterecandpark.net.

Respectfully,

Eric Jones
Planner

3

Comment Letter #4

TAYLOR & WILEY
A PROFESSIONAL CORPORATION
ATTORNEYS
2870 GATEWAY OAKS DR., SUITE 200
SACRAMENTO, CALIFORNIA 95833
TELEPHONE: (916) 929-5545
TELEFAX: (916) 929-0283

JOHN M. TAYLOR
JAMES B. WILEY
JESSE J. YANG
KATE A. WHEATLEY
MATTHEW S. KEASLING

OF COUNSEL
KATHLEEN R. MAKEL

April 9, 2012

Ms. Michelle Nagao
Division of Environmental Review & Assessment
County of Sacramento
827 7th Street, Room 220
Sacramento, CA 95814

Re: Draft Supplemental Environmental Impact Report, Vineyard I, Aspen III South and Aspen IV South (Control Numbers: 2005-CZB-UPB-REB-ZGB-0062, PLNP2008-REB-UPB-00016, & PLNP2008-REB-UPB-ZGB-00017)

Dear Ms. Nagao:

Taylor & Wiley represents Teichert Aggregates ("Teichert") with respect to various land use and mining matters, including the referenced use permit and reclamation plan amendments for the Aspen III South and Aspen IV South properties. We have reviewed the Draft Supplemental Environmental Impact Report (DSEIR) prepared for this project and offer the following comments for your consideration. Our comments are presented in page order. If a comment is applicable to more than one page, then this letter references all pages where such comment is applicable.

Global Comments

1. As mentioned in the Preface, the DSEIR analyzes the use permit and reclamation plan amendments for Vineyard I, Aspen III South and Aspen IV South together, i.e., as a single "Project." (See DSEIR, p. 1-1.) However, many of the mitigation measures identified in the DSEIR do not apply to all three properties or to both applicants (Teichert and Granite). In order to avoid confusion and simplify future implementation of these conditions, the SDEIR's mitigation measures should be revised to clearly identify the property subject to the specified mitigation as well as the applicant responsible for satisfaction of each condition. Our page-specific comments, below, identify where these revisions should be made. In addition, the following table summarizes the property and applicant subject to each of the mitigation measures specified in the DSEIR:

Comment Letter #4 – Page 2

Michelle Nagao
April 9, 2012
Page 2 of 8

Mitigation Measure	Company Responsible	Affected Property
GW-1	Granite	Vineyard I expansion
CR-1	Granite	Vineyard I expansion
CR-2	Granite	Vineyard I expansion
AQ-1	Granite	Vineyard I expansion
AQ-2	Granite	Vineyard I expansion
AQ-3	Granite	Vineyard I expansion
GS-1	Granite	Vineyard I expansion
GS-2	Granite	Vineyard I
GS-3	Teichert	Aspen IV South
GS-4	Teichert	Aspen IV South
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	Teichert	Aspen III South Aspen IV South
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	Teichert	Aspen III South Aspen IV South
BR-3	Granite	Vineyard I
	Teichert	Aspen IV South
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	Teichert	Aspen IV South
BR-7	Granite	Vineyard I
	Teichert	Aspen IV South
BR-8	Granite	Vineyard I expansion
BR-9	Granite	Vineyard I expansion
BR-10	Granite	Vineyard I expansion
TC-1	Granite	Vineyard I expansion
TC-2	Granite	Vineyard I expansion
LU-1	Granite	Vineyard I
LU-2	Granite	Vineyard I expansion
LU-3	Granite	Vineyard I
LU-4	Granite	Vineyard I
	Teichert	Aspen IV South

Comment Letter #4 – Page 3

Michelle Nagao
April 9, 2012
Page 3 of 8

PS-1	Granite	Vineyard I
	Teichert	Aspen III South Aspen IV South
AV-1	Granite	Vineyard I
	Teichert	Aspen III South Aspen IV South

2. Throughout the DSEIR, there are references to a single "reclamation plan." (See, e.g., p. 2-1, third paragraph.) In fact, there are three separate reclamation plan amendments being analyzed in the DSEIR: Vineyard I, Aspen III South and Aspen IV South. Where appropriate, please revise all references to a single reclamation plan to identify the specific reclamation plan being discussed.

3. It should be clarified throughout the DSEIR that most of the Raised Bank Channel on Aspen IV South will be constructed outside the floodway (as opposed to the floodplain) of Morrison Creek. The Channel will overlap with a small portion of the floodway near Mayhew Road because doing so is necessary to connect with the Realigned Channel on the Vineyard I site. By contrast, some mining on Aspen IV South will occur within the floodplain of Morrison Creek.

Page/Section Specific Comments

Pages 2-3 and 6-5, Mitigation Measure GW-1: See Global Comment 1. Please remove the reference to "the proponents" and replace with "Granite."

Pages 2-4 and 7-15, Mitigation Measure CR-1: See Global Comment 1. Please remove references to "the Applicant" and "the project proponent" and replace with "Granite." Additionally, we suggest revising the first sentence to read: "If subsurface deposits believed to be cultural or human in origin are discovered during construction on the Vineyard I mining expansion site, …."

Pages 2-5 and 7-16, Mitigation Measure CR-2: See Global Comment 1. We suggest revising the first sentence to read: "…, in the event of the discovery of human remains on the Vineyard I mining expansion site, …."

Pages 2-5 and 8-14, Mitigation Measure AQ-1: See Global Comment 1. Please remove references to "the proponent" and replace with "Granite." We suggest changing references to "the project" to "the Vineyard I mining expansion."

Comment Letter #4 – Page 4

Michelle Nagao
April 9, 2012
Page 4 of 8

Pages 2-6 and 8-15, Mitigation Measure AQ-2: See Global Comment 1. We suggest revising the first sentence to read: "All vehicles utilized as part of the Vineyard I mining expansion shall be maintained in accordance with the manufacturers' recommendations, and all stationary equipment used on that site maintained in compliance with emissions limitations …."

Pages 2-6 and 8-15, Mitigation Measure AQ-3: See Global Comment 1. We suggest revising the first sentence to read: "Particulate filters and catalysts should be used where technically feasible to reduce NOx emissions from off-road heavy duty equipment associated with the Vineyard I mining expansion."

Pages 2-7 and 9-5, Mitigation Measure GS-1: See Global Comment 1. Please remove references to "the proponent" and replace with "Granite."

Pages 2-8 and 9-7, Mitigation Measure GS-5: See Global Comment 1. Please remove references to "the proponents" and replace with "Granite." We suggest revising the first sentence to read: "Granite shall ensure that the side slopes of the pit on the Vineyard I mining expansion site are vegetated…."

Pages 2-9 and 9-7, Mitigation Measure GS-6: See Global Comment 1. Please remove references to "the applicant" and replace with "Granite."

Pages 2-9 and 10-18, Mitigation Measure BR-1: The Clean Water Act Section 404 permits for Vineyard I and Aspen IV South direct the companies to place conservation easements over the Realigned Channel and Raised Bank Channel once these channels are fully constructed and planting within the channels is complete. Requiring the companies to record these easements before work authorization can be granted is inconsistent with the 404 permits and is impractical: the channel cannot be constructed and planted without work authorization. We suggest revising this condition to require Teichert and Granite to provide copies of the conservation easements to DERA once they are recorded but eliminating the requirement that recordation occur prior to the issuance of work authorization by the County.

Pages 2-9 and 10-18, Mitigation Measure BR-2: See Global Comment 1. DERA should clarify that this measure applies to both Granite and Teichert.

Page 2-10, Mitigation Measure BR-3: See above comment regarding Mitigation Measure BR-1.

Pages 2-12 and 10-37, Mitigation Measure BR-5: See above comments regarding Mitigation Measures BR-1 and BR-2.

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Pages 2-13 and 10-38, Mitigation Measure BR-6: See above comments regarding Mitigation Measures BR-1 and BR-2.

Pages 2-14 and 10-44, Mitigation Measure BR-7: See above comments regarding Mitigation Measures BR-1 and BR-2.

Pages 2-15 and 10-45, Mitigation Measure BR-9: See Global Comment 1. We suggest revising the first sentence to read: "Prior to mining activities on the Vineyard I expansion site, …."

Pages 2-16 and 10-46, Mitigation Measure BR-10: See Global Comment 1. We suggest revising the first sentence to read: "If mining activities on the Vineyard I expansion site occur between March 1 and July 31, …" Also, remove references to "the applicant" and replace with "Granite."

Pages 2-17 and 11-5, Mitigation Measure TC-1: See Global Comment 1. We suggest revising this sentence to read: "Granite shall transport mined aggregate material from the Vineyard I expansion site to the processing plants only by conveyor and not by trucks."

Pages 2-18 and 12-7, Mitigation Measure LU-1: See Global Comment 1. DERA should clarify that this measure applies to Granite.

Pages 2-19 and 12-8, Mitigation Measure LU-2: See Global Comment 1. We suggest revising the first sentence to read: "…prior to the issuance of the work authorization permit for the Vineyard I expansion site, Granite shall…."

Pages 2-19 and 12-10, Mitigation Measure LU-3: See Global Comment 1. We suggest revising this measure to read: "Prior to redirecting Morrison Creek flows to the Morrison Creek Realignment Channel, Granite shall…."

Pages 2-19 and 14-3, Mitigation Measure PS-1: See Global Comment 1. DERA should clarify that this measure applies to both Teichert and Granite.

Pages 2-20 and 15-5, Mitigation Measure AV-1: See Global Comment 1. DERA should clarify that this measure applies to both Teichert and Granite.

Page 3-2, second paragraph under the heading "Wetland Mitigation Plan/Reclamation Plan": The final sentence of this paragraph incorrectly states that Teichert has received federal and State permits reflecting the proposed reclamation changes for Aspen IV South. As of the date of this letter, Teichert is awaiting final modified permits that reflect its current reclamation proposal (i.e., not mining through Morrison Creek) from the U.S. Army Corps of Engineers,

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Central Valley Regional Water Quality Control Board and the Department of Fish and Game. Teichert will provide DERA with copies of these modified permits once received.

Page 3-7, second paragraph under the heading "Environmental Setting": In the first sentence, it should be noted that the "Realigned Channel" will be constructed on the Vineyard I and Aspen III South properties.

Page 4-5, second paragraph under the heading "Proposed Project": The fourth sentence of this paragraph should be revised to read: "This component of the proposed project will not mine through the existing Morrison Creek (similar to the Creek Buffer Alternative) and will not mine through the Morrison Creek floodway since most of the Raised Bank Channel will be constructed outside the floodway which will preclude mining within the channel…."

Page 9-7, first paragraph: The fourth sentence of this paragraph should be removed and revised to read: "The Clean Water Act Section 404 permits for Vineyard I and Aspen IV South require Granite and Teichert to establish a ten-year monitoring plan."

Page 10-2, first paragraph: Please remove the references to "the prior project" in the final two sentences of this paragraph. Please replace the first reference to "the prior project" with "the Vineyard I mining project." Please replace the second reference to "the prior project" with "the Aspen IV South mining project."

Page 10-2, final paragraph before the heading "Background": Please add a sentence to the end of this paragraph which reads: "Teichert has requested a modification to its Section 404 permit for Aspen IV South to allow construction of the Raised Bank Channel."

Page 10-10, second full paragraph: Please remove the phrase "outside the floodplain" in the second sentence and replace with "lying mostly outside the floodway of Morrison Creek."

Page 10-10, fourth full paragraph: In the first sentence, please note that Teichert's Section 404 permit for Aspen IV South and Aspen V South was revised November 18, 2010. Also, please remove the final sentence of this paragraph and replace with the following: "Teichert has filed a request to amend its 404 permit for Aspen IV South to reflect its current proposal to preserve Morrison Creek on the Aspen IV South site."

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Page 10-16, fourth full paragraph. Please note that the *Wetland, Oak Woodland and Riparian Mitigation Monitoring Plan for Aspen IV South and Aspen V South* dated 8 May 2009 (2009 Plan) was previously developed by ECORP Consulting, Inc. (ECORP). The 2009 Plan proposed various types of mitigation for both the Aspen IV South and Aspen V South Projects, including wetland mitigation. Because of the Aspen IV South Project changes, the 2009 Plan has been superseded by the *Wetland Mitigation and Monitoring Plan For Aspen IV South and Aspen V South At Aspen VI Off-Site Mitigation Area* (ECORP 2012a) and the *Oak Tree Mitigation and Monitoring Plan For Aspen IV South* (ECORP 2012b). The references to these plans should be updated throughout the Biological Resources chapter.

Page 10-20, fourth full paragraph. In the second sentence, please note that Teichert's Section 404 permit for Aspen IV South and Aspen V South was revised November 18, 2010.

Page 10-21, first full paragraph. Please remove the sixth sentence of this paragraph and replace with the following: "Due to changes in the Aspen IV South project after development of the *Wetland, Oak Woodland and Riparian Mitigation and Monitoring Plan* for that site, ECORP prepared an *Oak Tree Mitigation and Monitoring Plan for Aspen IV South* (November 18, 2011, revision date January 24, 2012) which identifies impacted trees and outlines mitigation and monitoring for those impacts. It should be noted that this Plan supercedes the native oak tree mitigation proposed in the *Wetland, Oak Woodland and Riparian Mitigation and Monitoring Plan* for Aspen IV South."

Page 10-35, final paragraph: Please revise the final sentence of this paragraph to read: "It should be noted that due to the revisions for Aspen IV South, Teichert has requested a modification to their issued Section 404 permit, as well as their Streambed Alteration Agreement and Section 401 Water Quality Certification for the Aspen IV South project."

Page 16-2, second paragraph under the heading "Parks and Recreation": Please remove the reference to "the Applicant" in the third sentence and replace with "Granite."

Page 17-15, under the heading "Methodology": Please revise the first sentence as follows: "Granite provided estimated fuel usage over the life of the Vineyard I mining expansion."

Page 17-15, under the heading "Impacts and Analysis": Please revise the first sentence as follows: "According to data provided by Granite, the Vineyard I mining expansion will result…."

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Thank you for the opportunity to comment on this document. If you have any questions, please do not hesitate to call.

Very truly yours,

Kate A. Wheatley

cc: John Lane, Teichert Aggregates
Yasha Saber, Granite Construction
John Taylor

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ACKNOWLEDGMENTS

EIR PREPARERS

Catherine Hack, *Environmental Coordinator*

Tim Hawkins, *Assistant Environmental Coordinator*

John Lundgren & Todd Smith, *Application Processing Division Managers*

Michelle Nagao, *Project Manager*

SUPPORT STAFF

Linda Johnston, *Administrative Services Officer II*

Justin Maulit, *Office Assistant II*

APPLICANTS

Teichert Aggregates
3500 American River Drive
Sacramento, CA 95864

Granite Construction Company
P.O. Box 15287
Sacramento, CA 95851

Final Environmental Impact Report
Environmental Impact Statement

Morrison Creek Mining Reach Downstream (South) of Jackson Highway

Community Plan Amendment, Rezone, Use Permit, Amendment to Existing Use Permit, and Section 404 (Wetlands) Permit Application

State Lead Agency: County of Sacramento
Department of Environmental Review and Assessment
Contact: Catherine Hack
827 Seventh Street, Room 220
Sacramento, California 95814
(916) 874-7914

Federal Lead Agency: U.S. Army Corps of Engineers
Sacramento District
Contact: Larry Vinzant
1325 J Street
Sacramento, California 95814
(916) 557-5263

Control Numbers: 94-UPB-0484 (Aspen III South), 91-CZB-UPB-0118 (Vineyard I), 90-CZB-UPB-1607 (Aspen IV South), and 94-CZB-UPB-0671 (Aspen V South)

State Clearinghouse Number: 95102057
Public Notice Number: 199400102

July 7, 1999

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DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO, CALIFORNIA 95814-2922

COUNTY OF SACRAMENTO
DEPARTMENT OF ENVIRONMENTAL REVIEW AND ASSESSMENT
827 SEVENTH STREET, ROOM 220
SACRAMENTO, CALIFORNIA 95814

July 9, 1999

TO; **All Interested Parties**

SUBJECT: FINAL ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL IMPACT STATEMENT FOR THE MORRISON CREEK MINING REACH DOWNSTREAM (SOUTH) OF JACKSON HIGHWAY (Control Numbers: 94-UPB-0484 [Aspen III South], 91-CZB-UPB-0118 [Vineyard I], 90-CZB-UPB-1607 [Aspen IV South] and 94-CZB-UPB-0671 [Aspen V South])

The subject Final Environmental Impact Report/Environmental Impact Statement (EIR/EIS) is attached hereto for your review. The EIR/EIS has been prepared jointly by the U.S. Army Corps of Engineers and Sacramento County in compliance with the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). The EIR/EIS will be used by the U.S. Army Corps of Engineers in evaluating applications for permits pursuant to Section 404 of the Clean Water Act, and by Sacramento County in determining whether to grant requests for land use entitlements (Community Plan amendments, rezones, use permits, and an amendment to an existing use permit) to allow mining and subsequent reclamation on the project site as described in the Project Description contained in the EIR/EIS.

The Final EIR and mining projects are scheduled to be heard before the County Board of Supervisors on Wednesday, July 21, 1999, at 6:00 p.m. The hearing is to be held in Room 1450 of the County Administration Building, 700 "H" Street, Sacramento, California. Please call the Clerk of the Board at 916/874-5451 to verify the date, time and place of the hearing.

The Final EIS will be subject to a 30-day review period prior to any decision by the Corps on the Section 404 permit applications. Please call the Corps at 916/557-5263 concerning the status of the Section 404 permits.

Please contact Larry Vinzant at the U.S. Army Corps of Engineers (916/557-5263) or Catherine Hack at the Sacramento County Department of Environmental Review and Assessment (916/874-7914) if you have any questions concerning this Final EIR/EIS.

Sincerely,

Art Champ
Chief, Regulatory Branch

Dennis E. Yeast
Environmental Coordinator

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LIST OF ACRONYMS

ac-ft	acre-feet
AFB	Air Force Base
ALUC	Airport Land Use Commission
ATAC	Aggregate Technical Advisory Committee
bhp	brake horsepower
CARB	California Air Resources Board
C.Y.	cubic yard
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
cfs	cubic feet per second
CLUP	Comprehensive Land Use Plan
CNEL	Community Noise Equivalent Levels
CNPS	California Native Plant Society
CSD	County Sanitation District
dB	decibel
dBA	A-weighted decibel
DSOD	Department of Safety of Dams
DWR	Sacramento County Division of Water Resources
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
MCMR-DMP	Morrison Creek Mining Reach Drainage Mitigation Plan
MMRP	Mitigation Monitoring and Reporting Program
MSL	mean sea level
NEPA	National Environmental Policy Act
NOx	Nitrogen Oxides
NRHP	National Register of Historic Places
PG&E	Pacific Gas and Electric Company
PM-10	particulate matter less than 10 microns in diameter
PMF	probable maximum flood
PPM	parts per million
ROD	Record of Decision
ROG	Reactive Organic Gases
SACOG	Sacramento Area Council of Governments
SMAQMD	Sacramento Metropolitan Air Quality Management District
SMUD	Sacramento Municipal Utility District
SRCSD	Sacramento Regional County Sanitation District
SVGWB	Sacramento Valley Ground Water Basin
USFWS	United States Fish and Wildlife Service
USGS	United States Geologic Survey

Preface

This Final EIR/EIS has been prepared consistent with the requirements of the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). The County of Sacramento and the United States Army Corps of Engineers will use this document in their capacities as CEQA and NEPA Lead Agencies, respectively, for the proposed project. The discretionary actions that will be considered by the decision-makers for the two Lead Agencies are: approval of conditional use permits (for proposed mining and reclamation), approval of a Section 404 permit for the fill of waters of the United States, and approval of the Community Plan Amendment and Rezone.

The contents of this Final EIR/EIS are:

- A revised Draft EIR/EIS (changes are presented in redline ~~strikeout~~).
- A list of persons, organizations, and public agencies commenting on the Draft EIR/EIS.
- Comments and recommendations received on the Draft EIR/EIS.
- The responses of the Lead Agencies to significant environmental points raised in the comments on the Draft EIR/EIS.

The comment period for the Draft EIR/EIS closed on April 29, 1997. Following review of the document, County Policy Planning Commission hearings were held on the Draft EIR/EIS and the project. Comments, both written and oral, received during the hearings and until the close of the public comment period (August 12, 1999), as well as the Planning Commission's Recommended Conditions of Approval, were considered and incorporated into the Final EIR/EIS. Following this EIR/EIS is an index of comments received on the Draft EIR/EIS followed by copies of all comment letters and responses to each of the environmental points raised.

The Policy Planning Commission, in regular session on October 30, 1997, June 10, 1998, and August 12, 1998, conducted public hearings on the *Morrison Creek Mining Reach Downstream (South) of Jackson Highway Draft EIR/EIS*. Members of the Vineyard community at those hearings presented a number of comments on the Draft EIR. Those comments are contained in the "Response to Comments" section of this final EIR. On August 12, 1998, the Planning Commission voted unanimously to recommend approval of the project with conditions as set forth in the Planning Staff Report as amended by the Commission. The Planning Staff Report and Policy Planning Commission's recommendations are included as Appendix E of the Final EIR.

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Executive Summary

This Environmental Impact Report/Environmental Impact Statement (EIR/EIS) analyzes the anticipated environmental impacts of four surface mining applications, collectively referred to as the Morrison Creek Mining Reach Downstream (South) of Jackson Highway Project. A complete description of the proposed project and alternatives is provided in Chapter 3 (Project Description) and Chapter 4 (Alternatives to the Proposed Project).

Table ES-1 presents an overview of the environmental impact analysis provided in Chapter 5, Affected Environment and Environmental Consequences. Table ES-1 is organized into four basic columns:

- environmental impacts of the project and alternatives;
- recommendations/requirements of relevant regulatory agencies;
- recommended mitigation (focused on reducing impacts to a less-than-significant level); and
- projected level of significance after compliance with existing requirements and implementation of recommended mitigation.

Chapter 6 (Disposition of Impacts) describes the cumulative and indirect impacts of the proposed project as well as a summary of the significant unavoidable impacts and other issues required by the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA).

Subsequent to the publication of the Draft EIR/IS, the Smith property, which borders the southern boundary of the Aspen III South property was purchased by the proponents. As a result of this buy-out, responses to comments raised by the Smiths were not vigorously addressed in the Response to Comments section in the FEIR/EIS because land use issues no longer existed.

Table ES-1: SUMMARY OF IMPACTS AND MITIGATION MEASURES			
Environmental Impact/Level of Significance	**Requirements/Recommendations of Public Agencies**	**Mitigation Measures**	**Level of Significance After Mitigation**
Surface Water Hydrology and Quality			
All Mining Alternatives: Impact #1: Risk of flow, pit capture and disruption of downstream flows (*S*)	Prior to construction, the proponents shall file a Notice of Intent (NOI) to obtain coverage under the State's General Construction Stormwater Permit as well as Waste Discharge requirements as administered by the RWQCB. As a condition of the General Permit, the proponent shall also prepare and implement a Stormwater Pollution Prevention Plan. Consistency with the adopted Water Quality Control Plan will be required and administered by the SWRCB and RWQCB during their review of the proposed project (*State Water Resources Control Board/Regional Water Quality Control Board*). The proposed mining operations shall be consistent with the Drainage Mitigation Plan for the Morrison Creek Mining Reach. An analysis shall be submitted to WRD showing the reclamation plan and ultimate land use for the site. This analysis shall be consistent with WRD studies and the Drainage Mitigation Plan for the Morrison Creek Mining Reach. The analysis shall also consider the possibility that mining (and detention) may not occur upstream of Jackson Highway (as currently proposed), and detention may be required downstream of Jackson Highway (*Public Works Agency, Water Resources Division*). The project shall continue acceptance of any off-site runoff during all phases of mining operations. Furthermore, all drainage facilities must be reviewed and approved by WRD prior to commencement of mining operations (*Public Works Agency, Water Resources Division*). ~~Drainage easements shall be provided and facilities installed pursuant to the Sacramento County Floodplain Management Ordinance, Sacramento County Land Grading and Erosion Control Ordinance, Sacramento County Water Agency Code, and Sacramento County Improvement Standards, including any fee required by Ordinance No. 1 of the County Water Agency (*Public Works Agency, Water Resources Division*).~~ All applicable State Fish & Game and U.S. Army Corps of Engineers permits shall be obtained prior to grading or building permit issuance (*Public Works Agency, Water Resources Division*).	MM #1: The risk of flow capture from Morrison Creek into gravel extraction pits and disruption of downstream flows shall be minimized by construction of hydraulic structures (berms, weirs and inlet works) that would direct flows up to the 100-year peak flow (as calculated by WRD for ultimate watershed development conditions, with or without the North of Jackson Highway Drainage mitigation features in place) from the Jackson Highway crossing to the bypass channel system on Aspen IV South parcel and away from gravel pits. Engineered grading plans for the improvements, representing yearly mined conditions, as well as ultimate conditions, shall be submitted by the proponent, and approved by WRD prior to commencement of mining operations South of Jackson Highway. WRD shall coordinate approval of such plans with Caltrans with regard to the stability of the Jackson Highway bridge and roadway. These plans shall include the following: 1) A berm extending from Jackson Highway across the northern boundary of the Aspen V South parcel to the proposed bypass channel inlet at the Aspen IV South adequate to safely convey the peak 100-year flood; 2) armored weirs at the inlets to the proposed ~~pit floor~~ wetland mitigation sites on Aspen V South, Aspen IV South and the flood detention basin/wetlands Vineyard I to safely carry as proposed by the project; 3) plans for erosion control at the bypass channel inlet and along the proposed berm as necessary to prevent their failure; and 4) an erosion control and repair plan to restore flow and stability to Morrison Creek and to control offsite discharge of sediment *(PP (A); PP (A-P); PB (DB)(VD))*. *Applicable to all sites.* MM #2: Application shall be made to the California State Water Resources Control Board (SWRCB) for any surface water diversion of low flows from Morrison Creek into the wetlands mitigation sites on the Aspen V South, Aspen IV South, and Vineyard I parcels. This measure shall not be necessary if other proven long term water supplies (e.g. groundwater and reliable urban or agricultural flows) for perennial marsh, open water, emergent marsh and riparian vegetation are demonstrated and utilized *(PP (A); PP (A-P); PB (DB)(VD))*. *Applicable to the Vineyard~~land~~ Aspen IV and Aspen V South sites.*	*LS*

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	~~Prior to the improvement plan approval or recordation of the final map, whichever occurs first, a fair share contribution to the costs of the following shall be paid: delineating wetlands; preparing a drainage master plan; acquiring right of way for and constructing flood control detention and water quality facilities; and providing environmental mitigation for drainage improvements, as determined in the drainage master plan for that watershed. The fair share contribution shall not exceed $6,000 per acre. The Administrator of the Public Works Agency shall reduce the amount if it is determined prior to payment that the actual costs of the above studies, improvements, and mitigation is less than is projected. Subsequent adoption and payment of a revised drainage fee for this purpose shall satisfy this condition. If the amount of the obligation under the revised drainage fee is less than that of the fair share contribution paid, the County shall enter into an agreement with the payer of the fair share contribution, providing for reimbursement of the difference. (Note: this project shall be exempt from payment of this fair share contribution until such time as the area is used for purposes that would otherwise be subject to the prescribed fee, consistent with Chapter 3, Article II, Section B of the Drainage Ordinance.) (*Public Works Agency, Water Resources Division*).~~ All mining plans shall be required to comply with the County's Land Grading and Erosion Control Ordinance (*Public Works Agency, Water Resources Division*).		
All Mining Alternatives: Impact #2: Impacts on water quality, erosion, and channel stability (*S*)	The proponent is required to submit a Drainage Plan to the Public Works Agency, Water Resources Division, for review and approval, before a work authorization permit can be issued (Section 235-51) (*Zoning Code*).		*LS*
All Mining Alternatives: Impact #3: Potential surface water contamination caused by flooding of onsite machinery/equipment (*S*)		MM #3: Mining equipment and any toxic substance associated with mining or reclamation operations shall be protected from flooding and from contact with surface waters *(PP (A); PP (A-P); PB (DB)(PE)(VD); 100FP; CB)*. *Applicable to all sites.*	*LS*
All Mining Alternatives: Impact # 4: Potential surface water contamination cause by post-reclamation uses (*S*)		MM #4: Given the risks involved to groundwater and surface water contamination, measures shall be implemented to minimize risk of toxic contamination of surface and/or groundwater during mining, reclamation, and post-reclamation activities. These measures shall include an aggressive policy to restrict use of toxic contaminants within the project site to those absolutely necessary to conduct operations. Any form of pollutant spilled shall be immediately	*LS*

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		contained and removed from the project site and safely disposed. Storage of toxic materials shall not be allowed in the gravel pits. Storage of toxic materials will only be allowed in restricted upland areas where the opportunity for containment over less permeable ground exists *(PP (A); PP (A-P); 100FP; CB)*. *Applicable to all sites.* MM #5: An agricultural management plan shall be developed to ensure that post-mining agricultural practices do not result in groundwater or surface water contamination. The plan shall be submitted for review by the Agricultural Commissioner and approval by the Environmental Management Department (EMD). The plan shall provide information on crops, crop rotation, pesticides, fertilizers, irrigation and drainage. EMD shall be notified of any changes in the plan *(PP (A); PP (A-P); 100FP; CB)*. *Applicable to all sites.*	
PB (DB): Impacts #1 & #2: Further disruption of natural flows (*S*)		MM #1: To avoid uncontrolled flow into the mining pit, an engineered armored weir and armored drop structure shall be installed at the inlet on the Vineyard parcel. It shall be designed to withstand the 100-year peak flow anticipated under this alternative *(PB (DB))*. *Applicable to the Vineyard I site.*	*LS*
PB (DB): Impact #3: Reduction in discharge to flood prone areas (*B*)		None required.	
CB: Implementation of the Creek buffer Alternative could result in flooding and pit capture.		MM#2: The Creek Buffer Alternative would be subject to one of the flood control measure below or another equivalently effective measure. Each measure is designed to accommodate the 100-year flood event and mitigate the potential for flooding and pit capture to a less-than-significant level. Detention may be required along with performance criteria that states that there will be no increase in the magnitude or duration of flood flows downstream. The options presented below are conceptual and may be subject to revision. Also, other options may be available. Final design and implementation of any of the following flood control options shall be subject to the review and approval of the Sacramento County Public Works Agency Water Resources Division (CB). *Applicable to all sites.* Option 1: Install a weir structure to divert flood flows to the proposed pit floor. The weir structure would be designed to divert high water flows (i.e., those in excess of 400 cfs – the estimated capacity of the elevated creek corridor/buffer area). The weir structure would be located on the Aspen IV South site, near Bradshaw Road. Approximately 2,700 acre-feet of storage would be required assuming that the mining and reclamation occurs on the north project site as proposed. (If mining is permanently precluded within the 150-foot buffer area on the north site, additional detention	~~*To be Determined*~~ ***LS***

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		will be necessary on the south site.) Under this flood control option, a 50 cfs pump facility would be constructed on the southern side of Morrison Creek at Hedge Avenue on the Vineyard I site. This pump facility would be used to return diverted flows to the stream system. This option represents a variation of the Alternative 5 presented in the Drainage Mitigation Plan (Montgomery Watson, August 1995) for the mining reach. Option 2: Install a perimeter bypass channel in the same basic alignment proposed for the "Part A Drainage Alternative" (refer to Figure 3-7). The channel would be sized to accommodate flows of 400 cfs. Flows in excess of the capacity of the elevated creek corridor (400 cfs) would be diverted to the bypass channel. In-flow and out-flow structures where the creek and bypass channel connect would be needed. A large variable speed pump station (400 cfs) would be located on the Vineyard I site near Hedge Avenue (at the downstream end of Morrison Creek within the project site). If mining is permanently precluded within the 150-foot buffer area on the north property, then additional capacity within the perimeter channel will be needed. Option 3: Construct and maintain a containment levee at the edge of the 150-foot buffer area. The levee shall be designed to safely convey the 100-year flood flows through the project site without resulting in pit capture and or other flooding impacts. Levee strength and maintenance would be subject to review and monitoring by the Sacramento County Public Works Agency Water Resources Division.	
Groundwater Hydrology and Quality			
All Mining Alternatives: Impact #1: Alteration of drainage and groundwater flows and quality which could affect surrounding properties and domestic, septic leachfield systems (*S*)	The proponent shall show all individual sewage disposal systems within three hundred feet of the proposed mining area. In the event there are individual sewage disposal systems near or within the mining site, the mining setbacks shall conform to the provisions of the Sacramento County Code, Chapter 6.32 - SANITARY SEWAGE SYSTEM and the rules and regulations adopted pursuant thereto, and shall be subject to approval of the Sacramento County Health Agency and the Regional Water Quality Control Board. Approval of these agencies shall be obtained on the minimum mining setback before a work authorization permit can be obtained (*Zoning Code*).	MM #1: The proponents shall store contaminants in the gravel operation area in a manner that will contain any spills (i.e. containment berms). Any spills occurring in operational areas should be cleaned up immediately *(PP (A); PP (A-P); PB (DB)(PE)(VD); 100FP; CB). Applicable to all sites.* MM #2: The proponents shall obtain all necessary permits for the construction or removal/abandonment of any water wells and septic systems from the Sacramento County Environmental Management Department, Environmental Health Division *(PP (A); PP (A-P); PB (DB)(PE)(VD); 100FP; CB). Applicable to all sites.*	*LS*

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		MM #3: The proponents shall revise the proposed Mining Plan to specifically identify all sewage disposal systems within 300 feet of the proposed mining area. Prior to issuance of the work authorization permit, approval of the Sacramento County Environmental Management Department, Environmental Health Division and the California Regional Water Quality Control Board on the minimum mining setback from these sewage disposal systems shall be required *(PP (A); PP (A-P); PB (DB)(PE)(VD); 100FP; CB)*. *Applicable to all sites.*	
All Mining Alternatives: Impact #2: Alteration or disruption of any future monitoring of the Mather Field contamination plume (*S*)	The proponents shall coordinate mining in the vicinity of groundwater contamination with the Air Force's planned groundwater extraction and reinjection system, and shall explore options for well removal, replacement, and/or abandonment (*Air Force Base Conversion Agency*).	MM #4: The proponents shall coordinate ~~the removal of groundwater wells with the~~ mining activities with the Air Force to avoid potential disruption of the ongoing Mather Field groundwater cleanup program to ensure that vital data collection is not disrupted ~~. This may require the proponents to avoid some wells or to re-construct wells destroyed by extraction~~ *(PP (A); PP (A-P); PB (DB)(PE)(VD); 100FP)*. *Applicable to all sites.*	*LS*
Cultural Resources			
All Mining Alternatives: Impact #1: Removal of historic resources/structures (*LS*)	As a condition for issuance of a Department of the Army/U.S. Army Corps of Engineers(Corps) permit under section 404 of the Clean Water Act, the Corps shall satisfy the consultation requirement of Section 106 of the Historic Preservation Act of 1966. Section 106 requires the Corps to consult with the State Historic Preservation Office (SHPO) and the Advisory Council on Historic Preservation (ACHP) regarding project impacts to cultural resources. The consultation process is described in 36 CFR 800 (*National Historic Preservation Act*).	MM # 1: Should any cultural resources, such as structural features, unusual amounts of bone or shell, artifacts, human remains, or architectural remains be encountered during any development activities, work shall be suspended and the Department of Environmental Review and Assessment (440-7914) and Army Corps of Engineers (557-5263) shall be immediately notified. At that time the Department of Environmental Review and Assessment and the Corps will coordinate any necessary investigation of the find with appropriate specialists as needed. The project proponent shall be required to implement any mitigation deemed necessary for the protection of the cultural resources. In addition, pursuant to Section 5097.97 of the State Public Resources Code and Section 7050.5 of the State Health and Safety Code, in the event of the discovery of human remains, all work is to stop and the County Coroner shall be immediately notified. If the remains are determined to be Native American, guidelines of the Native American Heritage Commission shall be adhered to in the treatment and disposition of the remains *(PP (A); PP (A-P); PB (DB)(PE)(VD); 100FP; CB)*. *Applicable to all sites.*	*LS*

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All Mining Alternatives: Impact # 2: Potential disturbance of buried cultural resources (*S*)	If, during ground-disturbing activities, human remains are encountered, the County Coroner shall be contacted. Disinterring, disturbing, or removing human remains shall be prohibited (California Health and Safety Code Section 7050.5 or 7051). Obtaining or possessing Native American artifacts or human remains taken from a Native American grave or cairn shall be prohibited (Chapter 1.75 - Native American Historical, Cultural, and Sacred Sites--Section 5097.9 to 5097.99) (*State of California Public Resources Codes*). In the event of discovery or recognition of any human remains, procedures sets forth in ~~Appendix K and~~ Supplementary Document J of the CEQA Statutes and Guidelines shall be carried out . If the remains are of Native American in origin, the Native American Heritage Commission shall have a role in the treatment and disposition of human remains and any associated grave goods (California Environmental Quality Act).	Same as above.	*LS*
Air Quality			
All Mining Alternatives: Impact #1: Temporary increase in emissions along roadways (*S*)	The proponents would be required to comply with the Sacramento Metropolitan Air Quality Management District Rules and Regulations including: Rule 402; Rule 403: Regulation 2; and Rule 801 (*SMAQMD*). The proponents shall submit to the Sacramento Metropolitan Air Quality Management District an Air Pollution Control Plan for review and approval prior to commencement of grading operations (*Zoning Code*).	MM #1: Carry-out of mud or dirt onto public roads shall be controlled by creating either a gravel apron or a mud trap (series of metal bars or grating with space underneath to accumulate material) to remove the mud or dust from truck tires. This would be applicable to all phases of the project, including overburden removal and/or operation of a processing plant. Public roads near site access points will be regularly swept to avoid accumulation of dust on the road surface *(PP (A); PP (A-P); PB (DB)(PE)(VD); 100FP; CB)*. *Applicable to all sites.* MM #2: Unpaved haul roads shall be regularly sprayed with water or treated with non-toxic chemical dust suppressants either mixed into the road surface or added to the water being applied to the road surface. The frequency of application can vary according to the weather and moisture level of the soils on the site, but shall be frequent enough to avoid visible dust plumes *(PP (A); PP (A-P); PB (DB)(PE)(VD); 100FP; CB)*. *Applicable to all sites.* MM #3: Overburden stockpiles shall be treated with an appropriate dust suppressant, regularly watered or otherwise treated to minimize wind erosion *(PP (A); PP (A-P); PB (DB)(PE)(VD); 100FP; CB)*. *Applicable to all sites.* MM #4: Every effort shall be made to remove overburden during the period of the year when surface soils are moist. If overburden is removed when surface soils are dry, water spraying equipment shall be used to reduce dust emission. Water spraying equipment shall likewise be used, as needed, when removing aggregate. The	*LS*

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		duration and timing of water spraying shall be determined by the Public Works Agency *(PP (A); PP (A-P); PB (DB)(PE)(VD); 100FP; CB). Applicable to all sites.*	
All Mining Alternatives: Impact #2: Introduction of new on-site air pollutant emission sources, (*LS*)	See above.	MM #5: The moisture content of material being conveyed (on- and off-site) shall be maintained at a level sufficient to avoid visible dust from the conveyor loading and transfer points *(PP (A); PP (A-P); PB (DB)(PE)(VD); 100FP; CB). Applicable to all sites.*	*LS*
Geology and Slope Stability			
All Mining Alternatives: Impact #1: Permanent alteration of the project site's landform (*SU*)		None available.	*SU*
All Mining Alternatives: Impact #2: Reclaimed slopes may be subject to slope instability (*S*)		MM #1: The proponents shall limit the planned slopes of the Morrison Creek bypass channel to 2:1 (horizontal:vertical). The overburden soils shall be placed and compacted in six-inch lifts to at least 90 percent of the maximum dry density, at or near optimum moisture conditions. Since local stability of the slope is critically dependent upon proper compaction of the overburden soils, a qualified soils engineer shall be regularly present throughout grading operations to determine compliance with job specifications *(PP (A); PP (A-P); PB (DB)(PE)(VD); 100FP; CB). Applicable to the Aspen III South, Aspen IV South and Vineyard I sites.* MM #2: The proponents shall limit finished side slopes to 1.5:1 (horizontal:vertical) to ensure stability for existing soil conditions. Soils shall be placed and compacted to 90 percent of the maximum dry density, at or near optimum moisture conditions, in all finished slopes. Since local stability of the slope is critically dependent upon proper compaction of the overburden soils, a qualified soils engineer shall be regularly present throughout grading operations to determine compliance with job specifications *(PP (A); PP (A-P); PB (DB)(PE)(VD); 100FP; CB). Applicable to all sites.*	*LS*
All Mining Alternatives: Impact #3: Reclaimed slopes may be subject to erosion (*S*)		MM # 3: The proponents shall ensure that the side slopes of the pit are vegetated following final slope placement to prevent excessive erosion and enhance slope stability. The side slopes shall be revegetated with an erosion control mix for which species, seeding rates and methodology are specified in an Erosion Control Plan, which the proponents shall prepare and submit to the County prior to	*LS*

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		issuance of the work authorization. The species chosen for the erosion control mix shall not be invasive in the wetland creation areas. This reclamation revegetation shall occur on an annual basis prior to the wet season (i.e., before October 1). The Erosion Control Plan shall include performance standards that can be used to determine the success of erosion control measures and the revegetation effort, and shall discuss monitoring requirements. The plan shall include remedial measures to be implemented if revegetation is not successful *(PP (A); PP (A-P); PB (DB)(PE)(VD); 100FP; CB). Applicable to all sites.*	
Paleontological Resources			
All Mining Alternatives: Impact #1: Potential disruption of fossil resources (*S*)		MM #1: Should fossils be discovered within the project site, the proponents shall terminate work in the immediate area of the discovery and contact the Sacramento County Department of Environmental Review and Assessment and the University of California at Davis or California State University Sacramento to jointly develop an action plan to assess and/or preserve fossil resources *(PP (A); PP (A-P); PB (DB)(PE)(VD); 100FP; CB). Applicable to all sites.*	*LS*
Biological Resources			
PP (A); PP (A-P): Impact #1: Loss of existing natural vegetation communities (*S*) Impact #2: Changes in vernal pool hydrology (*S*)	The proponents shall secure a Streambed Alteration Agreement (CDFG 1601-1607) with CDFG before re-routing existing stream channels. The Streambed Alteration Agreement shall include a program and appropriate plans to protect upstream and downstream habitats. Best Management Practices shall be employed to minimize alterations of natural water flows and reduce downstream sediment (*CDFG*).	MM #1: Except as modified below for the proposed wetland mitigation, the proponents shall implement the proposed reclamation plans as presented in the surface mining application documents, including the wetland mitigation plans to mitigate for impacts to the riparian forest/riparian scrub communities, wetlands, and wildlife habitats within the project site, including habitat for special status wildlife species. The following modifications to the wetland mitigation plans shall be made:	*LS* *LS*

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Environmental Impact/Level of Significance	**Requirements/Recommendations of Public Agencies**	**Mitigation Measures**	**Level of Significance After Mitigation**
Impact #3: Impact on waters/wetlands (*S*) Impact #4: Loss of existing wildlife habitat and individual animals (*S*) Impact #5: Disruption of wildlife movement corridor (*LS*) Impact #6: Disruption to wildlife feeding and breeding due to increased human presence (*LS*) Impact #7: Loss of existing warmwater fisheries habitat (*S*) Impact #8: Disruption of fish migration (*S*) Impact #9: Loss of existing American badger habitat and potential den sites (*LS*) Impact #10: Temporary loss of potential roosting habitat for pallid bat and Townsend's western big-eared bat (*LS*)	The proponents shall develop and implement a water quality and erosion control plan for all construction-related project activities; the plan shall include the following: a. Control disposal of runoff within the construction and staging as well as any water encountered during construction. There must not be any discharge to State waters unless authorized under permit by the CDFG and the Central Valley RWQCB; b. Methods to control surface discharge away from disturbed areas and along roadways; c. Methods to be used for slope stabilization and to limit erosion on disturbed areas or any other area subject to erosion; d. Methods to be implemented that assure proper operation, maintenance, and use of erosion control devices; e. Seasonal variation in use of erosion control measures must be addressed, including winterizing all areas from October 15 through May 15 of each year; and f. A detailed revegetation and slope stabilization plan (CDFG). In order to comply with Public Resources Code Section 21081.6, a detailed monitoring program shall be developed for all mitigation conditions. The monitoring program shall include, but may not be limited to, the following: a. Specific criteria to measure the effectiveness of the mitigation; b. Annual monitoring reports for a minimum of five years; annual reports must be submitted to Sacramento County, the Corps and CDFG; and	a. The flows to be regulated and maintained in the mitigation corridor (to be located on the Aspen IV South and Vineyard I parcels), by releases from the bypass channel, shall be determined in consultation with the USFWS, CDFG, Corps, and County and shall be sufficient to support the mosaic of habitats proposed for the corridor. This consultation shall establish the minimum low flow and optimal high flow conditions to be maintained within the mitigation corridor to achieve the hydrological goals of the mitigation and support the various habitats as expected *(Mitigates Impacts 1, 3, 4, 7, 8, 12)*. b. To ensure mitigation for Valley elderberry longhorn beetle, elderberry planting shall be conducted within the mitigation corridor on the Aspen IV South parcel following the USFWS's *General Compensation Guidelines for the Valley Elderberry Longhorn Beetle (Mitigates Impact 13)*. c. The monitoring effort for the riparian woodland, riparian scrub, and Valley oak savanna habitats shall be performed for a period of ten years to ensure success of the plantings and development of the habitats anticipated *(Mitigates Impacts 1, 3, 12)*. d. Monitoring efforts on the Aspen V South parcel shall include hydrological and botanical monitoring of the vernal pools on the parcel to document consistency or any changes in these communities. Hydrological monitoring shall entail recording the period and duration of inundation; botanical monitoring shall be conducted as in the emergent marsh mitigation to be constructed. This additional monitoring would be incorporated into the five year monitoring program. Should the monitoring reveal that the vernal pools have been significantly impacted, additional mitigation for the vernal pools shall be developed in consultation with the USFWS, CDFG, Corps, and the County *(Mitigates Impacts 2, 14) (PP (A); PP (A-P); CB)*. *Applicable to all sites.*	*LS* *LS* *LS* *LS* *LS* *LS* *LS* *LS*
Impact #11: Loss of potential foraging habitat for Swainson's hawk and other special status birds (*S*)	c. The annual monitoring reports must include corrective recommendations that shall be implemented in order to ensure that mitigation efforts are successful (*CDFG*). Pursuant to Public Resource Code 21092 and 21092.2, the CDFG shall be notified in writing of any proposed actions and/or pending decisions regarding this project; the written notification(s) shall be sent to the CDFG Region 2 office, Rancho Cordova (*CDFG*).	MM #2: After the five year monitoring period for mitigation of wetlands and other habitats, a written determination shall be made as to the success or failure of the wetland and habitat mitigation. The determination of success shall be made by a qualified biologist in consultation with and concurrence by the USFWS, CDFG, Corps and the County. If the determination concludes that the wetland, riparian, and/or oak woodland habitats have not met the success criteria, the proponents shall develop additional habitats and/or implement other remediation that is approved by the above mentioned agencies	*LS*

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		(Mitigates Impacts 1, 3, 12) (PP (A); PP (A-P); CB). Applicable to the Aspen IV South, Aspen V South and Vineyard I sites.	
Impact #12: Temporary loss of potential breeding habitat for California tiger salamander and western spadefoot toad and potential loss of individuals of these species (*S*)	The proposed project (through the Corps) shall comply with the consultation requirements set forth in Section 7 of the federal Endangered Species Act (per 16 USC Sec. 1531 *et seq.*), and the Fish and Wildlife Coordination Act (16 USC Sec. 661 *et seq.*) (*USFWS*). The proponent shall obtain a Section 404 permit prior to construction of the conveyor system should there be any work in wetlands and other waters of the U.S. under Section 404 of the federal Clean Water Act (*Clean Water Act*).	MM #3: To mitigate for impacts to fish and aquatic wildlife movement/migration in Morrison Creek, the bypass channel shall be designed to incorporate suitable habitat features. The features shall be developed in consultation with the USFWS, CDFG, Corps, and the County, and shall provide opportunities for the native Sacramento blackfish as well as other species of aquatic wildlife, including special status amphibians and reptiles *(Mitigates Impacts 7, 8) (PP (A); PP (A-P). Applicable to the Aspen III South, Aspen IV South and Vineyard I sites.* MM #4: The following mitigation is recommended to minimize the potential impacts to Swainson's hawk, burrowing owl and other special status birds. The measures listed below are related to the aforementioned species only. a. Prior to issuance of any grading permits, the proponents shall submit, to the Department of Environmental Review and Assessment, a current survey conducted by a qualified wildlife biologist indicating the location and status of any active nest within the project site *(Mitigates Impact 11)*.	*LS*
Impact #13: Loss of elderberry bushes and potential loss of valley elderberry longhorn beetles (*SU*)		b. Prior to the disturbance or removal of any raptor nest, the proponents shall secure the required permits from the USFWS for such removal, pursuant to the Migratory Bird Treaty Act *(Mitigates Impact 11)*.	*LS*
Impact #14: Elimination of potential habitat for fairy shrimp~~,~~ and tadpole shrimp, ~~and Delta green ground beetle,~~ and potential loss of individuals of these species (*S*)		c. No construction shall be allowed within 150 feet of any active raptor or tricolored blackbird nest site until all of the young have fledged, or a permit has been secured from the appropriate resource agency to allow disturbance or removal of the active nests. The 150-foot "no construction" buffer zone must be adequately fenced and signed *(Mitigates Impact 11)*.	*LS*

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		d. The post-reclamation agricultural areas shall be planted only with crops that are suitable for Swainson's hawk foraging; these crops shall be approved by the CDFG *(Mitigates Impact 11)*. e. The post-reclamation project site shall not be operated with any rodent or small mammal control program that would indiscriminately eradicate all rodents and small mammals from the project site. The proponents shall ensure that any rodent or small mammal control program is approved by the CDFG, Corps, and the County prior to its implementation *(Mitigates Impact 11) (PP (A); PP (A-P); 100FP; CB)*. *Applicable to all sites.* MM #5: The proponents shall comply with the implementing measures included in the County's standard tree preservation ordinance for all oak trees on the project site to be preserved and protected from mining operations. Any native oak trees greater than 4 inches dbh proposed for removal shall be compensated for by planting native oak trees (valley oak/*Quercus lobata*, blue oak/*Q. douglasii*, and/or interior live oak/*Q. wislizenii*) based on the compensation ratio provided below. The trees shall be planted on the project site or off-site, preferably at a nearby community park. Prior to issuance of the work authorization, a replacement Oak Tree Planting Plan shall be prepared by a certified arborist or a licensed landscape architect and shall be submitted to the Environmental Coordinator for review. The plan shall identify the planting location, the number and species of trees to be planted, the funding source for planting and maintenance, and maintenance agreements identifying the entity which shall provide care for the trees during a 3-year establishment period. In addition to oak tree replacement, the plan shall provide for the replacement of all landmark size (19 dbh or greater) native trees (except cottonwoods and willows) removed as a result of the project on an in-kind and inch-for-inch basis. The following compensation ratio for oak tree replacement is required: • One 15-gallon oak tree equals 1-inch dbh • One 24-inch box oak tree equals 2-inches dbh • One 36-inch box oak tree equals 3-inches dbh No replacement oak tree shall be planted within 15 feet of the driplines of oak trees which are retained on-site, or within 15 feet of a building foundation *(Mitigates Impact 1) (PP (A); PP (A-P); 100FP; CB)*. *Applicable to all sites.*	

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All Part B Alternatives:			
Impact #1: Additional (beyond the proposed project) disruption to future wildlife feeding and breeding areas due to increased human presence (*S*)		MM #1: All of the mitigation measures described above for the proposed project shall be implemented for all Part B alternatives *(PB (PE) (DB)(VD))*. *Applicable to all sites.* MM #2: To mitigate for increased human use of the project site that may result from the development of recreational features under the Part B alternatives, the proponents shall incorporate public signs into the recreational design to inform the users about the history of the project site, its wildlife value, and sensitivity of wildlife species which may be feeding or breeding onsite *(PB (PE)(DB)(VD))*. *Applicable to all sites.*	*LS*
Impact #2: Increased permanent loss of plant and animal habitat (*S*)			*LS*
Impact #3: Impacts to fish/general wildlife due to lining the bypass channel (*S*)		None available.	*SU*
PB (DB):			
Impact #4: Increased loss of suitable foraging habitat for Swainson's hawk and suitable foraging and nesting habitat for burrowing owls (*SU*)		None available.	*SU*
100FP:			
Impact #1: Loss of ruderal, disced, and cultivated habitats and 0.11 acre of seasonal wetland ~~associated wildlife habitat values~~ outside of 100-year floodplain (*S*)		MM #1: Mitigation measures 4 and 5 for the proposed project shall apply to this alternative, as appropriate. In addition, the 0.11 acre of seasonal wetland impacted by this alternative shall be mitigated on a 1.5:1 ratio (0.17 acre) within the 100-year floodplain at the Vineyard I and Aspen IV South sites, or other mitigation approved by the County, Corps, USFWS and CDFG. The same monitoring requirements and success criteria described in the mitigation plans shall apply to this alternative *(100FP)*. *Applicable to the Aspen IV South and Vineyard I sites.*	*LS*

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CB:		MM#1: Mitigation measures 1, 2, 4, and 5 for the proposed project shall apply to this alternative, as appropriate. In addition, the 1.14 acres of riparian woodland/drainage channel, 1.3 acres of perennial marsh, and 5.56 acres of seasonal marsh impacted by this alternative shall be mitigated within the creek buffer area. The same replacement ratios, monitoring requirements and success criteria described in the mitigation plans shall apply to this alternative. Habitat shall be provided within the creek buffer area on the mining sites where the habitat would be lost, as described under the impact conclusion statement (Mitigates Impact 1) (CB). *Applicable to Vineyard I, Aspen IV South and Aspen V South sites.*	*LS*
Impact #1: Loss of ruderal, disced, and cultivated habitats and 8.0 total acres of jurisdictional waters (*S*)			
Impact #2: Loss of potential foraging habitat for Swainson's hawk (*S*)			*LS*
Impact #3: Loss of at least 4 elderberry bushes and potential loss of valley elderberry longhorn beetles (*S*)			*LS*
Impact #4: Temporary loss of potential breeding habitat for California tiger salamander, western spadefoot toad, fairy shrimp, and tadpole shrimp.			*LS*
Traffic and Circulation			
All Mining Alternatives(Except Scenario 4a):	No truck access for overburden removal or aggregate shall be allowed onto Fruitridge Road between South Watt Avenue and the Aspen III South access point (*County Transportation Division*).	MM#1: The proponents shall limit total material to be removed from the site by truck to the initial ~~430,000~~ 1,000,000 cubic yards of overburden (100,000 cy from the Vineyard I site and a total of 900,000 cy from the Aspen III-V sites). ~~and the truck traffic associated with operation of the Vineyard I processing plant.~~ No direct access to Jackson Road shall be permitted. (PP(A); PP(A-P); PB(DB)(PE)(VD); 100FP; CB). Applicable to all sites.	*LS*
Impact #1: Deterioration of existing LOS (*S*)	Grant the County right-of-way for Fruitridge Road based on an 84' standard and install public street improvements pursuant to the Sacramento County Improvement Standards (*County Transportation Division*). Grant the County right-of-way for Mayhew Road based on an 84' standard and widen/upgrade it to accommodate two-way truck traffic to the satisfaction of the Transportation Division (*County Transportation Division*).	MM#2: The proponents shall transport mined aggregate material to the processing plants only by conveyor and not by trucks. (PP(A); PP(A-P); PB(DB)(PE)(VD)). Applicable to all sites. MM#3: The proponents shall contribute fair-share funding for construction of a traffic signal at the intersection of Elder Creek Road at South Watt Avenue. Fair-share funding shall be determined by the Director of the Transportation Division of the Public Works Agency.	

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	Grant the County right-of-way for Fruitridge Road, Mayhew Road, and Elder Creek Road based on 84' standard and install public street improvements pursuant to the Sacramento County Improvement Standards (*County Transportation Division*). Grant the County right-of-way for Bradshaw Road and Jackson Road based on 108' standard and install public street improvements pursuant to the Sacramento County Improvement Standards (*County Transportation Division*). Grant the County right-of-way for Hedge Avenue based on 60' standard and install public street improvements pursuant to the Sacramento County Improvement Standards (*County Transportation Division*). Grant the County additional right-of-way on Fruitridge Road/Mayhew Road, Elder Creek Road/Mayhew Road, Elder Creek Road/Hedge Avenue, and Bradshaw Road/Jackson Road for intersection widening per standard drawings H-24 and H-25 of the Sacramento County Improvement Standards (*County Transportation Division*). The proposed conveyor tunnels under various roadways shall be designed to accommodate the ultimate roadway cross-section to the satisfaction of the Transportation Division of the Public Works Agency/Caltrans (*County Transportation Division*). Fruitridge Road between the Aspen III South driveway and Mayhew Road shall be overlaid to the satisfaction of the Transportation Division of the Public Works Agency. This overlay shall be done within three months of the completion of the initial overburden removal for the Aspen III South project (*County Transportation Division*). No truck access for overburden removal or aggregate shall be allowed onto Fruitridge Road between South Watt Avenue and the previously approved Aspen III South access point (*County Transportation Division*). ~~Pave Mayhew Road from Elder Creek Road to 200 feet north of Elder Creek Road (*County Transportation Division*).~~ The location, number and design of project access driveways for various project sites ~~on Mayhew Road~~ shall be to the satisfaction ~~requirements~~ of the Transportation Division of the Public Works Agency (*County Transportation Division*).	~~After installation of the traffic signal, the intersection would operate at LOS E during the PM peak period, in compliance with the County standard for urban roadways~~. (PP(A); PP(A-P); PB(DB)(PE)(VD)) 100FP; CB). Applicable to all sites. MM#4: The proponent shall contribute fair share funding for construction of a second left turn lane on the eastbound Elder Creek Road approach to the Elder Creek Road/Bradshaw Road intersection. The complete improvements shall feature two left turn lanes and a combination right-through lane on the eastbound intersection approach. The installation of this improvement would require roadway widening on the west leg of the intersection to accommodate the new lane and on the east leg to accommodate the taper for the new lane. Bradshaw Road is scheduled to be improved to from two-lanes to four-lanes in the 2000-2002 time period. The above-described condition should be included in the Bradshaw Road project. Thus, the payment of countywide roadway and transit fees will cover the proponents fair share funding. (PP(A); PP(A-P); PB(DB)(PE)(VD); 100FP; CB) Applicable to all sites. ~~A new left turn lane shall be constructed for the eastbound Elder Creek Road approach at the Bradshaw Road intersection. The completed improvements shall feature two left turn lanes and a combination right through lane for the eastbound approach. This improvement would require roadway widening on the west leg of the intersection for the new lane, and on the east leg of the intersection to provide a smooth travel path for through traffic on Elder Creek Road. Design of the improvements shall be in accordance with County Improvement Standards and approved by the Transportation Division. (After improvements are completed, the intersection would operate at LOS D.)~~	

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All Mining Alternatives (Except Scenario 4a): Impact #2: Impacts on traffic safety (*S*)		MM#5: The intersection of Mayhew Road and Elder Creek Road shall be improved to provide a westbound right turn lane with sufficient improvements to roadway turning radii to prevent turning trucks from encroaching on the travel path of opposing traffic lanes. Design of the improvements shall be in accordance with County Improvement Standards and approved by the Transportation Division. (PP(A); PP(A-P); PB(DB)(PE)(VD); 100FP;CB). Applicable to the Vineyard I site. MM#6: Mayhew Road shall be widened in accordance with County Improvement Standards. The design shall be approved by the Transportation Division before improvements are made. (PP(A); PP(A-P); PB(DB)(PE)(VD); 100FP;CB). Applicable to all sites. MM#7: Turn lanes shall be added on Bradshaw Road adjacent to the proposed access driveway to Aspen V South prior to overburden removal from the site. Design and location of the turn lanes shall be in accordance with County Improvement Standards and approved by the Transportation Division. (PP(A); PP(A-P); PB(DB)(PE)(VD); 100FP; CB). Applicable to the Aspen V South site.	*LS*
All Mining Alternatives (Except Scenario 4a): Impact #3 : Potential deterioration of roadway pavement/structural section (*S*)		MM#8: The proponents shall agree to repair any damages to structural paving material along sections of project site roadway segments upon which loaded trucks are routed, to the extent such damage is caused by traffic which occurs during the period of hauling operations. Such agreement with the County Transportation Division of the Public Works Agency shall be formalized prior to issuance of the work authorization. (PP(A); PP(A-P); PB(DB)(PE)(VD); 100FP;CB). Applicable to all sites. MM#9: No mining shall take place within 25 feet of the ultimate right-of-way of Fruitridge Road and Mayhew Road, except that the Public Works Director may authorize mining to proceed up to 12 feet from the ultimate right-of-way, with appropriate backfill and compaction to preexisting grade to the required 25 foot setback line (with a slope no steeper than 1 1/2:1). The mining and backfilling proposal shall be supported by a soils report prepared by a qualified soils engineer, certifying that the overburden and underlying aggregate can support the proposed activity and anticipated traffic levels of Fruitridge Road and Mayhew Road without adversely affecting the County right-of-way. The 25 foot setback area adjacent to the right-of-way of Fruitridge Road and Mayhew Road shall be backfilled and compacted prior to the onset of the rainy season, and the compaction shall be certified to at least 90% by a soils engineer. (PP(A); PP(A-P); PB(DB)(PE)(VD); 100FP; CB). Applicable to the Aspen III South,	*LS*

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		Aspen IV South, and Vineyard I sites.	
All Mining Alternatives (Except Scenario 4a): Impact #4: Deterioration of the LOS for cumulative conditions (*SU*)		MM#10: Beginning in the year 2005, hauling of materials from the project site shall not occur during the peak traffic periods for cumulative conditions: 7:00-9:00 AM and 4:00-6:00 PM. The year of mitigation has been determined by straight line interpolation of volume/capacity ratios between 1995 and 2010 for the roadway segment on Elder Creek Road between Mayhew Road and Bradshaw Road. The requirement for mitigation by 2005 may be reconsidered by the County at a later time if a competent traffic study shows future traffic operations on Elder Creek Road is expected to comply with County level of service policies. (PP(A); PP(A-P); PB(DB)(PE)(VD); 100FP; CB). Applicable to the Vineyard I site.	*SU*
Scenario 4a (Proposed Project without Vineyard I Processing Plant – with new conditions): Impact #1: Similar LOS, traffic safety, roadway deterioration, and cumulative impacts as project (*S*)	Same as above	Mitigation Measures # 2, 6, 7, 8, and 9 above shall apply to Scenario 4a. In addition, the following measures shall also be required to mitigate traffic impacts to a less-than-significant level. MM#1: All overburden removed from the site by trucks shall be routed onto Mayhew Road north to Jackson Road via an on site crossing of Morrison Creek. If required, the creek crossing shall be consistent with all Corps of Engineers, USFWS and CDFG permits required for the project. Overburden hauling (truck trips) at the Vineyard I site shall not exceed 30 per hour during peak the traffic periods. Overburden hauling at the Aspen III, Aspen IV and Aspen V sites shall not exceed 24 per hour during peak the traffic periods. MM#2: The proponent shall contribute fair share funding for construction of a right-turn lane on the northbound Mayhew Road approach to the Jackson Road intersection	*LS*
Land Use			
All Mining Alternatives: Impact #1: Mining operations may conflict with onsite and surrounding land uses (*S*)	The proponents shall maintain 25-foot minimum setbacks from adjoining rural residential land uses, the first 5 feet of which shall consist of undisturbed land, and 25-foot minimum setbacks from all public streets consisting entirely of unmined land. The setback area consisting of mined land shall be reclaimed to original grade within one year or less of completion of mining. The County may require additional setbacks from the mined areas to reduce potential nuisances, hazards or land use impacts). The County may also waive this requirement if evidence is provided by the proponents that the setback can be reduced by engineering design, or that the neighboring property owners consent to the request (Section 235-59)	MM #1: In order to mitigate potential impacts to surrounding land uses, the proponents shall be required to comply fully with mitigation measures identified in the Noise, Traffic and Circulation; Air Quality; and Visual Resources sections of this EIR/EIS. These mitigation measures employ appropriate state-of-the-art techniques for erosion control, reclamation, nuisance prevention, and environmental impact mitigation relative to surface mining operations *(PP (A); PP (A-P); PB (DB)(PE)(VD); 100FP; CB). Applicable to all sites.*	*SU*

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	(*Zoning Code*). Unless otherwise provided as a condition of use permit, the proponents shall limit proposed operating hours (for both processing and extraction activities) to Monday through Friday: 6:00 a.m. to 10:00 p.m., and Saturday: 6:00 a.m. to 3:00 p.m. No work shall be conducted on Sundays and labor union holidays. The Zoning Administrator may permit different operating hours on an interim basis from the specified operating hours if it is determined that the public benefit outweighs the community hardship and/or the work requires a continuous pour of concrete *(Zoning Code)*.		
All Mining Alternatives: Impact #2: Disruption of farmland (*S*)	An Agricultural Management Plan shall be submitted to the County as part of the required work authorization. The Agricultural Management Plan shall describe how the agricultural end use will be accomplished (SMARA Section 2772(h)) Surface Mining and Reclamation Act of 1975 (*SMARA*). Non-prime agricultural lands reclaimed to agricultural uses shall be reclaimed so as to be capable of sustaining economically viable production of crops commonly grown in the surrounding areas (Section 3708) (*State Mining and Geology Board Regulations*). When an approved reclamation plan calls for revegetation or cultivation of disturbed lands, specific performance standards shall apply to topsoil salvage, maintenance, and redistribution activities (Section 3711) (*State Mining and Geology Board Regulations*).	MM #2: Prior to issuance of the work authorization, the proponents shall prepare a plan for the preservation and salvage of topsoil resources suitable for sustaining economically viable agricultural uses, consistent with the performance standards set forth in Sections 3708 and 3711 of the State Mining and Geology Board Reclamation Regulations *(PP (A); PP (A-P); PB (DB)(PE)(VD); 100FP; CB)*. *Applicable to all sites.*	*LS*
All Mining Alternatives: Impact #3: Potential restrictions for future development of project site (*S*)	Pertinent applications, plans and environmental documents shall be provided to all agencies that may be involved with future reclamation uses, including service providers, parks agencies, and resource management agencies (Conservation Element Implementation Measure "C," p. 36) (*Sacramento County General Plan*). The County shall not allow surface mining until the Board of Supervisors has approved an adequate plan for reclamation of mined areas. The project site shall be reclaimed after completion of mining operations consistent with the approved reclamation plan. The site shall be free of derelict machinery, scrap, and nonnatural waste materials (Sections 235-45 and 235-61) (*Zoning Code*).	MM #3: Within six months of completing all mining and reclamation, the proponents shall identify, record, and grant to the County of Sacramento 600-foot wide open space easements as needed to delineate riparian corridors associated with the constructed seasonal drainages south of the reconstructed Morrison Creek bypass channel. Those easements shall identify the limits of agricultural activity so as to guarantee sufficient area to allow for regeneration of the riparian corridor, and shall also allow for the subsequent establishment of a public trail system when deemed appropriate by the County as part of an areawide trail network involving urban stream corridors *(PP (A); PP (A-P); PB (DB)(PE)(VD); 100FP; CB)*. *Applicable to the Aspen IV South and Vineyard I sites.*	*LS*

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***PP (A); PP (A-P); PB* (DB)(PE)(VD)** Impact #4: Modification to the Flood Combining Zone boundary (*LS*)		None Required.	*LS*
Noise			
All Mining Alternatives: Impact #1: Noise levels in excess of 75 dBA may occur at nearby residences and other sensitive receivers (*S*)	Unless otherwise provided as a condition of use permit, the proponents shall limit hours of excavation to be consistent to those required by Section 235-53 of the Zoning Code (*Zoning Code*).	MM #1: ~~The proponent of Vineyard I shall c~~Construct an earthen berm, sound wall, or combination berm/sound wall no less than 15 feet high early in the stripping phase along all common residential/project property lines within 1,200 feet of the Vineyard I processing plant to break the line of sight of loaders and crushers at the processing plant from any sensitive off-site receptor. (Note: This mitigation measure does not apply to the Proposed Project Without the Vineyard I Processing Plant Alternative.)*(PP (A); PB (DB)(PE)(VD);~~100FP~~; Applicable to the Vineyard I site.* MM #2: For all other common residential/project property lines, the proponents shall provide noise barriers consisting of 8-foot high earthen berms or temporary portable barriers installed and moved along property boundaries as mining progresses. The noise barriers shall be maintained at least until sufficient pit excavation has occurred to block the line of sight between nearby residences and mining activities. If temporary portable barriers are used, they shall either be constructed with 4 x 8 sheets of ¾-inch plywood, placed side by side with an overlap of 1-2 inches to prevent gapping, or shall be constructed with other materials which achieve equivalent or greater sound attenuation as verified by a qualified acoustical consultant. (Note: While the above cited ¾-inch plywood can provide acceptable temporary noise attenuation, this method as currently practiced is subject to weather damage, and lack of maintenance severely limits its effectiveness and aesthetic appeal. Alternatives which provide durability and improved aesthetics for nearby residents and passersby should be explored.)*(PP (A); PP (A-P); PB (DB)(PE)(VD); 100FP; CB). Applicable to all sites.* MM #3: The proponents shall provide for continuous movement of the excavation along the mining face of all common residential/project property lines to prevent noise from concentrating on any one receptor *(PP (A); PP (A-P); PB (DB)(PE)(VD); 100FP; CB). Applicable to the Vineyard I site.*	*LS*
PP (A); PB (DB)(PE)(VD);~~100FP~~:		MM #4: The proponent of Vineyard I shall lower the processing plant elevation to no less than 15 feet below existing grade and maintain	*LS*

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Environmental Impact/Level of Significance	**Requirements/Recommendations of Public Agencies**	**Mitigation Measures**	**Level of Significance After Mitigation**
Impact #2: The processing plant would increase noise levels at the project site boundary (*S*)		stockpiles at least 25 feet in height between the plant and residential receptors. (Note: This mitigation measure does not apply to the Proposed Project Without the Vineyard I Processing Plant Alternative.) *(PP (A); PB (DB)(PE)(VD); 100FP; CB). Applicable to the Vineyard I site.* MM # 5: After processing plant start-up, the proponent of Vineyard I shall conduct a noise investigation of the plant to determine what adjustments if any must be made to comply with Sacramento County Code Section 6.68.070 (b-1,2,3,4,5 & d) (Noise Ordinance). If noise readings taken during initial start-up indicate that noise standards are exceeded by processing plant activities, additional noise measures potentially including but not limited to rubber top deck screens, covers over the top deck screens, and rubber or spread metal liners on the bottom surfaces of rock chutes shall be utilized as necessary to ensure noise standards are met. (Note: This mitigation measure does not apply to the Proposed Project Without the Vineyard I Processing Plant Alternative.) *(PP (A); PB (DB)(PE)(VD); 100FP; CB). Applicable to the Vineyard I site.*	
All Mining Alternatives: Impact #3: Potential violation of the Zoning Code Noise Standard by conveyor system (*LS*)		None Required.	*LS*
All Mining Alternatives: Impact #4: Impacts due to heavy truck traffic during overburden removal and operation (*LS*)		None Required.	*LS*
Public Safety			
All Mining Alternatives: Impact #1: Creation of potentially hazardous conditions during operation (*S*)	An application for construction shall be filed with the California Division of Safety of Dams (DSD) and approved prior to start of construction for any new dam that falls under the State jurisdiction for safety (*California Division of Safety of Dams*). The proponents shall install fences and provide warning/trespass signs to comply with Sections 235-54 and 235-55 of the Zoning Code (*Zoning Code*). Existing public infrastructure (roads, water and sewer, electrical, etc.) shall be protected from undermining and collapse. To protect the roadway infrastructure, the proponents shall be required to construct	MM # 1: All perimeter fencing shall be retained until post-reclamation development/future use of the project site occurs *(PP (A); PP (A-P); PB (DB)(PE)(VD); 100FP; CB)* ~~MM # 2: As required as a condition of the existing permit, the proponent of Aspen III South shall install perimeter fencing between the existing driveway (exiting on Fruitridge Road) and the site to prevent public access to the mining area *(PP (A); PP (A-P); PB (DB)(PE)(VD); 100FP).*~~ ~~MM # 3: As required as a condition of the existing permit, the proponent of Aspen III South shall provide protection from truck traffic for pedestrians who use the existing driveway along the site's~~	*LS*

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	adjacent pit sides to standards approved by WRD. The proponents shall submit to WRD for approval: a) studies and design for appropriate embankment protection or other needs; and b) the plan, an ongoing construction inspection program, and the results of a program of soils testing during construction (*Water Resources Division Design and Construction Standards and Objectives*). In anticipation that the elevated channel would be ultimately accepted as a public facility, the proponents should be conditioned to submit to WRD studies and designs for channel-lining, and the plan and results of a program for soils testing during construction (*Water Resources Division Design and Construction Standards and Objectives*).	~~northwest boundary for access to Fruitridge Road. Such protection could consist of a protected pedestrian walkway, formed by providing additional chain link fencing along the entire length of the haul route, between the truck travel way on the driveway and the site boundary. Such fencing should be at least six feet high, and the pedestrian walkway should be at least three feet wide, provided on level ground and signed to indicate that it is for pedestrian/bicycle use. This fencing used to form the pedestrian walkway could be removed after all mining and reclamation activities are completed. Alternative methods of providing for pedestrian protection/safety may be considered, and could be implemented if found to be acceptable by the County Public Works Department. Such alternative methods might include restricting truck traffic on the driveway to the northernmost portion of the roadway *(PP (A); PP (A-P); PB (DB)(PE)(VD); 100FP).*~~	
Part B Alternatives: Impact #2: Creation of potentially hazardous conditions post-reclamation (*LS*)		None required.	*LS*
Aesthetics and Visual Resources			
All Mining Alternatives: Impact #1: Impacts related to views of the project site (*S*)		MM #1: The proponents shall screen mining operations from public roadways, private property, and other sensitive receptors by providing a combination of visual enhancements. These enhancements shall include 25-foot minimum buffers, chain link fencing, berming, and landscaping with fast-growing, closely spaced shrubs. To the extent possible, earthern berms shall meander and be contoured to reflect a more natural pattern with variations in width, height and direction *(PP (A); PP (A-P); PB (DB)(PE)(VD); 100FP; CB)*. *Applicable to all sites.* MM #2: Landscaping shall be initiated upon issuance of the use permit and, if possible, at least one year prior to commencement of the mining operations to allow plant establishment and sufficient screening growth. Plantings shall be irrigated by trenching or with individual bubblers on an automatic irrigation system. Landscaping shall be installed *exterior* to earthen berms or chain link fencing to provide the least "industrial" appearance and the highest compatibility with neighboring uses. Slats may be used in the fencing only if mining occurs before vegetation has reached screening height and density. *(PP (A); PP (A-P); PB (DB)(PE)(VD); 100FP; CB)*. *Applicable to all sites.*	*LS*

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PP (A); PB (DB)(PE)(VD); 100FP; CB Impact #2: Impacts related to the nighttime landscape (S)		MM #3: Any lighting shall be arranged and controlled so as not to illuminate public rights-of-way or adjacent properties. Mercury vapor type lights shall be used, similar to the type used as residential outdoor security lights. The top of the lights shall be covered with a metal cap, and a 10-12 inch plastic shield shall surround the bulb. The design of the light shall result in a minimum 90% of the light being projected downward, and the plastic shield shall prevent glare *(PP (A); PB (DB)(PE)(VD); 100FP; CB). Applicable to all sites.*	*LS*
Public and Private Utilities			
All Mining Alternatives: Impact #1: Elimination of possible routes for gravity sewers being considered by SRCSD and CSD-1 (*S*)	As a condition of approval of this project, the proponents shall enter into an agreement with SRCSD for the dedication of a 130-foot wide strip of land to provide for construction of sanitation pipeline and/or drainage facilities. If interceptor construction occurs prior to mining, the proponent will not mine in the 40-foot strip of land designated SRCSD permanent easement. The proponents will protect the integrity of the pipeline from mining activities conducted adjacent to the permanent easement. ~~As a condition of approval of the project, the proponents shall enter into a formal agreement with Sacramento Regional County Sanitation District and County Sanitation District 1, and the Sacramento County Stormwater Utility, for the dedication of a strip of land along a 130 foot right of way for the purpose of constructing two public utility corridors. Where surface mining activities have lowered the grade below the expected flowline, suitable fill shall be required below the pipe to provide support and approximately 5 feet of fill shall be required over the pipe to protect it from surface impacts. If substantial deviations from Expansion Study routes are required to preserve aggregate resources, the proponents shall compensate SRCSD for the cost of additional interceptor line needed to go around the mining resources. Where the interceptor line is also in a drainage corridor, protection from erosion shall be required where the creek could overflow into the mining pit. Staff of the Water Quality Division and the Water Resources Division, and the project proponents shall negotiate further specific requirements within the strip of land as part of the formal agreement. The dedication shall not include mining rights to the areas encumbered by the dedication~~ (*Water Quality Division, Public Infrastructure Planning and Finance and Water Resources Division*).	MM #1: The proponents shall enter into an agreement with the SRCSD regarding the placement and disposition of the utility corridors (to accommodate the gravity sewerage system) as they relate to the project site and the proposed project. The final plans shall be approved by SRCSD prior to implementation of the project. ~~The proponents shall consult with the County Water Quality Division regarding the placement of the utility corridors (to accommodate the gravity sewerage system) as they relate to the project site and the proposed project. The decision on placement of such corridors shall remain the sole discretion of the County, and the proponents shall work with the County to facilitate final plans~~ *(PP (A); PP (A-P); PB (DB)(PE)(VD); 100 FP; CB). Applicable to all sites.*	*LS*

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Environmental Impact/Level of Significance	**Requirements/Recommendations of Public Agencies**	**Mitigation Measures**	**Level of Significance After Mitigation**
All Mining Alternatives: Impact #2: Impacts related to existing septic systems (*S*)	The proponents shall submit plans for proposed mining setbacks from existing sewage disposal systems to the County Environmental Management Department and the Regional Water Quality Control Board for approval in conformance with the provisions of Section 235-59(d) of the Zoning Code. The Project Planning Commission and the Board shall consider the setbacks and other relevant information in establishing setbacks from the mined areas. If setbacks are established which exceed those normally prescribed by the relevant Zoning/County Codes, the Board shall specify in writing the reasons for requiring the additional setback (*Zoning Code*).		*LS*
All Mining Alternatives: Impact #3: Removal of onsite septic systems (*LS*)	The proponents shall submit for review by the Environmental Management Department a site plan showing the exact locations of existing wells and septic systems (including leach lines and seepage pits) within 300 feet of the project site. This plan shall also indicate the wells proposed for use during the mining operation, the wells and/or septic systems proposed for abandonment, and the proposed locations for any new wells (*Environmental Management Department*). The proponents shall abandon any existing septic systems according to the Environmental Management Department and Building Department procedures and standards. Use of the system to be excavated shall be discontinued six months prior to excavation and the tanks shall be pumped at that time. Should any septic system be uncovered during mining activities, it shall be destroyed as per the requirements of the Environmental Management Department (*Environmental Management Department*).		*LS*
All Mining Alternatives: Impact #4: Use of on-site water (*LS*)	The proponents shall submit for review by the Environmental Management Department a site plan showing the exact locations of existing wells and septic systems (including leach lines and seepage pits) within 300 feet of the project site. This plan shall also indicate the wells proposed for use during the mining operation, the wells and/or septic systems proposed for abandonment, and the proposed locations for any new wells (*Environmental Management Department*).	MM #2: All new wells constructed within the project site shall be located and designed to minimize interference with existing wells within and outside the project site, to the satisfaction of the Environmental Management Department *(PP (A); PP (A-P); PB (DB)(PE)(VD); 100 FP; CB)*. *Applicable to all sites.*	*LS*
All Mining Alternatives: Impact #5: Removal of water wells (*LS*)	The proponents shall ensure that water wells located in each phase of mining shall be abandoned to the satisfaction of the Environmental Management Department prior to initiation of the mining of that phase. Any existing wells shall be abandoned according to the Environmental Management Department and Building Department procedures and standards. Should any well be uncovered during mining activities, it shall be destroyed as per the requirements of the Environmental Management Department (*Environmental*		*LS*

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	Management Department).		
PP (A); PB (DB)(PE)(VD); 100 FP; CB Impact #6: Installation of electrical facilities (*LS*)	The proponents shall contact the SMUD Distribution Planning Department and consult with SMUD through project planning and development so that any required facilities and easements would be developed in a coordinated manner. The proponents shall keep SMUD informed of all decisions or changes in schedules that pertain to the proposed project including setbacks, landscaped corridors, processing plant needs, or any other planning efforts which may affect SMUD electrical facilities. The proponents shall coordinate with SMUD for the construction of SMUD facilities during the different phases of development (*Sacramento Municipal Utility District*).	MM #4: The proponents shall phase the start-up of the processing plant to avoid a major surge in demand on the system *(PP (A); PB (DB)(PE)(VD); 100 FP; CB). Applicable to the Vineyard I site (with on-site processing plant option only)* MM #5: Any existing overhead power lines shall remain and, if necessary, be relocated at the proponents' expense as the operation proceed *(PP (A); PB (DB)(PE)(VD); 100 FP; CB). Applicable to all sites.*	*LS*
PP (A); PB (DB)(PE)(VD); 100 FP; CB Impact #7: Installation of natural gas facilities (*LS*)		None required.	*LS*
Socioeconomics and Environmental Justice			
All Mining Alternatives: Impact #1: Continuation and extension of existing mining activities (Beneficial)		None required.	*B*
Impact #2: Environmental Justice impacts (*LS*)		None required.	*LS*
All Part B Alternatives: Impact #3: Additional short-term economic benefits (*B*)		None required.	*B*

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Environmental Impact/Level of Significance	**Requirements/Recommendations of Public Agencies**	**Mitigation Measures**	**Level of Significance After Mitigation**
Consistency with Mather Field			
All Mining Alternatives: Impact #1: ~~Conditions related to safety and noise (*S*)~~ No potential inconsistencies with the Adopted CLUP would occur (*LS*)	~~Mining within the Approach-Departure Zone shall not result in a large concentration of people as defined by the CLUP (*Mather Air Force Base CLUP*).~~ Mining within the ~~Approach-Departure Zone and~~ Overflight Zone shall not result in a possibility that a water area may cause ground fog or result in a water hazard (*Mather Field ~~Air Force Base~~ CLUP*). ~~Measures to achieve an interior noise level of 50 CNEL shall be incorporated into the design and construction of portions of buildings where the public is received, office areas, and other areas where people work or congregate (*Mather Air Force Base CLUP*).~~	None required.	*LS*

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1.0 Background for EIR/EIS

1.1 PROJECT OVERVIEW

The proposed project is a request for land use entitlements to allow surface mining of sand and gravel and subsequent reclamation along 881.7 acres of the 966.3-acre Downstream Mining Reach of Morrison Creek (project site) in the community of Vineyard, Sacramento County (County). The project site is comprised of four mining sites: ~~that would have direct impacts on this portion of Morrison Creek:~~ Aspen III South, Vineyard I, Aspen IV South, and Aspen V South. The current land use entitlement applications, on-file at the County, request modification to the previously approved use permit for the Aspen III South site, as well as consideration of the applications for the Vineyard I, Aspen IV South, and Aspen V South sites. Together, the mining applications constitute the current proposed project which is also referred to as the Morrison Creek Mining Reach Downstream (South) of the Jackson Highway Project. The proposed project would allow Teichert Aggregates and Granite Construction Company (proponents) to continue supplying aggregate products to the Sacramento Metropolitan Area by providing a supply of raw material for their processing plants.

The proponents would be required to reclaim the mining pits after mining operations are complete, as described by their mining permits. The proponents have included in their reclamation and drainage mitigation plans a scenario involving the reconstruction of the mined areas with portions used as a drainage detention basin (referred to as the Miners' Preferred Alternative or Part A). Bypass channels would be used to pass drainage flows around the mined areas. Sacramento County can either accept the proponents' reclamation and drainage mitigation plans, or choose to supplement them with additional County-funded facilities (known as the Part B Alternatives). This Environmental Impact Report/Environmental Impact Statement (EIR/EIS) evaluates the impacts of both the Part A and Part B Alternatives.

It should be noted that the proponents also submitted four applications for additional mining projects in the area [Aspen VI Control Number: 89-CZB-UPB-1195, Granite I (Control Number: 89-CZB-UPB-1194), and Aspen V and VA (Control Number: 94-UPB-06540]. All of these projects are located within the upstream portion of the Morrison Creek Mining Reach, and were the subject of a separate, but related, *Morrison Creek Mining Reach Upstream (North) of Jackson Highway EIR/EIS* (completed in October 1995). On April 24, 1996, the Sacramento County Board of Supervisors granted permits for the Aspen V, VA and VI requests, and on May 8, 1996 approved the Granite I request. In August 1996, the Army Corps of Engineers gave its approval for the Morrison Creek North project through issuance of a 10-year permit to operate for the Granite I site, and a 15-year permit to operate for the remaining Aspen sites. However, under its permits, the Corps prohibited mining and grazing within 150 feet of jurisdictional waters associated with Morrison Creek within the first five years of the permits to determine if avoiding the creek corridor is feasible and will result in a stable and viable riparian community. If the proponents provide sufficient information within the next five years that a stable and viable riparian community will not develop, the Corps will allow mining of the creek corridor.

1.2 PURPOSE OF THE EIR/EIS

The purpose of this EIR/EIS is to fully disclose and assess the potential impacts of the proposed project pursuant to the requirements of the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). According to CEQA and NEPA, the County of Sacramento (County) and the U.S. Army Corps of Engineers, Sacramento District (Corps), are designated as the State and Federal Lead Agencies, respectively, for the environmental review process.

The potential environmental impacts of implementing the proposed project and alternatives are analyzed in a programmatic manner as part of this EIR/EIS. To date, the County has not identified a preferred alternative. Should the County Board of Supervisors approve mining within the 100-year floodplain for Morrison Creek, they would also decide which flood control and drainage mitigation plan should be implemented. This decision would be based on studies now underway and review of this EIR/EIS. The Board-approved plan would be applied to all mining that takes place in the floodplain of Morrison Creek.

1.3 SCOPE OF THE EIR/EIS

The focus of this EIR/EIS is limited to specific issues and concerns identified by the County and the Corps as significant or possibly significant in the Initial Study Checklist and Notice of Intent, and by the other agencies, organizations and the general public in their comment letters. These issues of concern include:

- The demand for additional aggregate material in Sacramento;
- Impacts to wetlands;
- Impacts to threatened and endangered species;
- Public health and safety;
- Impacts to wildlife;
- Impacts to the hydrology of the Morrison Creek drainage basin;
- Need for flood storage in the Morrison Creek drainage basin;
- Impacts on water quality;
- Impacts on existing transportation facilities and traffic safety;
- Impacts on air quality and noise levels;
- Impacts on slope stability and geology;
- Land use impacts and compatibility with surrounding uses including Mather Field;
- Socioeconomics and environmental justice impacts;
- Impacts to aesthetic and visual resources;
- Impacts to cultural (historical and archeological) resources; and
- Need for, and impacts to, public utilities.

1.4 INTENDED USE OF THE EIR/EIS

This EIR/EIS will be used by the County of Sacramento during its deliberation on the land use entitlements requested by the project proponents. The public and other government agencies will have an opportunity to comment on the Draft EIR/EIS during the 45-day public review period which will include a public hearing before the Sacramento County Planning Commission where

oral comments will be accepted on the Draft EIR/EIS. All comments received on the draft document will be responded to (and the EIR/EIS will be modified if necessary), and a Final EIR/EIS will be prepared.

The Final EIR/EIS will be presented to the Sacramento County Board of Supervisors (Board) for consideration. The Board will review the document and vote on whether or not to certify the Final EIR/EIS. Certification means that the document has been deemed adequate and complete according to the requirements of CEQA. Once the Final EIR/EIS has been certified, the Board may render a decision to approve, conditionally approve, or deny the requested land use entitlements.

This EIR/EIS will also be used by the Corps during its review and consideration of the required Section 404 permits for the proposed project. The Corps will review and comment on the contents of this document. Once the Final EIR/EIS has been prepared, the Corps will approve, conditionally approve, or deny a permit to work in waters of the United States. This decision will be explained in a Record of Decision (ROD).

Additional discussion of the proposed permit and land use entitlement applications is provided in Sections 2.3 and 3.0 of this EIR/EIS.

1.5 TERMINOLOGY USED IN THE ~~EIR/EIS~~ DOCUMENT

This EIR/EIS uses the following levels to denote the significance of impacts. The document uses the following terminology consistent with CEQA:

- A *less than significant* impact is one which would not have a substantial adverse effect on the environment;
- A *potentially significant* impact is one that may result in a substantial adverse effect on the environment, and where specific information is not available to make a definitive determination;
- A *significant impact* is one that would cause a substantial adverse effect on the environment;
- A *significant and unavoidable* impact is one that would cause a substantial adverse effect on the environment and for which no mitigation is available or identified to reduce the impact to a less-than-significant level if the project is approved as proposed; and
- ~~A~~

The document also identifies a *beneficial* impact as one that would have a beneficial effect on the environment.

This EIR/EIS also identifies mitigation measures wherever possible for impacts which are determined to be significant. For the purpose of this report, mitigation is defined as:

- Avoiding the impact altogether by not taking a certain action or parts of an action;

- Minimizing impacts by limiting the degree or magnitude of the action and its implementation;
- Rectifying the impact by repairing, rehabilitating, or restoring the impacted environment;
- Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and/or
- Compensating for the impact by replacing or providing substitute resources or environments.

2.0 Purpose and Need for Action

This section of the EIR/EIS discusses the purpose and need for the proposed project, as described by the proponents, and summarizes the County of Sacramento's and the Sacramento District of the Army Corps of Engineers' positions on the proposed project.

The project is the proposed aggregate mining and reclamation activities located along the Morrison Creek Mining Reach Downstream (South) of Jackson Highway in the unincorporated area of Sacramento County, within the community of Vineyard (Figure 3-1). A detailed description of the proposed project is provided in Chapter 3.0 of this EIR/EIS.

The project proponents are two mine operators, Teichert Aggregates and Granite Construction Company, who submitted four separate applications for land use entitlements to mine approximately 881.7 acres on four adjoining properties. The four properties are known as the Aspen III South, Vineyard I, Aspen IV South and Aspen V South sites, and collectively they represent the 966.3-acre project site (Figure 3-2).

2.1 NEED FOR ACTION

The following discussion represents the proponents' justification for the proposed project, and does not necessarily represent the views of the County or the Corps. The views of the County and Corps are presented directly following this discussion (in Section 2.2).

2.1.1 Use and Demand for Aggregate Resources

The project site is one of the few remaining sources of construction grade aggregates (sand and gravel) in Sacramento County. Aggregates are used extensively as a foundation and road base material in all types of road pavement and construction concrete. Like wood, steel, and other building materials, aggregates are essential to the construction and repair of existing infrastructure. In Sacramento County, demand for aggregates is increasing with the increased growth of the Sacramento region (3.4 percent growth since 1986). Local aggregate sources are needed to meet this demand and avoid the need for more expensive non-local aggregate materials.

2.1.2 Supply of Aggregate Resources

The supply of aggregate resources in the Sacramento region is limited to areas of specific geological formations. In general, aggregate deposits have formed from a combination of glaciation, stream transportation, abrasive action of the stream to smooth the rocks, and natural sorting and washing away of soft particles. In the Sacramento region, the ancestral American River shifted its course over the past half million years, gradually creating a broad wedge of floodplain materials (soils).

The State of California and local municipal ordinances have established standards and specifications for aggregates used in construction activities. Some stream channel deposits are unsuitable because they contain an unacceptably high proportion of material such as physically unsound rock or severely decomposed material such as peaty soil which do not meet quality specifications. Other factors which limit the suitability of deposits for mining are undesirable

coatings of opaline silica and extensive degrees of weathering. There may also be deposits that are too deep to be removed by conventional mining practices. Such deposits may be submerged by groundwater or may be covered by a layer of overburden (surface soils) too thick to be removed feasibly.

In addition to geologic constraints, the extraction of existing construction grade aggregate resources may be constrained in other ways. Sites may effectively be precluded from mining due to development constraints or policy-driven constraints, including land use compatibility. Existing urban infrastructure (roads, airports and utility easements) may also restrict areas in which mining can occur.

In 1986, the Aggregate Technical Advisory Committee (ATAC) published the Final Report: Sacramento County Aggregate Resources - A Response to the State Aggregate Mineral Land Classification of the Production-Consumption Region. According to this report, there were approximately 126 million tons of "likely resources" (aggregate) in the Sacramento region in 1986. Based on an assumed consumption rate of 8.5 million tons per year, it was estimated that those reserves will be depleted by the year 2001, assuming that all of the aggregates were permitted, mined, and that the population continued to increase at historic rates (ATAC, 1986).

The proposed project would continue and extend existing surface mining operations in the area, and would provide an estimated 36.7 million tons of aggregate from the 881.7 acres proposed for mining. This amount represents approximately 29 percent of the remaining "likely" supply in the Sacramento region. The purpose and intent of the proposed project is to mine these resources to meet this local demand.

One optional source for aggregate supply is the importation of resources from out-of-county sources. The nearest out-of-county source for aggregate is the Marysville area. Marysville is located approximately 40 miles north of Sacramento, and has also been suggested as an alternative supply for the San Francisco Bay Area, and San Joaquin and Yolo counties. Although importing aggregate from out-of-county sources, such as Marysville, may address the issue of supply, it could also have economic and environmental consequences.

From an economic perspective, attempting to satisfy local demand for aggregate construction materials from distant sources would result in significantly higher prices due to transportation costs. According to the California Public Utilities Commission's 1993 Minimum Rate Tariff Area 7 rates, transporting aggregate 40 miles would increase the cost at least 65 percent (as compared with the cost of aggregate not requiring such transportation). In a market oriented to buying and selling aggregates based on cost differences of pennies per ton, such an increase would be considered substantial to consumers.

Importing aggregate materials would also have adverse impacts on the environment. Given the current methods for importing aggregate, it would require approximately 340,000 truck loads, or about 27.2 million vehicle miles per year. Those truck trips and miles traveled from a distance of least 40 miles could result in tangible environmental effects, including additional expenditure of energy in the form of petrochemical fuels, increased air pollutants in a non-attainment area, and increased congestion and noise on area highways.

2.2 COUNTY AND CORPS' POSITION ON THE PROPOSED PROJECT

2.2.1 Sacramento County's Position

The proponents have prepared and submitted applications for the proposed mining, reclamation, drainage mitigation, and wetland mitigation plans to the County of Sacramento Planning and Community Development Department for eventual review and consideration by the County's Policy Planning Commission and Board of Supervisors. The County understands and recognizes the importance of long-range planning, including ultimate drainage and flood control infrastructure as well as the value and role of aggregate resources in Sacramento County. It is the Department of Environmental Review and Assessment's responsibility to implement the environmental review procedures required by the California Environmental Quality Act (CEQA) for this project, which includes the preparation of an EIR. After the environmental review process has been completed, the County will make a determination on the proposed project. This determination may include one of the following scenarios: approve the project as proposed by the proponents, conditionally approve the project, or deny the project. In addition, the County is currently considering several drainage alternatives for the entire Morrison Creek Mining Reach. These alternatives are discussed (and analyzed on a programmatic-level) in this EIR/EIS. The Water Resources Division of the Public Works Agency has recommended several of these "County Drainage Alternatives" for further consideration; however, at this time the County has not made a decision on this issue (please refer to Section 4.0 for a detailed discussion).

2.2.2 Corps' Position

The project proponents have each applied to the Army Corps of Engineers (Corps) for permits pursuant to Section 404 of the Clean Water Act. The proponents have also submitted an alternatives analysis in accordance with EPA's Section 404(b)(1) Guidelines. The Corps has determined that the cumulative affects to 17.22 ~~21.95~~ acres of wetlands and other waters subject to Corps jurisdiction on the Granite Vineyard site, 1.78 acres of wetlands and other waters subject to Corps jurisdiction on the Aspen IV South site, and 0.83 acre ~~4.74 acres~~ of wetlands and other waters subject to Corps jurisdiction on the Aspen V South site would significantly impact the quality of the human environment. Therefore, the proposed projects would require the preparation of an EIS according to the requirements of the National Environmental Policy Act (NEPA). The Aspen III South site has no waters of the United States subject to Corps jurisdiction and, therefore, can be mined without a Corps permit. Once the required environmental review process has been completed, the Corps can either issue the permits as requested by the proponents, issue the permits with modifications, or deny the permits for the Granite Vineyard, Aspen IV South, and Aspen V South sites. Regardless of the alternative the Corps can only permit the least environmentally damaging practicable alternative. "Practicable" is defined in terms of costs, logistics and technology.

2.3 POLICIES, LAWS, AND REGULATIONS RELATED TO THE PROJECT

The primary public policies, laws, and regulations related to the proposed project are: Sections 401 and 404 of the Clean Water Act, as amended (33 U.S.C. 1341 and 1344); the Sacramento County General Plan, County Code and Zoning Code; the Vineyard Community Plan; the California Surface Mining and Reclamation Act of 1975; the State Mining and Geology Board regulations for surface mining and reclamation practice; the California Environmental Quality

Act (CEQA); and the National Environmental Policy Act (NEPA). Other relevant laws and regulations which will be considered during the environmental review process for the proposed project include: the Fish and Wildlife Coordination Act (16 U.S.C. 661 *et seq.*); the National Historic Preservation Act of 1966, as amended (16 U.S.C. 470 *et seq.*); the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*); Executive Order 11988, "Protection of Wetlands;" and Executive Order 11990, "Floodplain Management."

As noted in Section 1.2, the Lead State and Federal Agencies for the CEQA and NEPA environmental review process are the County of Sacramento and the U.S. Army Corps of Engineers, Sacramento District, respectively. In addition to these two agencies, other agencies may have statutory responsibilities or an interest in the proposed project. These other agencies include:

- City of Sacramento (agreement between City and County for the installation, operation, and maintenance of the detention facility);
- California Department of Conservation, Office of Mine Reclamation, Reclamation Unit (reclamation plan and mine reclamation issues);
- California Department of Fish and Game (fish and wildlife resources and streambed alteration);
- California Department of Transportation (SR16 access requirements and/or restrictions);
- California Department of Transportation, Division of Aeronautics, the Airport Land Use Commission c/o Sacramento Area Council of Governments, and the Federal Aviation Administration (compatibility with aircraft operations at Mather Field);
- California Division of Safety of Dams (dams that fall under State jurisdiction for safety);
- California Regional Water Quality Control Board (water quality);
- California State Water Resources Control Board (surface water diversion and stormwater discharges)
- Federal Emergency Management Agency (floodplain encroachment);
- Sacramento Metropolitan Air Quality Management District (proposed project emissions and issues of regional air quality);
- U.S. Air Force (coordination of the Mather Field environmental cleanup plan); and
- U.S. Fish and Wildlife Service (fish and wildlife resources, wetlands, and other habitats).

INSERT

TAB

33

3.0 Project Description

3.1 PROJECT PROPONENTS

The project proponents are two mining companies: Teichert Aggregates and Granite Construction Company. Their names, addresses and telephone numbers are provided below.

- Teichert Aggregates
  P.O. Box 15002
  Sacramento, CA 95851
  (916) 484-3317

- Granite Construction Company
  P.O. Box 15287
  Sacramento, CA 95851
  (916) 855-4400

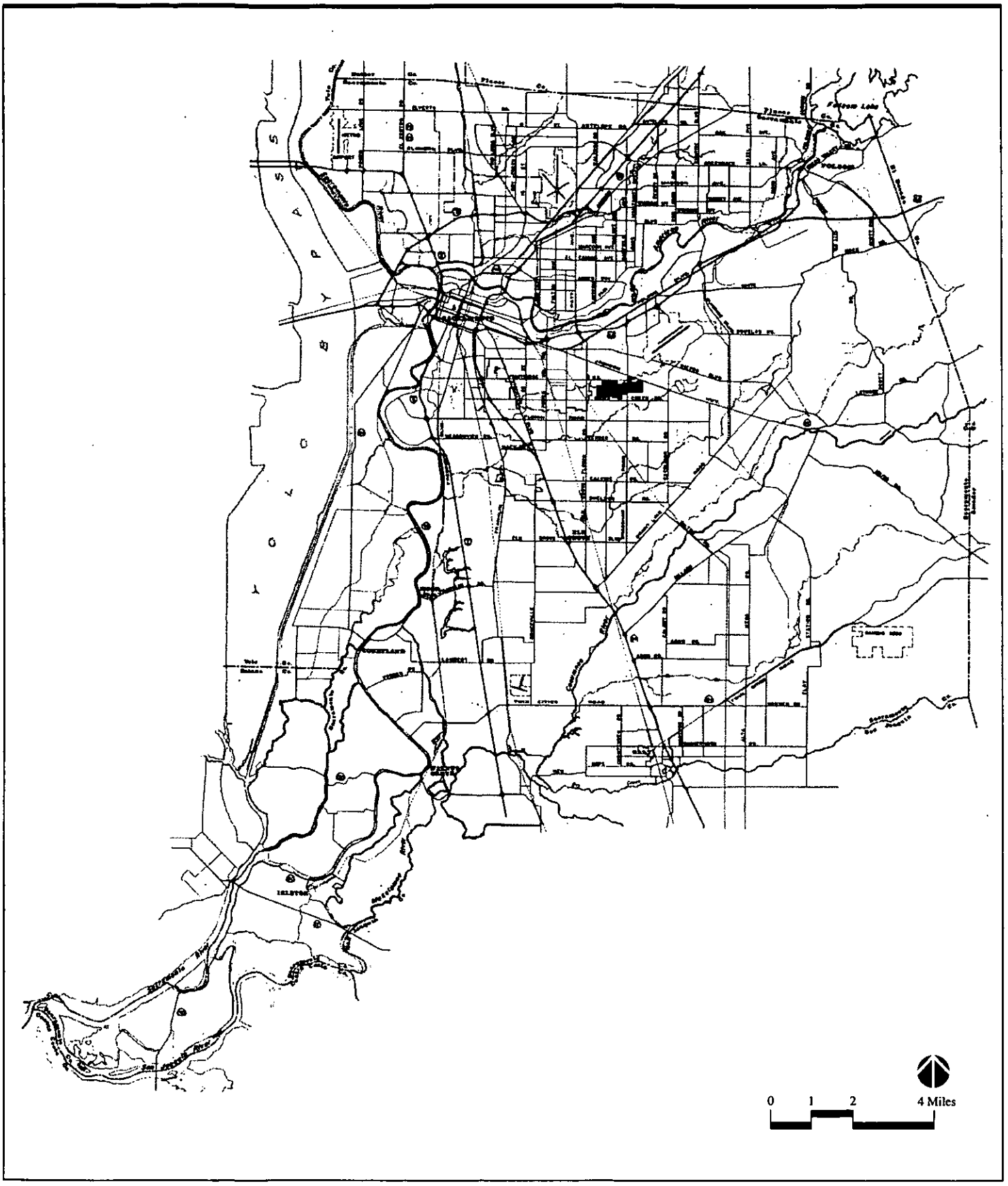
3.2 PROJECT LOCATION

The proposed project is located within the unincorporated area of Sacramento County, California. The project site is included within the Vineyard community planning area. In general, the project site is bounded by Jackson Highway (State Route 16) to the north; Elder Creek Road to the south; Hedge Avenue to the west; and Excelsior Road to the east. The project site can be found on the U.S.G.S. Carmichael 15 Minute Topographic quadrangle map. The regional location and project site location are shown on Figures 3-1 and 3-2.

3.3 OVERVIEW OF PROJECT SITE

The 966.3-acre project site consists of four adjoining properties which are proposed for mining operations. The four properties are commonly referred to as the Aspen III South, Vineyard I, Aspen IV South, and Aspen V South sites. Teichert Aggregates is the project proponent for the Aspen III South, Aspen IV South and Aspen V South sites. Granite Construction Company is the proponent for the Vineyard I site. Each of the four sites can be further distinguished by individual parcel numbers. The Sacramento County Assessor's Parcel Numbers for the project site are:

- Aspen III South: 063-0080-016, 028, 029, 030, 031, 032; and 063-0090-007, 012
- Vineyard I: 063-0080-010, 011, 012, 013; 063-0090-001, 002, 003, 006, 010, 011, 015, 016, 017, 019; and 063-0110-001, 002, 003, 004, 005, 006, 012, 028, 029
- Aspen IV South: 063-0100-011, 014, 015, 016, 019; and 063-0130-001, 002, 009, 010, 011
- Aspen V South: 063-0170-21; 063-0190-014, 015, 018, 021, 025, 027, 028, 029, 040; and 063-0200-006, 007, 008, 009, 010



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

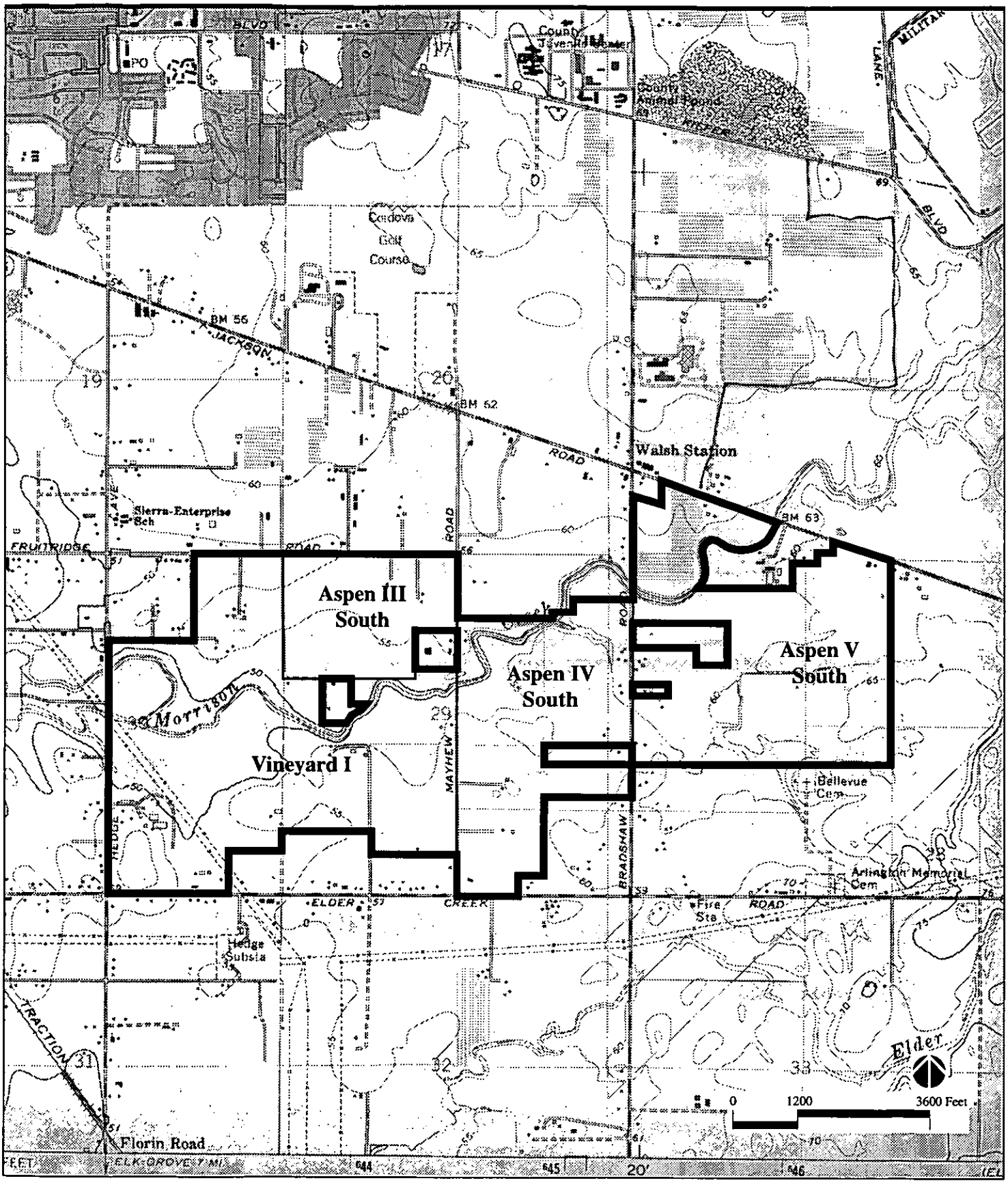
Project Site

Figure 3-1
Regional Location

EDAW Inc.

Source: Sacramento County, 1979

N:5s052:002



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Project Boundary

Figure 3-2
Project Site Location

EDAW Inc.

Source: USGS, 1980

N:5s052:001

Historically the project site has been used for agricultural practices, including irrigated pasture, dryland farming, and livestock grazing. Today, the project site is used for livestock grazing. There are also several residences located on the project site that would be displaced as a result of the proposed project, and a number of residences located adjacent to, or within close proximity of, the project site.

Approximately 572 acres or 59 percent of the project site fall within the 100-year floodplain. Morrison Creek enters the project site from the northeast and traverses diagonally before exiting at Hedge Avenue in the western portion of the project site. At present, Morrison Creek drains a watershed of approximately 14.5 square miles.

The primary vegetation type on the project site is non-native annual grassland. Seasonal wetlands, riparian and other wetland habitat represent approximately 3 percent of the total project site. The primary location of these resources is along the Morrison Creek, associated drainages, and irrigated farmlands.

Based upon a delineation using the 1987 Corps Manual, and field verified by the Corps on various dates including August 25 and September 27, 1994, the project site contains approximately 19.83 ~~24.56~~ acres of wetlands and other waters of the U.S. which would be impacted by the proposed mining and reclamation plans. As a note, there are additional areas classified as jurisdictional wetlands or other waters of the U.S. located on-site which would not be impacted by the proposed project.

The Vineyard I site has approximately 17.22 ~~21.95~~ acres of wetlands or other waters of the U.S. that would be affected as a result of the proposed project. This 17.22 ~~21.95~~ acres includes 12.56 acres of riparian habitat, 4.14 acres of tributary, and 5.25 acres of seasonal wetlands. A total of 1.78 acres, which includes 1.09 acres of Mirrison Creek, 0.44 acre of drainage channel, and 0.25 acre of seasonal wetland on the Aspen IV south site would be impacted as a result of the proposed project. The Aspen V South site contains 0.83 acre of irrigated seasonal wetland that would be disrupted as a result of the proposed project.

The *Soil Survey Report of Sacramento County* identifies various soil types on the project site, including: Columbia sandy loam; Hedge loam; Kimball silt loam; and San Joaquin silt loam. In all cases, the available water capacity of the soil is low, runoff is slow, and the hazard of water erosion is slight.

3.4 PROJECT BACKGROUND

In 1989, a Draft EIR for proposed mining operations on two properties located outside of the project site but along Morrison Creek was prepared (Aspen VI Rezone and Use Permit and Granite I Rezone and Use Permit DEIR, Control Nos. 89-RZB-UPB-1195 and 89-RZB-UPB-1194). The Draft EIR recommended preparation of a comprehensive drainage mitigation plan for Morrison Creek prior to approval by the County of any mining projects within the Morrison Creek floodplain. The purpose of the recommendation was to prepare a plan that would accurately assess the cumulative effects of those projects, and other mining proposals within the 100-year floodplain. As a result, those mining applications were placed on hold while the County prepared the *Morrison Creek Mining Reach Drainage Mitigation Plan*. The geographic boundary of that plan is the portion of Morrison Creek located between Mather Field and Hedge

Avenue (referred to as the "Morrison Creek Mining Reach"). The project site is located within the Morrison Creek Mining Reach and is therefore considered in the *Drainage Mitigation Plan.*

After the *Drainage Mitigation Plan* was prepared, mining applications which had been previously placed on hold pending its completion were revisited. In most cases, the original applications (including proposed drainage mitigation) were modified in order to be consistent with the *Drainage Mitigation Plan.* Three of the four applications comprising the proposed project evaluated in this EIR/EIS were revised in this manner. A brief description of the history associated with these applications is provided below. As a note, the northern portion of the *Morrison Creek Mining Reach Drainage Mitigation Plan* (i.e., drainage projects located north of Jackson Highway) have been reviewed and were approved by the County as part of the Morrison Creek North project (and EIR/EIS).

Aspen III South

In January 1992, the County approved a use permit to allow mining and reclamation on that portion of the Aspen III South site located outside the 100-year floodplain. Teichert Aggregates resubmitted the previously-approved use permit in July, 1994 and proposed several modifications. The modifications are based on the anticipated relocation and construction of the Morrison Creek bypass channel along the site's eastern and northern boundary, as proposed in the County's *Morrison Creek Mining Reach Drainage Mitigation Plan* (Part A). The primary modification proposed is an expansion of the mining (and reclamation) area into the 100-year floodplain. The revised application now proposes mining on approximately 106.2 acres of the 112.2-acre site. The southeast portion of the site where Morrison Creek is located would be left undisturbed. The actions proposed in this new application are evaluated in this EIR/EIS.

Vineyard I and Aspen IV South

The Vineyard I and Aspen IV South applications were originally submitted by the Granite Construction Company and Teichert Aggregates in February of 1991 and December of 1990, respectively. The applications proposed mining and reclamation plans, as well as drainage and wetland mitigation plans for both sites. The environmental review and processing of both applications were postponed based on the preparation of the County's *Morrison Creek Mining Reach Drainage Mitigation Plan,* which would affect the reclamation and drainage mitigation plans for both sites. As a result, both applications have been revised so that they are consistent with the *Morrison Creek Mining Reach Drainage Mitigation Plan* (Part A), and were subsequently resubmitted in 1994. This EIR/EIS evaluates the revised applications.

Aspen V South

Teichert Aggregate submitted an application for a conditional use permit to mine the Aspen V South site in October of 1994. This was the first application that the County received for this site, and the reclamation and drainage mitigation plans proposed in it are consistent with the County's *Morrison Creek Mining Reach Drainage Mitigation Plan.*

3.5 REQUESTED LAND USE ENTITLEMENTS

The proposed project consists of the four applications for land use entitlements to allow mining and subsequent reclamation on 881.7 acres within the 966.3-acre project site in the Vineyard community. The current applications modify the proponents' previously filed applications for Aspen IV South and Vineyard sites (Control Numbers 90-CZB-UPB-1607 and 91-CZB-UPB-0118, respectively) and previously approved reclamation plans and conditional use permits for Teichert Aggregates' Aspen III South site (Control Number 94-UPB-0484). In addition, the newly filed Aspen V South site application (Control Number 94-CZB-0671) is proposed for consideration.

Specific entitlements being requested by the proponents include the following:

Aspen III South

1. Modification to a previously approved use permit to mine sand and gravel on an additional 31 acres of the 112.2-acre site in the IR(SM), IR(SM)(F), and M-1(SM) zones.

Vineyard I

1. An Amendment to the *Vineyard Community Plan* and corresponding Rezone of 413± acres from IR(F), IR(SM), M-1, and M-1(F) to IR(SM), IR(SM)(F), M-1 (SM), M-1(F)(SM), M-2(SM), and M-2(F)(SM).

2. A use permit to conduct surface mining (sand and gravel) on the entire site, including a materials processing facility on the proposed M-2(SM) and M-2(F)(SM) portion of the site.

3. A Section 404 permit (Corps) to work in waters of the United States, and water quality certification or waiver of certification pursuant to Section 401 of the Clean Water Act (California Regional Water Quality Control Board).

Aspen IV South

1. An Amendment to the *Vineyard Community Plan* and corresponding Rezone of a portion of the 180.1± acre site from AR-1 and IR(F) to IR(SM) and IR(F)(SM).

2. A use permit to conduct sand and gravel mining operations on the entire site.

3. A Section 404 permit (Corps) to work in waters of the United States, and water quality certification or waiver of certification pursuant to Section 401 of the Clean Water Act (California Regional Water Quality Control Board).

Aspen V South

1. An Amendment to the *Vineyard Community Plan* and corresponding Rezone of 261± acres from AG-160, M-1 and M-1(F) to AG-160(SM), M-1(SM), and M-1(F)(SM).

2. A use permit to conduct sand and gravel mining operations on the entire site.

3. A Section 404 permit (Corps) to work in waters of the United States, and water quality certification or waiver of certification pursuant to Section 401 of the Clean Water Act (California Regional Water Quality Control Board).

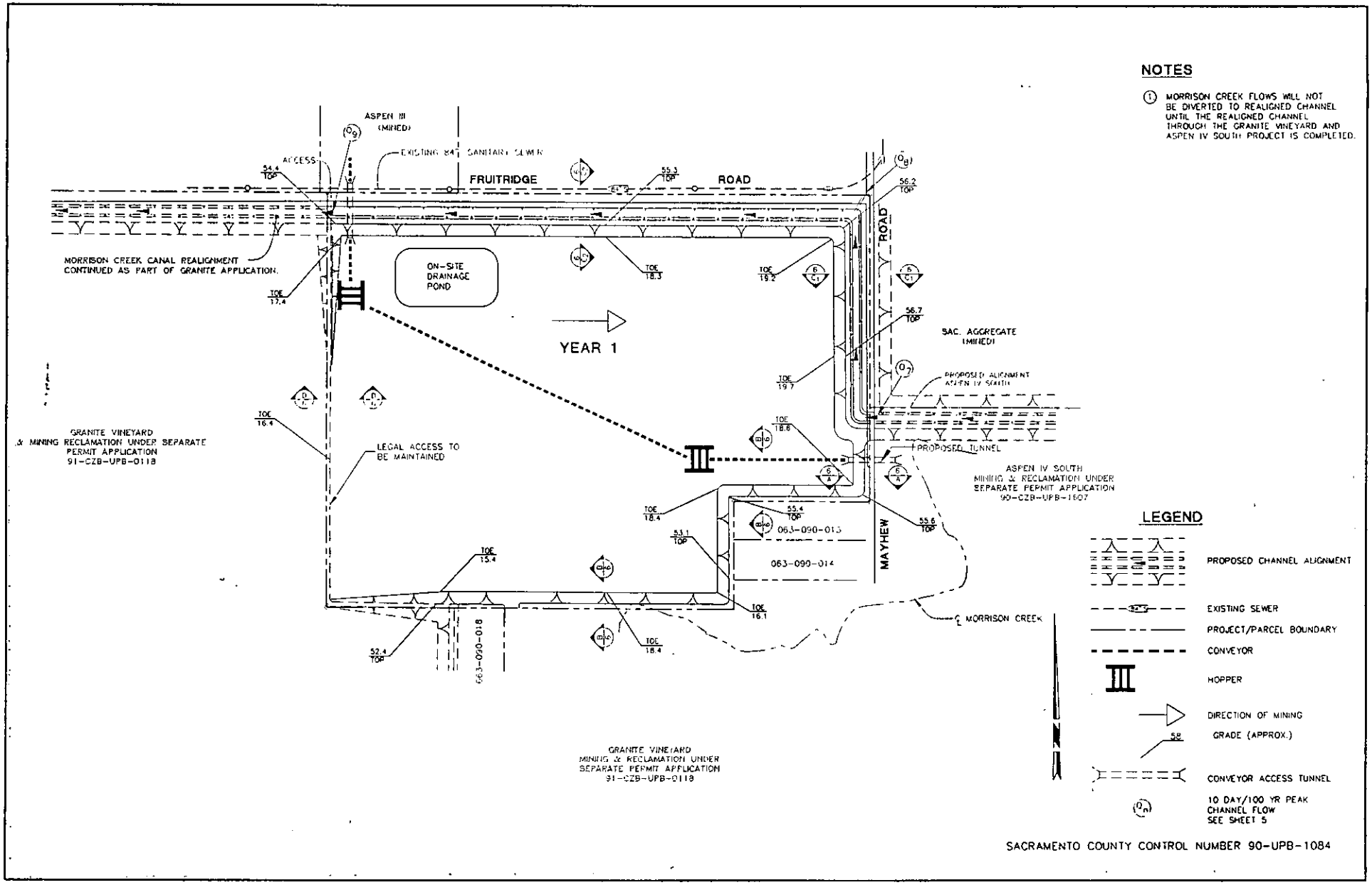
3.6 PROJECT CHARACTERISTICS

3.6.1 Mining Plan

Mining plans showing the progression of mining across the project site are provided for each of the four properties (Aspen III South, Vineyard I, Aspen IV South, and Aspen V South) in Figures 3-3a, 3-3b, 3-3c, and 3-3d. Mining would occur simultaneously (i.e., during the same mining year) at several times during the project on the Aspen III South and Vineyard I, Vineyard I and Aspen IV South, and Vineyard I and Aspen V South sites. It is anticipated that mining could begin upon issuance of the work authorization permit, and would take no less than approximately 12 years to complete.

It is estimated that 36.7 million tons of sand and gravel are available from the project site. Mining would occur in phases of 50 to 75 acres on each mining site. After aggregates have been removed during a phase, the mined area would be reclaimed by placing the overburden from the next phase to be mined. In this manner, approximately 50 to 150 acres of the 966.3-acre site would be disturbed at any one time. The remainder of the site would be either unmined or reclaimed.

The method of mining and reclamation for this project involves removal of 5-10 feet of clay/silt soil overburden overlying the sand and gravel (the aggregate deposit). Extraction of the aggregate resource would begin once overburden has been removed and the sand and gravel are exposed. To initiate the mining, approximately ~~430,000~~ 1,000,000 cubic yards of overburden are proposed to be removed from the project site. The proposed mining program would minimize the need for overburden stockpiles. The removed overburden would be utilized for sidesloping and pit floor renovation behind the mining operation. The overburden removed ahead of aggregate harvesting would be placed on the harvested area behind the operation. Mining would require the removal of all on-site vegetation. Internal drainage would be retained on-site. Water would be obtained from proposed and existing on-site wells and used solely for dust control. No treatment would be required. Rate of water use would depend on dust control needs.



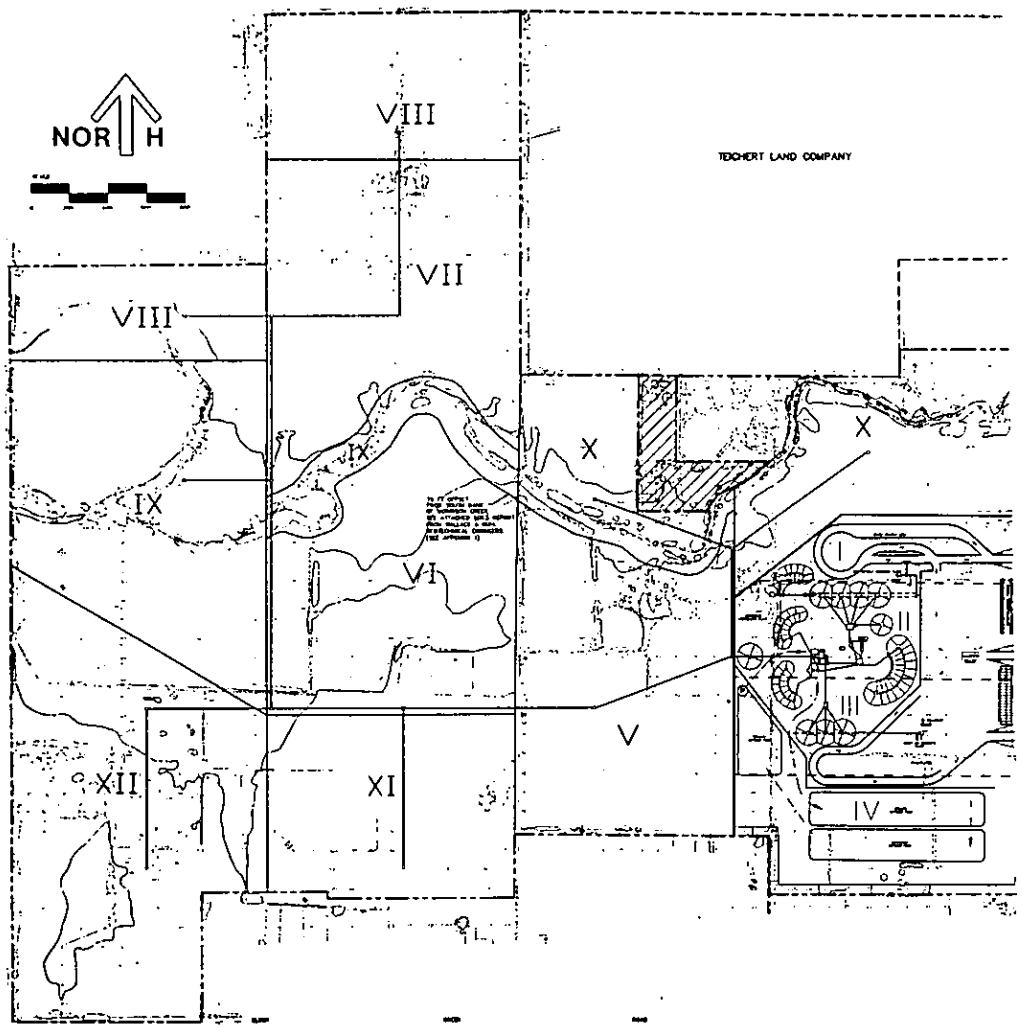
Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

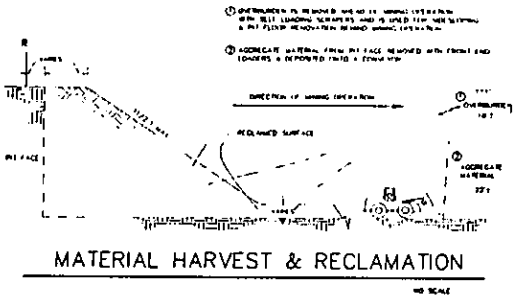
EDAW Inc.

N:5s052:004

Figure 3-3a
Mining and Phasing—Aspen III South
Proposed Project

Source: GW Consulting Engineers





LEGEND

I	TEMPORARY PROCESSING PLANT MINING PHASE NUMBER.
IV	MINING PHASE NUMBER
———	SITE BOUNDARY
- - - -	TEMPORARY PROCESSING PLANT MINING PHASE BOUNDARY
———	PERMANENT PROCESSING PLANT MINING PHASE BOUNDARY
—⊥—	CONVEYOR SYSTEM

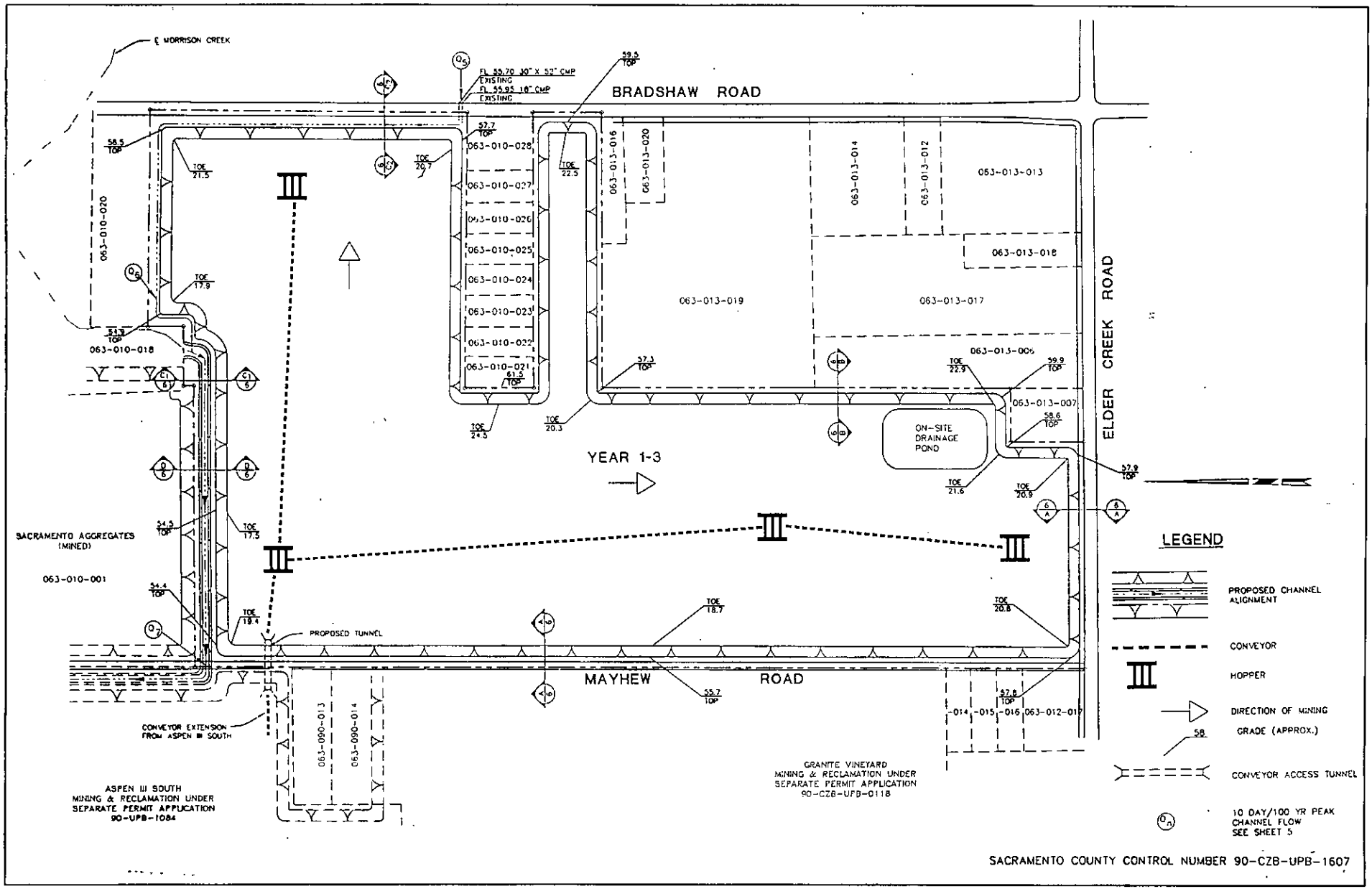
Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 3-3b
Mining and Phasing Plan—Vineyard I
Proposed Project

EDAW Inc.

Source: Robert E. Young Engineers, 1994

N:5s052:005



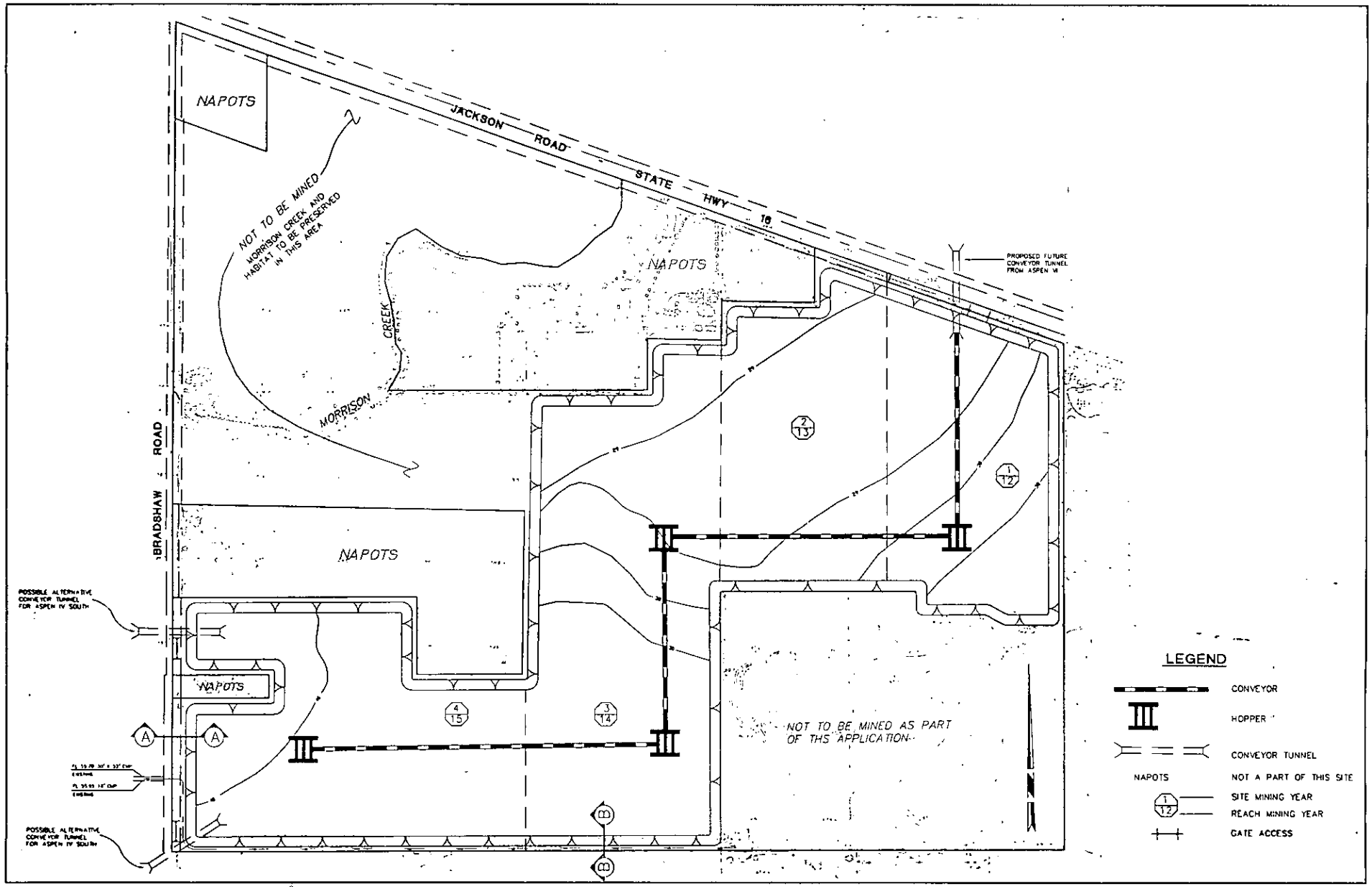
Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 3-3c
Mining and Phasing Plan—Aspen IV South
Proposed Project

EDAW Inc.

Source: GW Consulting Engineers

N:5s052:006



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 3-3d
Mining and Phasing Plan—Aspen V South
Proposed Project

EDAW Inc.

Source: GW Consulting Engineers

N:5s052:007

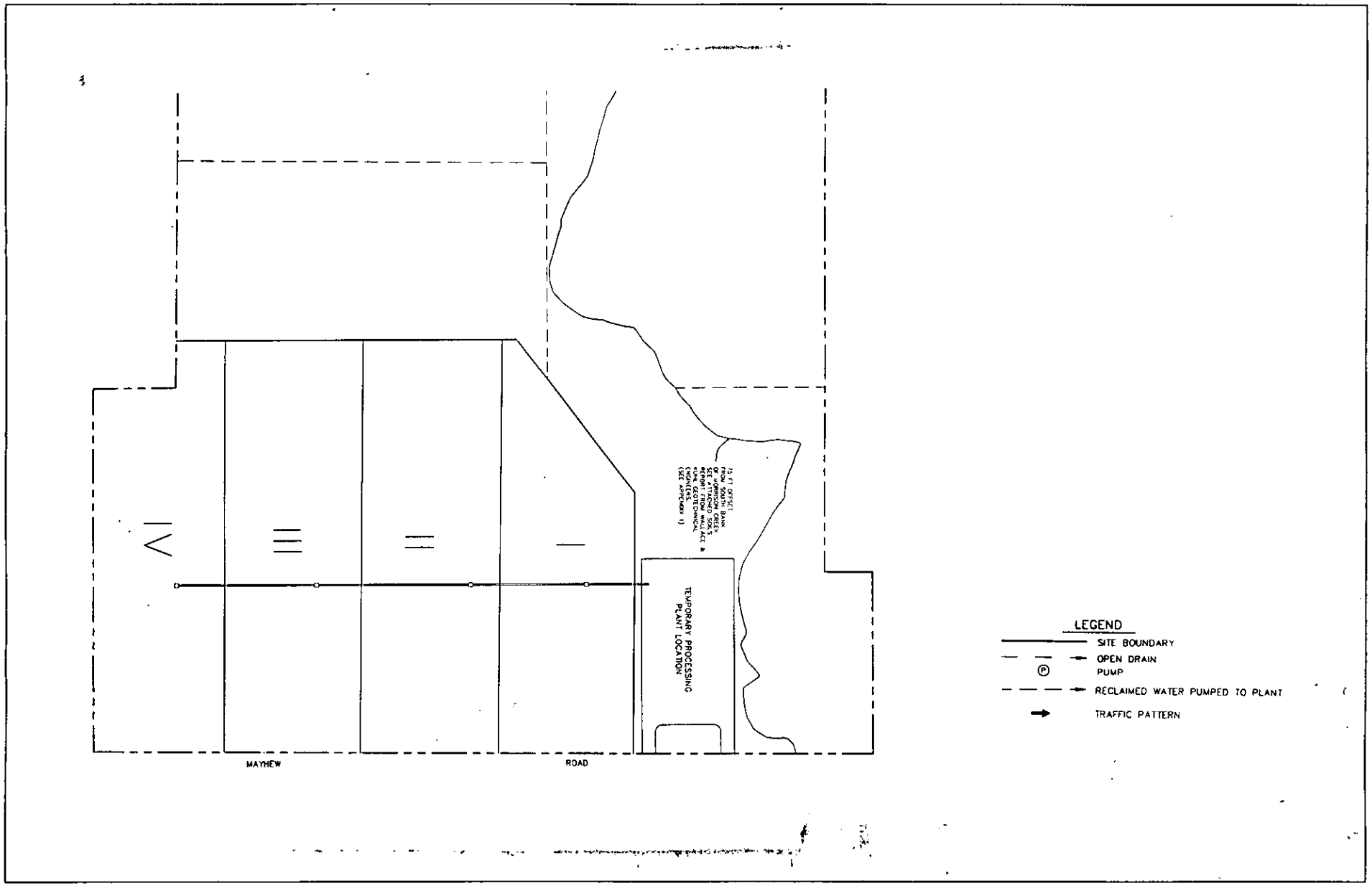
The project site would be excavated with machinery typically used in the surface mining industry (such as bulldozers, self-loading scrapers, front end loaders, large capacity trucks, and motor graders). In addition, a six-foot chain-linked fence with three-strand barbed wire on top would be placed around the project site. Visual screening adjacent to public streets or other public use areas would be accomplished by use of berms, screen fences, and setbacks. Gates would be locked at all street access points. Street access to the project site would be provided for employee parking and the parking of maintenance vehicles. All harvesting equipment would be kept on-site.

Once the overburden is removed, the aggregate deposit, which may vary in thickness from 20 to 35 feet, would be mined with excavation equipment and transported to existing and/or proposed aggregate processing plants via conveyer belt systems. The two existing plants are the Teichert Aggregates processing facility located on the north side of Jackson Highway between Florin-Perkins and Watt Avenue, and the Granite Construction Company facility located on the north side of Kiefer Boulevard, east of Bradshaw Road. The total combined capacity for the two existing plants is estimated to be 2,200 tons per hour, with anticipated annual production of 5.5 million tons.

The proposed project also includes the construction and operation of a new processing plant on the Vineyard I site to replace Granite Construction Company's existing off-site aggregate processing facility. The plant would ultimately contain a full range of on-site processing activities: aggregate production; asphaltic concrete production; and portland cement concrete production. A small "portable" aggregate processing plant would initially be provided on the eastern side of the project site (see Figure 3-4a) until the permanent facilities were completed (shown in Figure 3-4b). The portable facility would have an initial capacity of 400 tons per hour, with anticipated annual production rate of 500,000 tons. Following site development and installation of the three permanent processing facilities, capacity would be increased to 1,000 tons per hour with an anticipated annual production rate of 2 million tons.

Processed material would be transported by truck to the location where the aggregates would be used. No public streets or roads would be used for the transportation of extracted resources to a processing facility. The only anticipated new street truck routes for truck traffic would be associated with the removal of the initial overburden, and occasional movement of equipment to and from the project site.

The recovery of placer gold would likely be a part of the processing operations. The gold would be recovered through a mechanical device, known as a jig system. This process utilizes the minerals' high specific weight, and water, to create a gravimetric/hydraulic separation from the lighter particles. There are no chemicals used throughout this process. The jig system is expected to recover approximately .00036 ounces of gold per ton of raw process material.



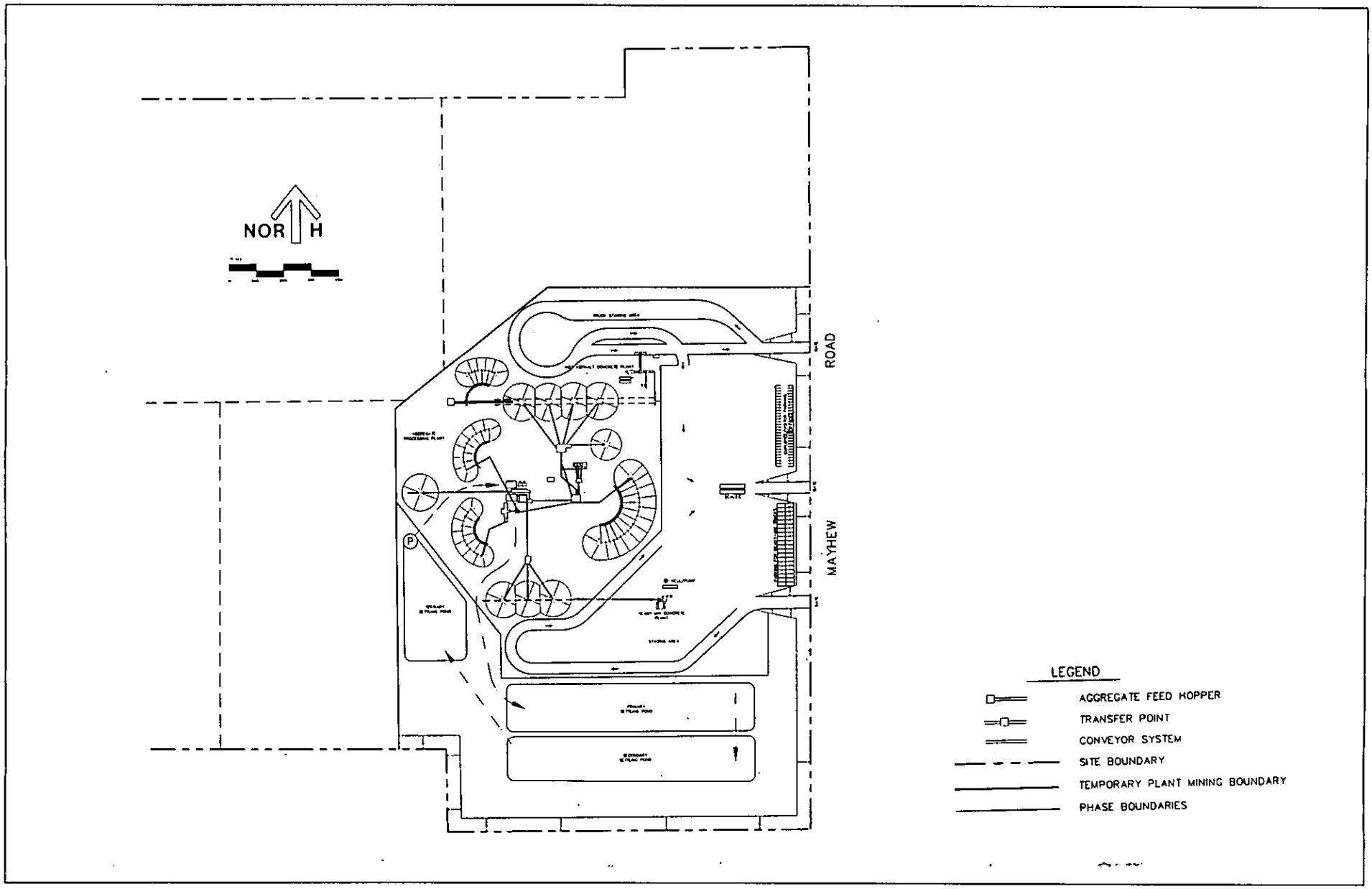
Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 3-4a
Temporary Processing Plant-Vineyard I
Proposed Project

EDAW Inc.

Source: Robert E. Young Engineers, 1994

N:5s052:008



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 3-4b
On-site Processing Plant-Vineyard I
Proposed Project

EDAW Inc.

Source: Robert E. Young Engineers, 1994

N:5s052:009

3.6.2 Reclamation Plan

Reclamation refers to the restoration of a mined site to a usable condition which is readily adaptable for other subsequent land uses. For the proposed project, the project site would be reclaimed to agriculture, flood control, and/or open space. Reclamation of the project site would become a condition of the use permit, should the County Board of Supervisors grant the entitlement to mine. In addition, the County Zoning Code contains the following provision:

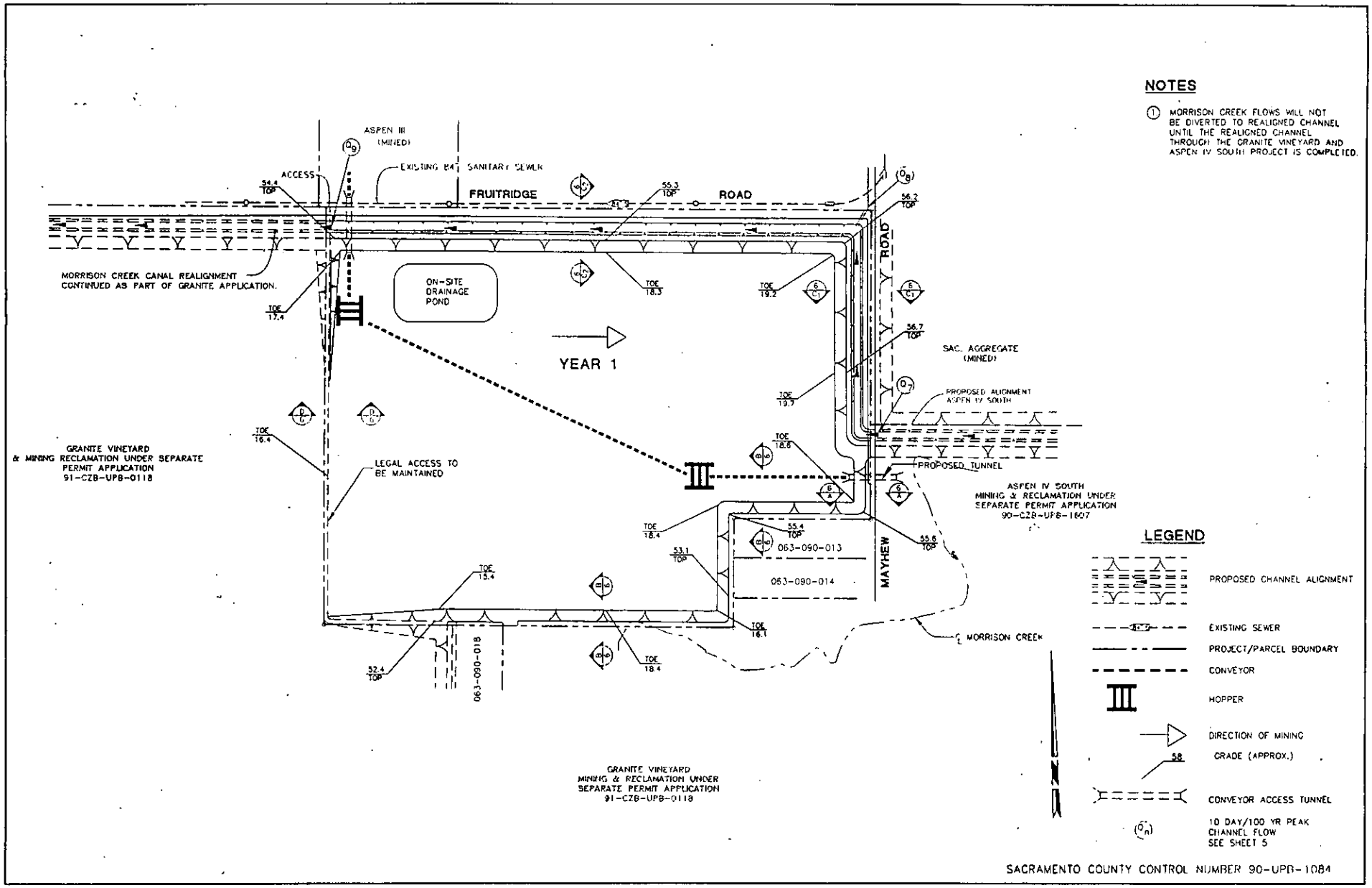
> 235-57: BONDS. *The Board shall require that the applicants* [proponents] *furnish a performance bond or other security to ensure timely and proper reclamation of mined areas. The performance bonds should be coordinated with the inspection intervals of the reclamation plan to avoid excessive penal sums. The bond shall be in a form to be approved by the County Counsel and in an amount to be approved by the Director of Public Works and shall be deposited with the Clerk of the Board of Supervisors.*

Reclamation would be accomplished in conjunction with mining by placing the excavated overburden material in predetermined places according to the Reclamation Plan for the proposed project (refer to Figures 3-5a, 3-5b, 3-5c, and 3-5d for the Aspen III South, Vineyard I, Aspen IV South, and Aspen V South sites, respectively). The overburden material would be placed and graded to provide a suitable growing media for the establishment of protective vegetative cover and/or viable agricultural crops.

All salvageable topsoil suitable for revegetation would be removed as a separate layer from areas which would be disturbed by mining. Topsoil and vegetation removal would not precede surface mining activities by more than one year. The topsoil and other overburden material would be used to phase reclamation as soon as possible based on the mining schedule. Topsoil not immediately used for reclamation would be stockpiled until needed for reclamation. If storage is necessary, stockpiles would be seeded to control erosion and loss of biological components. Topsoil would be redistributed in such a manner that places it on top of the reclaimed surface in a stable and uniform thickness.

Pit floor reclamation would be completed on a yearly basis incrementally following areas mined, as acreage is available for sufficiently sized agricultural plots. Partial reclamation, such as 1.5:1 side sloping, would be concurrent with aggregate harvesting. Since reclamation would proceed simultaneously with mining and only 50 to 150 acres of the project site would be disturbed by active mining at any time, the early phases of the project would have time to establish vegetative cover and habitat before mining is completed.

After the completion of mining, the mining pits would be approximately 35 feet deep. The floor of the pit would be uneven, reflecting undulations in the base of the aggregate deposit. The proposed project would limit the possibility of utilizing the mined areas for development. Ultimate land use would be restricted to agriculture (alfalfa and grain crops) or open space since the mining pits would be designated as within the 100-year floodplain. A 600-foot wide riparian corridor along a re-created low flow channel within the mining pit would be allowed to develop in generally the same location as the existing creek. The corridor would contain the creek,



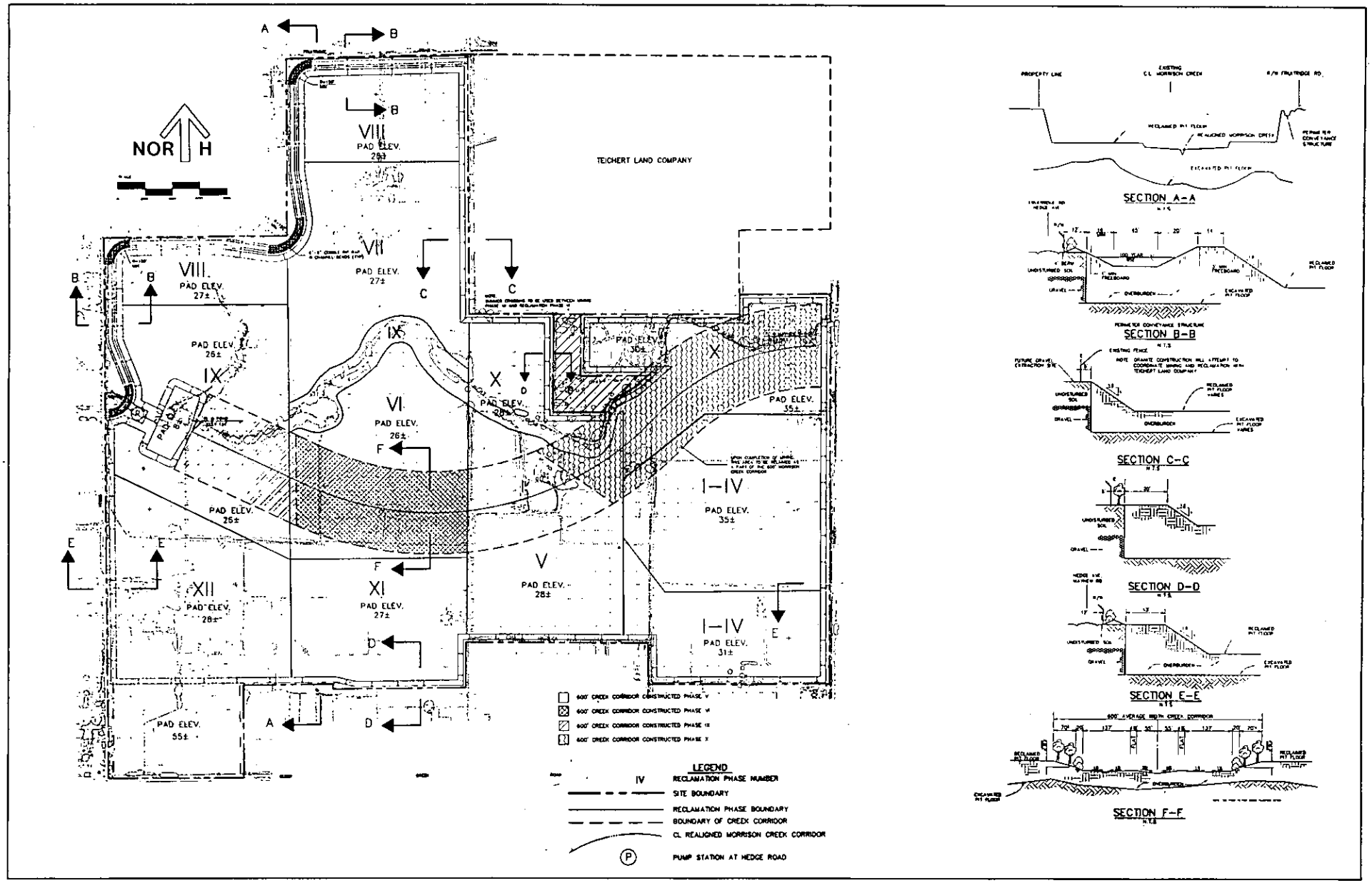
Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 3-5a
Reclamation Plan—Aspen III South
Proposed Project

EDAW Inc.

Source: GW Consulting Engineers

N:5s052:010



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 3-5b
Reclamation Plan—Vineyard I
Proposed Project

EDAW Inc.

Source: Robert E. Young Engineers, 1994

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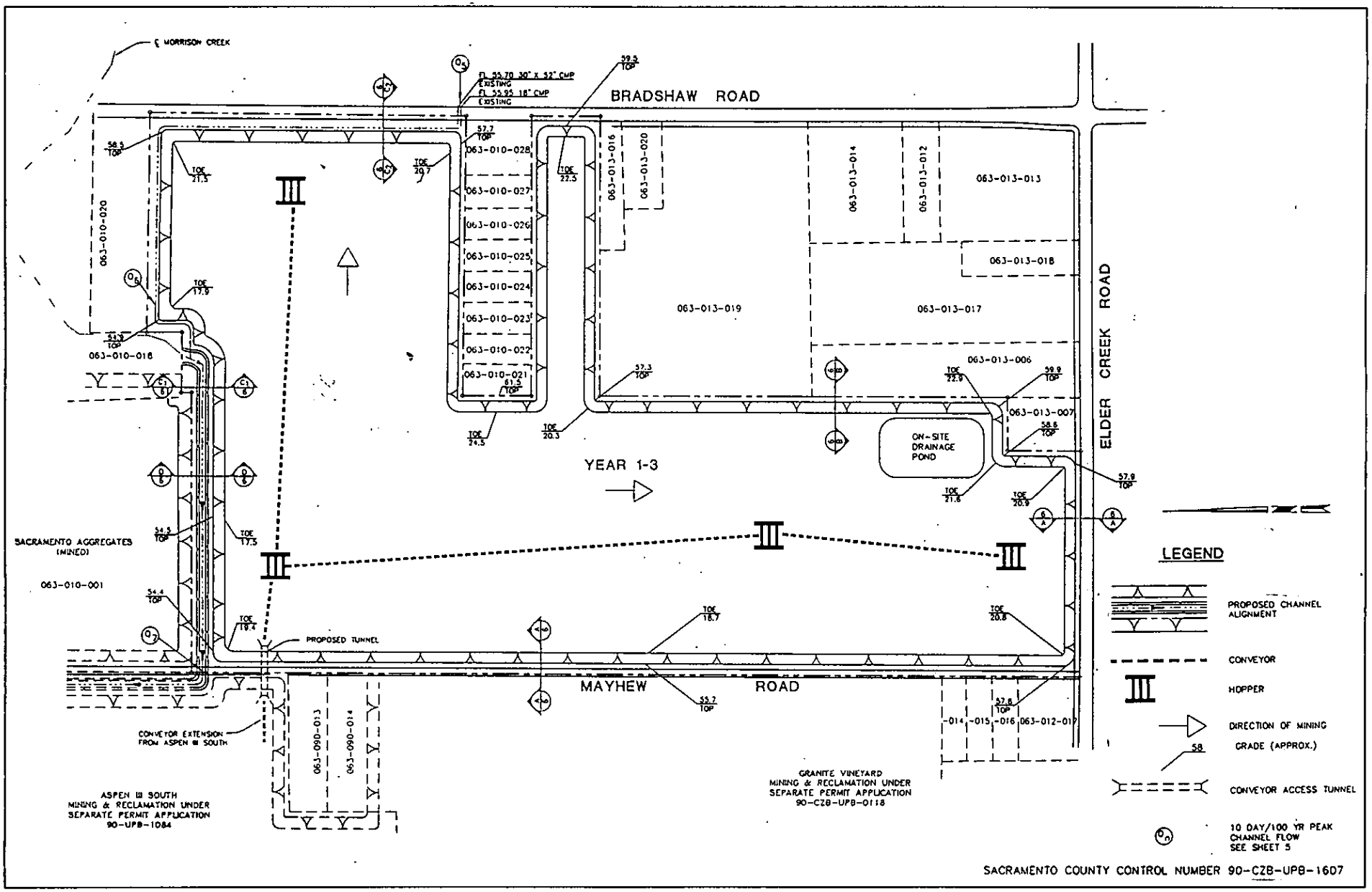

Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 3-5c
Reclamation Plan—Aspen IV South
Proposed Project

EDAW Inc.

Source: GW Consulting Engineers

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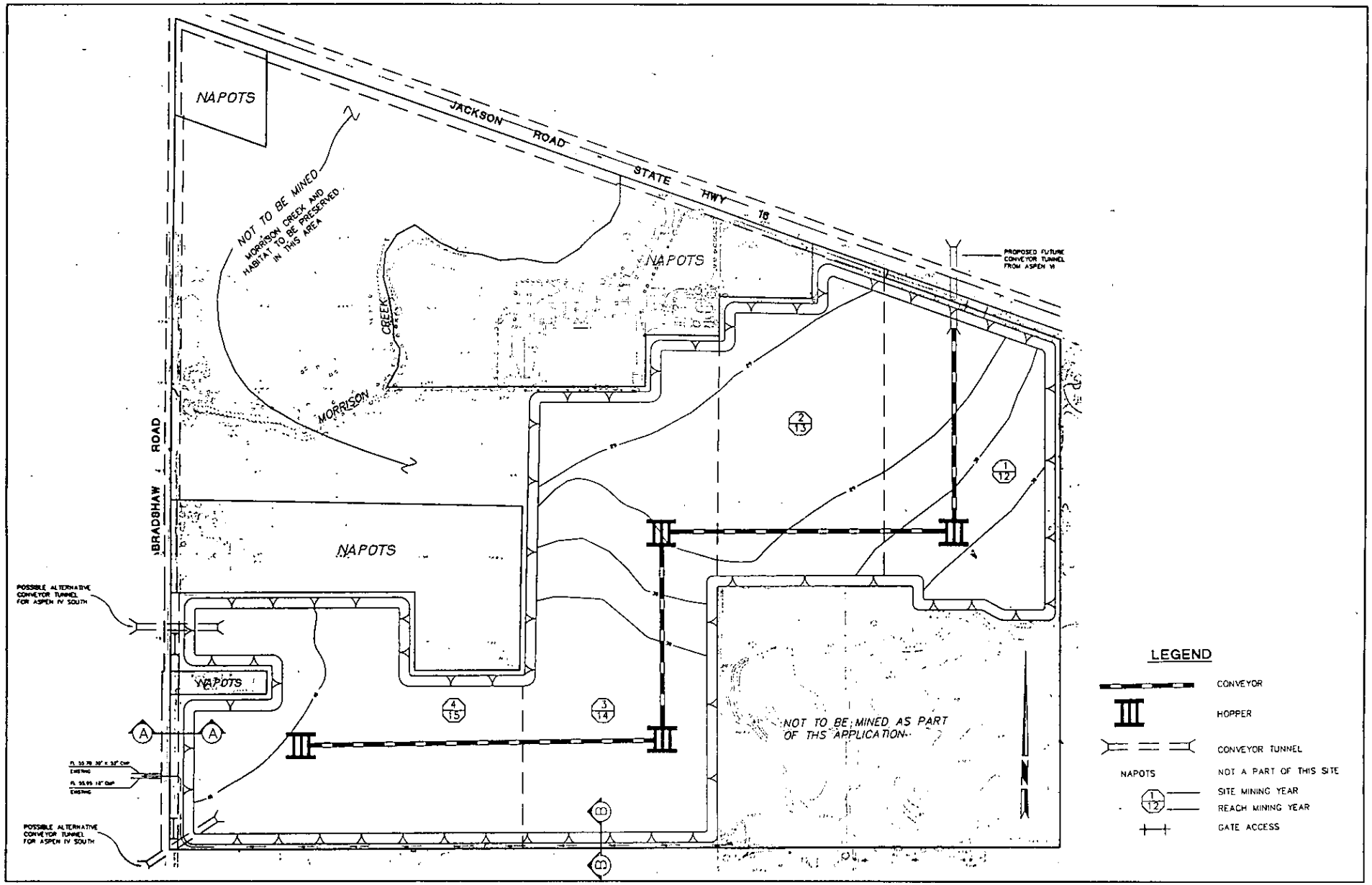


Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 3-5d
Reclamation Plan—Aspen V South
Proposed Project

EDAW Inc.

Source: GW Consulting Engineers

N:5s052:013

perennial marsh, riparian woodlands, seasonal marsh and valley oak woodland in a series of terraces (see Figures 3-6a, 3-6b, and 3-6c).

3.6.3 Drainage Mitigation Plan

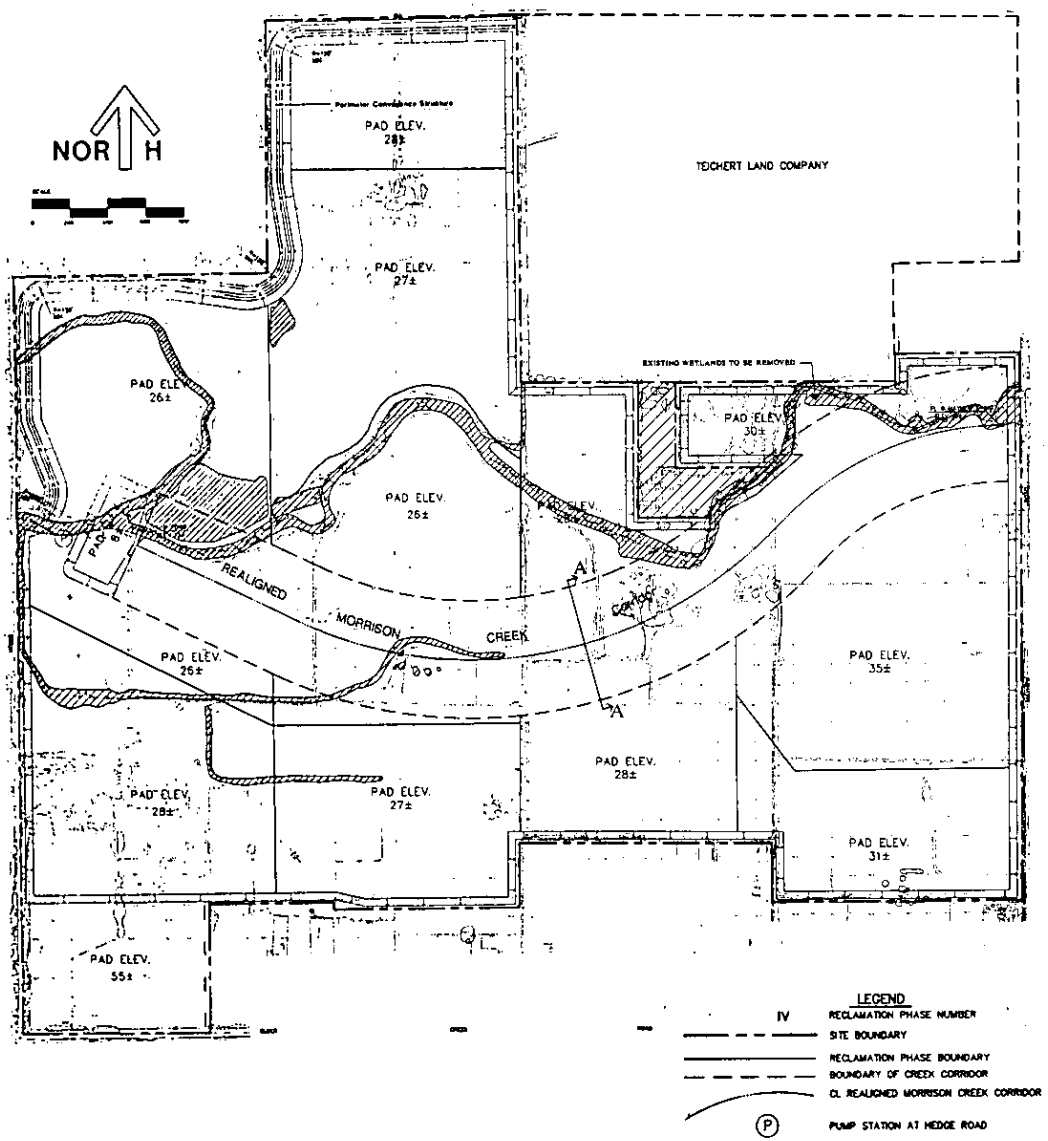
The drainage mitigation plan included as part of the proposed project is part of a larger plan (*Morrison Creek Mining Reach Drainage Mitigation Plan* - Part A), and the overall impacts associated with implementation of this plan are addressed in Morrison Creek Upstream (North) Mining Reach EIR/EIS. Site-specific impacts which may result (within the project site) from the physical improvements associated with the drainage mitigation plan are addressed in this EIR/EIS. The intent of the drainage mitigation plan is to mitigate the drainage impacts of mining on the Morrison Creek 100-year floodplain, as required by the County floodplain management policies. A summary of the drainage improvements which would be constructed within the project site is provided below.

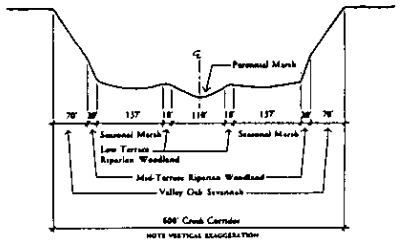
Proposed drainage mitigation would include the construction of an unlined trapezoidal bypass channel. The channel would be constructed at the existing ground surface elevation to convey the bulk of the flows of Morrison Creek through the reclaimed aggregate mining areas and lower pit ~~within and/or along the Vineyard I, Aspen IV South and Aspen III South sites~~. The bypass channel would be at-grade and would begin/meet the natural Morrison Creek drainage on the Aspen IV South site between Mayhew and Bradshaw Road (Figure 3-7).

The bypass channel would be constructed as part of the site reclamation using the excavated overburden resulting from the mining. It would be located along the alignment shown on the *Drainage Mitigation Plan* (Figure 3-7). As a result of project phasing, the construction of the bypass channel on the project site would not occur until years 7 and 8 (years 15 and 16 including the upstream reach). Morrison Creek would not be affected on the project site until year 9 (year 17, including the upstream reach), at which time the flows would be diverted from the creek to the bypass channel (Figure 3-8).

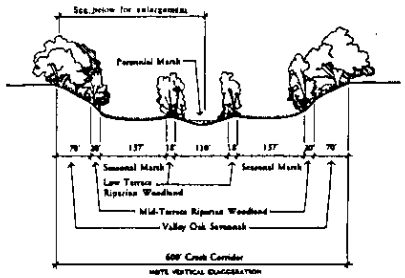
The bypass channel would be sized to pass a portion of the existing 100-year peak flow [1,650 cubic feet per second (cfs)], which would allow the majority of Morrison Creek to continue downstream through the project site with minimal disruption. The bypass channel would have a capacity of 1,617 cfs where it meets Hedge Road. A flow pattern similar to the existing regime would be maintained to attempt to protect the natural values downstream.

When the drainage volume from Morrison Creek exceeds the capacity of the channel, the excess would be diverted into one of the pit floor detention areas via weiring/outfall structures constructed in the bypass channel. The lower pit, which is included within the project site, would provide 306 acre-feet of detention/storage volume. The upper pit, which is included in the project site for the upstream portion of the mining reach, would be substantially larger than the lower pit and would provide 1,469 acre-feet of detention/storage volume. The weirs and necessary drop structures would be designed and constructed to prevent plunge pools and down-cutting, when the water flows from the bypass channel down onto the pit floor.

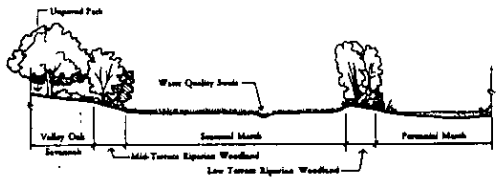




Section A - A



Morrison Creek Corridor Typ. Section



Creek Corridor Riparian Zone

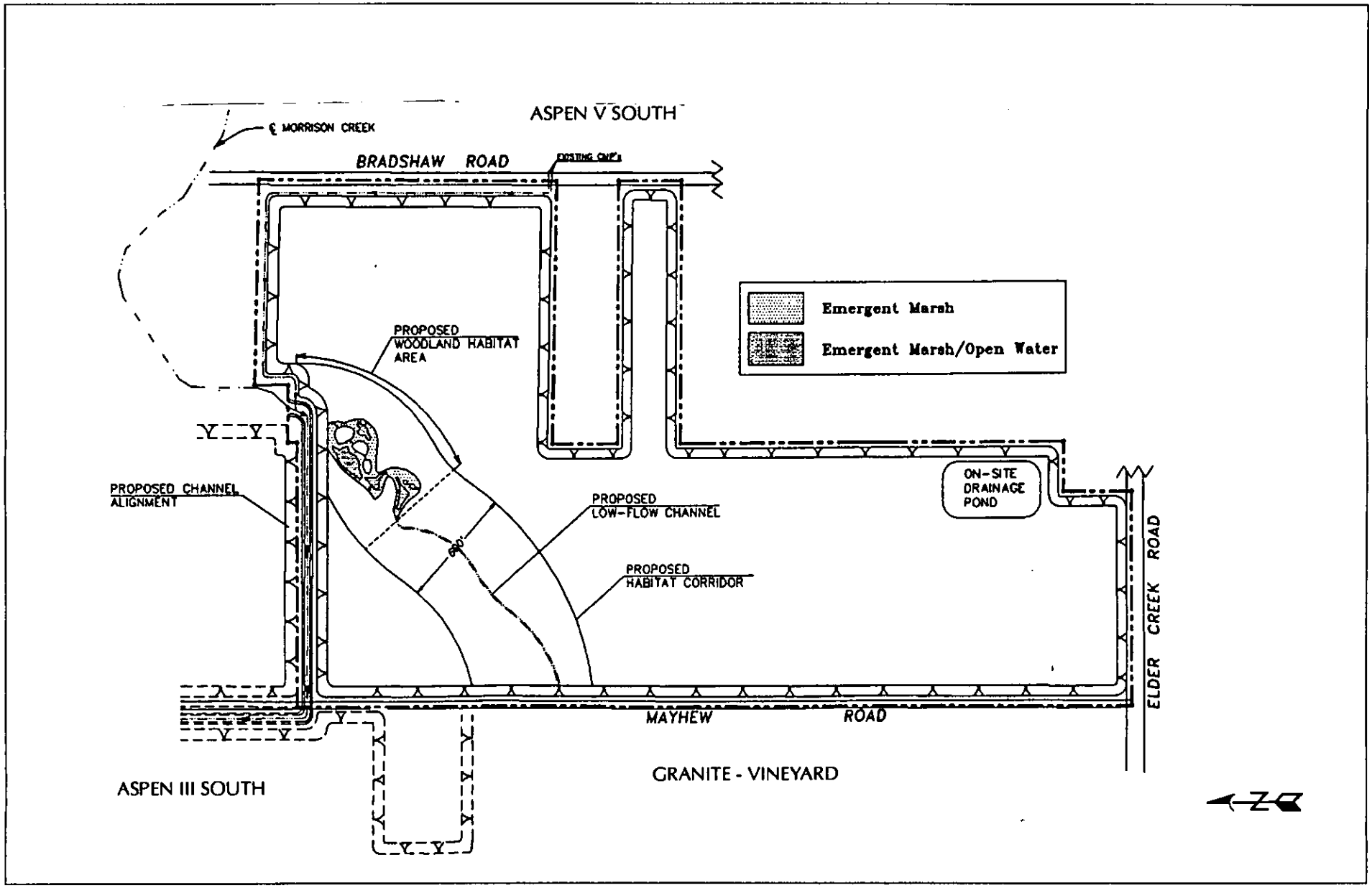
Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 3-6a
Wetland Mitigation Plan-Vineyard I
Proposed Project

EDAW Inc.

Source: Robert E. Young Engineers, 1994

N:5s052:015



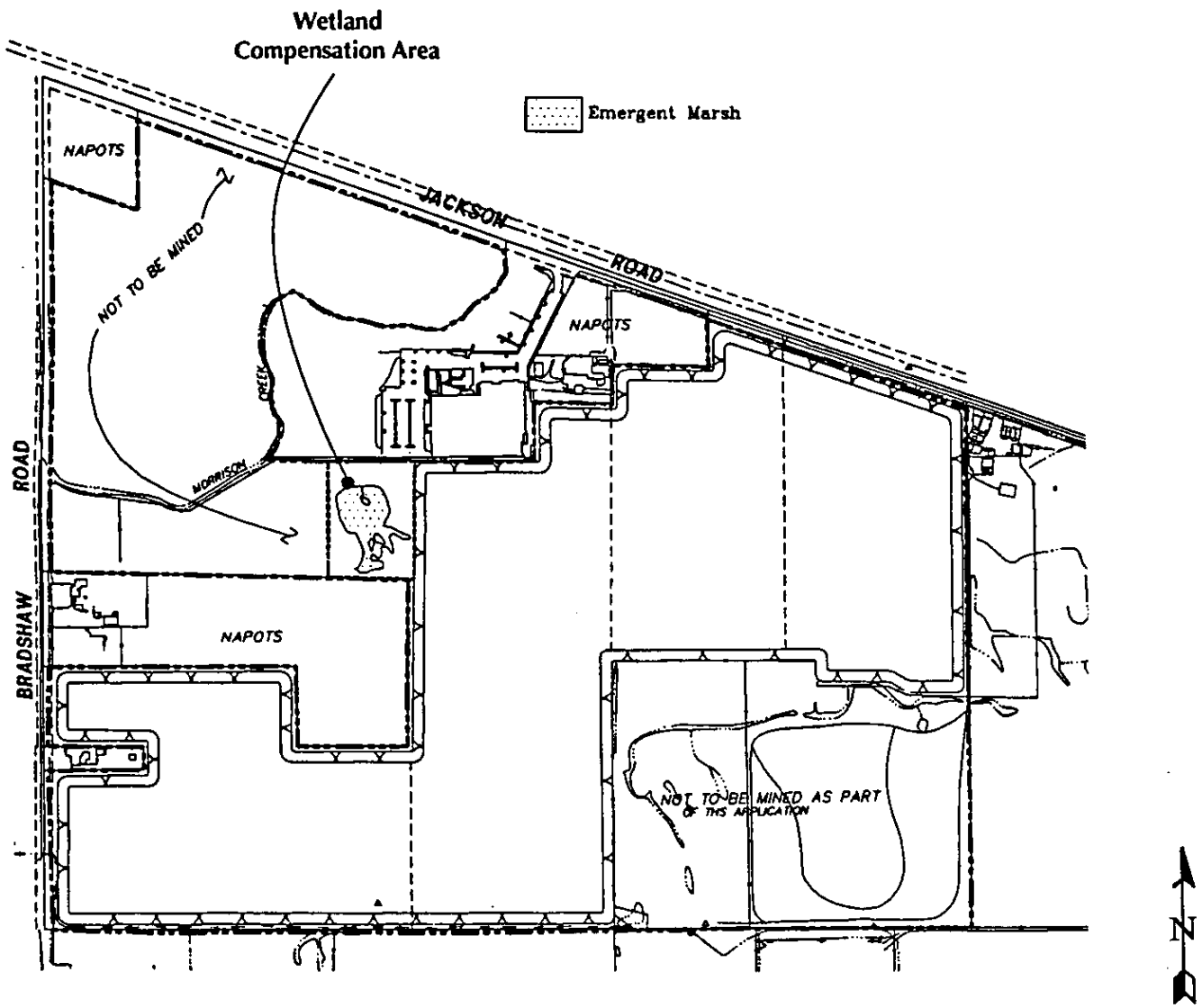
Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 3-6b
Wetland Mitigation Plan-Aspen IV South
Proposed Project

EDAW Inc.

Source: Sugnet & Associates, 1994

N:5s052:016



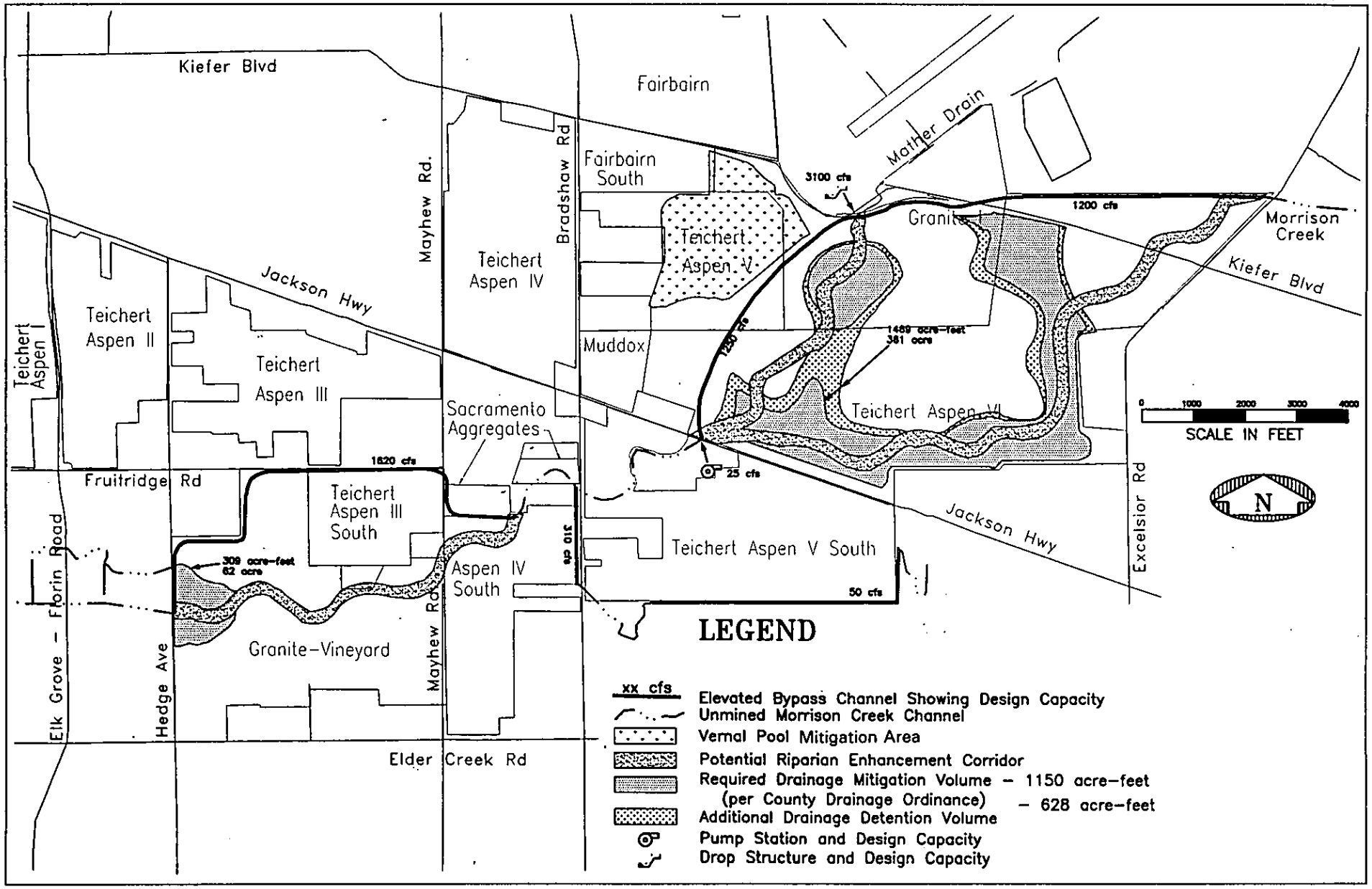
Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 3-6c
Wetland Mitigation Plan-Aspen V South
Proposed Project

EDAW Inc.

Source: Sugnet & Associates, 1994

N:5s052:017



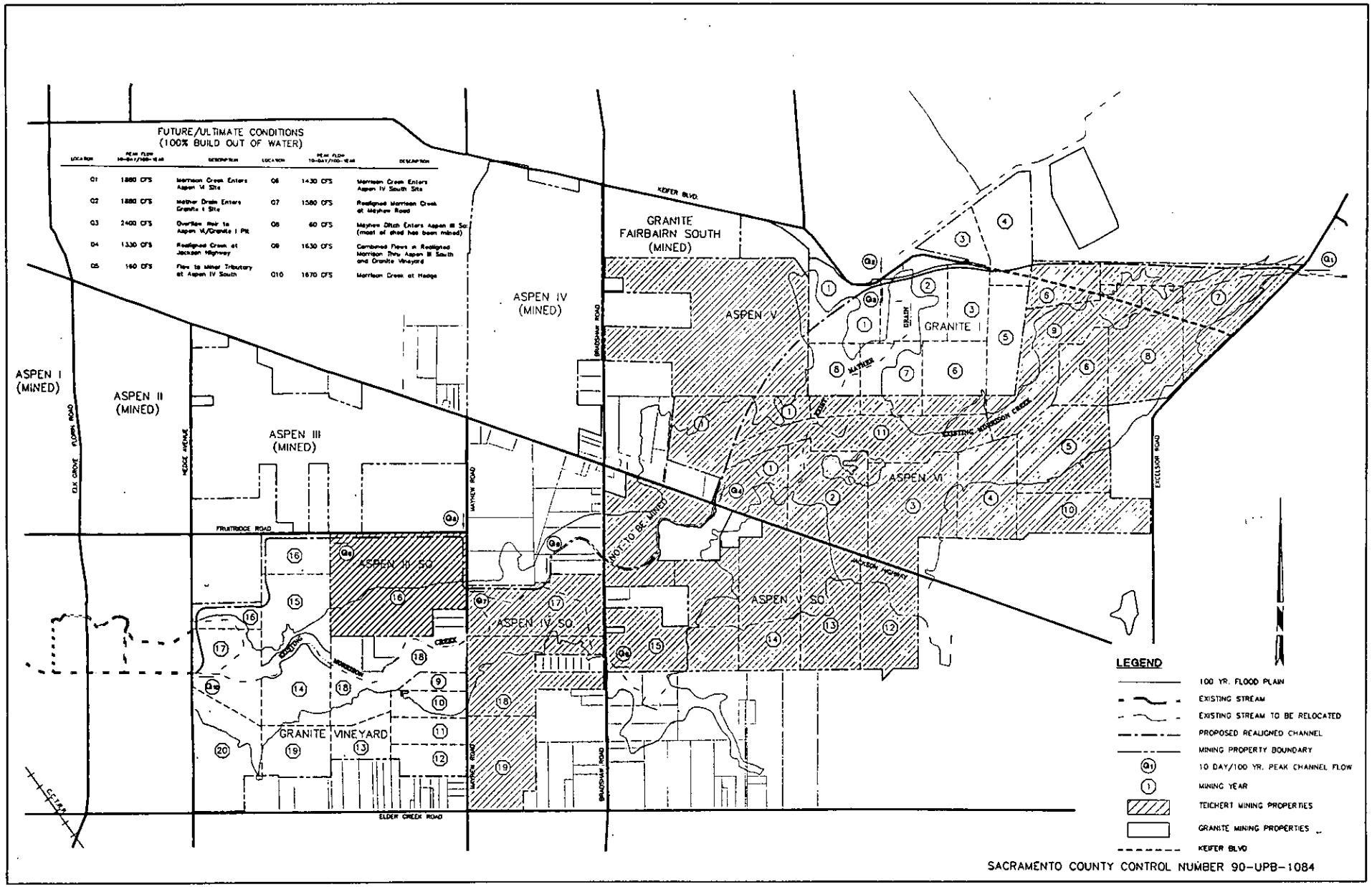
Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 3-7
Drainage Mitigation Plan—Proposed Project (Part A)

EDAW Inc.

Source: County of Sacramento Water Resources Division

N:5s052:021



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 3-8
Mining Reach Phasing and Hydraulics
Proposed Project

EDAW Inc.

Source: GW Consulting Engineers

N:5s052:014

A small variable speed pump station with a maximum capacity of 25 cfs would be located adjacent to the northeast portion of the project site where the bypass channel proposed in the upstream portion of the mining reach terminates, and where the existing drainage channel of Morrison Creek continues to the project site (on the Aspen V South site). This pump station would be used to evacuate water that does not percolate, evaporate, or transpire from the ponding/detention area located north of Jackson Highway (i.e., in the upstream portion of the mining reach).

The proponents would finance and construct these facilities as reclamation measures for the mining operations for which they are requesting permitting. Unless the County supplements that proposed with one of the Part B alternatives (see 4.3 Proposed Project with County Drainage Alternatives), the proposed mitigation would require the mined areas to remain privately owned by the proponents relieving the County of any involvement in the operation and maintenance of the bypass channel.

3.6.4 Wetland Mitigation Plan

Mining of the combined sites would impact approximately 19.83 ~~24.56~~ acres of "Waters of the United States," which are under the jurisdiction of the United States Army Corps of Engineers (Corps). As previously mentioned, this acreage includes seasonal wetlands, portions of Morrison Creek, and irrigated seasonal wetlands. The proposed mining and reclamation activities on the Aspen III South site would not impact any waters of the U.S. The other three mining applications (Vineyard I, Aspen IV South and Aspen V South) include wetland mitigation plans (developed by the proponents' environmental consultants and included in Appendix B) that attempt to compensate for the loss of acreage and function of wetlands impacted by the proposed project. A summary of the proposed wetland mitigation plans is provided below.

Vineyard I

The Vineyard I site has approximately 17.22 ~~21.95~~ acres of wetlands or other waters of the U.S. that would be affected as a result of the proposed project. These 17.22 ~~21.95~~ acres include 12.24 ~~8.20~~ acres of ~~perennial marsh, 4.27 acres of~~ riparian woodland, 3.84 acres of tributaries, and 1.14 ~~9.39~~ acres of seasonal marshes (not associated with the creek). The *Wetland Mitigation Plan* prepared by Zentner and Zentner (January, 1995) proposes to mitigate the loss of this habitat by the creation of: 12.62 acres of perennial marsh, 8.76 acres of riparian woodland, and 11.74 acres of seasonal marsh. Total compensation habitat would be 33.12 acres, which represents an approximate replacement ratio of 1.9:1 ~~1.5:1~~. Figure 3-6a provides an overview of the proposed mitigation.

Aspen IV South

The Aspen IV South site has a total of 1.78 acres of wetlands or other waters of the U.S. that would be disturbed as a result of the proposed project. Of the 1.78 acres on-site, 1.09 are directly associated with Morrison Creek, 0.44 is drainage channel, and 0.25 is seasonal wetland. The *Wetland Mitigation Plan* prepared by Sugnet & Associates (October, 1994) proposes to create .20 acre of low-flow channel, and 2.44 acres of emergent marsh to compensate for the habitat that would be lost as a result of the proposed project. Total compensation habitat would be 2.64

acres, representing a replacement ratio of nearly 1 5 1 Figure 3-6b provides an overview of the proposed mitigation

Aspen V South

Morrison Creek flows across the west corner of the Aspen V South site In addition to the creek, several other wetland habitats, including vernal pools, seasonal wetlands, irrigated seasonal wetlands, and artificial wetlands also occur on-site An oak woodland is associated with Morrison Creek in this location Neither Morrison Creek, the oak woodland, or the vernal pools are proposed to be disturbed within the site Approximately 0 83 acre of irrigated seasonal wetland would be impacted as a result of the proposed project The *Wetland Mitigation Plan* prepared by Sugnet & Associates (October, 1994) proposes to create 1 5 acres of emergent marsh within the proposed unmined portion of the site to compensate for lost wetlands This compensation habitat represents an approximate replacement ratio of 1 8 1 Figure 3-6c provides an overview of the proposed mitigation ~~The preserve area would occur outside of the flood detention area, to the west of the proposed at-grade bypass channel~~

4.0 Alternatives to the Proposed Project

4.1 INTRODUCTION

This chapter provides a detailed description of the four alternatives to the proposed project considered in this EIR/EIS which include: the Proposed Project without the Vineyard I Processing Plant Alternative; the Proposed Project with County Drainage Alternatives (Part B Options); the 100-Year Floodplain Protection Alternative; the Creek Buffer Alternative; and the No Project Alternative. Discussion of the environmental consequences of the proposed project and all the alternatives considered in this EIR/EIS are provided in Chapter 5.0.

As a result of response to comments on the Draft EIR/EIS and based on public input received during the review period and during the Policy Planning Commission's hearings on the project, several revisions to this Chapter have been made. A summary of these changes is provided below, along with the basis for the changes.

Several commentors on the Draft EIR/EIS requested that a modified floodplain protection alternative be considered in the EIR/EIS. This alternative would require a 150-foot buffer area on either side of Morrison Creek similar to the condition of approval placed on the north project by the Corps of Engineers. As a result of these requests, this alternative herein referred to as the "Creek Buffer Alternative" has been incorporated into the EIR/EIS and is described in Section 4.4 and evaluated in Chapter 5.

Also during the review period on the draft, the project proponents were able to successfully negotiate easements necessary to allow conveyor access to an existing processing plant thereby removing the need to construct an on-site processing plant on Vineyard I. As a result, the proponents have indicated that the "Proposed Project Without Vineyard I Processing Plant Alternative" already evaluated in the Draft EIR/EIS (see Section 4.2 below) is now the preferred project.

It should also be noted that following additional consideration and evaluation of the County Drainage Alternatives (Part B), the County of Sacramento determined that the incremental downstream flood control benefits would be minimal. Therefore the County has decided to forgo additional consideration of these alternatives at this time.

4.2 PROPOSED PROJECT WITHOUT THE VINEYARD I PROCESSING PLANT

This alternative is included to allow for flexibility in land use decisions during the application review process and following the potential approval of entitlements. Mining, reclamation, drainage mitigation, and wetland mitigation plans would generally be the same as the proposed project. However, the alternative would not include processing facilities on the Vineyard I site. This alternative assumes on-site excavation only. It is assumed that Granite Construction Company could achieve conveyer access to the Vineyard I site and conduct processing activities at an existing facility. Granite Construction Company currently operates a facility approximately two miles to the northeast, at Kiefer Boulevard and Bradshaw Road. ~~The feasibility of this alternative is dependent on land use patterns over the ensuing years. To date, preclusive land uses have prohibited conveyor access to the Vineyard I site.~~ The easements necessary to allow

conveyor access as described above were granted following the review period on the Draft EIR/EIS. Figure 4-1 presents the proposed conveyor belt alignment.

4.3 PROPOSED PROJECT WITH COUNTY DRAINAGE ALTERNATIVES (PART B OPTIONS)

The County Drainage Alternatives were originally developed in the Sacramento County Water Resources Division's 1994 *Morrison Creek Mining Reach Drainage Mitigation Plan* (MCMR-DMP) to go beyond the minimum requirements for drainage mitigation, in order to provide additional flood control and storm water detention benefits. The Part B alternatives are intended to address deficiencies identified in studies conducted by the Corps and the City of Sacramento which indicated that, downstream of the project site, the Morrison Creek channel and its levees are inadequate to carry a 100-year flood. The studies also indicated that further downstream, because the outlet of Beach/Stone Lakes can be blocked by high Delta flood stages, any increase in the volume of storm water flowing into the lake would aggravate (to some degree) flooding in the surrounding area. If approved, the proposed project (Part A) would be implemented and funded exclusively by the proponents. In the event that one of the County Drainage Alternatives (Part B) is selected, the County would be responsible for implementation of improvements which go beyond those included in the proposed project (Part A). As a note, the County Drainage Alternatives (Part B) are considered post-mining projects; however, all or part of the Part B alternatives may be constructed with the proposed project facilities.

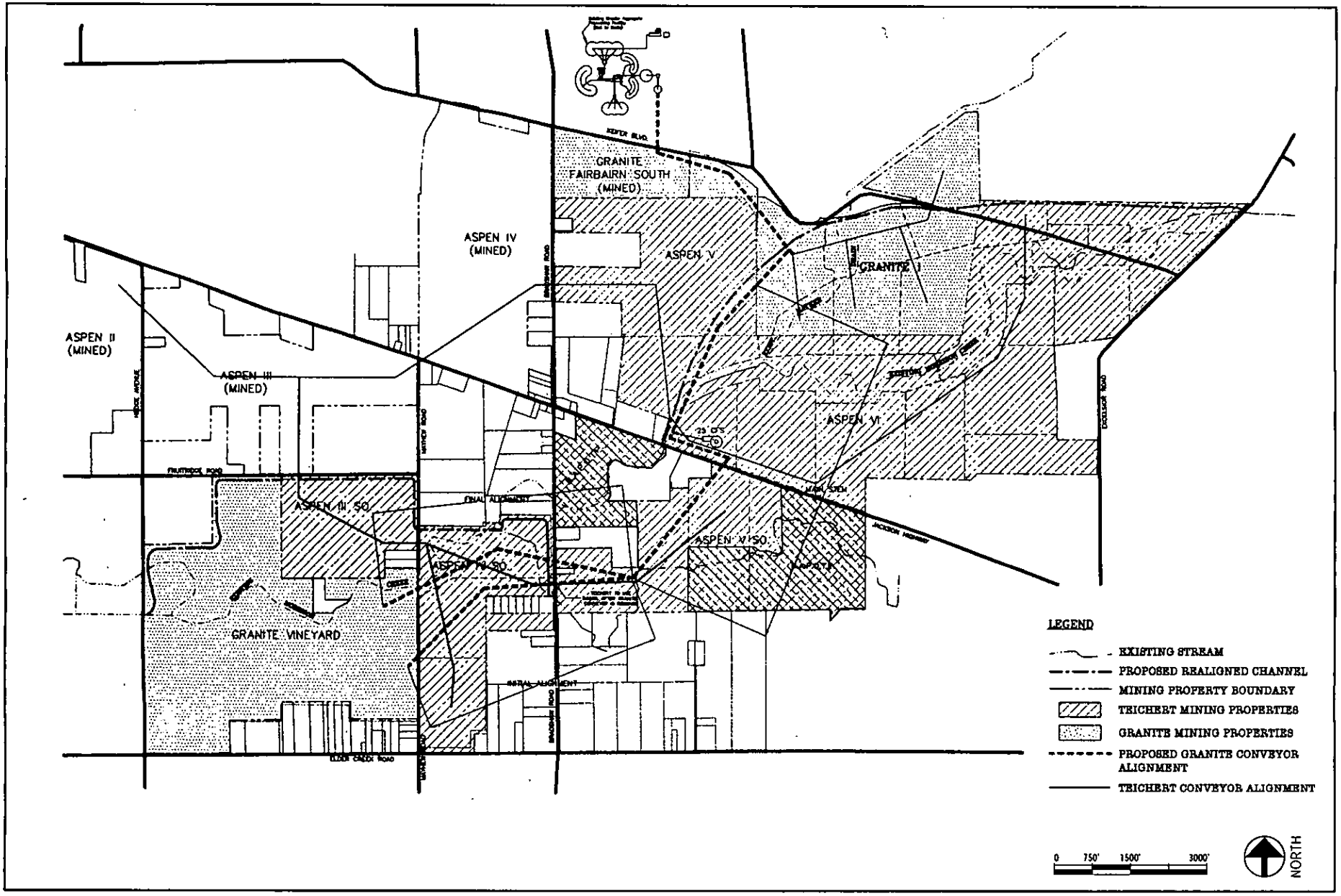
The MCMR-DMP identified a total of seven drainage mitigation plan alternatives, including the proposed project's drainage mitigation plan (Part A). Part B of the MCMR-DMP originally identified six alternatives, three of which (Alternatives 2, 5 and 6) have been determined to be the most feasible and have therefore been carried forward for further examination in this EIR/EIS. The three County Drainage Alternatives are:

1. Pump Everything Small Pump Alternative;

2. Downstream Bypass Channel Alternative; and

3. Volume Detention Bypass Channel Alternative.

The two principal variables that differentiate the three County Drainage Alternatives are the percentage of total floodflow that would be detained in the mining pits, and the rate at which accumulated water in the pits would be pumped out into downstream portions of Morrison Creek. Figures 4-1a through 4-1c represent the general configuration of the three alternatives, and Table 4-1 provides a comparison of these alternatives. Because the County Drainage Alternatives (Part B) are focused on comprehensive flood control measures, the geographic boundaries of the improvements extend beyond the project site, north of Jackson Highway into the upstream portion of the Morrison Creek Mining Reach. This portion of the Mining Reach is analyzed in a separate EIR/EIS which is available for review at the County of Sacramento Department of Environmental Review and Assessment.



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

EDAW, Inc.

N:5s052

Figure 4-1
Proposed Conveyor Alignment
"Proposed Project Without Vineyard I Processing Plant" Alternative

Source: Granite Construction Company, 5/98

Under the Pump Everything Small Pump Alternative, all Morrison Creek streamflow would enter the upper mining pit (located north of Jackson Highway) and would be pumped at the downstream end of the upper pit back up to the natural invert. The pumped outflow would be carried around the lower pit (located on-site) in a perimeter bypass channel. Under the Bypass Channel Alternatives, a bypass channel or pipe would carry a portion of Morrison Creek peak flows around the perimeter of both the upper and lower pits. Excess flows would be diverted into the mining pits. The lower mining pit of the Downstream Bypass Channel Alternative would have roughly double the storage (610 acre-feet or approximately 122 surface acres) of the other County Drainage Alternatives and would require a 5-cfs pump station at Hedge Avenue.

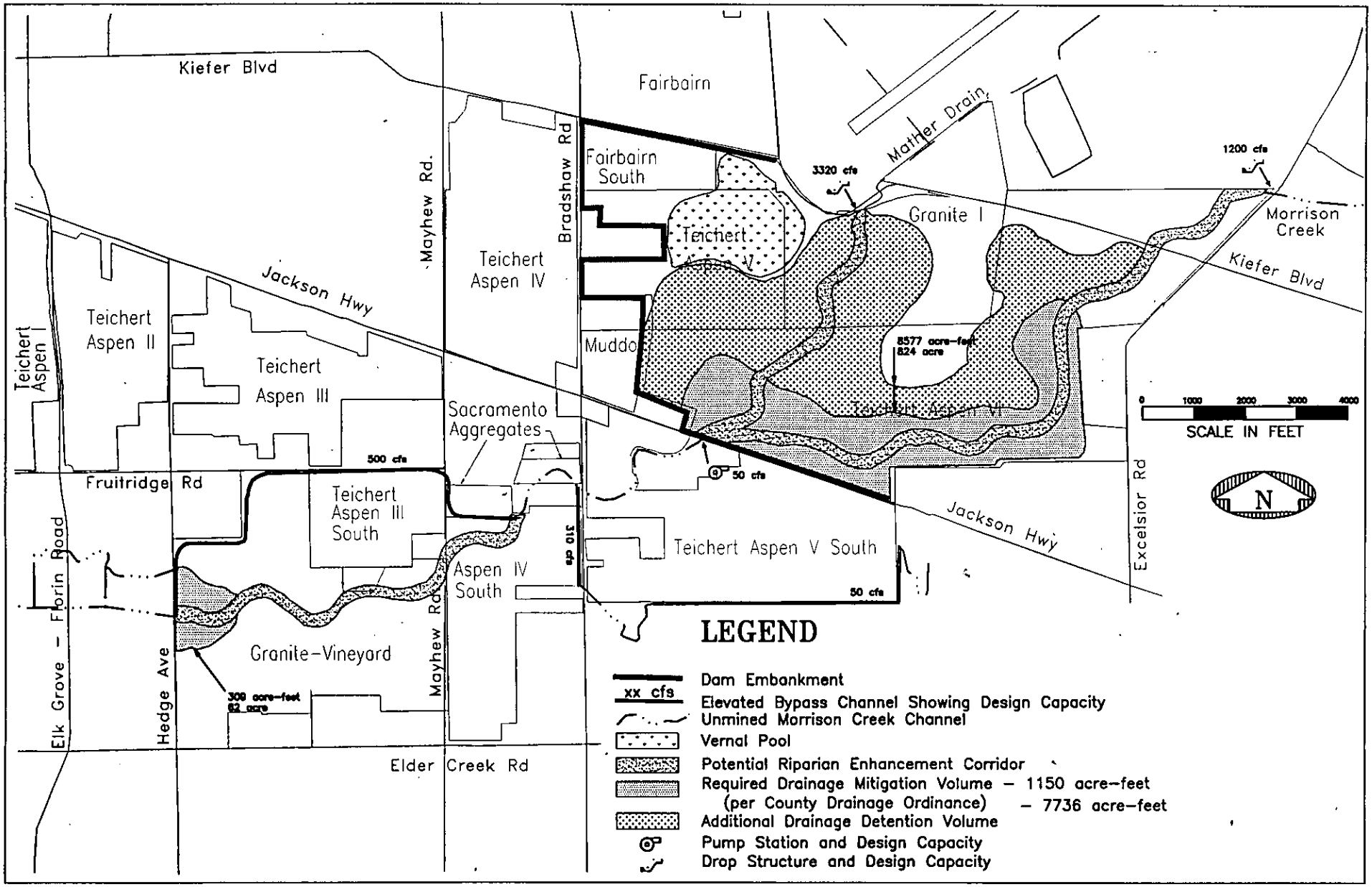
4.4 FLOODPLAIN AND CREEK PROTECTION ALTERNATIVES~~100-YEAR FLOODPLAIN PROTECTION ALTERNATIVE~~

4.4.1 100-Year Floodplain Protection Alternative

This alternative is being considered to minimize the cumulative effects of mining inside the 100-year floodplain. As shown in Figure 3-8, approximately 310 acres (32%) outside of the 100-year floodplain for Morrison Creek would be mined, yielding roughly 8.8 million cubic yards of sand and gravel (based on an assumed 20-foot average thickness of the usable resource). Under the 100-Year Floodplain Protection Alternative, the natural character of the 100-year floodplain for the creek would be maintained by avoiding aggregate extraction within the floodplain. This alternative would carry future 100-year flood flows (taking into consideration buildout conditions in the watershed). It is estimated that ~~137,600~~ 1,000,000 cubic yards (CY) of overburden material would need to be transported off-site, the remaining overburden would be utilized for on-site reclamation activities. The proposed mining activities would be phased, and would generally progress in an east-to-west direction.

Based on an agreement reached between the project proponents, conveyor access would be provided such that an on-site processing plant on Vineyard I would not be needed. Refer to Section 4.2 for additional information.

~~The proposed project assumes that it would not be possible to transport the recovered aggregate from the Vineyard I site to an existing aggregate processing plant via a conveyor belt system. Therefore, this alternative would include the construction and operation of an on-site processing plant. The proposed plant would have an average operating rate of 1,000 tons/hour, and an average annual rate of 2 million tons~~.



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 4-1a
Pump Everything Small Pump
County Drainage Alternatives (Part B)

EDAW Inc.

Source: County of Sacramento Water Resources Division

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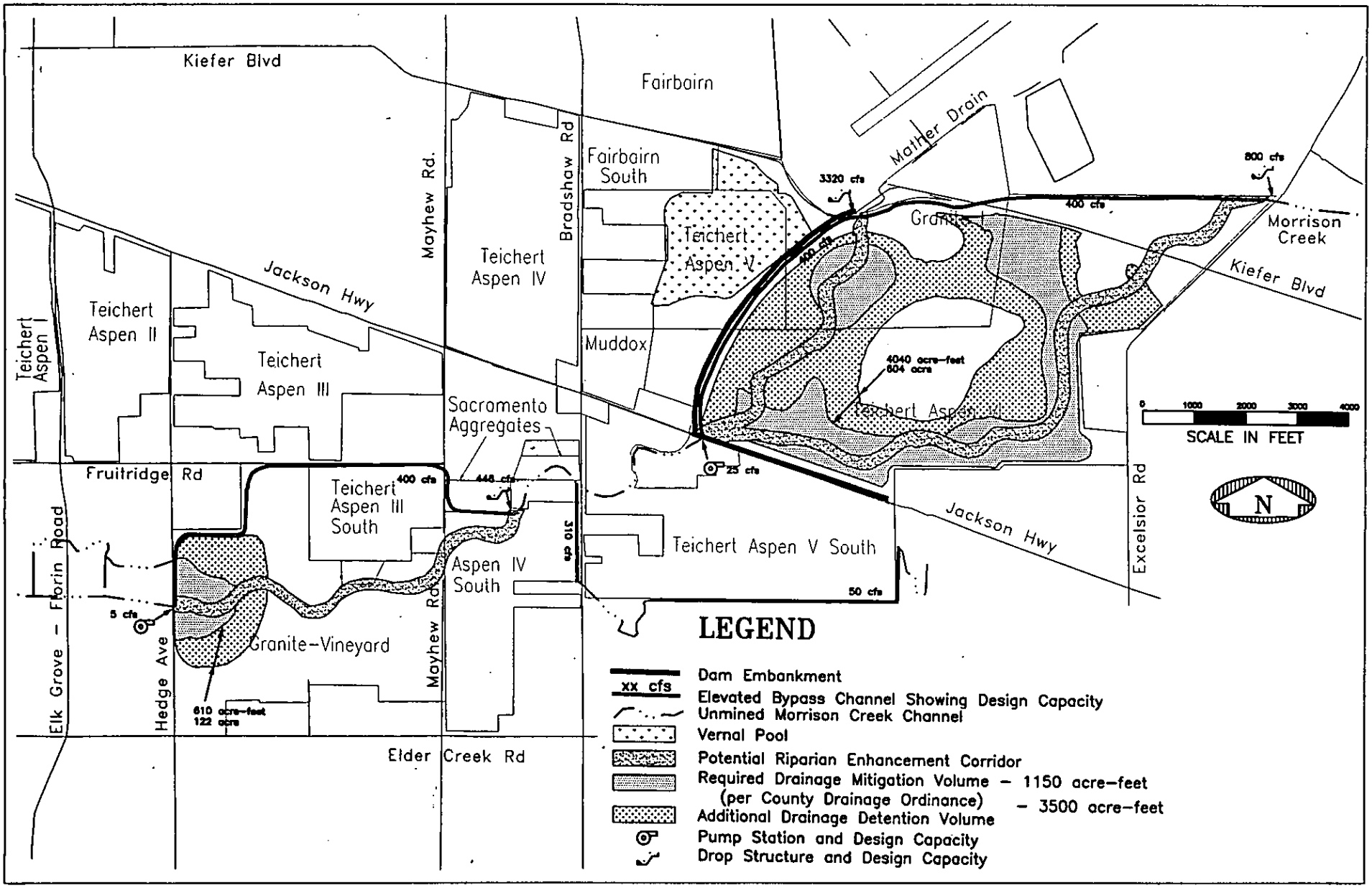

Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 4-1b
Downstream Capacity Bypass Channel
County Drainage Alternatives (Part B)

EDAW Inc.

Source: County of Sacramento Water Resources Division

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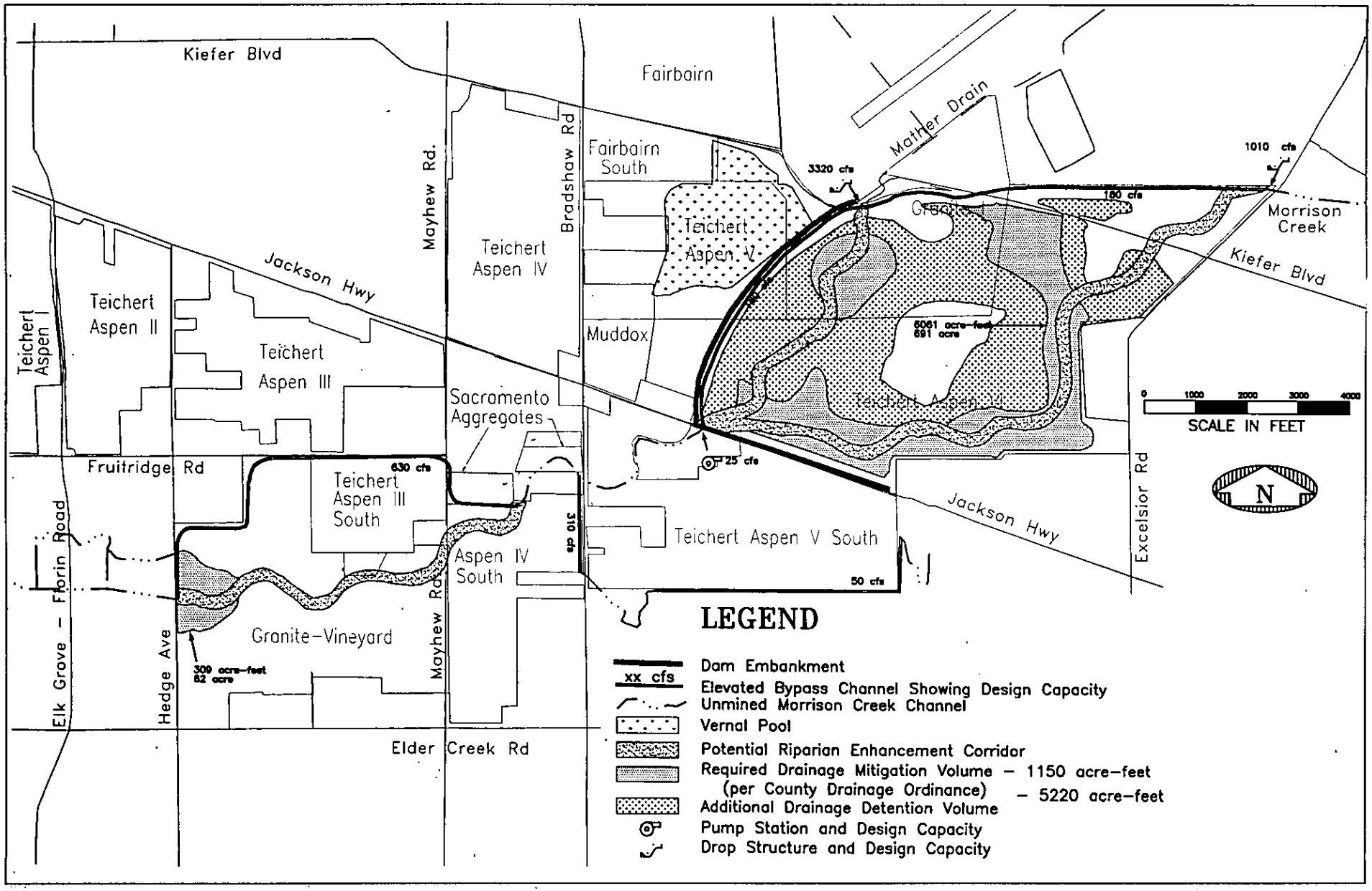


Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 4-1c
Volume Detention Bypass Channel
County Drainage Alternatives (Part B)

EDAW Inc.

Source: County of Sacramento Water Resources Division

N:5s052:018

Table 4-1
Comparative Matrix
Proposed Project (Part A) and County Drainage Alternatives (Part B Options)

Characteristics	Proposed Project (Part A)	County Drainage Alternatives (Part B)		
		Pump Everything Small Pump	Downstream Capacity Bypass Channel	Volume Detention Bypass Channel
Major Project Benefits				
Benefits	Peak Flow Reduced Below Existing Privately Funded	Peak Flows Further Reduced County Volume Increase Mitigated	Peak Flows Further Reduced	Peak Flows Further Reduced County Volume Increase Mitigated
Major Project Disadvantages				
Disadvantages	Safety Threat To Both Pit Floors Bypass Channel Has Low Aesthetic Appeal	DSOD Dam Embankment Requirements Pumping Costs Disrupts Natural Flow Hydrograph Mining Difficult	DSOD Dam Embankment Requirements Safety Threat To Upper Pit Floor Capital Cost Disrupts Natural Flow Hydrograph Bypass Channel Has Low Aesthetic Appeal	DSOD Dam Embankment Requirements Safety Threat To Upper Pit Floor Capital Cost Disrupts Natural Flow Hydrograph Bypass Channel Has Low Aesthetic Appeal Mining Difficult
Design Parameters				
Bypass Channel Capacity at Upper Pit (cfs)	1,250	N/A	400	180
Bypass Channel Capacity at Hedge Road (cfs)	1,620	500	400	630
Upper Pit Required Storage Area Volume (ac-ft)	1,469	8,577	4,040	6,061
Lower Pit Required Storage Volume (ac-ft)	309	309	610	309
Capacity of Upper Pit Pump (cfs)	25	50	25	25
Capacity of Lower Pit Pump (cfs)	N/A	N/A	5	N/A

Table 4-1
Comparative Matrix
Proposed Project (Part A) and County Drainage Alternatives (Part B Options)

Characteristics	Proposed Project (Part A)	County Drainage Alternatives (Part B)		
		Pump Everything Small Pump	Downstream Capacity Bypass Channel	Volume Detention Bypass Channel
Operation				
Annual Stormwater Diversion:				
Average % of Total Flow	14	100	36	70
Average Volume (ac-ft)	1,358	10,980	3,492	6,790
Maximum Volume (ac-ft)	4,057	30,733	10,434	20,287
Annual Pumping Days:				
Average	18	97	48	120
Maximum	68	286	161	362
Cost (in million dollars)				
Capital Cost	$7.2	$3.6	$15.7	$14.1
Capital Cost with Land	$9.8	$7.8	$17.2	$16.1
Total Annual Cost (operational)	$0.096	$0.229	$0.275	$0.246
Habitat in Upper Pit[a] (acres)				
Permanent Deep Water	2	15	3	3
Permanent Shallow Water	8	114	9	9
Seasonal Mudflat	76	89	161	161
Riparian Vegetation	88	146	181	186
Upland Vegetation	191	0	10	5
Agriculture	476	476	476	476
Flow in Downstream Channel				
Peak 100-year Flow (cfs)	1,598	446	400	626
Peak flow less than existing peak (3,400 cfs)?	Yes	Yes	Yes	Yes
Peak flow < or = channel capacity?	No	Yes	Yes	Yes
Other Environmental Effects				
Adverse effects on Beach/Stone Lakes habitat?	No	No	No	No
Pump Station Noise (dBA at 200 feet)	55	58	55	55

[a] Area calculation based on area/elevation data from G. W. Consulting Engineers, 1994.

Notes:

- Maximum annual diversions and pumping days are the maximum simulated annual totals during 1960-1987.
- Although the peak flow at Hedge Avenue would be greater under the Volume Detention Bypass Channel (Alternative B) than under the Downstream Capacity Bypass Channel (Alternative B), channel storage would attenuate the peak to 400 cfs before reaching capacity -- limited locations.
- Noise level is for the larger of the two pumping stations.
- Upper Pit is located within Morrison Creek North project (north of Jackson Highway).

Source: County of Sacramento, Water Resources Division, 1994. *Morrison Creek Mining Reach Drainage Mitigation Plan.* (prepared by Montgomery Watson); and County of Sacramento, Water Resources Division, 1994. *Environmental Issues Analysis for Morrison Creek Mining Reach Drainage Mitigation Plan.* (prepared by Jones & Stokes).

Reclamation activities would proceed on an annual basis during the mining activities. Once the overburden is removed, aggregate resources would be extracted and the stockpiled overburden materials would be used as fill to reclaim the harvested area. Annual inspections of reclamation activities would be conducted, per the requirements of the Surface Mining and Reclamation Act of 1975 (SMARA). The vertical perimeter of the pit would have 1.5:1 side slopes and would be approximately 25 feet high.

When compared to the proposed project, this alternative would leave 657 acres (68%) of the site undisturbed and forego extraction of 28 million cubic yards of aggregate.

4.4.2 Creek Buffer Alternative

The purpose of the Creek Buffer Alternative is to protect the existing riparian and wetland habitat along the creek corridor, while providing mining and reclamation opportunities. This alternative was identified by several commentors during the review of the Draft EIR/S as an alternative recommended for further development, consideration and evaluation as part of the proposed project. The 150-foot Creek Buffer Alternative was derived from a condition placed by the U.S. Army Corps of Engineers (Corps) on the Morrison Creek Mining Reach North (Upstream) of Jackson Highway project that was previously approved. In its issuance of the required 404 permits for the North project, the Corps required that the applicants preserve a 150-foot buffer on either side of the Morrison Creek channel for a period of five years to determine if the riparian vegetation could reestablish itself (after the removal of current grazing practices), and to test the viability of having an elevated creek corridor. If the vegetation does not re-establish and the viability of safely maintaining an elevated creek corridor remains questionable, mining may be allowed by the Corps within the 150 buffer area. If however, vegetation is reestablished and the elevated creek corridor is feasible for the north site, mining may be precluded in that area. The Creek Buffer Alternative evaluated in this EIR/S differs from the 404 permit conditions from the north project in that the preservation area would be established without a 5-year waiting period.

Under the Creek Buffer Alternative, the natural creek channel and associated riparian vegetation would be preserved by precluding mining activities within 150 feet of the lateral extent of Corps jurisdiction associated with the main stem of Morrison Creek. This would preclude mining on *approximately 80 acres (or 8.3%)* of the project site. Based on an assumed 20-foot average thickness of useable resources (as was used for development of the100-Year Floodplain Protection Alternative), *approximately 27.5 million cubic yards of aggregate resources* would be excluded from mining under this alternative. It is estimated that approximately *1,000,000 cubic yards of overburden materials* would need to be transported off of the project site.

Mining and reclamation would occur up to the edge of the 150-foot buffer, and the perimeter would be back filled with 2:1 slopes. Based on approval by the Corps, mining could take place during the dry season from April 15th to October 15th of each year. Such mining would only be allowed up to the edge of the riparian vegetation as delineated and monitored by the Corps. Following such mining activities, the proponents would be required to back fill the areas that had been mined within the 150-foot buffer area at a 2:1 slope in the same manner as proposed under the 100-Year Floodplain Protection Alternative. Refer to *Figure 4-2)* for a depiction of the Creek Buffer Alternative. Like the 100-Year Floodplain Protection Alternative, the Morrison

Creek channel would be retained at existing grade throughout the project site. Under the Creek Buffer Alternative, a 350-foot corridor of land, including the creek, would be preserved, and surrounded on both sides by the proposed mining and reclamation areas (which would be approximately 25 feet below grade). Refer to Section 5.1.2 and 5.1.3 for additional information on the potential flooding impacts and associated flood control facilities.

Based on an agreement reached between the project proponents, conveyor access would be provided such that an on-site processing plant on vineyard 1 would not be needed. Refer to Section 4.2 for additional information.

4.5 NO PROJECT ALTERNATIVE

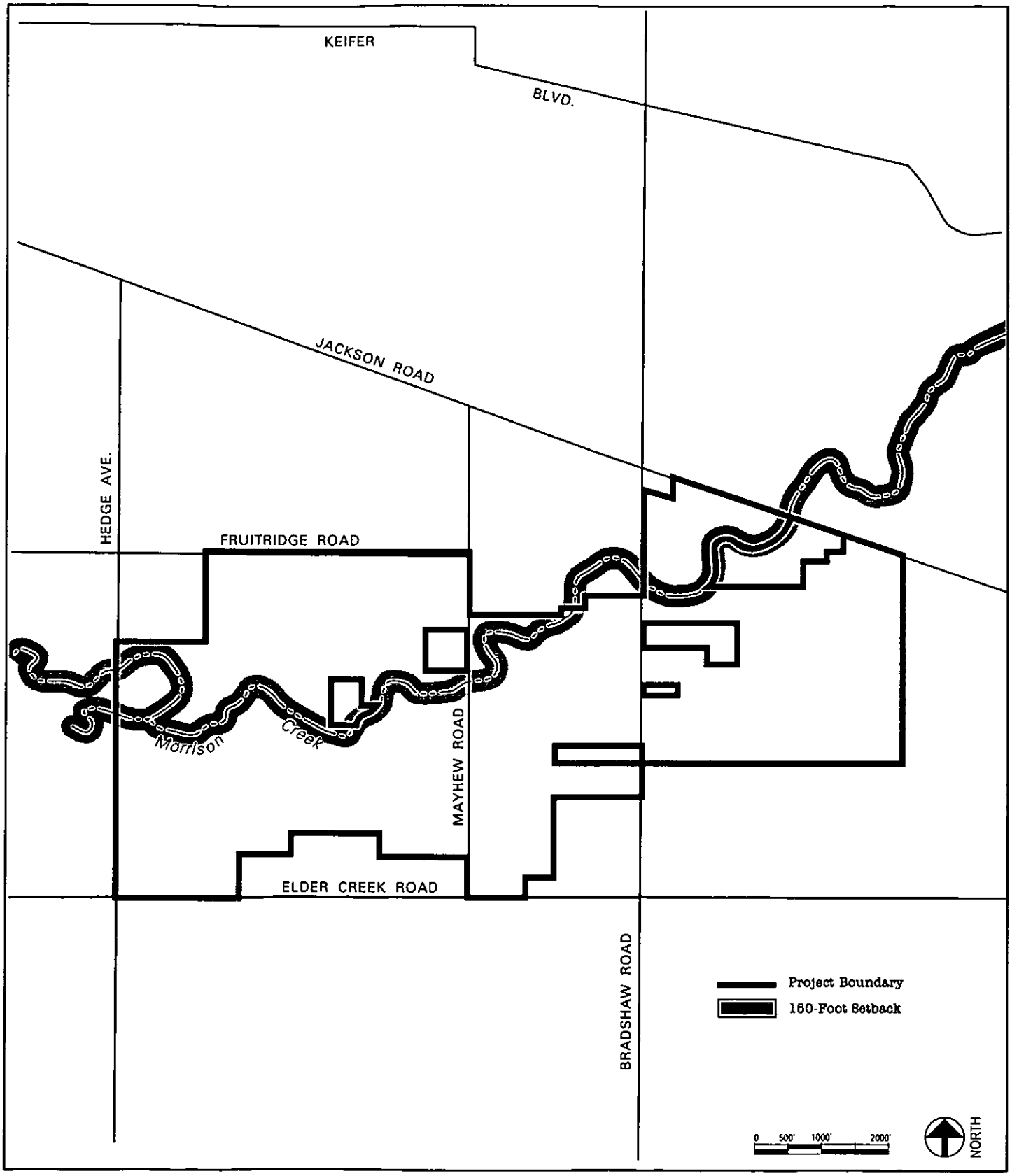
The No-Project Alternative assumes that the project site would not be mined for aggregate and that it would remain in its present condition. The supply of high quality aggregates from the project site would not be made available to the proponents. Site specific impacts would therefore be avoided under the No Project Alternative. The proponents may use the land for agricultural purposes or sell or lease the property to another party interested in pursuing uses allowed under the current zoning. The property is currently zoned for uses which allow general agricultural practices. Among the permitted uses is cattle grazing. Other land uses consistent with the existing Industrial Reserve, Agricultural, and Manufacturing zoning could also be developed.

If implemented, this alternative would not allow new mining operations on the project site (i.e., operations which have not already been granted the required land use entitlements). Initially, the proponents would harvest reserves for which land use permits have already been granted. After these sites are harvested, the proponents would need additional off-site reserves in order to remain in operation. If these alternative resources are located adjacent to existing harvest areas, they could be transported by conveyor to one of the two existing processing plants. Resources that are not contiguous to existing harvest areas would need to be transported to processing plants by truck, or the plants would need to be relocated nearer to the harvest site.

Alternative aggregate sources would be needed to meet the projected consumption needs of the Sacramento region.

4.6 ALTERNATIVES CONSIDERED BUT REJECTED

The following alternatives described below were originally identified, but were withdrawn from further analysis in this EIR/EIS for the reasons described below.



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 4-2
The Creek Buffer Alternative

EDAW, Inc.

Source: EDAW, Inc., 6/99

N:5a052

4.6.1 Recycling Alternative

This alternative would be focused on the use of recycled concrete in County and private road construction as well as other construction applications. The use of recycled aggregate would avoid the potential adverse environmental impacts of mining described in this EIR/EIS. ~~However, this alternative may not be feasible at this time as there are no private companies in Sacramento which recycle concrete and asphalt from demolition debris.~~ The project proponents have indicated that they already practice recycling to the extent feasible. However, limitations include lack of material to be recycled and restrictive specifications that limit the use of recycled materials for particular applications.

This alternative would be consistent with the Conservation Element of the *Sacramento County General Plan* (Sacramento County, 1993) which includes the following Objective:

> *"Ten percent and twenty percent of demand for aggregates met by recycled or substitute materials by 2000 and 2010 respectively. (page 37)"*

This Objective would be pursued in the long-term by the County through several implementation measures. These implementation measures include: modification to existing construction standards (for County roads); the development of appropriate conditions applicable to projects involving private roads; investigation of the use of recycled concrete or substitute materials in other construction applications and concrete recycling operations in other location to determine appropriate mitigation measures. Although opportunities for recycling continue to be implemented within the County, this Alternative was rejected for its inability to materially satisfy current and future projected demand for aggregates, as well as for the restricted opportunities for use of the recycled materials. ~~At present, based on the lack of existing recycling facilities and County enforcement, however, it would not be feasible to implement this alternative.~~

4.6.2 Off-Site Alternative(s)

The "rule of reason" must be emphasized in considering alternative sites for the proposed project that are not owned by the proponents and that are not included within the project site. Considerations of cost, existing technology, and logistics are used together with geological and land use information to define the geographic limits within which the search for alternative sites is conducted. As pointed out in Chapter 2.0, transportation costs are high relative to other costs of producing aggregates. The study area boundaries for off-site alternatives have therefore been limited to Sacramento County. It becomes increasingly impractical to meet Sacramento County's demand for aggregate from out-of-county sources. The nearest out-of-county source for aggregate that has been suggested is the Marysville area, about 40 miles north. Even assuming that the Marysville area can supply the Sacramento region's needs (Marysville is also suggested as an alternative supply for the San Francisco Bay Area, and San Joaquin and Yolo Counties), the presently available methods for importation of aggregate would have a serious environmental cost. The added trucking distance would result in tangible environmental effects, including additional expenditure of energy in the form of petrochemical fuels, increased air pollutants in a non-attainment area, and increased congestion and noise on area highways. Further, to the extent that aggregate resources were secured from an out-of-county source in order to avoid local environmental effects of mining, there is no guarantee that the alternative source would not result in the same or greater site-specific environmental effects.

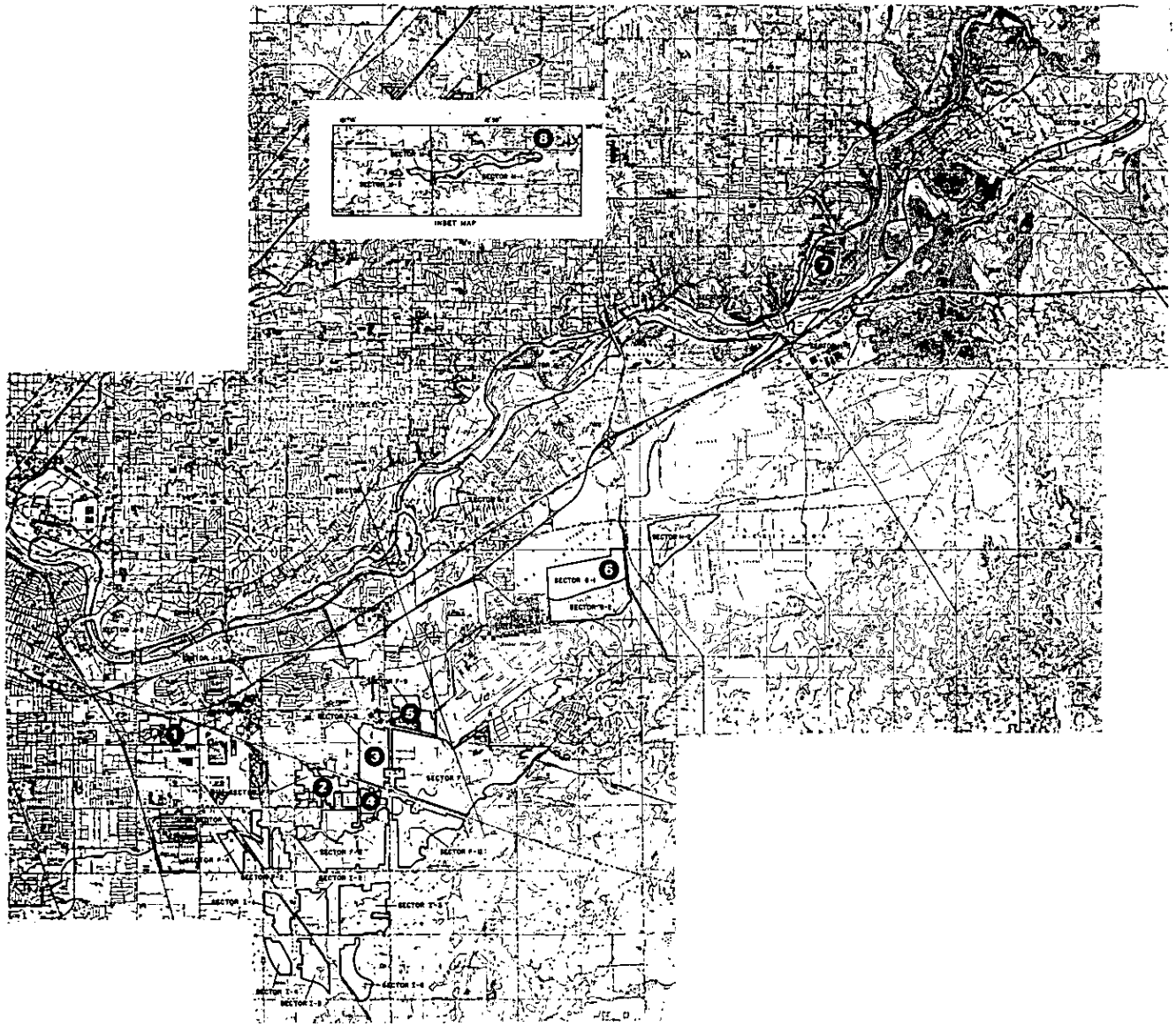
In order to select an off-site location for the proposed project, the necessary geologic conditions for aggregate resources must be present. These geologic conditions are not consistent throughout the Sacramento region, and for the most part, are limited to the northeast to southwest portion of the County (which represents the old and new American River stream channels). In order to obtain an accurate and comprehensive understanding of these potential off-site resources, a report prepared by the California Department of Conservation, Division of Mines and Geology (1988) was utilized as the basis for the search. The report, entitled *Mineral Land Classification: Portland Cement Concrete-Grade Aggregate in the Sacramento-Fairfield Production-Consumption Region (Special Report 156)*, identifies known high-grade aggregate resources (see Figure 4-3).

The majority of the alternative sites underlain by high-quality aggregates have already been committed to urban development, dedicated parklands, or have already been mined and are therefore not considered available resources. Inconsistent zoning, multiple ownership and public uses further limit the ability to mine these alternative sites. In addition, the total tonnages of aggregate that could be recovered from alternative sites are not anticipated to be equal to, or even comparable to, the amount expected from the project site.

The 966.3-acre project site is located within, and comprises most of, Sector F-6 (Figure 4-3). The California Department of Conservation, Division of Mines and Geology identified Sector F-6 as containing the second highest amount of high grade (Portland Cement Concrete-Grade) aggregate resources in the Sacramento-Fairfield Region (1988). It is estimated that Sector F-6 contains 38.9 million tons of high-grade aggregate (this amount does not account for lower grade aggregate). In comparison, the highest (with regard to total tonnage of available resources) and closest sector to the project site is Sector F-11, which is estimated to contain 66.3 million tons. Sector F-11 includes the mining applications collectively referred to as the Morrison Creek Mining Reach - North (Upstream) of Jackson Highway, which has already been approved for mining. Therefore it is not feasible to include Sector F-11 as an alternative location for the proposed project. Sector G-1 contains the third highest amount of high-grade aggregate in the region; however, it is estimated to contain only 17.9 million tons. In addition to the low amount of available resources at this site, it is already owned by another mining company (Lone Star Industries, Inc.'s "Mather Pit") and will soon be mined out, and could therefore not be considered as a reasonable off-site alternative.

Mather Field

Because high quality aggregate resources are know to exist within the boundaries of the former Mather Air Force Base, Mather Field was considered as a potential alternative site. *Special Report 156* intentionally did not include Mather Field lands, because CDMG criteria specifically exclude military bases and reservations on the assumption that they will remain unavailable for mining. Mather was officially closed as a military base in 1993 and Sacramento County has subsequently undertaken a comprehensive planning effort for civilian reuse of the base. Sacramento County has initiated the planning process for the Mather Field Specific Plan, a specific land use plan which will guide civilian reuse of Mather Field once adopted.



NAME AND LOCATION OF AGGREGATE OPERATORS

1. GRANITE CONSTRUCTION CO.
   Perkins Pit
2. TEICHERT AGGREGATES
   Aspen III Pit
3. TEICHERT AGGREGATES
   Aspen IV Pit
4. ERICKSON CONSTRUCTION CO.
   Walsh Station Pit
5. GRANITE CONSTRUCTION CO.
   Bradshaw Pit
6. LONE STAR INDUSTRIES, INC.
   Mather Pit
7. TEICHERT AGGREGATES
   Mississippi Bar Pit
8. PLACER RESOURCES CORPORATION
   Strap Ravine Pit

0 1/2 1 MILE

NORTH

Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 4-3 ~~**Figure 4-2**~~
Known Off-Site Aggregate Resources

EDAW, Inc.

Source: California Division of Mines and Geology

N:5s052:048

According to the Draft Subsequent EIR prepared for the Mather Field Specific Plan project, much of the area within Mather Field would be precluded from surface mining due to existing development such as the main base area and the existing airfield. The remaining area lying south of the airport runways within the proposed South Airport Industrial Subarea of the Specific Plan is estimated to contain 40.0 million tons of aggregate resources, but also contains extensive wetlands and special status species habitat. Land use designations and policies in the proposed Specific Plan would neither require nor preclude surface mining of aggregates in this area. However, the Mather Field EIR notes that future mining activities in this area could result in potentially significant land use compatibility, aesthetic, noise, air quality, and biological resource impacts. Due to the potentially significant environmental impacts associated with mining aggregate resources within Mather Field, especially biological resource impacts, Mather Field is not considered to be an environmentally superior alternative site.

5.0 Affected Environment and Environmental Consequences

5.1 SURFACE WATER HYDROLOGY AND QUALITY

5.1.1 Affected Environment

The project site is located in the upper Morrison Creek watershed in the reach between Jackson Highway and Hedge Road. Morrison Creek flows from the low foothills of eastern Sacramento County to the Sacramento River Delta at Snodgrass Slough. Elevations range between 170 feet above mean sea level (MSL) in the headwaters to below MSL at Snodgrass Slough. The watershed terrain is characterized by low rolling hills with an annual grassland cover, agricultural and urban development, vernal pools and seasonal wetland swales. The Morrison Creek corridor occupies a shallow valley with sparse riparian vegetation. The upper watershed area has been under agricultural use for a substantial time, and most of the original riparian corridor (now about 4.2 acres over about 16,000 linear feet of stream within the project site) along the stream has been removed. The lower watershed is highly urbanized and Morrison Creek has been channelized. A good portion of the site is located within a federally designated floodplain, as shown on FEMA Flood Insurance Rate Map, panel number 060262-0215D, dated November 15, 1989.

The project site experiences a mediterranean climate with periods of precipitation in mild winter months (November through April) and hot, dry summers (May through October). Morrison Creek is presently classified as an intermittent stream where winter rains generate storm runoff and recharge moisture in shallow soils and alluvium. Although flow and soil moisture are unmeasured, visual observations indicate that residual winter runoff or baseflow dissipates in the early summer. Summer conditions are dry except for an unknown but important volume of urban and agricultural-irrigation tailwater flow. Fine-grained soils on the valley floor along Morrison Creek retain moisture into late spring.

An estimated 71 percent of the runoff from the Morrison Creek watershed is generated in the 31 square miles of drainage area above the project site (Morrison Creek Mining Reach Drainage Mitigation Plan [MCMR-DMP] 1994). Most runoff volume occurs during winter rain storms between November and April (Table 5-1). Table 5-1 shows the 10 and 100-year peak flows and peak volumes calculated at Hedge Road (Montgomery Watson, 1994).

Downstream of the project site, Morrison Creek flows westerly through the City of Sacramento before entering the Beach-Stone Lakes area at the Sacramento River. Substantial areas of the Morrison Creek floodplain below the project site are urbanized and subject to flood damage as demonstrated by the January 1995 floods. Flood problems are related to limited channel capacity (less than 400 cfs before overflow in some locations) and the volume concerns at Beach-Stone Lakes.

Table 5-1
10- and 100-Year Peak Flows and Peak Volumes
Morrison Creek at Hedge Road

Parameter	10-year		100-year	
Storm Duration	12-hour	10-day	12-hour	10-day
Peak Flow (cfs)	1677	1787	2689	2848
Peak Volumes (acre feet)	1474	7507	2300	11376

Seasonal flows in Morrison Creek support wetlands, aquatic habitat, and riparian vegetation and habitat. These resources are not well represented in the project site but are found downstream in natural preserves in the Beach-Stone Lakes area.

Within the project site, Morrison Creek lies within a FEMA-designated 100-year floodplain that is between 2,500 and 5,000 feet wide. Elevations at the project site range between 50 and 70 feet MSL. The valley floor is underlain by a thin layer of fine alluvial sediments associated with the modern geomorphic processes of Morrison Creek. The aggregate resources within the project site are found 15 feet below the land surface, within the fluvial deposits of the Pleistocene Riverbank Formation and older underlying Pliocene Laguna Formation. The upper 35 to 45 feet of the younger Riverbank Formation is the primary source of aggregate consisting of interbedded gravels, sands and silts laid down by the ancestral American River which has since migrated northward. The upper units of the Riverbank Formation are fine grained sediments capped by hardpan soils (overburden) that underlay Morrison Creek and much of the eastern Sacramento County region.

Surface flow in Morrison Creek enters the proposed mining reach at Jackson Highway (State Highway 16) bridge at the northeast end of the Aspen V South parcel and flows east to the downstream, western project boundary at Hedge Road. Caltrans maintains the Highway 16 bridge, while Sacramento County maintains the Hedge Road bridge.

Land uses immediately surrounding the project site are predominately rural residential with some gravel pits. Domestic sewage for some residences is treated by septic leach systems.

Future hydrologic conditions in the project site could be significantly affected by the mining project approved immediately upstream (North) of Jackson Highway. In general, winter peak flows would be reduced by detention storage in gravel pits and through control by overflow weirs, an engineered bypass channel, and pumps. Post-rain-event flows below Jackson Highway would be augmented by pumping out detention ponds; the proposed project calls for a 5 cfs capacity variable speed pump.

Water Quality

No measurements of surface water quality or suspended sediment loads have been taken within the project site. Jones & Stokes (1994) reports four water quality samples taken at Mack Road in 1983-84, revealing concentrations of cadmium, copper, mercury, and lead that were high enough to potentially cause acute toxicity in freshwater organisms. Bioassay samples taken from

largemouth bass and carp at the mouth of Morrison Creek found elevated levels of mercury, copper and chlorinated organic compounds including chlordane and DDT. These toxic elements and compounds are typical of non-point source urban and agricultural pollutants. Notwithstanding the presence of potentially acute levels of toxicity, Morrison Creek and the Beach-Stone Lakes area support rich populations of aquatic wildlife. Bioassay data and episodes of mass fish die-offs has led some to suggest that high levels of acute toxicity may be related to periodic surges in concentration due to illegal dumping. Future development in the Morrison Creek watershed would likely increase such problems.

5.1.2 Environmental Consequences

Proposed Project (Part A)

1. Unchanneled flow from the Jackson Highway bridge to the bypass channel inlet at Aspen IV South could spill into the gravel pits proposed within the Aspen III, IV and V South and Vineyard parcels. Capture of all or part of the flow would significantly disrupt flow downstream of the site (*Significant Impact*).

   Substantial flows could occur in a 2- to 100-year event (1,200 cfs to 1,670 cfs with the upstream of Jackson Highway Part A and approximately 2,800 cfs without). The severity of the impact would depend upon: hydraulic conditions during the gravel extraction operations onsite; the ultimate onsite drainage mitigation features (Part A and Part B); and drainage mitigation features that would be carried out upstream (north) of Jackson Highway.

   Flows would enter the project site from the outlet of the Jackson Highway bridge and into a preserved reach of natural channel situated on the north side of the Aspen V South parcel. During mining years 12, 13, 14 and 15, deep pits would be created to the south of the natural channel and floodplain. In addition, deep pits would be excavated in the 100-year floodplain on Aspen III South in year 16 and Vineyard parcels in years 9, 10, 11, and 12. The bypass channel would not be completed and operational until mining year 17. Thus, there would be some risk of flow overtopping the Morrison Creek channel and spilling over the gravel pit walls that would be 20 to 30 feet high. If mining, reclamation and drainage mitigation are completed above Jackson Highway prior to mining Aspen V South, the inflows to the project site would range between 1,200 cfs and 50 cfs depending upon whether the Part B Drainage Plan is carried out. It is unknown how often Morrison Creek flows would spill into the Aspen V and the Aspen IV South pits (which would be 20 to 30 feet lower than the surrounding land surface when completed) or how flows would enter and leave the Vineyard parcel during the operational period. Possible impacts would include diversion of a significant portion of flow from Morrison Creek into the pits, disruption of flows downstream and erosion of the channel (see impact statement below).

2. Flow captured from present Morrison Creek and/or the proposed bypass channel into finished or operationally active gravel pits could cause extensive erosion, and affect water quality and channel stability. It does not appear that this would immediately threaten the finished or operationally active gravel pits~~could cause extensive erosion, and affect water quality and channel stability~~. It does not appear that this would immediately threaten the

Jackson Highway Bridge because there is at least a 1,000-foot setback. However, concentration of flow and erosion along the roadway to the Aspen V South pit could potentially damage the roadway (*Significant Impact*).

3. Machinery and equipment used in the gravel mining operations could be flooded during winter months exposing surface water to contamination. Contaminated surface water may percolate through the pit floor and enter and contaminate groundwater (*Significant Impact*).

4. Post-mining reclamation plans would create agricultural lands on the gravel pit floors in addition to wildlife habitat areas and open space. Agricultural practices could involve use of pesticides, herbicides and machinery that may introduce toxic contamination to surface water while rates of infiltration to groundwater may increase (*Significant Impact*).

Proposed Project Without the Vineyard I Processing Plant Alternative

The surface water hydrology and quality impacts associated with this alternative would be the same as discussed above for the proposed project.

County Drainage Alternatives (Part B)

Downstream Bypass Channel Alternative:

The objective of this alternative is to reduce peak flows to the minimum channel capacity downstream thereby eliminating the flood risk up to a 100-year event.

1. Implementation of this alternative would further decrease peak flows below Hedge Avenue. This would add to the disruption of the natural flow pattern that would occur upstream of Jackson Highway (*Significant Impact*).

   Peak flow decrease upstream would be beneficial for flood control (as noted below) but there would be a decline in a range of flows that may affect downstream channel maintenance and habitat.

2. Flow from Morrison Creek into the lower pit on the Vineyard parcel could erode a new channel and erode Morrison Creek. This would further disrupt the natural flow pattern and could increase sediment discharge downstream (*Significant Impact*).

3. Implementation of this alternative would result in a beneficial impact to flood control downstream by reducing discharge from the project site to flood prone areas (*Beneficial Impact*).

Pump Everything Small Pump Alternative and the Volume Detention Bypass Channel Alternatives:

No additional impacts were identified for the Pump Everything Small Pump Alternative and the Volume Detention Bypass Channel Alternative.

~~100-Year~~ Floodplain Protection Alternatives

100-Year Floodplain Protection Alternative

1. Machinery and equipment used in the gravel mining operations could be flooded during winter months exposing surface water to contamination. Contaminated surface water may percolate through the pit floor and enter and contaminate groundwater (*Significant Impact*).

2. Post-mining reclamation plans would create agricultural lands on the gravel pit floors in addition to wildlife habitat areas and open space. Agricultural practices could involve use of pesticides, herbicides and machinery that may introduce toxic contamination to surface water while rates of infiltration to groundwater may increase (*Significant Impact*).

Creek Buffer Alternative

1. Under the Creek Buffer Alternative, mining and reclamation would occur within the 100-Year Floodplain up to a 150-foot buffer area on either side of Morrison Creek (as measured from the lateral extent of Corps jurisdiction). Post-reclamation uses would be the same under all alternatives. As a result, the potential impacts would be the same as described under the 100-Year Floodplain Protection Alternative (*Significant Impact*).

2. Implementation of the Creek Buffer Alternative could result in flooding and pit capture (*Significant Impact*).

Implementation of the Creek Buffer Alternative would result in a mining approach that preserves a creek corridor elevated approximately 25 feet above the proposed pit floor. The corridor would be approximately 350 feet wide and extend throughout the project site. As shown in Figure 4-2 (The Creek Buffer Alternative), the elevated creek corridor would not encompass the entire 100-year floodplain and thus overflow into the pit areas would likely occur during precipitation events of less than the 100-year magnitude. This would be a significant adverse impact, and would require additional flood control measures (refer to mitigation discussion below).

No Project Alternative

The No Project Alternative would maintain the existing level of storage in the floodplain of Morrison Creek. This alternative would be consistent with existing land use and zoning designations and with the County's historical approach of not allowing mining in the 100-year floodplain of creeks. Flood control benefits associated with the proposed project's mitigation plan would not occur and no additional flood detention downstream of Sunrise Boulevard would be provided (as the mining pits would not be created). The County and City of Sacramento would most likely provide detention and flood control facilities elsewhere. Potential future flooding downstream may result even without future expansion in the watershed.

5.1.3 Mitigation

Recommendations/Requirements of Public Agencies (All Mining Alternatives)

State Water Resources Control Board/Regional Water Quality Control Board:

1. Prior to construction, the proponent shall file a Notice of Intent (NOI) to obtain coverage under the State's General Construction Stormwater Permit as well as Waste Discharge Requirements as administered by the RWQCB. As a condition of the General Permit, the proponent shall also prepare and implement a Stormwater Pollution Prevention Plan. Consistency with the adopted Water Quality Control Plan will be required and administered by the SWRCB and/or RWQCB during their review of the proposed project.

Public Works Agency, Water Resources Division:

2. The proposed mining operations shall be consistent with the Drainage Mitigation Plan for the Morrison Creek Mining Reach. An analysis shall be submitted to WRD showing the reclamation plan and ultimate land use for the site. This analysis shall be consistent with WRD studies and the Drainage Mitigation Plan for the Morrison Creek Mining Reach. The analysis shall also consider the possibility that mining (and detention) may not occur upstream of Jackson Highway (as currently proposed), and detention may be required downstream of Jackson Highway.

3. The project shall continue acceptance of any off-site runoff during all phases of mining operations. Furthermore, all drainage facilities must be reviewed and approved by WRD prior to commencement of mining operations.

~~4. Drainage easements shall be provided and facilities installed pursuant to the Sacramento County Floodplain Management Ordinance, Sacramento County Land Grading and Erosion Control Ordinance, Sacramento County Water Agency Code, and Sacramento County Improvement Standards, including any fee required by Ordinance No. 1 of the County Water Agency.~~

4~~5~~. All applicable State Fish & Game and U.S. Army Corps of Engineers permits shall be obtained prior to grading or building permit issuance.

~~6. Prior to the improvement plan approval or recordation of the final map, whichever occurs first, a fair-share contribution to the costs of the following shall be paid: delineating wetlands; preparing a drainage master plan; acquiring right-of-way for and constructing flood control detention and water quality facilities; and providing environmental mitigation for drainage improvements, as determined in the drainage master plan for that watershed. The fair-share contribution shall not exceed $6,000 per acre. The Administrator of the Public Works Agency shall reduce the amount if it is determined prior to payment that the actual costs of the above studies, improvements, and mitigation is less than is projected. Subsequent adoption and payment of a revised drainage fee for this purpose shall satisfy this condition. If the amount of the obligation under the revised drainage fee is less than that of the fair share contribution paid, the County shall enter into an agreement with the payer of the fair share contribution, providing for reimbursement of the difference. (Note: this project shall be exempt from payment of this fair-share contribution until such time as the area is used for purposes that would otherwise be subject to the prescribed fee, consistent with Chapter 3, Article II, Section B of the Drainage Ordinance.)~~

~~7~~5. In order to mitigate erosion and sediment control impacts within the project site, all mining plans shall be required to comply with the County's Land Grading and Erosion Control Ordinance.

Zoning Code:

6~~9~~. The proponent is required to submit a Drainage Plan to the Public Works Agency, Water Resources Division, for review and approval, before a work authorization permit can be issued (Section 235-51).

Mitigation Measures

Proposed Project (Part A) and Proposed Project Without the Vineyard I Processing Plant Alternative:

1. The risk of flow capture from Morrison Creek into gravel extraction pits and disruption of downstream flows shall be minimized by construction of hydraulic structures (berms, weirs and inlet works) that would direct flows up to the 100-year peak flow (as calculated by WRD for ultimate watershed development conditions, with or without the North of Jackson Highway Drainage mitigation features in place) from the Jackson Highway crossing to the bypass channel system on Aspen IV South parcel and away from gravel pits. Engineered grading plans for the improvements, representing yearly mined conditions, as well as ultimate conditions, shall be submitted by the proponent and approved by WRD prior to commencement of mining operations South of Jackson Highway. WRD shall coordinate approval of such plans with Caltrans with regard to the stability of the Jackson Highway bridge and roadway. These plans shall include the following: 1) A berm extending from Jackson Highway across the northern boundary of the Aspen V South parcel to the proposed bypass channel inlet at the Aspen IV South adequate to safely convey the peak 100-year flood; 2) armored weirs at the inlets to the proposed ~~pit floor~~ wetland mitigation sites on Aspen V South, Aspen IV South and the flood detention basin/wetlands Vineyard I to safely carry as proposed by the project; 3) plans for erosion control at the bypass channel inlet and along the proposed berm as necessary to prevent their failure; and 4) an erosion control and repair plan to restore flow and stability to Morrison Creek and to control offsite discharge of sediment.

2. Application shall be made to the California State Water Resources Control Board (SWRCB) for any surface water diversion of low flows from Morrison Creek into the wetlands mitigation sites on the Aspen V South, Aspen IV South, and Vineyard I parcels. This measure shall not be necessary if other proven long term water supplies (e.g. groundwater and reliable urban or agricultural flows) for perennial marsh, open water, emergent marsh and riparian vegetation are demonstrated and utilized.

3. Mining equipment and any toxic substance associated with mining or reclamation operations shall be protected from flooding and from contact with surface waters.

4. Given the risks involved to groundwater and surface water contamination, measures shall be implemented to minimize risk of toxic contamination of surface and/or groundwater during mining, reclamation, and post-reclamation activities. These measures shall

include an aggressive policy to restrict use of toxic contaminants within the project site to those absolutely necessary to conduct operations. Any form of pollutant spilled shall be immediately contained and removed from the project site and safely disposed. Storage of toxic materials shall not be allowed in the gravel pits. Storage of toxic materials will only be allowed in restricted upland areas where the opportunity for containment over less permeable ground exists.

5. An agricultural management plan shall be developed to ensure that post-mining agricultural practices do not result in groundwater or surface water contamination. The plan shall be submitted for review by the Agricultural Commissioner and approval by the Environmental Management Department (EMD). The plan shall provide information on crops, crop rotation, pesticides, fertilizers, irrigation and drainage. EMD shall be notified of any changes in the plan.

6. County Drainage Alternatives (Part B)

Downstream Bypass Channel Alternative:

1. To avoid uncontrolled flow into the Lower Pit, an engineered armored weir and armored drop structure shall be installed at the inlet on the Vineyard parcel. It shall be designed to withstand the 100-year peak flow anticipated under this alternative.

Floodplain Protection Alternatives

1. Mitigation measures 3, 4 and 5 would be applicable to both the 100-Year Floodplain Protection Alternative and the Creek Buffer Alternative.

2. In addition to the mitigation cited above, The Creek Buffer Alternative would be subject to one of the flood control measures below, or another equivalently effective measure. Each measure is designed to accommodate the 100-year flood event and mitigate the potential for flooding and pit capture to a less-than-significant level. Detention may be required along with performance criteria that state there will be no increase in the magnitude or duration of flood flows downstream. The options presented below are conceptual and may be subject to revision. Also, other options may be available. Final design and implementation of any of the following flood control options shall be subject to the review and approval of the Sacramento County Public Works Agency, Water Resources Division.

   Option 1: Install a weir structure to divert flood flows to the proposed pit floor. The weir structure would be designed to divert high water flows (i.e., those in excess of 400 cfs – the estimated capacity of the elevated creek corridor/buffer area). The weir structure would be located on the Aspen IV South site, near Bradshaw Road. Approximately 2,700 acre-feet of storage would be required assuming that the mining and reclamation occurs on the north project site as proposed. (If mining is permanently precluded within the 150-foot buffer area on the north site, additional detention will be necessary on the south site.) Under this flood control option, a 50 cfs pump facility would be constructed on the southern side of Morrison Creek at Hedge Avenue on the Vineyard I site. This pump facility would be used to return diverted flows to the stream system. This option

represents a variation of the Alternative 5 presented in the Drainage Mitigation Plan (Montgomery Watson, August 1995) for the mining reach.

Option 2: Install a perimeter bypass channel in the same basic alignment proposed for the "Part A Drainage Alternative" (refer to Figure 3-7). The channel would be sized to accommodate flows of 400 cfs. Flows in excess of the capacity of the elevated creek corridor (400 cfs) would be diverted to the bypass channel. In-flow and out-flow structures where the creek and bypass channel connect would be needed. A large variable speed pump station (400 cfs) would be located on the Vineyard I site near Hedge Avenue (at the downstream end of Morrison Creek within the project site). If mining is permanently precluded within the 150-foot buffer area on the north property, then additional capacity within the perimeter channel will be needed.

Option 3: Construct and maintain a containment levee at the edge of the 150-foot buffer area. The levee shall be designed to safely convey the 100-year flood flows through the project site without resulting in pit capture and/or other flooding impacts. Levee strength and maintenance would be subject to review and monitoring by the Sacramento County Public Works Agency Water Resources Division.

5.2 GROUNDWATER HYDROLOGY AND QUALITY

5.2.1 Affected Environment

The project site is underlain by a portion of the Sacramento Valley Ground Water Basin (SVGWB) aquifer, a regionally important groundwater supply covering about 6,000 square miles. The aquifer is contained within Quaternary Central Valley sediments and provides domestic and agricultural water supply to a great portion of southern Sacramento County. Groundwater flow is from east to west. Overdrafting over the past 11 years has lowered the groundwater table approximately ten feet.

As of Spring 1995, the groundwater table was measured 80 to over 100 feet below the present land surface within the project site. The proposed maximum depth of aggregate extraction is 45 feet, therefore the post-mining groundwater depth would be 35 to 55 feet below the pit floor. The groundwater appears semi-confined by fine grained layers in the project site area with less confinement to the east and greater confinement to the west as finer basin deposits occur. The presence of impermeable surface hardpan soils and relatively fine grained soils in the 15-foot surface overburden precludes percolation and recharge from the project site to the aquifer. Groundwater flow in the aggregate-producing zone is generally unsaturated flow. However, there may be seasonally perched pockets of shallower groundwater during the winter rainy season. Subsurface investigations by the project proponent indicate that the floor of the finished extraction pits is less permeable than the aggregate production zone but greater than the infiltration rates found in the hardpan soils and overburden. Precise infiltration rates are not known.

Groundwater contamination has occurred at Mather Field, formerly Mather Air Force Base (located one mile east of the project site) as the result of past dumping of waste chemicals associated with past Air Force operations (William T. Hughes, Registered Geologist Operational Technologies Corporation, c/o Air Force Base Conversion Agency, personal communication, 1995). Air Force operations ceased at Mather Field in 1993. Groundwater contamination studies began in 1982 and the site was placed on the National Priorities List (or Superfund Program) in 1989. A cleanup plan is presently under final review as part of the Federal Facility Agreement which was developed as part of base closure. A 10 to 15 year clean up plan has been developed for implementation within the next five years. The proposed clean up would involve pumping/extraction and infiltration well installation and operation.

The Mather Field groundwater contamination plume consists of TCE, 1,2 DCE and PCE. It has moved in a southwesterly direction and is presently 1,500 feet east of Jackson Highway and the project site. It is believed that residual contamination is found in fine deposits at or below the water table where ground water movement is relatively slow (William T. Hughes, Registered Geologist Operational Technologies Corporation, c/o Air Force Base Conversion Agency, personal communication, 1995); these areas are located adjacent to coarser and more permeable channel deposits which move groundwater at a higher rate. Advection of contaminants from finer grained zones into the coarser old channel deposits of the aquifer results in dilution and dissipation. Thus, wells which penetrate layers of higher groundwater flow apparently show little or no contamination (William T. Hughes, Registered Geologist Operational Technologies Corporation, c/o Air Force Base Conversion Agency, personal communication, 1995).

Wells south of Jackson Highway in the project site were also tested to ensure that the plume had not migrated further than the monitoring wells north of Jackson Highway had indicated (William T. Hughes, Registered Geologist Operational Technologies Corporation, c/o Air Force Base Conversion Agency, personal communication, 199~~5~~).

5.2.2 Environmental Consequences

Proposed Project (Part A)

1. Gravel extraction may alter drainage and groundwater flow and quality on adjacent surrounding properties. This could also affect domestic, septic leachfield systems in surrounding areas and could introduce sewage effluent into surface water (*Significant Impact*).

   Operation of machinery in the gravel pits introduces potential pollutants (e.g., hydraulic fluid, oil, and grease) to the pit floor, which is considered an enhanced ground water recharge area. Creation of the gravel pits could also draw the flow of effluent from septic leach systems adjacent to the pit. Effluent could then percolate into the regional aquifer and potentially introduce nitrate pollution. Improperly abandoned and unsealed water wells could provide a direct path for contaminants to the SVGWB aquifer.

2. Continued monitoring of the Mather Field contamination plume will occur in the future. The proposed gravel mining operations could affect ~~or destroy some~~ future monitoring efforts ~~wells~~ (*Significant Impact*).

Proposed Project Without the Vineyard I Processing Plant Alternative, County Drainage Alternatives (Part B),~~and~~ 100-Year Floodplain Protection Alternative, and the Creek Buffer Alternative

The impacts associated with these alternatives would be the same as discussed above for the proposed project.

No Project Alternative

No impacts to groundwater resources would occur under this alternative.

5.2.3 Mitigation

Recommendations/Requirements of Public Agencies (All Mining Alternatives)

Zoning Code:

1. The proponent shall show all individual sewage disposal systems within three hundred feet of the proposed mining area. In the event there are individual sewage disposal systems near or within the mining site, the mining setbacks shall conform to the provisions of the Sacramento County Code, Chapter 6.32 - SANITARY SEWAGE SYSTEM and the rules and regulations adopted pursuant thereto, and shall be subject to approval of the Sacramento County Health Agency and the Regional Water Quality

Control Board. Approval of these agencies shall be obtained on the minimum mining setback before a work authorization permit can be obtained.

Air Force Base Conversion Agency:

2. The proponents shall coordinate mining in the vicinity of groundwater contamination with the Air Force's planned groundwater extraction and reinjection system, and shall explore options for well removal, replacement, and/or abandonment.

Mitigation Measures (All Mining Alternatives)

1. The proponents shall store contaminants in the gravel operation area in a manner that will contain any spills (i.e. containment berms). Any spills occurring in operational areas should be cleaned up immediately.

2. The proponents shall obtain all necessary permits for the construction or removal/abandonment of any water wells and septic systems from the Sacramento County Environmental Management Department, Environmental Health Division.

3. The proponents shall revise the proposed Mining Plan to specifically identify all sewage disposal systems within 300 feet of the proposed mining area. Prior to issuance of the work authorization permit, approval of the Sacramento County Environmental Management Department, Environmental Health Division and the California Regional Water Quality Control Board on the minimum mining setback from these sewage disposal systems shall be required.

4. The proponents shall coordinate mining activities with the Air Force to avoid potential disruption of any future ~~the removal of groundwater wells with the~~ Mather Field groundwater cleanup program to ensure that vital data collection is not disrupted. ~~This may require the proponents to avoid some wells or to re-construct wells destroyed by extraction.~~

5.3 CULTURAL RESOURCES

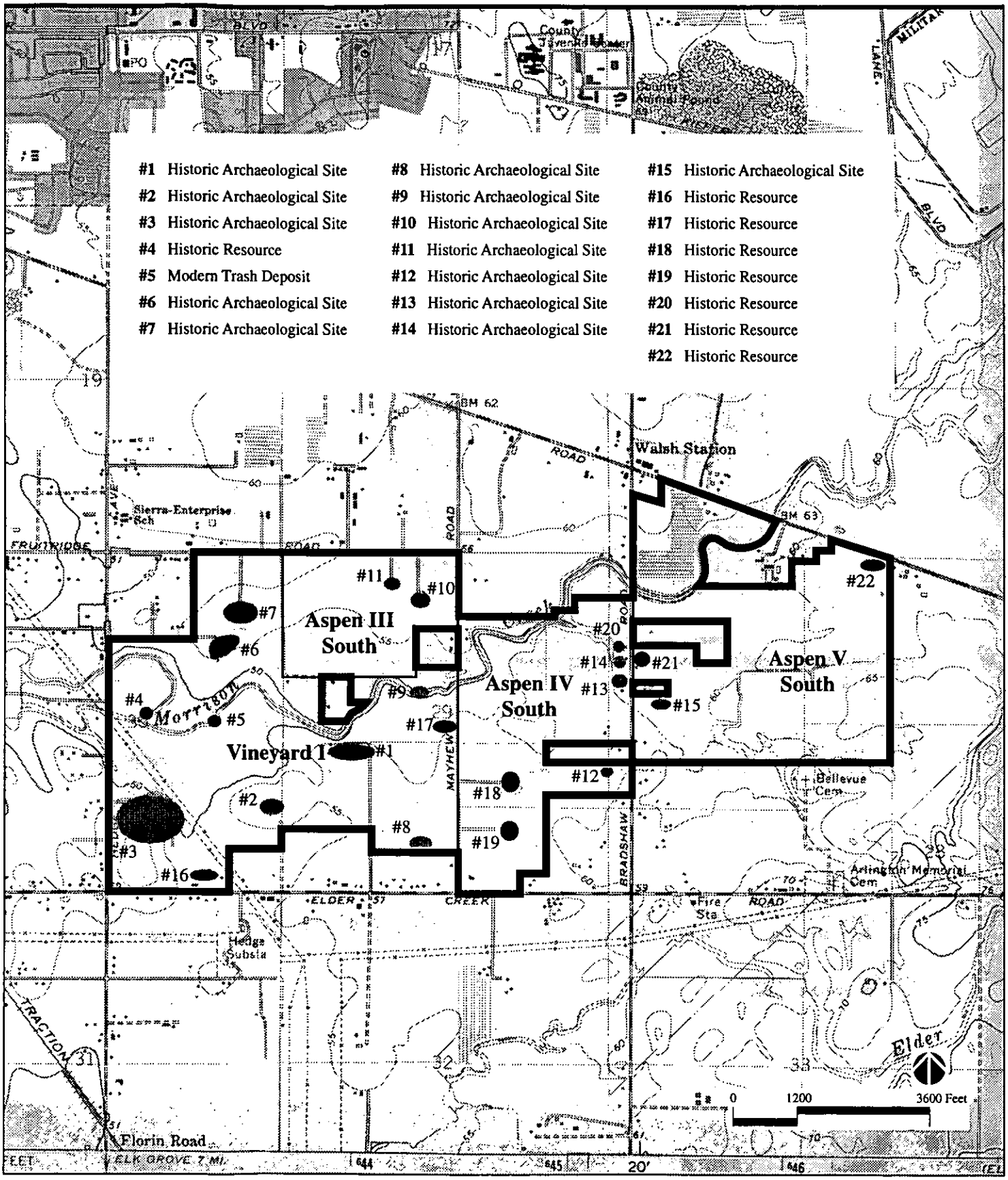
5.3.1 Affected Environment

A cultural resources survey of the project site was conducted by Garcia and Associates (1996) and a historical study was performed for Garcia and Associates by JRP Historical Consulting Services (1996). The surveys were conducted to identify any prehistoric, ethnographic, or historic cultural resources present, to recommend any further historical or cultural surveys needed, and to provide recommendations for protection of cultural resources within the project site. The surveys were conducted in accordance with the California Environmental Quality Act Statutes and Guidelines (1970, Rev. 1992: Section 21083.2, Appendix K, Supplementary Document J), Section 106 of the National Historic Preservation Act of 1966 as amended, and procedures of the Advisory Council on Historic Preservation (36 CFR 800). Copies of the reports have been submitted to the North Central Information Center and are on file as part of the California Historical Resources Information System.

The current survey, involving a records and literature review and an intensive pedestrian survey of the study area, resulted in: 1) identification and recording of eight historic resources, consisting of eight complexes of standing structures; 2) identification and recording of thirteen historic archaeological sites, consisting of one deposit of historic domestic debris and the remains of twelve destroyed farmsteads; and 3) identification of a modern trash deposit. The locations of these twenty two resources are shown as resources #1-22 on Figure 5-1 and listed on Table 5-2. As yet unidentified subsurface archaeological remains may be present within the project site. Prehistoric archaeological materials include, but are not limited to, chert and obsidian flakes or artifacts; milling equipment, such as mortars or pestles; locally darkened soils (midden), often containing shell and bone dietary debris; and human burials.

The historic resources, historic archaeological sites, and modern trash deposit do not appear to be important as defined by CEQA, nor do they qualify for listing in the California Register of Historical Resources. They do not appear to be significant or eligible for listing on the National Register of Historic Places under Section 106 of the National Historic Preservation Act. Historic land holding and use patterns based on small farms has predominated within the project site since the land was first settled in the 1850s. The local farms ranged in size from about 160 to 500 acres and most of the land within the project site continued to be held in over 100 acre parcels well into the nineteenth century. Local agriculture was based around individual farm units that utilized most of their acreage to produce grains, hay, forage crops, some vineyard and orchard crops, and to graze livestock.

The historic resources are standing structures that consist of complexes of rural homesteads and farm buildings of various ages. Three of these resources are less than 50 years old. The remaining historic resources were built more than 50 years ago but none are associated with events or persons important to our history. They show various levels of structural modification, impairing their historic integrity, and they do not appear to represent distinguished examples of their type, period, or method of construction. The historic archaeological sites represented by the twelve destroyed farmsteads are the remains of former homesteads and farm buildings. Prior to their destruction, these twelve sites generally appear to have been of a similar period and type as the historic resources within the project site.



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 5-1
Cultural Resources

EDAW Inc.

Source: Garcia and Associates, January, 1996

N:5s052:039

Table 5-2
Locations and Types of Historic Resources Within the Project Site

Resource #	Resource Type	Parcel
1	Historic Archaeological Site	Granite Vineyard
2	Historic Archaeological Site	Granite Vineyard
3	Historic Archaeological Site	Granite Vineyard
4	Historic Resource	Granite Vineyard
5	Modern Trash Deposit	Granite Vineyard
6	Historic Archaeological Site	Granite Vineyard
7	Historic Archaeological Site	Granite Vineyard
8	Historic Archaeological Site	Granite Vineyard
9	Historic Archaeological Site	Granite Vineyard
10	Historic Archaeological Site	Aspen III South
11	Historic Archaeological Site	Aspen III South
12	Historic Archaeological Site	Aspen IV South
13	Historic Archaeological Site	Aspen IV South
14	Historic Archaeological Site	Aspen IV South
15	Historic Archaeological Site	Aspen V South
16	Historic Resource	Granite Vineyard
17	Historic Resource	Granite Vineyard
18	Historic Resource	Aspen IV South
19	Historic Resource	Aspen IV South
20	Historic Resource	Aspen IV South
21	Historic Resource	Aspen V South
22	Historic Resource	Aspen V South

Note: The historic archaeological sites consist of a domestic debris deposit and twelve destroyed farmsteads; the historic resources are standing structures (complexes of homesteads and farm buildings).

5.3.2 Environmental Consequences

Proposed Project (Part A)

1. The proposed project would remove eight historic resources, consisting of six complexes of standing structures over fifty years old (resources #4, #16, #18-20, and #22) and three complexes of standing structures less than fifty years old (resources #17 and #21); thirteen historic archaeological sites, consisting of one deposit of historic domestic debris (resource #9) and the remains of twelve destroyed farmsteads (resources #1-3, #6-8, and #10-15) ; and a modern trash deposit (resource #5) (*Less-Than-Significant Impact*).

   These twenty two resources do not appear to be "important" or "significant" per CEQA Guidelines-Appendix K and the regulations of Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation (36 CFR Part 60.4: Criteria for Evaluation).

2. Buried cultural resources may also be affected by the project (*Significant Impact*).

Proposed Project Without the Vineyard I Processing Plant Alternative

All of the same impacts to cultural resources would occur from this alternative as from the proposed project.

County Drainage Alternatives (Part B)

The impacts associated with all Part B alternatives would be the same as discussed above for the proposed project.

~~100-Year~~ Floodplain Protection Alternatives

100-Year Floodplain Protection Alternative

1. This alternative would remove 14 of the 22 identified historic resources, including nine destroyed farmsteads (resources #1-3, #6-8, and #10-12) and six standing structures (resources #16-19, and #22)s (*Less-Than-Significant Impact*).

Eight resources would be left intact and not altered by the 100-year floodplain protection alternative. However, the impacts to cultural resources that would be avoided by this alternative may be temporary since this alternative does not ensure that the 100-year floodplain will be protected in perpetuity.

Creek Buffer Alternative

1. This alternative would remove 19 of the 22 identified historic resources, including twelve destroyed farmsteads (resources #1-3, #6-8, and #10-15), five complexes of standing structures over fifty years old (resources #16, #18-20, and #22), and two complexes of standing structures less than fifty years old (resources #17 and #21) (*Less-Than-Significant Impact*).

Three resources would be left intact and not altered by the creek buffer alternative (resources #4, #5, and #9).

No Project Alternative

This alternative would maintain any cultural resources within the project site. The eight historic resources and thirteen historic archaeological sites presumably would not be removed and any buried cultural resources would not be disturbed. The deposits in Morrison Creek (resources #5 and #9) may redistribute to other locations within the creek during high flows.

5.3.3 Mitigation (All Mining Alternatives)

Recommendations/Requirement of Various Agencies

National Historic Preservation Act:

1. As a condition for issuance of a Department of the Army/U.S. Army Corps of Engineers permit under section 404 of the Clean Water Act, the Corps shall satisfy the consultation requirement of Section 106 of the Historic Preservation Act of 1966. Section 106 requires the Corps to consult with the State Historic Preservation Office (SHPO) and the Advisory Council on Historic Preservation (ACHP) regarding project impacts to cultural resources. The consultation process is described in 36 CFR 800.

State of California Public Resources Codes

1. If, during ground-disturbing activities, human remains are encountered, the County Coroner shall be contacted.

2. Disinterring, disturbing, or removing human remains shall be prohibited (California Health and Safety Code Section 7050.5 or 7051).

3. Obtaining or possessing Native American artifacts or human remains taken from a Native American grave or cairn shall be prohibited (Public Resources Code Chapter 1.75 - Native American Historical, Cultural, and Sacred Sites--Section 5097.9 to 5097.99).

California Environmental Quality Act (CEQA)

1. In the event of discovery or recognition of any human remains, procedures sets forth in Appendix K and Supplementary Document J of the CEQA Statutes and Guidelines shall be carried out . If the remains are of Native American in origin, the Native American Heritage Commission shall have a role in the treatment and disposition of human remains and any associated grave goods.

Mitigation Measures

1. Should any cultural resources, such as structural features, unusual amounts of bone or shell, artifacts, human remains, or architectural remains be encountered during any development activities, work shall be suspended and the Department of Environmental Review and Assessment (440-7914) and Army Corps of Engineers (557-5263) shall be immediately notified. At that time the Department of Environmental Review and

Assessment and Army Corps of Engineers will coordinate any necessary investigation of the find with appropriate specialists as needed. The project proponent shall be required to implement any mitigation deemed necessary for the protection of the cultural resources. In addition, pursuant to Section 5097.97 of the State Public Resources Code and Section 7050.5 of the State Health and Safety Code, in the event of the discovery of human remains, all work is to stop and the County Coroner shall be immediately notified. If the remains are determined to be Native American, guidelines of the Native American Heritage Commission shall be adhered to in the treatment and disposition of the remains.

5.4 AIR QUALITY

5.4.1 Affected Environment

The project site lies in the southern portions of the Sacramento Valley, a broad, flat valley bounded by the coastal ranges to the west and the Sierra Nevada to the east. A sea level gap in the Coast Range (the Carquinez Strait) is located about 50 miles southwest and the intervening terrain is very flat. The prevailing wind direction is southwesterly, which is the wind direction when marine breezes flow through the Carquinez Strait. Marine breezes dominate during the spring and summer months, and show a strong daily variation. Highest average windspeeds occur in the afternoon and evening hours; lightest winds occur in the night and morning hours. During fall and winter, when the sea breeze diminishes, northerly winds occur more frequently, but southwesterly winds still predominate.

The project site is within the Sacramento Metropolitan Air Quality Management District, which is part of the Sacramento Valley Air Basin. The San Francisco Bay Area Air Basin lies to the west, and the San Joaquin Valley Air Basin is located to the south. Considerable transport of pollutants occurs between these air basins, so that air quality in Sacramento County is partially determined by the release of pollutants elsewhere. In turn, pollutants generated in Sacramento County affect air quality in areas to the north and east.

Both the U. S. Environmental Protection Agency and the California Air Resources Board have established ambient air quality standards for common pollutants. These ambient air quality standards levels of contaminants which represent safe levels that avoid specific adverse health effects associated with each pollutant. The ambient air quality standards cover what are called "criteria" pollutants because the health and other effects of each pollutant are described in criteria documents. Table 5-3 identifies the major criteria pollutants, characteristics, health effects and typical sources.

The federal and California state ambient air quality standards are summarized in Table 5-4 for important pollutants. The federal and state ambient standards were developed independently with differing purposes and methods, although both processes attempted to avoid health-related effects. As a result, the federal and state standards differ in some cases. In general, the California state standards are more stringent. This is particularly true for ozone and PM-10.

The Sacramento Metropolitan Air Quality Management District (SMAQMD) and the California Air Resources Board (CARB) maintain several air quality monitoring sites in the Sacramento area. Monitoring sites measuring multiple pollutants near the project site are the T Street and Del Paso Manor sites. Criteria pollutants monitored at these sites are ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide and particulate matter.

Most of the standards shown in Table 5-4 are met in Sacramento County. Exceedances have been recorded for both state and national ozone standards, carbon monoxide (national and state 8-hour) and PM-10 (state 24-hour and annual).

Ozone and PM-10 are regional problems affecting the entire Sacramento Valley Air Basin. Carbon monoxide is a very localized pollutant, and the area exceeding the state and federal

ambient air quality standards has been centered near the El Camino/Watt Avenue area east of downtown Sacramento.

Both the federal and state governments have enacted laws mandating identification of areas not meeting the ambient air quality standards and development of regional air quality plans to eventually attain the standards. Under the federal Clean Air Act, Sacramento County is nonattainment (standards have not been attained) for ozone, and the Sacramento Urbanized Area is nonattainment for carbon monoxide. However, in April of 1996, the CARB requested the EPA to redesignate the Sacramento area to attainment for CO, as there had been no violations of the federal CO standards for 3 years. The EPA will have 18 months from receipt of the request to make its final determination. The County is either attainment or unclassified for other federal standards. Under the California Clean Air Act, Sacramento County is a nonattainment area for ozone, PM-10 and carbon monoxide.

Table 5-3
Major Criteria Pollutants

Pollutant	Characteristics	Health Effects	Major Sources
Ozone	A highly reactive photochemical pollutant created by the action of sunshine on ozone precursors (primarily reactive hydrocarbons and oxides of nitrogen. Often called photochemical smog.	• Eye Irritation • Respiratory function impairment.	Combustion sources such as factories and automobiles, and evaporation of solvents and fuels.
Carbon Monoxide	An odorless, colorless gas that is highly toxic. It is formed by the incomplete combustion of fuels.	• Impairment of oxygen transport in the bloodstream. • Aggravation of cardiovascular disease. • Fatigue, headache, confusion, dizziness. • Can be fatal in the case of very high concentrations.	Automobile exhaust, combustion of fuels, combustion of wood in woodstoves and fireplaces.
Nitrogen Dioxide	Reddish-brown gas that discolors the air; formed during combustion.	• Increased risk of acute and chronic respiratory disease.	Automobile and diesel truck exhaust, industrial processes, fossil-fueled power plants.
Sulfur Dioxide	A colorless gas with a pungent, irritating odor.	• Aggravation of chronic obstruction lung disease. • Increased risk of acute and chronic respiratory disease.	Diesel vehicle exhaust, oil-powered power plants, industrial processes.

Table 5-3
Major Criteria Pollutants

Pollutant	Characteristics	Health Effects	Major Sources
PM-10	Solid and liquid particles of dust, soot, aerosols and other matter which are small enough to remain suspended in the air for a long period of time.	• Aggravation of chronic disease and heart/lung disease symptoms.	Combustion, automobiles, field burning, factories and unpaved roads. Also a result of photochemical processes.

Table 5-4
Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	Federal Primary Standard	State Standard
Ozone	1-Hour	0.12 PPM	0.09 PPM
Carbon Monoxide	8-Hour	9.0 PPM	9.0 PPM
	1-Hour	35.0 PPM	20.0 PPM
Nitrogen Dioxide	Annual Average	0.05 PPM	--
	1-Hour	--	0.25 PPM
Sulfur Dioxide	Annual Average	0.03 PPM	--
	24-Hour	0.14 PPM	0.04 PPM
	1-Hour	--	0.25 PPM
PM-10	Annual Average	50 g/m^3	30 g/m^3
	24-Hour	150 g/m^3	50 g/m^3
Lead	30-Day Avg.	--	1.5 g/m^3
	Month Avg.	1.5 g/m^3	--

PPM = Parts per Million
g/m^3 = Micrograms per Cubic Meter

5.4.2 Environmental Consequences

Proposed Project

1. The project would affect emissions of pollutants along roadways providing access to the site during initial removal of overburden (*Significant Impact*).

The project would not generate additional auto or truck trips during operation, but would generate new truck trips during initial removal of 430,000 cubic yards of overburden. Removal of overburden from the site and operation of the onsite processing plant would generate a maximum of 148 truck trips per hour.

Outside of overburden removal, the proposed project would not generate new truck trips. The construction of a new processing plant on the Vineyard I site would, however, redistribute existing truck trips on the roadway system.

Air quality along roads providing access to the site would be affected by increased dust loading caused by dirt either dropped by trucks or tracked onto surface streets by truck wheels. This material can be pulverized by traffic and then entrained behind passing vehicles. This impact is considered significant but is mitigatible.

These additional trips would also add to levels of pollutants such as carbon monoxide along roads providing access to the project site. Considering this low level of trip generation, the relatively low traffic volumes along streets accessing the siteand the project's location on the outskirts of metropolitan Sacramento, the additional vehicle traffic would not be expected to have a substantial effect on carbon monoxide concentrations nor cause violations of the carbon monoxide ambient air quality standards. Project impacts on carbon monoxide concentrations would be less-than-significant.

2. The proposed mining operations would introduce new air pollutant emission sources to the site. However, no net increase in regional pollutant emissions would occur (*Less-Than-Significant Impact*).

The proposed mining operations would create new sources of air pollutants. The harvesting operation would place the following potential emission sources within the area:

- exhaust from diesel-powered equipment and vehicles;
- fugitive particulate emissions material loading and unloading;
- fugitive particulate emissions from scraper travel over unpaved roads; and
- fugitive particulate emissions from conveying of raw materials to the processing plant

Due to a high moisture content for both overburden (typically 4.8%) and excavated sand and gravel (typically 6.2%), fugitive emissions from material handling, loading and conveying would be negligible (U.S. EPA, January 1995). Scraper travel, however, would be a potential source of fugitive emissions since the unpaved roadways that the scrapers travel on could dry out.

Exhaust emissions from equipment and vehicles that would be in use at the site have been estimated based on the proponents' estimates of maximum daily hours of use for several classes of equipment and vehicles. Predicted maximum daily and annual exhaust emissions were estimated based upon maximum activity levels when overburden removal and resource harvesting occur simultaneously. Annual estimates of worst-case emissions were also calculated assuming simultaneous operation of harvesting operations by both proponents. Fugitive emissions from scraper travel over unpaved roads were also estimated on a worst-case daily and annual basis.

Worst-case on-site emissions from equipment, vehicles and unpaved road travel are shown in Table 5-5. The total of emissions from the project site exceed the Sacramento Metropolitan Air Quality Management District's thresholds of significance of 85 pounds per day for ozone precursors (ROG and NOx) and 275 pounds per day for PM-10 (Sacramento Metropolitan Air Quality Management District, 1994).

The project would place first a temporary portable aggregate processing plant and then a permanent aggregate processing plant on the site. The portable equipment would have a capacity of 400 tons per hour with an anticipated annual production rate of 500,000 tons. The permanent processing facilities produce aggregate as well as asphaltic concrete and portland cement concrete. The development of the permanent Granite Construction Company would be a redeployment of equipment and facilities from the existing Granite Construction Facility located on the north side of Kiefer Boulevard east of Bradshaw Road when mineral deposits north of Jackson Highway are depleted.

Aggregate processing equipment and portland cement concrete batch plant equipment is primarily a source of PM-10. Asphaltic concrete batch plants are a source of PM-10, hydrocarbons, oxides of nitrogen and carbon monoxide.

Existing Granite Construction and Teichert Aggregates processing facilities operate under permits issued by the Sacramento Metropolitan Air Quality Management District (SMAQMD). Both a portable processing plant and the proposed permanent processing plant/batch plant would also be subject to the regulations and permit procedures of the SMAQMD. Required controls for a future aggregate plant on site would be at least as stringent as controls on existing facilities. SMAQMD regulations require the application of Best Available Control Technology (BACT) for control of emissions. The definition of BACT for a given industrial process is continually evolving as new control equipment and strategies are developed. The emission controls placed on a future processing plant would be no less stringent than current controls and conceivably more stringent if new control equipment or methods become available in the future. The requirements placed on the future plant will be determined by SMAQMD regulations and definition of BACT at the time that Granite Construction applies for their permit for the plant.

The proposed project would not result in an increase in process emissions related to the sand and gravel industry in Sacramento County. Material harvested on the site would be transported to an existing processing plant or a newly constructed on-site processing plant operating under permits issued by the Sacramento Metropolitan Air Quality Management District. Any conveyor access across land not owned by the applicant will require necessary rights-of-way. The overall capacity and annual throughput of aggregate, asphaltic concrete or portland cement concrete would not be changed by the proposed project.

Table 5-5
Project Site Emission Sources
(in pounds)

Source		ROG	NOx	PM-10
Exhaust Emissions	Daily	32	404	36
	Annual	8,000	101,000	9,000
Fugitive Emissions	Daily	neg.	neg.	426
	Annual	neg.	neg.	106,500
Grand Total	Daily	32	404	462
	Annual	8,000	101,000	115,600

neg. = negligible
ROG = Reactive Organic Gases
NOx = Nitrogen Oxides
PM-10 = Particulate matter, 10 microns or less

According to the proponents, equipment used on the site would be transferred from active mining areas when these areas are depleted. Therefore, the emissions from activities within the project site, though substantial, would be replacing emissions currently occurring in other mining areas. No net change in regional emissions would occur, so project impacts on regional air quality would be less-than-significant.

Proposed Project Without the Vineyard I Processing Plant

Impacts during initial overburden removal would be identical to those described under the proposed project.

1. The proposed mining operations would introduce new air pollutant emission sources to the site. However, no net increase in regional pollutant emissions would occur (*Less-Than-Significant Impact*).

Emissions from this alternative would be essentially identical to those described for the proposed project. This alternative would avoid placing aggregate processing plant on the Vineyard I site, but the total amount of emissions associated with aggregate processing would be unchanged.

County Drainage Alternatives (Part B)

Impacts during initial overburden removal and mining operations would be similar to those for the proposed project

~~100-Year~~ Floodplain Protection Alternatives

Impacts during initial overburden removal under the 100-Year Floodplain Protection Alternative and the Creek Buffer Alternative would be similar to those for the proposed project.

1. The proposed mining operations would introduce new air pollutant emission sources within the project site area. However, no net increase in regional pollutant emissions would occur (*Less-Than-Significant Impact*).

Emissions from both ~~this~~ alternatives would be essentially identical to those described under the proposed project, but since only up to 8.8 million ~~11 million~~ tons of material would be extracted (compared to 32 millions tons for the proposed project), the active period of mining would be shorter.

No Project Alternative

1. This alternative would result in substantial new truck traffic and resulting exhaust emissions within the air basin (*Significant Impact*).

This alternative would create the need to obtain raw material from a more remote site or relocate the existing aggregate processing facilities. Either of these options is likely to increase truck travel within the region and resulting exhaust emissions. Relocating the processing plant would increase travel distances for trucks carrying finished product. Obtaining raw materials from more remote sites could not be accomplished using conveyors, so trucks would need to be used. In either case the truck travel represents new vehicle use in the air basin. Depending on the distances involved, the resulting emission increases could have a significant impact on regional air quality.

5.4.3 Mitigation

Recommendations/Requirements of Various Agencies

Sacramento Metropolitan Air Quality Management District Rules and Regulations:

The following are general rules regarding avoidance of nuisance and control of fugitive dust which would apply to mining operations:

1. Rule 402: A person shall not discharge from any source whatsoever such quantities of air contaminants or other materials which cause injury, detriment, nuisance or annoyance to any considerable number of persons or the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause or have natural tendency to cause injury or damage to Business or property. (California Health & Safety Code, Section 41700)

2. Rule 403: A person shall take every reasonable precaution not to cause or allow the emissions of fugitive dust from being airborne beyond the property line from which the emission originates, from any construction, handling or storage activity, or any wrecking, excavation, grading, clearing of land or solid waste disposal operation. Reasonable precautions shall include, but are not limited to:

    a. Use, where possible, of water or chemicals for control of dust in the demolition of existing buildings or structures, construction operations, the construction of roadways or the clearing of land.

    b. Application of asphalt, oil, water, or suitable chemicals on dirt roads, materials stockpiles, and other surfaces which can give rise to airborne dusts;

    c. Other means approved by the Air Pollution Control Officer.

The following rules and regulations would govern the permitting of the processing facilities on the Vineyard I site:

1. Regulation 2: Provides for permitting of stationary sources of pollutants, New Source Review, Prevention of Significant Deterioration and Title V Federal Operating Permit Program.

2 Rule 801: Subpart F establishes standards of performance for Portland Cement Plants, Subpart I established standards of performance for asphaltic concrete plants, subpart OOO establishes standards of performance for nonmetallic mineral processing plants.

Zoning Code:

1. The proponents shall submit to the Sacramento Metropolitan Air Quality Management District an Air Pollution Control Plan for review and approval prior to commencement of grading operations.

Mitigation Measures (All Mining Alternatives)

The following mitigation measures should be adopted as conditions of approval to reduce all air quality impacts to an insignificant level:

1. Carry-out of mud or dirt onto public roads shall be controlled by creating either a gravel apron or a mud trap (series of metal bars or grating with space underneath to accumulate material) to remove the mud or dust from truck tires. This would be applicable to all phases of the project, including overburden removal and/or operation of a processing plant. Public roads near site access points will be regularly swept to avoid accumulation of dust on the road surface.

2. Unpaved haul roads shall be regularly sprayed with water or treated with non-toxic chemical dust suppressants either mixed into the road surface or added to the water being applied to the road surface. The frequency of application can vary according to the weather and moisture level of the soils on the site, but shall be frequent enough to avoid visible dust plumes.

3. Overburden stockpiles shall be treated with an appropriate dust suppressant, regularly watered or otherwise treated to minimize wind erosion.

4. Every effort shall be made to remove overburden during the period of the year when surface soils are moist. If overburden is removed when surface soils are dry, water spraying equipment shall be used to reduce dust emission. Water spraying equipment shall likewise be used, as needed, when removing aggregate.

5. The moisture content of material being conveyed (on- and off-site) shall be maintained at a level sufficient to avoid visible dust from the conveyor loading and transfer points.

5.5 GEOLOGY AND SLOPE STABILITY

5.5.1 Affected Environment

Site Geology

The California Department of Conservation, Division of Mines and Geology (CDMG) and the United States Geological Survey (USGS) have mapped the project site as being underlain by Quaternary-aged alluvium (Figure 5-2) (Wagner et al., 1981; Helley and Harwood, 1985). Recent alluvium deposits are likely underlain by the mid-Pleistocene alluvial plain, known as the Victor Plain. The project site is located within two sections of the Victor Plain: the Riverbank Formation (lower member) and the Laguna formation.

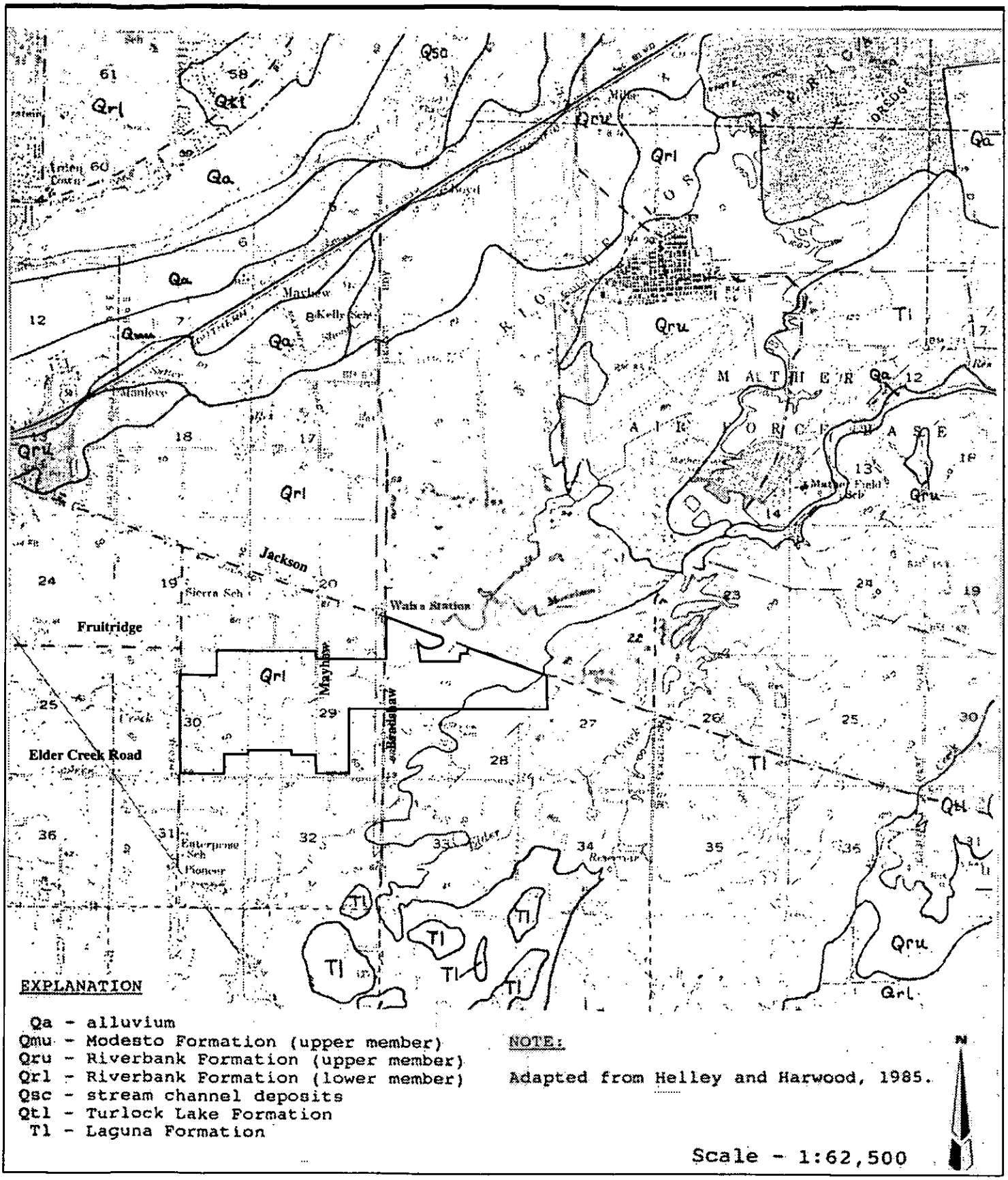
In general, the Victor Plain is a broad plain of low relief that occupies the central portion of Sacramento County from Elk Grove north to the Sacramento-Placer County line. Throughout the Pleistocene period, the ancestral American River cut across the Victor Plain and produced a maze of truncated buried channels that are laterally and vertically discontinuous. As the ancestral American River migrated north, it left progressively older, stranded alluvial terraces to the south of the present American River channel. Subsequent erosion has reworked and smoothed these slightly elevated terraces of low relief (California Division of Mines and Geology, 1988).

Faults and Seismicity

According to the *Preliminary Fault Activity Map of California* (Jennings, 1992), the nearest faults to the project site with historic displacement (activity within the last 200 years) are the Concord, Cleveland Hill and Hayward faults, located approximately 47 miles southwest, 64 miles north and 60 miles southwest of the project site, respectively. Although most of the Calaveras and Greenville fault zones are indicated to be of Holocene activity (activity within the last 10,000 years), portions of these faults also have been rated as being active within the last 200 years, and are located approximately 51 miles and 45 miles southwest of the project site, respectively.

The Foothills Fault System, bounded by the Bear Mountains fault zone on the west and the Melones fault zone on the east, is located approximately 17 miles northeast of the project site. Jennings (1992) has mapped faults within this system as Mesozoic (older than 70 million years), with several small portions having late-Quaternary displacement (movement within the past 700,000 years). The closest section of the Foothills Fault System to the project site with late-Quaternary displacement is located approximately 25 miles to the northeast, along the Bear Mountains fault zone.

The project site is not indicated to be located across a mapped trace of any fault. The closest fault to the project site shown on the *Preliminary Fault Map* is the pre-Quaternary (older than 1.6 million years) Willows fault, a queried trace of which has been located approximately three miles southwest of the project site (Figure 5-3).



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Project Boundary

Figure 5-2
Site Geology

EDAW Inc.

Source: Wallace • Kuhl & Associates

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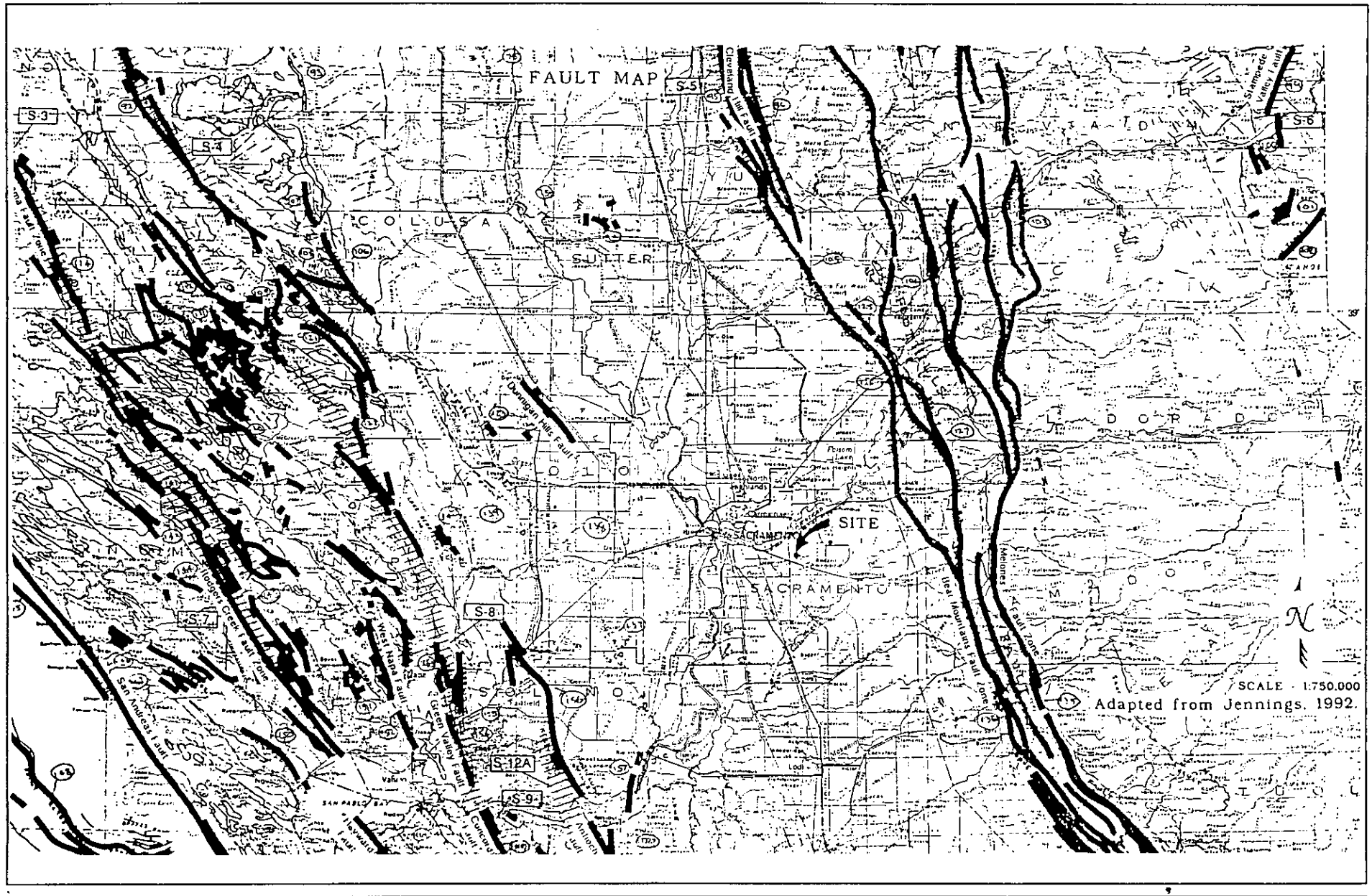

Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 5-3
Fault Map

EDAW Inc.

Source: Wallace • Kuhl & Associates

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The project site has experienced ground shaking equivalent to Modified Mercalli Intensity VIII (damage slight in specially designed structures; considerable in ordinary substantial buildings with partial collapse; great in poorly built structures; panel walls thrown out of frame structures; fall of chimneys, factory stacks, columns, monuments, walls; heavy furniture overturned; sand and mud ejected in small amounts; changes in well water; persons driving motorcars disturbed). This intense ground shaking resulted from a 4.3 Richter magnitude (M_R) earthquake in 1850, with an epicenter located approximately six miles southwest of the project site. Energy released from this event is estimated to have produced an attenuated site acceleration of approximately 0.16g. Historic earthquake epicenter locations within 100 miles of the project site are plotted on Figure 5-4 (Wallace-Kuhl & Associates, 1994).

5.5.2 Environmental Consequences

Proposed Project (Part A)

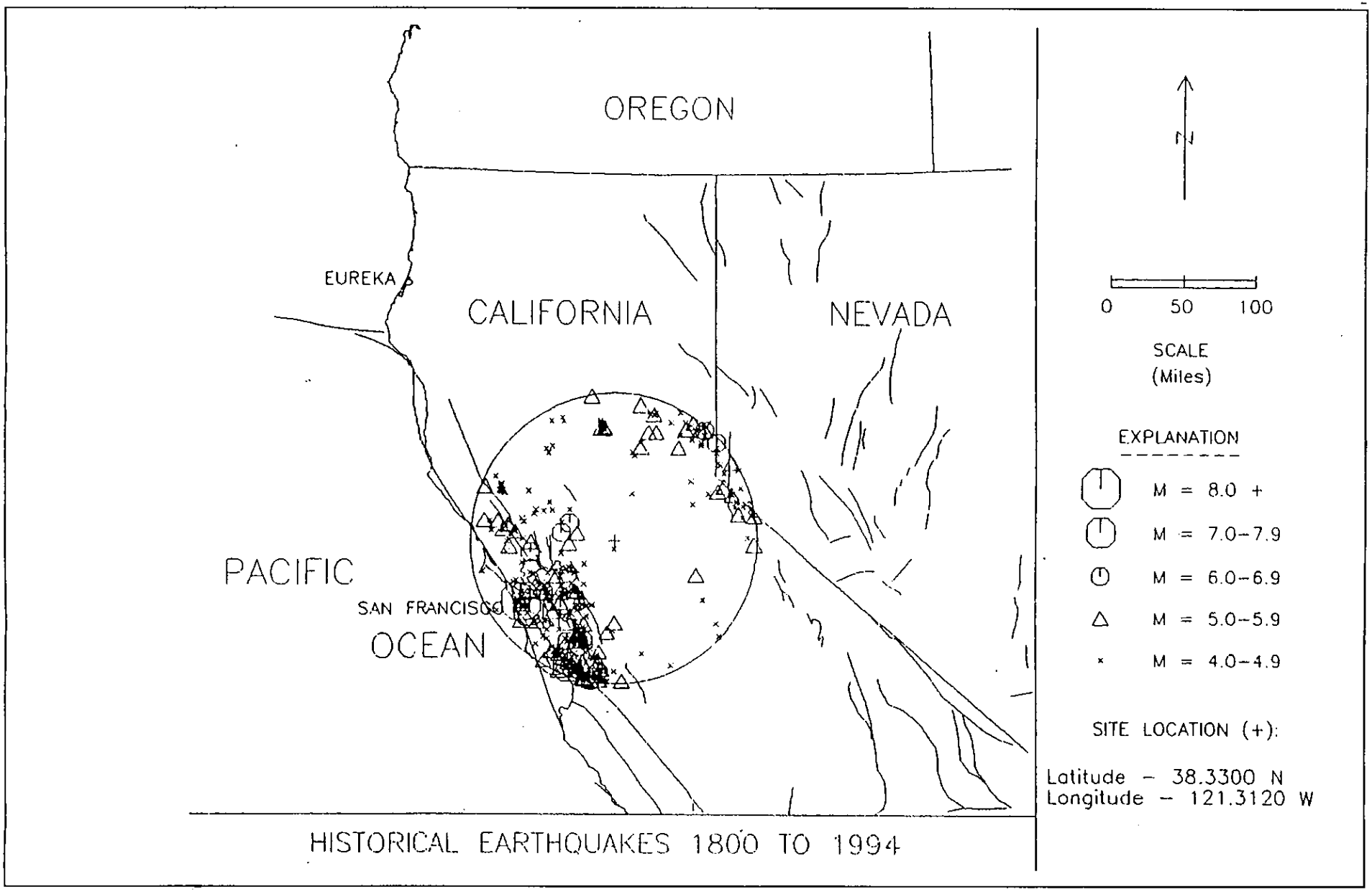
1. The proposed project would result in the permanent alteration of the project site's landform (*Significant and Unavoidable Impact*).

2. The proposed project's reclaimed slopes (which range from 1.5:1 to 2:1 within the project site) would potentially be subject to slope instability, including potential instability induced by earthquakes and/or ground shaking (*Significant Impact*).

3. The proposed project's reclaimed slopes may be subject to erosion if not adequately constructed and vegetated (*Significant Impact*).

The project site is currently crossed by Morrison Creek, which flows across the area from the northeast to the southwest. The proposed project's mining operations involve the bypassing of flows around the mined lower pit in an unlined trapezoidal channel at the existing (unmined) elevation. The channel would be constructed on top of a 35- to 40-foot-high engineered fill embankment using the overburden materials. The slopes of the proposed embankment are indicated as 2:1 (horizontal:vertical).

The proponents intend to strip and stockpile overburden floodplain deposits, composed of clay/silt soil, and then mine the underlying sand and gravel. The gravels would be mined down to the underneath fine-grained deposits, which would form the bottom of the mined area. Following the removal of the gravel deposits, the foundation soils would be in an over-consolidated state. The anticipated loads of the embankment on the foundation materials would be less than the loads under which the soils had been consolidated; this is because the gravels have a higher unit weight than do the compacted overburden materials. The foundation soils would experience a net unloading after construction of the embankments. Therefore, settlement would be minimal from the standpoint of consolidation or compression of the foundation soils.



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 5-4
Historic Earthquake Epicenter Locations within 100 Miles of the Project Area

EDAW Inc.

Source: Wallace • Kuhl & Associates

N:5s052:024

Even a properly constructed embankment would experience some settlement of the engineered fill. Uniform and adequate compaction of the embankment soils would mitigate, but not eliminate, future differential settlement. These settlements are generally minor, and are not expected to affect the overall stability of the embankment. Settlement of the fills typically are greatest immediately after construction and rapidly diminish shortly thereafter. Periodic inspection and maintenance of the channel, including repair of any minor cracks resulting from shifting of the embankment would be sufficient to allow the continued performance of the embankment.

Proposed Project Without the Vineyard I Processing Plant Alternative / County Drainage Alternatives (Part B)

1. Impacts from the proposed project without the Vineyard I processing plant and the proposed project with the County Drainage Alternatives (Part B) upon geology and soils would be comparable to impacts from the proposed project (Part A) (*Significant Impact*).

Mining, reclamation, drainage mitigation, and wetland mitigation plans would be similar to plans under the proposed project (Part A). The topography of the mined area following reclamation would be the same for all of the alternatives resulting in large pits averaging 35 feet deep essentially reflecting the base of the aggregate deposit .

~~100-Year~~ Floodplain Protection Alternatives

1. Similar to the proposed project, both the 100-Year Floodplain Protection and Creek Buffer Alternatives would substantially and irreversibly change the project site's landform. After mining and reclamation, the project site would consist of a pit approximately ~~2~~35 feet deep, with perimeter slopes ranging from 2:1 (along the north and west boundaries of the northern area) to 1.5:1 (for the remaining portions of the project site). These reclaimed slopes would potentially be subject to instability and erosion (*Significant Impact*).

However, under th~~ics~~ 100-Year Flooplain A~~a~~lternative, the natural character of the 100-year floodplain for Morrison Creek would be maintained by avoiding aggregate extraction within the floodplain. This alternative would result in the surface mining and processing of significantly less aggregate resources, thus decreasing potential geologic and soils impacts of mining due to seismic hazards, embankment stability, and erosion but not to a level of insignificance.

No Project Alternative

1. Under the No Project Alternative, the potential geologic and soils impacts of mining due to seismic hazards, embankment stability, and erosion would not occur within the project site.

5.5.3 Mitigation (All Mining Alternatives)

1. The proponents shall limit the planned slopes of the Morrison Creek bypass channel to 2:1 (horizontal:vertical). The overburden soils shall be placed and compacted in six-inch lifts to at least 90 percent of the maximum dry density, at or near optimum moisture

conditions. Since local stability of the slope is critically dependent upon proper compaction of the overburden soils, a qualified soils engineer shall be regularly present throughout grading operations to determine compliance with job specifications.

2. The proponents shall limit finished side slopes to 1.5:1 (horizontal:vertical) to ensure stability for existing soil conditions. Soils shall be placed and compacted to 90 percent of the maximum dry density, at or near optimum moisture conditions, in all finished slopes. Since local stability of the slope is critically dependent upon proper compaction of the overburden soils, a qualified soils engineer shall be regularly present throughout grading operations to determine compliance with job specifications.

3. The proponents shall ensure that the side slopes of the pit are vegetated following final slope placement to prevent excessive erosion and enhance slope stability. The side slopes shall be revegetated with an erosion control mix for which species, seeding rates and methodology are specified in an Erosion Control Plan, which the proponents shall prepare and submit to the County prior to issuance of the work authorization. The species chosen for the erosion control mix shall not be invasive in the wetland creation areas. This reclamation revegetation shall occur on an annual basis prior to the wet season (i.e., before October 1). The Erosion Control Plan shall include performance standards that can be used to determine the success of erosion control measures and the revegetation effort, and shall discuss monitoring requirements. The plan shall include remedial measures to be implemented if revegetation is not successful.

5.6 PALEONTOLOGICAL RESOURCES

5.6.1 Affected Environment

The Victor Formation underlies the project site. Fossil remains of vertebrates which existed during the late Pleistocene (approximately 105,000 years ago) have been discovered in the overburden of the Victor Formation west of Elk Grove-Florin Road. Various operators within Sacramento County (including one of the proponents, Teichert Aggregates) have already entered into cooperative agreements with the University of California at Davis to mitigate potential impacts to paleontologic resources.

5.6.2 Environmental Consequences

Proposed Project (Part A)

1. Because the proposed mining would involve the Victor Formation, and is within proximity of previous discoveries, the proposed project would have the potential for further fossil discoveries and impact (*Significant Impact*).

Proposed Project Without the Vineyard I Processing Plant Alternative, County Drainage Alternatives (Part B), ~~and~~ 100-Year Floodplain Protection Alternative, and Creek Buffer Alternative

These alternatives would have the same impacts as discussed above for the proposed project Part A.

No Project Alternative

1. The No Project Alternative would not impact paleontologic resources and would not result in the potential for further fossil discoveries within the project site.

5.6.3 Mitigation (All Mining Alternatives)

1. Should fossils be discovered within the project site, the proponents shall terminate work in the immediate area of the discovery and contact the Sacramento County Department of Environmental Review and Assessment and the University of California at Davis or California State University Sacramento to jointly develop an action plan to assess and/or preserve fossil resources.

5.7 BIOLOGICAL RESOURCES

The following section provides an overview of the biological resources located within the project site, the potential impacts which may occur as a result of the proposed project and the various alternatives evaluated by this EIR/EIS, and identifies mitigation where appropriate. The information provided in this section is based on: 1) wetland delineations, special status species assessments, and the wetland mitigation plan completed by the proponent for the Vineyard I parcel (Zentner and Zentner, 1994); and 2) biotic assessments, wetland delineations, special-status species surveys, and the wetland mitigation plans completed by the proponents for the Aspen IV South and Aspen V South parcels (Sugnet &Associates, 1991a, 1994a, 1994b, 1994c, 1995a, 1995b). This section has also been prepared following 3) reconnaissance site inspections of the project site conducted by Garcia and Associates for this EIR/EIS; and 4) vegetative field surveys of wetlands completed by Gibson & Skordal for this EIR/EIS. In addition, biological resource surveys that were conducted for the Morrison Creek upstream mining reach (Granite I and Aspen VI parcels), on the north side of Jackson Highway, also provide useful information about biological resources in the project vicinity. Refer to Appendix B for additional detail on biological resources, including a list of wildlife species observed on the project site.

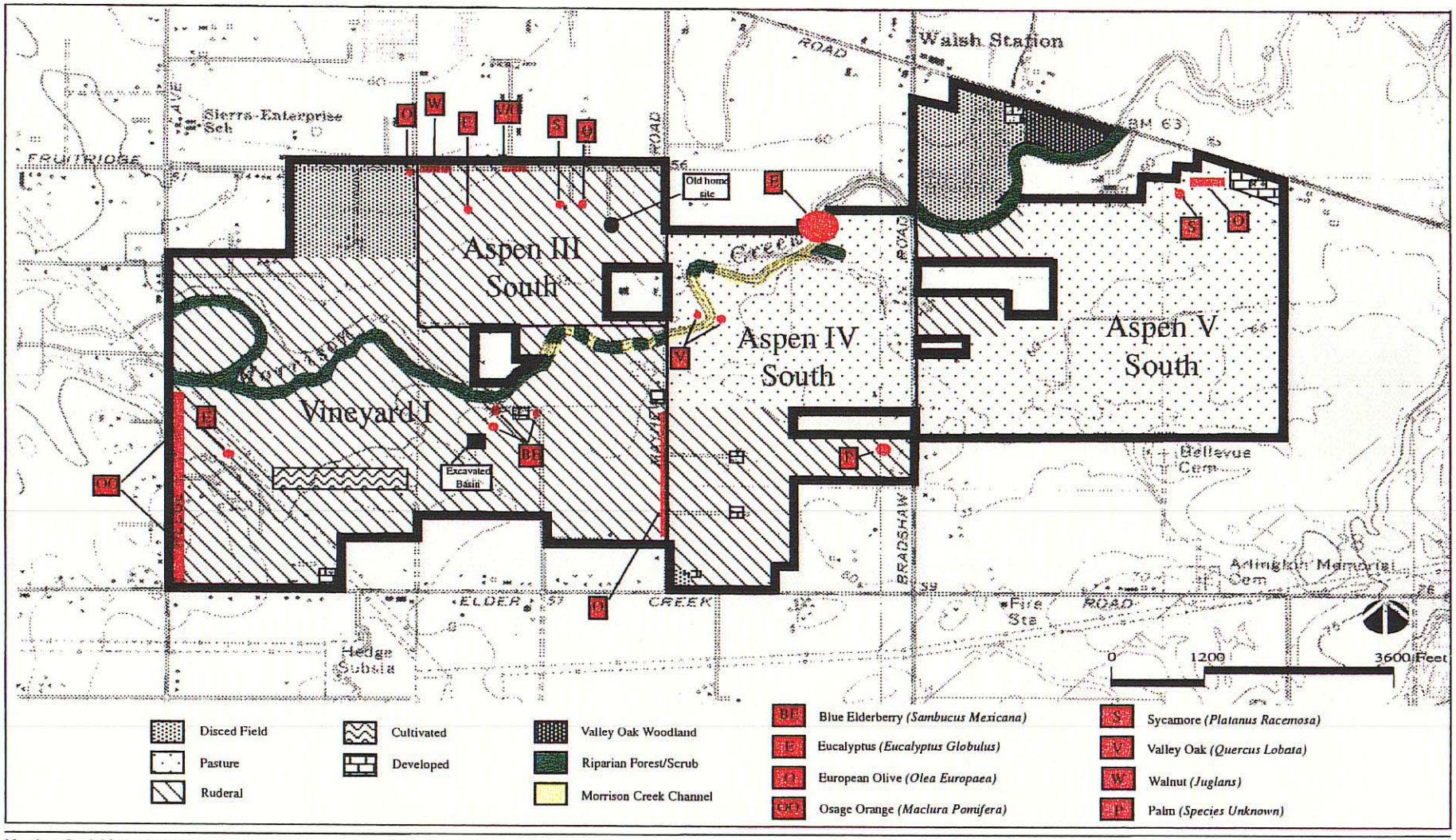
5.7.1 Affected Environment

Vegetation

The habitat types identified within the project site include: 1) riparian forest/riparian scrub, 2) valley oak woodland, 3) ruderal habitat, 4) pasture, 5) cultivated areas, 6) diskeed areas, and 7) developed areas; with wetland habitats consisting: of 8) drainages and streams, 9) seasonal wetlands, 10) irrigated seasonal wetlands, and 11) vernal pools. The distribution of these habitats within the project site are shown in Figures 5-5, 5-6, 5-7 and 5-8, and each habitat is characterized below. As can be seen from Figure 5-5, the dominant habitat types on the site are the riparian forest/riparian scrub, pasture, and ruderal areas. The distribution and characteristics of the wetland habitats are discussed in greatest detail below in the wetland section of this document and are shown separately in Figures 5-6, 5-7 and 5-8. A list of plant species observed within the project site is presented in Appendix B.

Riparian Forest/Riparian Scrub:

Riparian forest occurs along Morrison Creek on the Vineyard I and Aspen V South parcels and along the oxbow channel on Vineyard I. The riparian corridor generally extends 10'-20' from the upper bank of the creek and is up to 100 feet wide along some sections. Dominant tree species include valley oak (*Quercus lobata*), Fremont's cottonwood (*Populus fremontii*), California black walnut (*Juglans californica* var. *hindsii*), and willow (*Salix* spp.). The understory, which is generally sparse, is dominated by Himalayan blackberry (*Rubus discolor*). There are also several blue elderberry (*Sambucus mexicana*) bushes growing along the Morrison Creek corridor. Riparian scrub occurs sporadically along Morrison Creek, on the eastern half of Vineyard I and at two locations through Aspen IV South. It is dominated by willow and blackberry and is generally confined to the immediate creek banks. Willows and blackberry are fast-growing,



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

EDAW Inc.

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Figure 5-5
Project Site Vegetation

Source: Garcia and Associates

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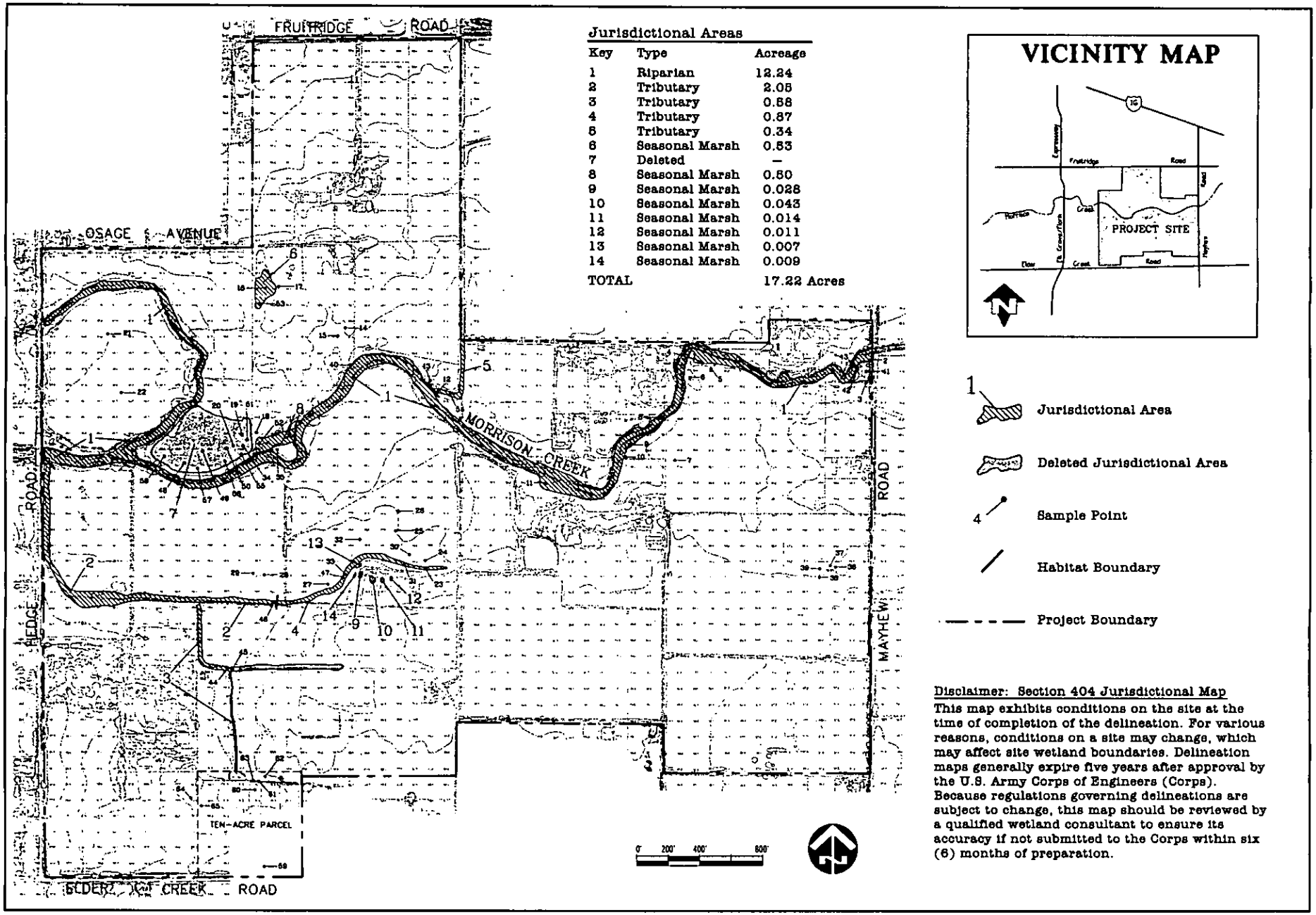

Jurisdictional Areas

Key	Type	Acreage
1	Riparian	12.24
2	Tributary	2.05
3	Tributary	0.58
4	Tributary	0.87
5	Tributary	0.34
6	Seasonal Marsh	0.53
7	Deleted	–
8	Seasonal Marsh	0.50
9	Seasonal Marsh	0.028
10	Seasonal Marsh	0.043
11	Seasonal Marsh	0.014
12	Seasonal Marsh	0.011
13	Seasonal Marsh	0.007
14	Seasonal Marsh	0.009
TOTAL		17.22 Acres

Disclaimer: Section 404 Jurisdictional Map

This map exhibits conditions on the site at the time of completion of the delineation. For various reasons, conditions on a site may change, which may affect site wetland boundaries. Delineation maps generally expire five years after approval by the U.S. Army Corps of Engineers (Corps). Because regulations governing delineations are subject to change, this map should be reviewed by a qualified wetland consultant to ensure its accuracy if not submitted to the Corps within six (6) months of preparation.

Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

EDAW, Inc.

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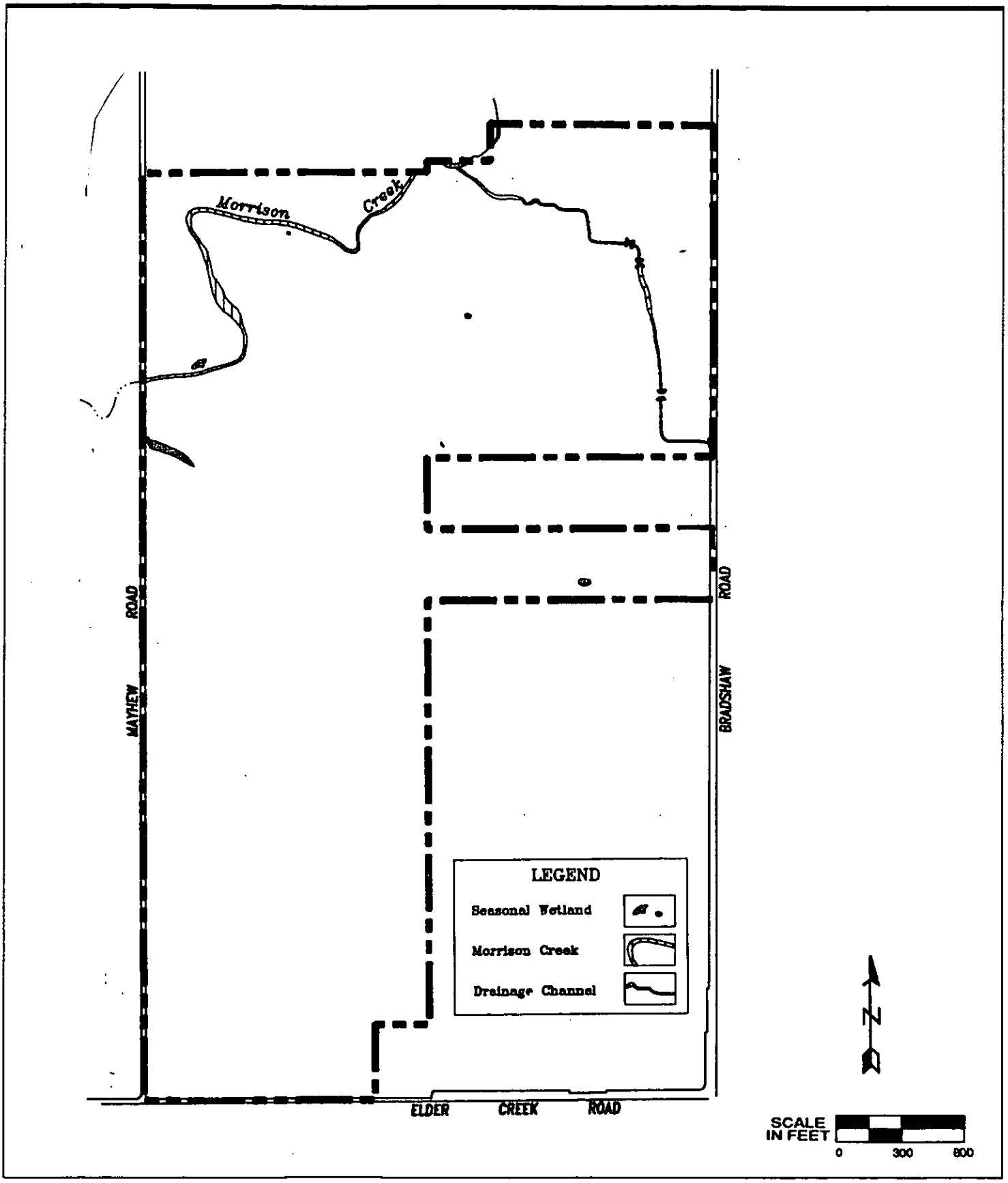
Figure 5-6
Wetland Delineation - Vineyard I Proposed Project

Source: Zentner & Zentner, 1994



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 5-7
Wetland Delineation-Aspen IV South
Proposed Project

EDAW Inc.

Source: Sugnet & Associates, 1994

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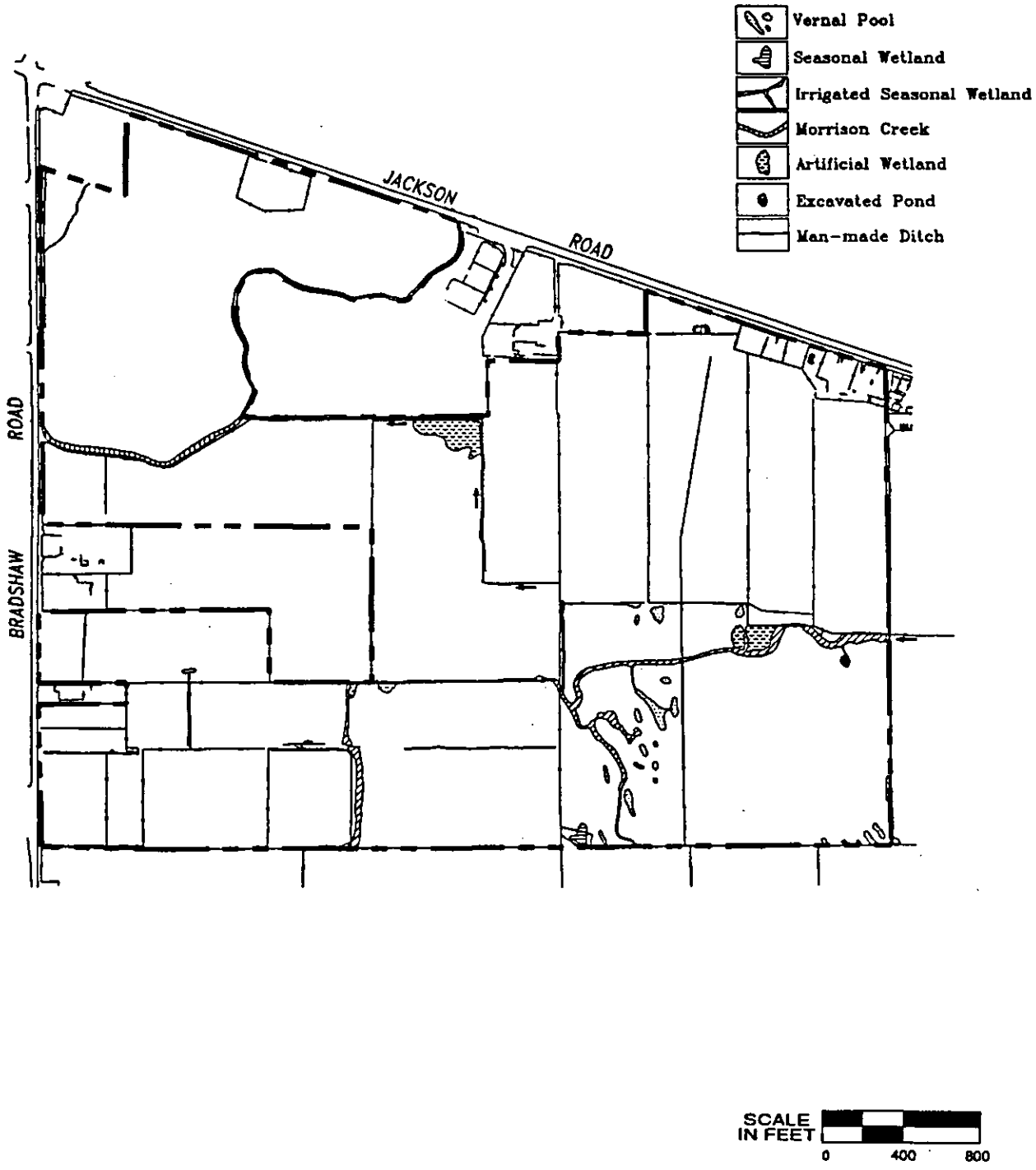

Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 5-8
Wetland Delineation-Aspen V South
Proposed Project

EDAW Inc.

Source: Sugnet & Associates, 1994

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pioneering species and it is likely that the riparian scrub occurs where riparian forest previously existed but was cleared. There is also a single grove of blue gum eucalyptus (*Eucalyptus globulus*) that straddles Morrison Creek on the north boundary of Aspen IV South.

Valley Oak Woodland:

A small area of valley oak woodland occurs in the northwest portion of the Aspen V South parcel, on the north side of Morrison Creek. This habitat supports small, scattered valley oak (*Quercus lobata*) trees with an understory of non-native, annual grassland dominated by wild oats (*Avena fatua*), perennial rye-grass (*Lolium perenne*) and curly dock (*Rumex crispus*).

Ruderal Habitat:

Ruderal habitat occurs throughout much of the western half of the project site and in a few pockets in the eastern half. Virtually all of the Aspen III South parcel is ruderal habitat while most of the Vineyard I parcel and about half of the Aspen IV South parcel is ruderal. Ruderal habitat has developed in areas that have been heavily impacted through cultivation, overgrazing, discing or land clearing. In the southeast of Vineyard I (in the vicinity of the proposed processing plant), previous sod farming practices stripped the top soil. The resulting vegetation is dominated by a variety of weedy herbaceous species, most of which are non-native. Species characteristic of ruderal areas in the project site include yellow star thistle (*Centaurea solstitialis*), bindweed (*Convolvulus arvensis*), prickly lettuce (*Lactuca serriola*), virgate tarweed (*Holocarpha virgata*), wild radish (*Raphanus sativus*), Fitch's tarweed (*Hemizonia fitchii*), blue sailors (*Chicorum intybus*), wild oats (*Avena fatua*), hairy-flowered bent grass (*Agrostis avenacea*) and soft chess (*Bromus hordeaceus*). Some of the ruderal habitats occur in topographically low areas and are characterized by more moisture tolerant species such as Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), rabbitfoot grass (*Polypogon monspeliensis*), broad-leaved pepper-grass (*Lepidium latifolium*), horseweed (*Conyza canadense*), curly dock and perennial rye-grass. A few individual sycamore (*Platanus racemosa*) and blue gum eucalyptus trees are scattered around the ruderal habitats. In addition, a row of olive (*Olea europeaca*) trees has been planted along Mayhew Road and osage orange (*Maclura pomifera*) lines Hedge Road.

Pasture:

Pasture occurs throughout much of eastern half of the project site. The pasture on the Aspen V South parcel is irrigated throughout the year. Pasture within the project site is characterized by a dense vegetative cover dominated by perennial rye-grass. Virgate tarweed and curly dock are also common in the pasture habitat of the project site. As with the ruderal areas, a few individual trees are scattered around the pasture habitat and a small olive orchard has been planted in the northeast corner of Aspen V South.

Cultivated Areas:

One portion of the Vineyard I parcel was recently cultivated for oats (*Avena sativa*). It is unclear if this area is still being cultivated or if the remaining oats are remnants of past cultivation.

Disced Areas:

Three areas within the project site were recently disced and support little or no vegetation. These areas are located in the north-central portion of the Vineyard I parcel, the southwestern corner of the Aspen IV South parcel, and the northwest corner of the Aspen V South parcel. Over time, if left unattended, these areas would be expected to develop plant communities characteristic of the ruderal habitats.

Developed Areas:

A small area in the northeast corner of the Aspen V South parcel is developed with a cluster of homes and farm buildings. Several individual buildings (residences and abandoned structures) are scattered in other areas on the project and each occupies only a relatively small area. Some other structures, on Vineyard I and Aspen III South in particular, have been demolished fairly recently but the foundations or other debris remain in the vicinity of the structure.

Wetlands:

A detailed wetland delineation for the Vineyard I project site was completed by Zentner and Zentner (November 1992). The delineation, which was verified by the Corps of Engineers in December 1992, identified 17.22 ~~21.95~~ acres of jurisdictional waters on the property that would be disturbed by the proposed project. Detailed wetland delineations for the Aspen IV and V South project sites were completed by Sugnet and Associates (September 1994), and verified by the Corps in November 1994. A total of 1.78 acres of jurisdictional waters were identified on the Aspen IV South property and 0.83 acres on the Aspen V South property which would be impacted by the proposed project. No jurisdictional waters are located in the Aspen III South property.

The wetland delineations previously verified by the Corps were reviewed in the summer and fall of 1995 by Gibson & Skordal to consider if conditions had changed and to obtain additional vegetative data for identified wetlands. With the exception of two delineated seasonal wetlands on the Vineyard I site, it was concluded that the delineations were reasonably accurate and consistent with current federal standards for delineating wetlands (Corps of Engineers 1987). However, the Corps must concur with any modifications to the delineation. In their letter dated July 2, 1997, the Corps verified the revised delineation and the total amount of jurisdictional waters located on the Vineyard I parcel was reduced from 21.95 acres to 17.2~~2~~ acres.

The following describes the various types of wetlands identified on the properties, including a discussion of possible changes in acreage of seasonal wetlands. In total, 19.83 ~~24.56~~ acres of jurisdictional waters on all four properties are identified as habitat which would be disturbed as a result of the proposed project. ~~Should the Corps concur with the delineation modification, this number would be reduced to 20.11 acres of jurisdictional waters.~~

Drainages and Streams. Drainages and streams are distinguished from other types of jurisdictional waters by the presence of a channel with well-defined bed and banks. Small channels with ephemeral flows contain relatively sparse vegetative cover. In Morrison Creek, the flows are intermittent, and as a result, seasonal and riparian wetlands are supported on low terraces adjacent to the channel. The dominant vegetation within the adjacent seasonal wetlands

is creeping spikerush (*Eleocharis macrostachya*), tall flatsedge (*Cyperus eragrostis*), and smartweed (*Polygonum sp.*). Associated species include perennial rye grass (*Lolium perenne*), loosestrife (*Lythrum hyssopifolia*), spiney-fruited buttercup (*Ranunculus muricatus*), penny-royal (*Mentha pulegium*), yellow monkey-flower (*Mimulus guttatus*), cattail (*Typha latifolia*), water speedwell (*Veronica anagallis-aquatica*), broad-leaf water plantain (*Alisma plantago-aquatica*), dallis grass (*Paspalum dilatatum*), dock (*Rumex spp.*) and rushes (*Juncus spp.* and *Scirpus sp.*). Where riparian wetlands abut the channel, willows (*Salix spp.*) and cottonwoods (*Populus fremontii*) dominate in certain areas while willows, blackberry (*Rubus procerus*) and valley oak (*Quercus lobata*) dominate in other areas.

Seasonal Wetlands. The seasonal wetlands within the project site occur within isolated depressions and topographic swales. Swales with shorter duration of flow are typically dominated by Mediterranean barley (*Hordeum hystrix*), perennial rye grass and dock, while swales with longer duration of flow are typically dominated by creeping spikerush with associates including popcorn flower (*Plagiobothrys stipitatus*), coyote thistle (*Eryngium vaseyii*), loosestrife, spiney-fruited buttercup, Mediterranean barley, perennial rye grass, and dock. Seasonal wetlands in isolated depressions are typically dominated by penny-royal (*Mentha pulegium*), tall flatsedge, loosestrife, and Mediterranean barley. Common associates include perennial rye grass, dock, bermuda grass (*Cynodon dactylon*), speedwell (*Veronica peregrina*) and soft chess (*Bromus mollis*).

The Vineyard I delineation identified two seasonal wetland areas (Wetland Numbers 6 and 7) which have evidently changed since the time of survey or were surveyed in an inappropriate season (summer or fall) or were incorrectly mapped. The changed condition may also have resulted from termination of irrigation in these areas. Wetland No. 6 is currently dominated by tarweed (*Holocarpha virgata*), yellow-star thistle (*Centaurea solstitialis*), and six-weeks fescue (*Vulpia bromoides*). Wetland No. 7 is currently dominated by yellow-star thistle and soft chess. Three smaller seasonal wetland areas totaling 0.19 acre in and adjacent to the mapped wetland were also located. To make the wetland delineation for the site consistent with the above discussion, Wetland No. 6 (0.53 acre) would be deleted and Wetland No 7 would be reduced by 3.92 acres. These modifications were ~~are~~ subject to verification by the Corps of Engineers. In July 1997, ~~If~~ the Corps concurred with this revised delineation thus making the ~~concurs, this would reduce the~~ jurisdictional waters within the Vineyard I site ~~to~~ 17.2~~2~~ ~~17.5~~ acres.

Irrigated Seasonal Wetlands. An irrigated seasonal wetland was delineated on the Aspen V South property. This seasonal drainage/swale receives water during the rainy season and is pooled by a berm which appears to have been used for historic farming practices. Irrigated wetlands are typically dominated by species found in areas which are wet for most of the year. Cattail and smartweed dominate the irrigated wetlands while rabbit-foot grass (*Polypogon monspeliensis*), cocklebur (*Zanthium strumanium*), tall flatsedge, broad-leaf water plantain, dallis grass and rushes are included as associates.

Vernal Pools. The only vernal pools delineated within the project site are on the Aspen V South property. The vernal pools are typically up to one-foot in depth and dominated by creeping spikerush, coyote thistle, popcorn flower, and rabbit-foot grass in the deeper areas of the vernal pools, and Mediterranean barley and perennial rye grass along the borders of the pools.

Wildlife

The project site contains a variety of habitats for wildlife. As described above, the dominant habitat types are riparian forest/riparian scrub, pasture, ruderal habitats (including disced areas) and various wetland habitats (see Figures 5-5, 5-6, 5-7 and 5-8). Morrison Creek (including the oxbow channel on the Vineyard I parcel) provides aquatic and wetland habitat for waterfowl, amphibians, and aquatic invertebrates during winter and spring. During the summer and fall months, when flows become reduced, persistent or even perennial pools may form in the creek channel and become small pockets of habitat. The creek bed and banks are ~~is~~ also important to wildlife when dry as they ~~it~~ offer~~s~~ loose, sandy loam ~~soils~~ for burrowing animals and movement corridors for mammalian predators and other species. The various tributary streams, drainage ditches, and other wetlands within the project site also provide seasonal aquatic habitats. The riparian forest and scrub habitats long Morrison Creek, as well as the oak woodlands and scattered trees, provide nesting habitat for raptors and other birds. The grassland and ruderal areas offer foraging habitat for raptors, mammals, and reptiles. Currently, much of the Aspen III South, IV South and V South parcels are used for cattle and horse grazing. A list of wildlife species observed at the project site is provided in Appendix B. The field surveys conducted for most animal species were limited to brief reconnaissance surveys with slightly more intensive surveys conducted for special status reptiles and amphibians.

Mammals:

Mammal species observed within the project site include coyote (*Canis latrans*),black-tailed hare (*Lepus californicus*), desert cottontail (*Sylvilagus audubonii*), and striped skunk (*Mephitis mephitis*). Hares and cottontails are abundant within the project site, providing forage for mammal and bird predators. Rodents which may also be present, and which would provide a prey base for predators, include deer mice (*Peromyscus maniculatus*), California ground squirrel (*Spermophilus beecheyi*), western gray squirrel (*Scirius griseus*), California vole (*Microtus californicus*), and Botta's pocket gopher (*Thomomys bottae*). Other mammals which may utilize the riparian habitat along Morrison Creek include Virginia opossum (*Didelphis marsupialis*) and racoon (*Procyon lotor*).

Birds:

The project site provides habitat for waterfowl and shorebirds during winter and spring when the Morrison Creek channel and other wetland habitats contain water. Waterfowl such as mallards *(Anas platyrynchos*) may breed and raise brood in the creek while other birds such as great egrets (*Casmerodius albus*), great blue heron *(Ardea herodias)*, and belted kingfisher *(Ceryle alcyon)* may feed within the channel. Raptors may nest in the riparian forest along Morrison Creek, as well as in the oak woodlands and individual trees scattered around the project site. The grassland and ruderal areas provide foraging habitat for raptors such as red-tailed hawks *(Buteo jamaicensis)*, red-shouldered hawks *(Buteo lineatus)*, great horned owls *(Bubo virginianus)*, and American kestrels *(Falco sparverius)*. Passerine birds such as red-winged blackbird (*Agelaius phoeniceus),* scrub jay (*Aphelocoma coerulescens),* house finch (*Carpodacus mexicanus),* yellow-rumped warbler (*Dendroica coronata*), and European starling (*Sturnus vulgaris*) use a variety of habitats on the site for nesting and feeding. A total of thirty four bird species have been observed within the project site (see Appendix B). Sugnet & Associates (1991a) identified

an additional seventy six bird species that occur in the project vicinity and potentially occur within the project site.

Reptiles and Amphibians:

The wetland habitats within the project site (particularly the vernal pools and seasonal wetlands) provide breeding habitat for amphibians such as Pacific treefrogs (*Hyla regilla*) and bullfrogs (*Rana catesbeiana*). Reptiles such as garter snakes (*Thamnophis elegans*), common kingsnakes (*Lampropeltis getulus*), and western fence lizards (*Sceloporus occidentalis*) are found in the pastures, riparian habitat and ruderal areas on the site. Morrison Creek and the tributaries and drainage ditches provide suitable habitat for turtles and salamanders, including the western pond turtle (*Clemmys maramorata*) which was observed in Morrison Creek upstream (north) of Jackson Highway (BioSystems, 1991).

Invertebrates:

Searches for elderberry (*Sambucus spp.*) shrubs, the host plant for the valley elderberry longhorn beetle (*Desmocerus californicus dimorphous*), have been conducted by the proponents (Zentner and Zentner, 1994; Sugnet & Associates, 1991a, 1994a). These are the only invertebrate surveys conducted within the project site. The following characterization is based upon invertebrate assessments prepared for the mining parcels (Granite I and Aspen VI) along the Morrison Creek Mining Reach upstream (north) of Jackson Highway (BioSystems, 1991).

Numerous invertebrates associated with the riparian, oak woodland, wetland and grassland habitats within the project site form an important part of these communities. Invertebrates are an important food source for birds and amphibians. Invertebrates such as host-specific bees are important pollinators of vernal pool flowers (Thorp, 1990) and other plants. Common upland invertebrates around the edges of wetlands include beetles (Order *Coleoptera*), flies (Order *Diptera*), spiders (Order *Araneae*), and springtails (Order *Collembola*). Vernal pools and seasonal wetlands may contain fairy shrimp (Order *Anostraca*), tadpole shrimp (Order *Notostraca*), clam shrimp (Order *Conchostraca*), seed shrimp (Subclass *Ostracoda*), copepods (Subclass *Copepoda*), snails (Order *Gastropoda*), water fleas (Order *Cladocera*), and many other types of invertebrates. Fields (1989) reported 130 taxa of aquatic invertebrates in the vernal pools on the Morrison Creek upstream mining reach project site. Sugnet & Associates (1991b, 1992, 1993, 1994d) identified some 25 invertebrate taxa during vernal pool monitoring surveys conducted along the Morrison Creek Mining Reach upstream (north) of Jackson Highway. Many of the same invertebrates may also occur within the project site.

Fish:

There have not been any fisheries surveys conducted within the project site. The habitat can be characterized as an intermittent stream that has historically and exclusively supported a warmwater fishery (Villa, personal communication, 1995). While there is some instream cover and shade provided by herbaceous vegetation and riparian trees, only scattered pools persist through the dry season. Fish populations which utilize this reach of Morrison Creek are probably dominated by non-native species, however, the native Sacramento blackfish (*Orthodon microlepidotus*) may be present. The range for Sacramento blackfish historically extended up Morrison Creek and Laguna Creek but Villa (personal communication, 1995) indicated that the

California Department of Fish and Game (CDFG) does not have any records on how far upstream. The blackfish probably exists further downstream and possibly moves up into the project site reach during wet years (Villa, personal communication, 1995).

Special Status Species

Special status species are those that have experienced population declines and are categorized by resource agencies according to their likelihood of extirpation. Threatened and endangered species include those species actually listed as threatened or endangered by the U.S. Fish and Wildlife Service (USFWS) under the federal Endangered Species Act or by the California Department of Fish and Game (CDFG) under the California Endangered Species Act. Other special status species include species which are proposed for federal listing, candidates for federal listing, or California species of special concern. In addition, special status plant species are identified by the California Native Plant Society (CNPS).

A list of special status plant species that may occur within the project site is presented in Table 5-6 and special status wildlife species observed or potentially occurring is provided in Table 5-7. These lists are complied from information provided by the proponents (Zentner and Zentner, 1994, 1995a, 1995b; Sugnet &Associates, 1991a, 1994a, 1995a, 1995b) and from assessments prepared for the Morrison Creek Mining Reach Upstream (North) of Jackson Highway mining applications (Granite I and Aspen VI parcels).

Table 5-6
Special Status Plant Species
with Potential to Occur within the Project Site

Common Name *Scientific Name*[1]	**USFWS Listing**[2]	**State Status**[3]	**CNPS Status**[4]	**Habitat Type**[5]	**Flowering Phenology**
San Joaquin spearscale *Atriplex joaquiniana*	SC	none	2-2-3 list 1B	alkaline grassland depressions	April-September
Dwarf downingia *Downingia pusilla*	none	none	1-2-1 list 2	mesic grasslands, vernal pools	March-May
Boggs Lake hedge-hyssop *Gratiola heterosepala*	none	CE	1-2-2 list 1B	vernal pools	April-June
Rose-mallow *Hibiscus lasiocarpus*	none	none	2-2-1 list 2	freshwater marsh	August-September
Ahart's dwarf rush *Juncus leiospermus* var. *ahartii*	SC	none	3-1-3 list 1B	vernal pools	March-May
Legenere *Legenere limosa*	SC	none	2-3-3 list 1B	vernal pools	May-June
Hoary navarretia *Navarretia eriocephala*	none	none	1-1-3 list 4	Woodlands, grasslands	May-June
Pincushion navarretia *Navarretia myersii*	PT	CE	3-3-3 list 1B	vernal pools	May
Slender Orcutt grass *Orcuttia tenuis*	~~PT~~ FT	CE	2-3-3 list 1B	vernal pools	May-July
Sacramento Orcutt grass *Orcuttia viscida*	~~PE~~ FE	CE	3-3-3 list 1B	vernal pools	May-June
Sanford's arrowhead *Sagittaria sandfordii*	SC	none	2-2-3 list 1B	freshwater marsh, other shallow, still waters	May-August

Notes:
1. Botanical nomenclature corresponds to Hickman (1993).
2. U.S. Fish and Wildlife Service
   FE = Federal Endangered
   FT = Federal Threatened
   ~~PE = Proposed for listing as endangered.~~
   PT = Proposed for listing as threatened.
   C = Candidate, candidate to become proposed.
   SC = Species of concern, insufficient information to justify listing.
   none = no listing status by USFWS.
3. California Department of Fish and Game
   CE = listed as endangered by CDFG.
   none = a taxon that is not listed by CDFG.
4. California Native Plant Society, Skinner and Pavlik (1994).

List 1B = Plants rare, threatened, or endangered in California and elsewhere.
List 2 = Plants rare, threatened, or endangered in California, but more common elsewhere.
List 3 = Plants about which we need more information.
List 4 = Plants of limited distribution - a watch list.

The R-E-D numbers are encoded as follows:
Rarity: 1 - Rare, but found in sufficient numbers and distributed widely enough that the potential for extinction or extirpation is low at this time; 2 - occurrence confined to several populations or to one extended population; 3 - occurrence limited to one or a few highly restricted populations, or present in such small numbers that it is seldom reported.
Endangerment: 1 - not endangered; 2 - endangered in a portion of its range; 3 - endangered throughout its range.
Distribution: 1 - more or less widespread outside California; 2 - rare outside California; 3 - endemic to California.

5. Habitat type from Skinner and Pavlik (1994).

Table 5-7
Special Status Animal Species
Observed or having Potential to Occur within the Project site

COMMON NAME	SPECIES NAME	STATUS
Invertebrates		
Conservancy fairy shrimp	*Branchinecta conservatio*	FE
Vernal pool fairy shrimp	*Branchinecta lynchi*	FT
Valley elderberry Longhorn beetle[1]	*Democeru s californicus dimorphus*	FT
Delta green ground beetle	*Elaphrus viridis*	FT
Vernal pool tadpole shrimp	*Lepidurus packardi*	FE
Amphibians		
California tiger salamander	*Ambystoma tigrinum californiense*	FC, CSC
Western spadefoot toad	*Scaphiopus hammondi*	FSC, CSC
Reptiles		
Northwestern pond turtle	*Clemmys marmorata marmorata*	FSC, CSC
Giant garter snake	*Thamnophis couchi gigas*	FT, ST
Birds		
Cooper's hawk	*Accipitercooperi*	CSC
Sharp-shinned hawk	*Accipiter striatus*	CSC
Tricolored blackbird	*Agelaius tricolor*	FSC, CSC
Golden eagle	*Aquila chrysaetos*	CSC
Short-eared owl	*Asio flammeus*	CSC
Ferruginous hawk	*Buteo regalis*	FSC, CSC
Swainson's hawk	*Buteo swainsoni*	ST
Mountain plover	*Charadrius montanus*	~~FSC~~,FC CSC
Northern harrier	*Circus cyaneus*	CSC
Black-shouldered kite	*Elanus caeruleus*	*
White-tailed kite	*Elanus leucurus*	CFP
Prairie falcon	*Falco mexicanus*	CSC
Merlin	*Falco columbarius*	FSC, CSC
Loggerhead shrike	*Lanius ludovicianus*	FSC,CSC
Burrowing owl	~~*Speotyto*~~ *Athene cunicularia*	CSC
Yellow warbler	*Dendroica petichia*	CSC
Great blue heron (rookery sites)[2]	*Ardea herodias*	*
Great egret (rookery sites)[2]	*Casmerodius albus*	*
Snowy egret (rookery sites)	*Egretta thula*	*
Black-crowned night-heron (rookery sites)	*Nycticorax nycticorax*	*
Mammals		
Pallid bat	*Antrozous pallidus*	CSC
San Joaquin pocket mouse	*Perognathus inornatus inornatus*	FSC~~, CSC*~~
Townsend's western Big-eared bat	~~*Plecotus*~~ *Corynorhinus townsendii townsendii*	FSC, CSC
American badger	*Taxidea taxus*	*

Federal Status

FE Federally Endangered: taxa in danger of extinction throughout all or a significant portion of its range.

FT Federally Threatened: taxa likely to become endangered within the foreseeable future throughout all or a significant portion of its range.
FPE/T Federal Proposed Endangered/Threatened: taxa proposed for listing as endangered or threatened.
FC Federal Candidate Species: taxa under review. Sufficient biological information exists to support a proposal listing as an endangered or threatened species.
FSC Federal Species of Concern: taxa which may warrant listing, but for which substantial biological information to support a proposal is not currently available.

State Status
SE California Endangered: a native species or subspecies of animal in serious danger of extinction throughout all or a significant portion of its range.
ST California Threatened: a native species or subspecies likely to become an endangered species in the foreseeable future, although not presently threatened with extinction.
SR California Rare: State-listed rare.
CFP California Fully Protected.
CSC California Species of Special Concern: species not officially state listed, but vulnerable to extirpation given population declines or restricted geographic ranges.

1 Elderberry shrubs, the host plant for the valley elderberry longhorn beetle, have been observed on the project site, including several with valley elderberry longhorn beetle exit holes (Zentner and Zentner, 1994).
2 Great blue heron and great egrets have been observed within the project site, but no rookeries.
* Falls into one or more of the following categories:
- Taxa considered endangered or rare under Section 15380(d) of CEQA guidelines.
- Taxa that are biologically rare, very restricted in distribution, declining throughout their range, or at a critical stage in their life cycle when residing in California.
- Population(s) in California that may be peripheral to the major portion of a taxon's range, but which are threatened with extirpation within California.
- Taxa closely associated with a habitat that is declining in California (e.g., wetlands, riparian, old growth forests, desert aquatic systems, native grasslands).

Special Status Plants:

Eleven special status plant species have the potential to occur within the project site (see Table 5-6) but none have been observed during surveys conducted by the project proponents. Vernal pools in the general vicinity are known to support special status plant species. Vernal pools within the project site provide suitable habitat for several of these species. Those most likely to occur are dwarf downingia (*Downingia pusilla*), Boggs Lake hedge-hyssop (*Gratiola heterosepala*), Ahart's dwarf rush (*Juncus leiospermus var. ahartii*), legenere (*Legenere limosa*), pincushion navarretia (*Navarretia myersii*), and Sacramento orcutt grass (*Orcutta visida*). Dwarf downingia was documented in vernal pools on the Morrison Creek Mining Reach Upsteam (North) of Jackson Highway project site (Stromberg, 1988; LSA, 1989; Sugnet & Associates, 1991b, 1992, 1993, 1994d). Some of the seasonal wetlands within the project site may also support suitable habitat for these species. Slender orcutt grass (*Orcuttia tenuis*) is found in counties to the south and north, typically associated with Redding series soils which do not occur within the project site, and is therefore considered less likely to occur in vernal pools in this region. Rose-mallow (*Hibiscus lasiocarpus*) and Sanford's arrowhead (*Sagittaria sandfordii*) potentially occur in the wetland habitats along Morrison Creek, tributaries and drainages. Sanford's arrowhead was reported in a few locations on the Vineyard I parcel (Zentner and Zentner, 1994) but the plants identified as *S. sandfordii* were later found to be an *Alisma* species

and not *S. sandfordii* (Zentner and Zentner, 1995b). San Joaquin spearscale (*Atriplex joaquiniana*) and hoary navarretia (*Navarretia eriocephala*) are typically found in alkaline grassland and grassland/woodland habitats, respectively. Some locations within the project site may support suitable habitat for these two species.

Special Status Wildlife:

Twenty four special status wildlife species consisting of four mammals, sixteen birds, two amphibians, and two reptiles have the potential to occur within the project site (see Table 5-7). None of these species have been documented within the project site. Two listed species which have potential to occur are the state threatened Swainson's hawk (*Buteo swainsoni*) and the federal threatened/state threatened giant garter snake (*Thamnophis couchi gigas*). The remaining species fall into other categories of special status.

Onsite surveys for special status wildlife species have been fairly limited and assessments of special status wildlife have focused on habitat suitability. Zentner and Zentner (1994 and 1995a) have performed surveys on the Vineyard I parcel between March and July, 1993 but do not provide any information on the methods ~~or results~~ of those surveys. The results are presented in Appendix A of the Wetland Mitigation Plan for Vineyard I which is provided in Appendix B of the EIR/EIS. Sugnet & Associates (1995a) walked the banks of Morrison Creek through the Aspen IV South parcel on May 17, 1995 to search for the special status giant garter snake and western pond turtle (*Clemmys marmorata*). Prior to that, Sugnet & Associates (1991a) walked and dipnetted Morrison Creek and the drainage ditch on the Aspen IV South parcel on April 18, 1991 to search for western spadefoot toad (*Scaphiopus hammondi*) and California tiger salamander (*Ambystoma tigrinum californiense*), however, seining is the preferred method for determining the presence of amphibian larvae and California tiger salamanders are rarely caught using a dip net (BioSystems, 1991). No surveys for special status wildlife species have been performed on the Aspen III South or Aspen V South parcels.

Special status mammals may occur in a variety of habitats within the project site. American badger (*Taxidea taxus*) prefer open grassland habitats and friable soils and a badger carcass was found within the Morrison Creek Mining Reach upstream (north) of Jackson Highway (BioSystems, 1991). The San Joaquin pocket mouse (*Perognathus inornatus inornatus*) utilizes similar habitat but are not expected to occur in the project vicinity (BioSystems, 1991). The pallid bat (*Antrozous pallidus*) and Townsend's western big-eared bat (*Plecotus townsendii townsendii*) may use the riparian forest and abandoned structures within the project site for roosting and may forage over the open pasture/ruderal habitats. Special status raptors may nest in the riparian forest and individual trees within the project site and may forage over the pasture/ruderal areas. The project site is potential foraging habitat for the state threatened Swainson's hawk (*Buteo swainsoni*) because it is within ten miles of active Swainson's hawk nesting territories. The ten mile radius criteria is used by the California Department of Fish and Game and this criteria was used in making the determination of foraging habitat on the project site. Several of the other potentially occurring special status raptors, including burrowing owl (*Speotyto cunicularia*), were observed on or over the Morrison Creek upstream mining reach project site (BioSystems, 1991). Yellow warbler (*Dendroica petichia*) prefers riparian scrub and riparian woodland habitats. The riparian corridor within the project site is suitable habitat for the yellow warbler but other than occasional migrants, their present range is the low foothills and not

the low lands of the Central Valley (Comrack, pers. comm., 1995). Tricol~~f~~ored blackbirds (*Agelaius tricolor*) may nest or rest along Morrison Creek and were observed on the Mining Reach upstream (north) of Jackson Highway (BioSystems 1991). The creek and other wetland habitats provide suitable feeding and breeding habitat for special status amphibians and reptiles. A western pond turtle (*Clemmys marmorata*) was observed in Morrison Creek on the Morrison Creek upstream mining reach project site (BioSystems, 1991). Giant garter snake (*Thamnophis couchi gigas*) is not expected to use Morrison Creek in this area (Brode, pers. comm., 1995; Morey, pers. comm., 1995).

Special Status Invertebrates:

~~Four~~ Three special status invertebrate species potentially occur within the project site: valley elderberry longhorn beetle (*Democerus californicus dimorphus*), vernal pool fairy shrimp (*Branchinecta Lynchi*)~~,~~ and tadpole shrimp (*Lepidurus packardi*). ~~and Delta green ground beetle (*Elaphrus viridis*).~~ Only the valley elderberry longhorn beetle has been documented on the site. Elderberry bushes are the host plant for the valley elderberry longhorn beetle which use stems that are greater than one inch in diameter for larval development. Several blue elderberry bushes have been documented within the project site (Zentner and Zentner, 1994; Sugnet & Associates, 1991a, 1994a). The elderberry bushes occur along Morrison Creek and at a few locations within three hundred feet of the creek. Zentner and Zentner (1994) recorded observations of several stems with exit holes typical of the valley elderberry longhorn beetle. During the reconnaissance site visit by Garcia and Associates, a cluster of elderberry bushes that had previously been recorded by Zentner and Zentner (1994) was notably absent and determined to have recently been removed. The cluster had been located near a structure, approximately 300 feet from Morrison Creek, and it was reported as being eight feet tall with 120 stems greater than 1 inch diameter. A few young sprouts/saplings were observed by Garcia and Associates but the original cluster had apparently been cleared during some recent demolition work around the nearby structure.

The vernal pools within the project site are potential habitat for the federal threatened and endangered fairy shrimp, the federal endangered tadpole shrimp, and the federal threatened Delta green ground beetle. Some of the seasonal wetlands and other aquatic habitats on the site may also support suitable habitat for these special status invertebrates.

5.7.2 Environmental Consequences

Proposed Project (Part A)

Vegetation:

1. The proposed project would result in the systematic loss of all existing natural vegetation communities on 881.7 acres (or 91%) of the 966.3-acre project site. Plant communities adversely affected by the proposed project would include: most of the riparian forest/riparian scrub habitat (approximately 14 acres); wetland habitat and waters of the U.S. (19.83 ~~24.56~~ acres); ruderal habitats; pastures; and cultivated areas (*Significant Impact*).

This loss of existing plant communities would occur as a result of the 12-year gravel mining operations. Impacts to the riparian community would begin in year six of the project. The 84.6 acres of Aspen V South that would not be mined would retain the riparian forest/scrub, valley oak woodland, vernal pool, and some of the irrigated seasonal wetland habitats on that parcel.

Wetlands:

2. The vernal pools on the Aspen V South site could be affected by potential changes in hydrology resulting from the mining of the upland drainage area, particularly the three vernal pools nearest to the edge of the site. Such hydrological changes could affect the plant communities of the vernal pools which could result in the loss of the ecological values and biological information associated with these vernal pools (*Significant Impact*).

3. The proposed project would result in the phased destruction of all waters/wetlands on the Vineyard I and Aspen IV South sites and 0.83 acre of waters/wetlands on the Aspen V South site (*Significant Impact*).

Table 5-8 provides a summary of impacts on waters/wetlands associated with this alternative. A total of 19.83 ~~24.56~~ acres of jurisdictional waters/wetlands would be impacted.

Table 5-8
Impact on Waters of the U.S.

Type	Vineyard I	Aspen IV South	Aspen V South
Riparian (Morrison Cr.)	~~12.56~~12.24	1.09	
Tributary	~~4.14~~3.84	0.44	
Seasonal Wetlands	~~5.25~~1.14	0.25	
Irrigated Seasonal Wetlands			0.83
Total	~~21.95~~17.22	1.78	0.83

A mitigation plan for the Vineyard I project site was prepared by Zentner & Zentner (1994) and for the Aspen IV South and Aspen V South sites by Sugnet & Associates (1994). The mitigation plans for the Vineyard I and Aspen IV South sites utilize the 600-foot reconstructed Morrison Creek corridor for the mitigation effort. Mitigation for the Aspen V South site would occur on-site in an unmined area. Proposed wetland mitigation within the corridor is summarized in Table 5-9. In addition, the Vineyard I mitigation plan proposes 16.12 acres of oak savanna within the corridor.

Table 5-9
Wetland Mitigation

Type	Vineyard I	Aspen IV South	Aspen V South
Perennial Marsh	12.62	2.44	1.50
Riparian Woodland	8.76	6.25	0
Seasonal Marsh	11.74	0	0
Total	33.02	8.69	1.50

For detailed descriptions of the mitigation plans, refer directly to the plans prepared by Zentner & Zentner and Sugnet & Associates which are included in Appendix B.

~~The acreage of wetland compensation as proposed appears adequate based on other plans which have been approved by the Corps of Engineers in the last several years.~~

Wildlife:

4. The proposed project would result in the loss of most existing wildlife habitat and some individual animals within the project site (*Significant Impact*).

This habitat loss and wildlife displacement would be a result of the 12-year proposed gravel mining operations. Habitat destruction and disturbance would displace mobile species into adjacent areas, which may result in increased mortality due to competition for limited resources. During the twelve years of mining activities, disturbance to wildlife would be greatest in the vicinity of the processing plant on the Vineyard I parcel due to the increased levels of noise and human activity in that area.

5. The loss of approximately two miles of the existing natural stream channel of Morrison Creek would disrupt a wildlife movement corridor across the project site (*Less-Than-Significant Impact*).

6. Post-mining/post-reclamation activities such as agricultural practices and operation of the processing plant would likely increase human presence within the project site which may disrupt wildlife feeding and breeding (*Less-Than-Significant Impact*).

Invertebrates:

No significant impacts to general invertebrate populations (i.e., non-special status species populations) have been identified.

Fisheries:

7. The proposed project would result in the loss of existing warmwater fisheries habitat within approximately two miles of Morrison Creek, including the oxbow channel, and some individual fish within the project site (*Significant Impact*).

This habitat loss would occur on the Vineyard and Aspen IV South parcels, resulting from the 12-year proposed gravel mining operations. It would include the loss of potential habitat for the native Sacramento blackfish and for a variety of non-native species. Habitat destruction and disturbance would displace fish species into upstream and downstream areas, which may result in increased mortality due to competition for limited resources. Fish may become established in the wetland mitigation/restored creek corridor and some of these fish may also be lost if they are entrained in the pump that will be located at the sump pond in the downstream end of the corridor on the Vineyard I project. The one half to one mile portion of Morrison Creek through the Aspen V South parcel would be retained. That reach would receive water conveyed from the Morrison Creek Upstream Mining Reach and at-grade streamflows would continue through that reach, along the bypass channel, and on downstream.

8. Loss of approximately two miles of the existing stream channel of Morrison Creek would disrupt fish migration (*Significant Impact*).

Special Status Species:

The project would not significantly impact any special status plants since none are known to occur within the project site. The oak woodland community within the area would be unaffected. The project would not represent a significant impact to the San Joaquin pocket mouse, yellow warbler, or giant garter snake given the low probability of their occurrence within the area.

Mammals:

9. The proposed project would result in the loss of approximately 880 acres of existing suitable American badger habitat and may result in the loss of existing potential badger den sites (*Less-Than-Significant Impact*).

Badgers which may utilize the site would be forced to emigrate to adjacent areas during the mining activities, which may result in increased mortality due to competition, but it is unlikely that individuals would be killed during mining.

10. The proposed project would result in the temporary loss of potential roosting habitat for pallid bat and Townsend's western big-eared bat due to impacts to riparian habitat within the project site. The project would also result in the loss of other potential bat roosting sites, with the demolition of abandoned structures within the project site (*Less-Than-Significant Impact*).

Swainson's Hawk and Other Special Status Birds:

11. The proposed project would result in the temporary loss of approximately 880 acres of potential foraging habitat with potential nest sites for Swainson's hawk, a State threatened species in those areas that would be reclaimed to agriculture and wetlands (assuming that crops suitable for Swainson's hawk foraging are planted). The proposed project would also result in the loss of suitable foraging and nesting habitat for other special status birds, including burrowing owls and tricolored blackbirds (*Significant Impact*).

The loss of this habitat is considered temporary as the post-reclamation uses of the project site would include a 93-acre wetland/habitat mitigation corridor with areas of riparian, marsh, and oak savannah restoration, and agriculture. In addition, because mining would be phased, only 75 to 150 acres of the 966-acre project site would be disturbed at any one time (and reclamation would proceed with mining). It is anticipated that the post-reclamation mining areas would provide potential foraging and nesting habitat for the Swainson's hawk and other raptors, assuming that the agricultural areas would be planted with crops that are suitable for Swainson's hawk foraging (such as alfalfa, dry-land irrigated pasture, cereal grains, beet, tomato, or other low-growing row or field crops). It is assumed that a rodent or small mammal control program would not be implemented in the post-reclamation mining sites which would eliminate the prey base for Swainson's hawks and other raptors.

Burrowing owls may also nest within the post-reclamation project site, in the mitigation corridor, the banks of the bypass channel, and the side slopes of the individual mined sites, assuming that rodents and small mammals remain to create potential den sites. It is also assumed that a rodent or small mammal control program would not be implemented in the post-reclamation site operations which would eliminate the den sites for burrowing owls.

All raptors that currently use the project site for foraging would most likely be forced to find alternative forage areas (potentially on undisturbed areas within the project site), which may result in increased mortality due to competition. The area of permanent open water in the stormwater detention basin and the area occupied by the processing plant would not be suitable for foraging. The potential for disruption of raptor nesting exists, particularly in the area of the processing plant due to the increased noise and activity.

The proposed project would result in the temporary loss of potential nesting habitat for tricolored blackbird, along the Morrison Creek corridor. Tricolored blackbirds which utilize the site or adjacent properties would probably be forced to emigrate to adjacent areas during the mining activities, which may result in increased mortality due to competition, but it is unlikely that individuals would be killed during mining. The post-reclamation mitigation corridor is expected to provide suitable tricolored blackbird nesting habitat, in the proposed perennial marsh and lower riparian habitats.

Reptiles and Amphibians:

12. The proposed project would result in the temporary loss of existing potential breeding habitat for California tiger salamander and western spadefoot toad and may result in the loss of individuals of these species. The project would also result in the loss of suitable habitat for the western pond turtle (*Significant Impact*).

Valley Elderberry Longhorn Beetle and Other Invertebrates:

13. The proposed project would result in the loss of nine elderberry bushes, the host plant of the federally listed valley elderberry longhorn beetle, including at least three bushes which were observed to be used by the beetle, and may therefore result in the loss of individuals of the beetle species (*Significant Unavoidable Impact*).

The seven elderberry bushes observed on the Vineyard I parcel would be removed. Three of these bushes were observed to contain beetle emergence holes typical of the valley elderberry longhorn beetle. These seven elderberry bushes were counted to contain 448 stems with diameters of one inch or greater, the size stem used by the valley elderberry longhorn beetles. The two elderberry bushes observed on the Aspen IV South parcel would also be removed. The several existing elderberry bushes along Morrison Creek through the Aspen V South parcel would not be removed.

14. The gravel mining operation of the proposed project would eliminate some of the existing potential habitat within the project site for the federally listed threatened and endangered fairy shrimp, and tadpole shrimp, ~~and Delta green ground beetle,~~ and could also result in the loss of individuals of these species (*Significant Impact*).

The invertebrate species habitat loss would result from the excavation of areas of seasonal wetlands within the project site. The vernal pools and some other seasonal wetlands on the Aspen V South parcel would ~~be~~ not be mined and are located approximately 400 feet east of mining activity. However, these wetlands could be affected by potential changes in hydrology resulting from the mining of the upland drainage area, particularly the three vernal pools nearest to the edge of the mining area. Such hydrological changes could affect the invertebrate populations in these wetlands which could result in the loss of their ecological values and biological information.

Proposed Project Without the Vineyard I Processing Plant Alternative

Impacts to biological resources resulting from this alternative would be similar to those associated with the proposed project. However, without the processing plant, the levels of noise and human activity on the site would be less and so the increased disturbance to general and special status wildlife from the processing plant would not occur.

County Drainage Alternatives (Part B)

All of the Part B alternatives assume that aggregate mining would occur within the project site and in the same 12 year sequence as would occur under the proposed project. Thus, impacts to biological resources resulting from Part B alternatives would be similar to the proposed project.

Additional impacts unique to the Part B alternatives include the following:

1. All Part B alternatives may result in additional (beyond the proposed project) disruption to future wildlife feeding and breeding areas due to increased human presence (*Significant Impact*).

In addition to increased human activity on the site from agricultural practices which would occur under the proposed project and these alternatives, the potential for recreational features within the project site would further increase human use which may further disrupt wildlife feeding and breeding on-site. This would affect special status wildlife as well as other general wildlife.

2. All Part B alternatives may result in greater permanent loss of plant and animal habitat than would be realized under the proposed project (*Significant Impact*).

The County drainage alternatives would provide additional drainage detention volumes and control flows into the pit floor that would make it possible to develop portions of the pit floor for recreational use, as opposed to reclamation for agriculture under the proposed project. In addition to further increasing human presence on the site, this post-mining land use would result in a greater permanent loss of plant and animal habitat, including special status species habitat.

3. All Part B alternatives would entail lining the bypass channel or using a pipe to carry Morrison Creek flows, which would reduce the general fish and wildlife habitat potential of the bypass channel and may reduce populations of fish and wildlife that might otherwise utilize or migrate through an unlined channel (*Significant and Unavoidable Impact*).

Downstream Capacity Bypass Channel:

4. The Downstream Capacity Bypass Channel alternative would represent a greater loss of suitable foraging habitat for Swainson's hawk and a greater loss of suitable foraging and nesting habitat for burrowing owls than the proposed project (*Significant and Unavoidable Impact*).

This alternative would divert more water into the pit floor for detention. Since the detention area would be roughly twice as large under this alternative as under the proposed project or the other Part B alternatives, more of the site would be permanent open water which is not suitable for Swainson's hawk foraging or for burrowing owl foraging or nesting. These conditions would favor fish, reptiles, amphibians, waterfowl and aquatic invertebrates in the detention area, however, the area would receive urban and agricultural runoff and may have poor water quality.

~~100-Year~~ Floodplain Protection Alternatives

100-Year Floodplain Protection Alternative

1. This alternative would result in the loss of portions of the ruderal, disced, and cultivated habitats, and their associated wildlife habitat values, outside of the 100-year floodplain. ~~However, t~~The stream's natural features and vegetation (including riparian and wetland habitats) which would otherwise be removed by the project would be substantially avoided with the exception of 0.11 acre of seasonal wetland ~~unaffected~~ and the wildlife values associated with the habitats left intact would be retained (*Significant Impact*).

Mitigations for plant and animal resources similar to those identified for the project would be required. No additional significant adverse effect to the valley elderberry longhorn beetle is anticipated.

Creek Buffer Alternative

Vegetation:

1. A total of 8.0 acres of ~~J~~jurisdictional waters would be adversely affected by this alternative including approximately 1.14 acres of riparian woodland/drainage channel (0.7 acre on Vineyard I and 0.44 acre on Aspen V South), 1.3 acre of perennial marsh (on Vineyard I), and 5.56 acres of seasonal marsh (4.48 acres on Vineyard I, 0.83 acre on Aspen IV South, and 0.25 acre on Aspen V South). In addition, other plant communities including ruderal habitats, pastures, and cultivated areas located outside of the 150-foot buffer area would be displaced. It is possible that the vernal pool preserve area on the Aspen V South parcel may still be affected as described for the proposed project (*Significant Impact*).

Special Status Species:

2. This alternative would result in the temporary loss of nearly 800 acres of potential foraging habitat for Swainson's hawk (*Significant Impact*).

3. At least four elderberry bushes, the host plant of the federally listed Valley elderberry longhorn beetle, which occur outside of the 150-foot buffer of the Vineyard I parcel would be lost and may therefore result in the loss of individuals of the beetle species. In addition, one other elderberry bush (located within 200 feet of Morrison Creek) would also likely be removed to allow for proposed side slopes leading up from the proposed pit area to the 150-foot buffer zone (*Significant Impact*).

4. Some of the existing potential breeding habitat for California tiger salamander and western spadefoot toad~~, and Delta green ground beetle~~ would still be temporarily lost and could result in the loss of these species. Vernal pools or other seasonal wetlands that may provide habitat for fairy shrimp will not be eliminated as they are located greater than 400 feet from active mining. However, these wetlands could be affected by potential changes in hydrology resulting from the mining of the upland drainage area, particularly the three vernal pools nearest to the edge of the mining area. Such hydrological changes could affect the invertebrate populations in these wetlands which could result in the loss of their ecological values and biological information. (*Significant Impact*).

Mitigation for plant and animal resources similar to those identified for the proposed project would be required.

No Project Alternative

1. The No Project Alternative would maintain all of the existing project site biological resources, existing wetlands and other jurisdictional waters in the short term and result in the continuation of farming and ranching within the project site. However, there would be no guaranteed long term protection of these resources (*Less-Than-Significant Impact*).

5.7.3 Mitigation

Recommendations/Requirements of Various Agencies (All Mining Alternatives)

California Department of Fish and Game:

1. The proponents shall secure a Streambed Alteration Agreement (CDFG 1601-1607) with CDFG before re-routing existing stream channels. The Streambed Alteration Agreement shall include a program and appropriate plans to protect upstream and downstream habitats. Best Management Practices shall be employed to minimize alterations of natural water flows and reduce downstream sediment.

2. The proponents shall develop and implement a water quality and erosion control plan for all construction-related project activities; the plan shall include the following:

    a. Control disposal of runoff within the construction and staging as well as any water encountered during construction. There must not be any discharge to State waters unless authorized under permit by the CDFG and the Central Valley Regional Water Quality Control Board;

b. Methods to control surface discharge away from disturbed areas and along roadways;

c. Methods to be used for slope stabilization and to limit erosion on disturbed areas or any other area subject to erosion;

d. Methods to be implemented that assure proper operation, maintenance, and use of erosion control devices;

e. Seasonal variation in use of erosion control measures must be addressed, including winterizing all areas from October 15 through May 15 of each year; and

f. A detailed revegetation and slope stabilization plan.

3. In order to comply with Public Resources Code Section 21081.6, a detailed monitoring program shall be developed for all mitigation conditions. The monitoring program shall include, but may not be limited to, the following:

a. Specific criteria to measure the effectiveness of the mitigation;

b. Annual monitoring reports for a minimum of five years; annual reports must be submitted to Sacramento County, the Corps and CDFG; and

c. The annual monitoring reports must include corrective recommendations that shall be implemented in order to ensure that mitigation efforts are successful.

4. Pursuant to Public Resource Code 21092 and 21092.2, the CDFG shall be notified in writing of any proposed actions and/or pending decisions regarding this project; the written notification(s) shall be sent to the CDFG Region 2 office, Rancho Cordova.

United States Fish and Wildlife Service:

5. The proposed project (through the Corps) shall comply with the consultation requirements set forth in Section 7 of the federal Endangered Species Act (per 16 USC Sec. 1531 *et seq.*), and the Fish and Wildlife Coordination Act (16 USC Sec. 661 *et seq.*).

Federal Clean Water Act:

6. The proponent shall obtain a Section 404 permit prior to construction of the conveyor system should there be any work in wetlands and other waters of the U.S. under Section 404 of the federal Clean Water Act (Clean Water Act).

Mitigation Measures

Proposed Project (Part A):

1. Except as modified below for the proposed wetland mitigation, the proponents shall implement the proposed reclamation plans as presented in the surface mining application

documents, including the wetland mitigation plans (Zentner and Zentner, 1994; Sugnet & Associates, 1994b, and 1994c) to mitigate for impacts to the riparian forest/riparian scrub communities, wetlands, and wildlife habitats within the project site, including habitat for special status wildlife species. The following modifications to the wetland mitigation plans shall be made:

a. The flows to be regulated and maintained in the mitigation corridor (to be located on the Aspen IV South and Vineyard I parcels), by releases from the bypass channel, shall be determined in consultation with the USFWS, CDFG, Corps, and County and shall be sufficient to support the mosaic of habitats proposed for the corridor. This consultation shall establish the minimum low flow and optimal high flow conditions to be maintained within the mitigation corridor to achieve the hydrological goals of the mitigation and support the various habitats as expected.

b. To ensure mitigation for Valley elderberry longhorn beetle, elderberry planting shall be conducted within the mitigation corridor on the Aspen IV South parcel following the USFWS's ~~*General Compensation*~~ *Mitigation Guidelines for the Valley Elderberry Longhorn Beetle* (September 19, 1996~~May 31, 1994~~).

c. The monitoring effort for the riparian woodland, riparian scrub, and Valley oak savanna habitats shall be performed for a period of ten years to ensure success of the plantings and development of the habitats anticipated.

d. Monitoring efforts on the Aspen V South parcel shall include hydrological and botanical monitoring of the vernal pools on the parcel to document consistency or any changes in these communities. Hydrological monitoring shall entail recording the period and duration of inundation; botanical monitoring shall be conducted as in the emergent marsh mitigation to be constructed. This additional monitoring would be incorporated into the five year monitoring program. Should the monitoring reveal that the vernal pools have been significantly impacted, additional mitigation for the vernal pools shall be developed in consultation with the USFWS, CDFG, Corps, and the County.

2. After the five year monitoring period for mitigation of wetlands and other habitats, a written determination shall be made as to the success or failure of the wetland and habitat mitigation. The determination of success shall be made by a qualified biologist in consultation with and concurrence by the USFWS, CDFG, Corps and the County. If the determination concludes that the wetland, riparian, and/or oak woodland habitats have not met the success criteria, the proponents shall develop additional habitats and/or implement other remediation that is approved by the above mentioned agencies.

3. To mitigate for impacts to fish and aquatic wildlife movement/migration in Morrison Creek, the bypass channel shall be designed to incorporate suitable habitat features. The features shall be developed in consultation with the USFWS, CDFG, Corps, and the County, and shall provide opportunities for the native Sacramento blackfish as well as other species of aquatic wildlife, including special status amphibians and reptiles.

4. The following mitigation is recommended to minimize the potential impacts to Swainson's hawk, burrowing owl and other bird species. The measures listed below are related to the aforementioned species only.

   a. Prior to issuance of any grading permits, the proponents shall submit, to the Department of Environmental Review and Assessment, a current survey conducted by a qualified wildlife biologist indicating the location and status of any active nest within the project site.

   b. Prior to the disturbance or removal of any raptor nest, the proponents shall secure the required permits for the USFWS for such removal, pursuant to the Migratory Bird Treaty Act.

   c. No construction shall be allowed within 150 feet of any active raptor or tricolored blackbird nest site until all of the young have fledged, or a permit has been secured from the appropriate resource agency to allow disturbance or removal of the active nests. The 150-foot "no construction" buffer zone must be adequately fenced and signed.

   d. The post-reclamation agricultural areas shall be planted only with crops that are suitable for Swainson's hawk foraging; these crops shall be approved by the CDFG.

   e. The post-reclamation project site shall not be operated with any rodent or small mammal control program that would indiscriminately eradicate all rodents and small mammals from the project site. The proponents shall ensure that any rodent or small mammal control program is approved by the CDFG, Corps, and the County prior to its implementation.

5. The proponents shall comply with the implementing measures included in the County's standard tree preservation ordinance for all oak trees on the project site to be preserved and protected from mining operations. Any native oak trees greater than 4 inches dbh proposed for removal shall be compensated for by planting native oak trees (valley oak/*Quercus lobata*, blue oak/*Q. douglasii*, and/or interior live oak/*Q. wislizenii*) based on the compensation ratio provided below. The trees shall be planted on the project site or off-site, preferably at a nearby community park. Prior to issuance of the work authorization, a replacement Oak Tree Planting Plan shall be prepared by a certified arborist or a licensed landscape architect and shall be submitted to the Environmental Coordinator for review. The plan shall identify the planting location, the number and species of trees to be planted, the funding source for planting and maintenance, and maintenance agreements identifying the entity which shall provide care for the trees during a 3-year establishment period. In addition to oak tree replacement, the plan shall provide for the replacement of all landmark size (19 dbh or greater) native trees (except cottonwoods and willows) removed as a result of the project on an in-kind and inch-for-inch basis. The following compensation ratio for oak tree replacement is required:

- One 15-gallon oak tree equals 1-inch dbh
- One 24-inch box oak tree equals 2-inches dbh
- One 36-inch box oak tree equals 3-inches dbh

No replacement oak tree shall be planted within 15 feet of the driplines of oak trees which are retained on-site, or within 15 feet of a building foundation.

Proposed Project Without the Vineyard 1 Processing Plant Alternative:

Mitigation for this alternative would be the same as for the proposed project since the impacts would be similar.

County Drainage Alternatives (Part B):

1. All of the mitigation measures described above for the proposed project shall be implemented for all Part B alternatives.

2. To mitigate for increased human use of the project site that may result from the development of recreational features under the Part B alternatives, the proponents shall incorporate public signs into the recreational design to inform the users about the history of the project site, its wildlife value, and sensitivity of wildlife species which may be feeding or breeding onsite.

~~100-Year~~ Floodplain Protection Alternatives:

100-Year Floodplain Alternative

1. Mitigation measures 4 and 5 for the proposed project shall apply to this alternative, as appropriate. In addition, the 0.11 acre of seasonal wetland impacted by this alternative shall be mitigated on a 1.5:1 ratio (0.17 acre) within the 100-year floodplain at the Vineyard I and Aspen IV South sites, or other mitigation approved by the County, Corps, USFWS and CDFG. The same monitoring requirements and success criteria described in the mitigation plans shall apply to this alternative.

Creek Buffer Alternative

1. Mitigation measures 1, 2, 4, and 5 for the proposed project shall apply to this alternative, as appropriate. In addition, the 1.14 acres of riparian woodland/drainage channel, 1.3 acres of perennial marsh, and 5.56 acres of seasonal marsh impacted by this alternative shall be mitigated within the creek buffer area. The same replacement ratios, monitoring requirements and success criteria described in the mitigation plans shall apply to this alternative. Habitat shall be provided within the creek buffer area on the mining sites where the habitat would be lost.

5.8 TRAFFIC AND CIRCULATION

This section describes the roadway network currently serving the project site, and discusses the potential impacts associated with implementation of the proposed project and alternatives. Appendix C contains background information used during the preparation of this section, including tables, and should be used in conjunction with the information provided below.

Following review of the Draft EIR/EIS, the project proponents were able to reach agreement on the easements necessary to allow the conveyor access proposed under the "Proposed Project Without Vineyard Processing Plant" already evaluated in the EIR/EIS. This agreement removed the need to have a new processing plant on the project site, and the project proponents have indicated that this is now the "preferred project." In addition, there were several new conditions of approval/mitigation that were recommended by the public during the Policy Planning Commission hearings. The proponents have agreed to these conditions and thus have been included as required mitigation in this document (Section 5.8.3). As a result of these new conditions, the traffic model used in assessing the project's impacts was re-run for the preferred project ("Proposed Project Without Vineyard I Processing Plant") assuming these new conditions were in place. The results of this analysis have been incorporated into the Final EIR/EIS and are presented below as "scenario 4a". In summary, the new conditions would remove significant LOS impacts at the Elder Creek at Bradshaw intersection, under project conditions and would create and remove significant LOS impacts at two intersectons under cumulative conditions before mitigation.

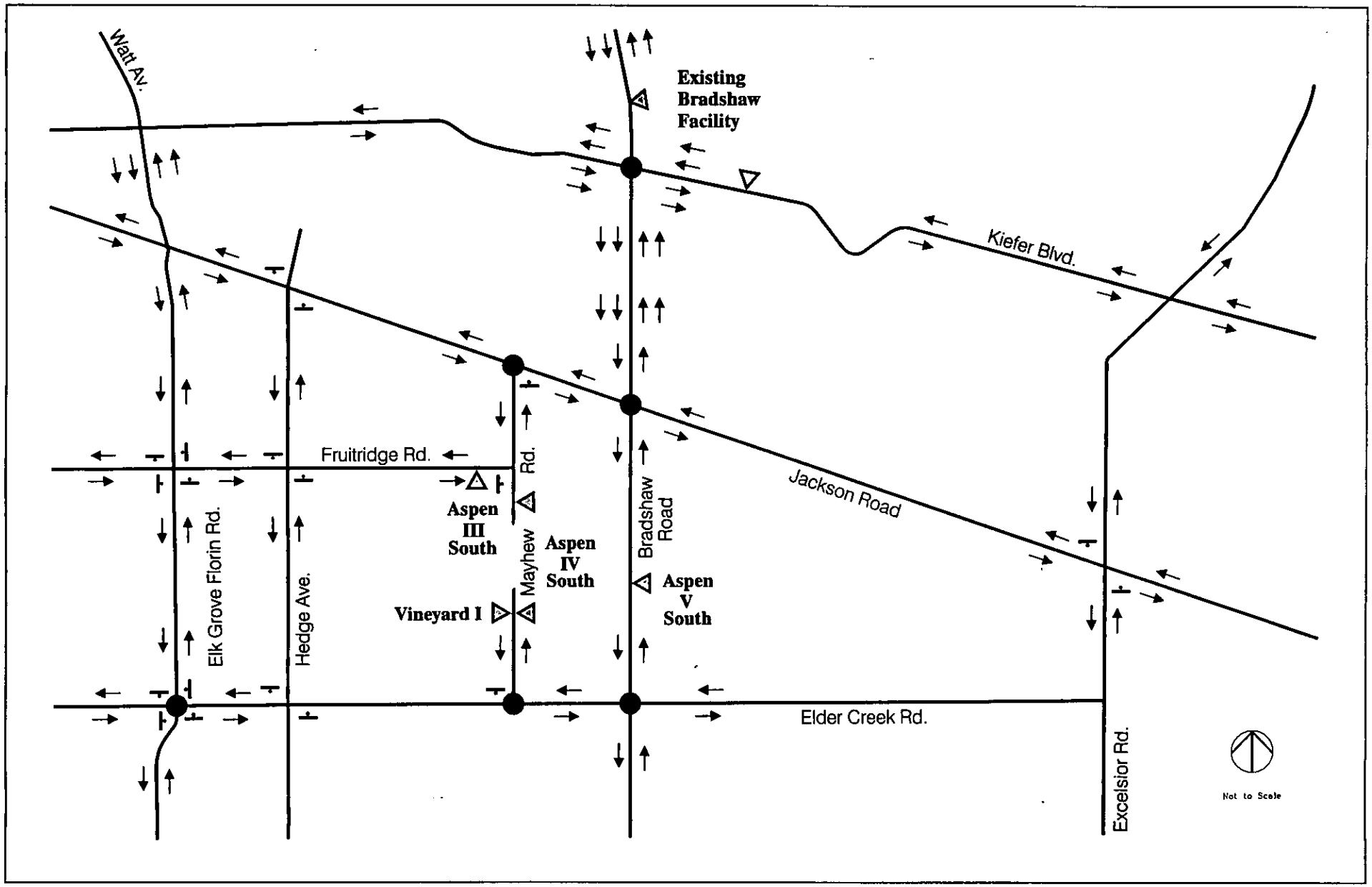
5.8.1 Affected Environment

The existing major roadways in the vicinity of the project and their intersections are summarized on Figure 5-9, which shows the existing lanes, intersection controls, and access locations. Generally, Jackson Road and the roadways south of it are two-lane rural facilities, with added turn lanes at major intersections. Watt Avenue and Bradshaw Road are four-lane facilities north of Jackson Road. Kiefer Boulevard is four-lanes at its intersection with Bradshaw, but is two-lanes east and west of Bradshaw. Figure 5-10 presents diagrams of the existing lanes and controls at the major intersections.

Levels of Service

Roadway operating conditions are described in terms of levels of service (LOS). Level of service definitions, per the Transportation Research Board's *Highway Capacity Manual, Special Report 209, Third Edition* 1994 are as follows:

- LOS A: Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Stopped delay at signalized intersections is minimal.
- LOS B: The ability to maneuver within the traffic stream is only slightly restricted and stopped delays are not bothersome. Drivers are not generally subjected to appreciable tension.



Morrison Creek Mining Reach, Downstream (South) of Jackson Highway EIR/EIS

LEGEND

- Primary Access Location
- Secondary Access Location
- Through Traffic Lanes (Turn Lanes Not Shown)
- Key Study Intersection
- Stop Sign

Figure 5-9
Existing Lanes, Intersection Controls and Access Locations

Source: Dowling Associates, 1995

EDAW Inc.

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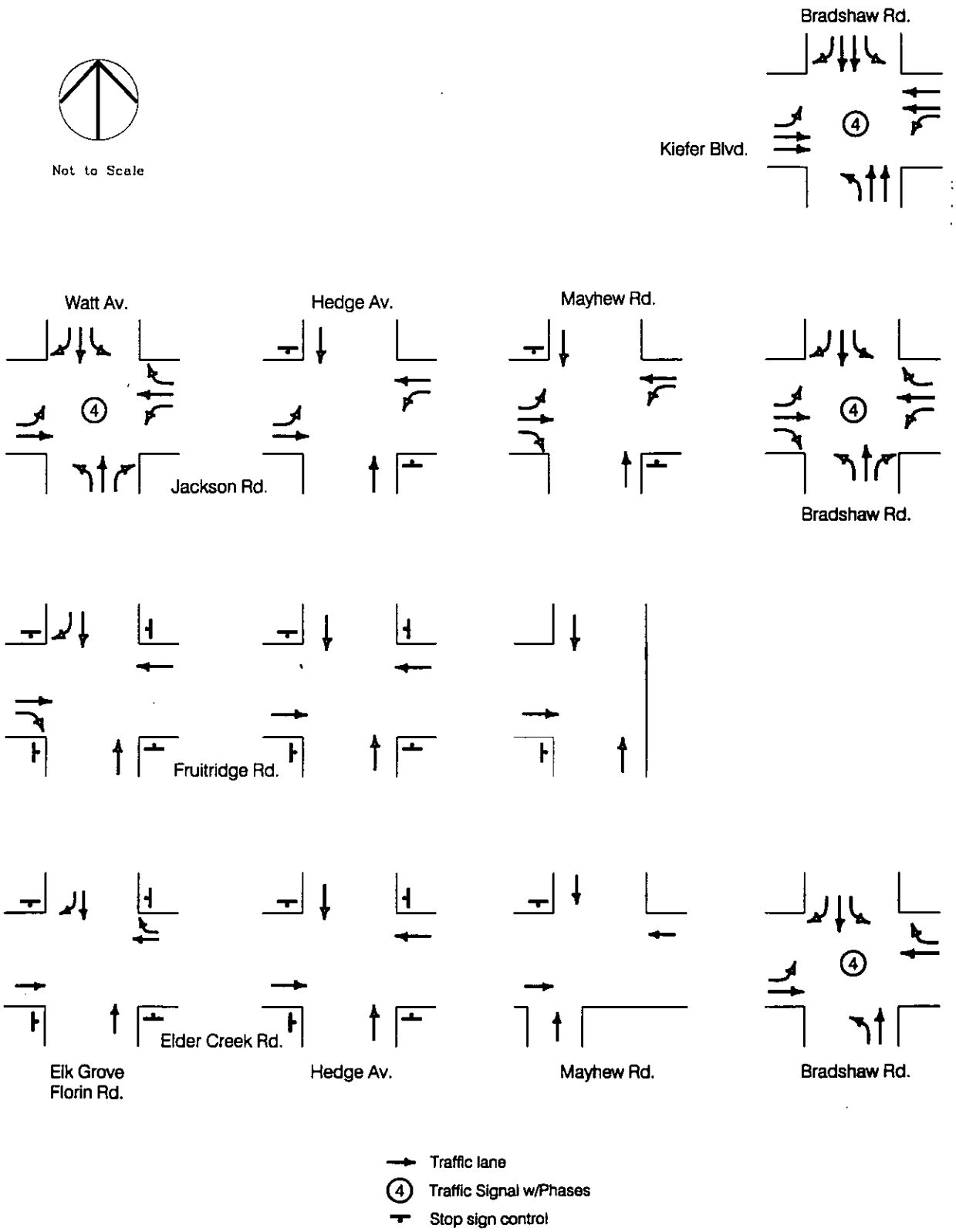

Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 5-10
Existing Lane Configurations and Intersection Controls
Source: Dowling Associates, 1995

EDAW Inc.

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- LOS C: Operations are stable; however, ability to maneuver and change lanes in midblock locations may be more restricted than at LOS B. Motorists would experience appreciable tension while driving.
- LOS D: Operations border on a range in which small increases in flow may cause substantial increases in delay and hence decreases in arterial speed.
- LOS E: Operations are characterized by significant delays and average travel speeds of one-third the free-flow speed or less.
- LOS F: Operations are characterized by arterial flow at extremely low speeds below one-third to one-fourth of the free-flow speed. Intersection congestion is likely at critical signalized locations, with high delays and extensive queuing.

Existing AM and PM turning movement traffic volumes were counted for the morning and evening peak commute hours. Capacity analysis was performed for the key intersections and roadway segments (links) in the project site. The capacity analysis at key intersections was performed using the Transportation Research Board *Circular 212* Planning method for signalized intersections, the 1994 *Highway Capacity Manual* method for all-way stop sign controlled intersections, and 1985 *Highway Capacity Manual* method for one or two-way stop sign controlled intersections.

The analysis showed that the signalized intersection of Bradshaw Road and Jackson Road currently operates at LOS F during both the AM and PM peak hours. The stop sign controlled intersection of Elder Creek Road and South Watt Avenue currently operates at LOS F during the PM peak hour. The roadway segment for Watt Avenue between Fruitridge Road and Elder Creek Road currently operates at LOS C.

Levels of service for the link analysis was based on the Sacramento County CMP methodology, which compares daily traffic volume against generalized segment capacities. The generalized segment capacities were converted to peak hour capacities by applying factors computed from a comparison of peak hour and daily traffic volumes.

All of the roadways under the existing conditions are classified as Principal Arterial Undivided. This road type has a 24-hour capacity of 15,000 and a peak hour capacity of 1,350. There are two roadway segments which currently operate at LOS F during both the AM and PM peak periods. These segments are Watt Avenue between Jackson Road and Fruitridge Road, and Bradshaw Road between Jackson Road and Florin Road.

Pending Roadway Improvements

Based on information provided by the Sacramento County Transportation Division, improvements to the Jackson/ Bradshaw intersection are expected to be constructed by September 1997. These improvements include modifications to the Bradshaw approaches and traffic signal to provide a second through lane on the southbound approach, and on the northbound approach to convert the existing right-turn-only lane to a combined through and right-turn lane. The northbound departure would be widened to accept the dual through lane movement. South of the intersection, Bradshaw would be widened to 4-lanes plus a center turn

lane from Jackson Road to just north of the Morrison Creek Bridge. These improvements would improve the LOS at the Bradshaw Road / Jackson Road intersection to LOS D or better during the AM and PM peak periods.

Traffic Model Scenario 4a

As described in the introduction to Section 5.8, the traffic model used during the impact analysis was re-run for the Final EIR/EIS to evaluate the "Proposed Project Without Vineyard I Processing Plant" Alternative assuming that additional conditions of approval were implemented. (The model output has been added to Appendix C.) The additional conditions of approval were requested by members of the public during a series of Policy Planning Commission hearings held for the Draft EIR/EIS and the project. During the hearings the proponents agreed to implement the proposed conditions and thus the Final EIR/EIS includes an evaluation of the traffic and circulation conditions that could result from implementation. Also during the review of the Draft EIR/EIS, the project proponents were able to successfully negotiate the easements necessary to implement the "Without Vineyard I Processing Plant" alternative (refer to Section 4.1 for additional discussion). As a result, the project proponents' have indicated that the new preferred alternative is the "Without Vineyard I Processing Plant" option and the revised model run was therefore based on this alternative. The results of the revised model run are presented in this section of the Final EIR/EIS as "Scenario 4a." (The Draft EIR/EIS included a "Scenario 4" which represented the Proposed Project Without Vineyard I Processing Plant Alternative.) Impacts and mitigation discussion for Scenarios 4 and 4a are presented separately in this section.

The following are the assumptions used in preparation of the revised model run:

- There would be no processing plant located on the Vineyard I site.
- There would be no change in the haul rate (aggregate material) from the existing Bradshaw plant.
- The maximum haul rate from the Vineyard I site for overburden material would be limited to 30 truck loads per hour during the peak traffic periods (7:00-9:00 AM and 4:00-6:00 PM).
- There are no limitations (in the Planning Commission's recommended conditions of approval) on the haul rate from the Aspen III-V sites, but we are assuming the maximum rate would be 24 loads per hour during the peak traffic periods (as the applicant stated). ~~*[COUNTY: The County may want to add a condition of approval to the Aspen III-V sites that the maximum haul rate for overburden material would be limited to 24 truck loads per hour during the peak traffic periods (7:00-9:00 AM and 4:00-6:00 PM). Rob Wainwright, Teichert Aggregates, stated in the June 10, 1998, public hearing that all of the overburden in Aspen III has already been removed.]*~~
- All removal of overburden traffic from the Vineyard I, Aspen III and Aspen IV sites would be north along Mayhew Road to Jackson Road. [It was previously assumed the haul route for the Vineyard I site would be south along Mayhew Road to Elder Creek Road].
- The previously assumed total limit on overburden material (430,000 CY) would be increased to a total of 100,000 cubic yards (CY) for the Vineyard I site and a total of 900,000 CY for

the Aspen III-V sites. [Based on restrictions on removal rates, the total maximum rate of truck trips to and from the project site during peak hours would remain the same as previously evaluated for Scenario 4 or 108 total trips per hour (refer to Table 5-10)].

- It is assumed the overburden removal would occur primarily from 6:00 AM to 3:30 PM, five days per week. [At the haul rates listed above, all of the overburden from all the sites could be removed in about one year.]
- The assumptions listed above would apply to the analysis of project conditions.
- For cumulative conditions (2010) the same maximum haul rates would be analyzed.

5.8.2 Environmental Consequences

The County of Sacramento uses a LOS "E" standard for urban roadway operating conditions and a LOS "D" standard for rural roadways. Therefore, if the proposed project causes the LOS to drop below LOS D (i.e., LOS E or F) on a rural roadway, this would constitute a significant impact (See Appendix C). In addition to LOS, there are several other potential traffic impacts which may occur as a result of the proposed project and/or alternatives. The following is a summary of these potential impacts.

Proposed Project (Part A)

1. The proposed project would result in deterioration of existing LOS due to trips generated by removal of overburden material, hauling of aggregate materials from the proposed processing plant at the Vineyard I site, and by employees and maintenance vehicle activity (*Significant Impact*).

Overburden material would be removed at a maximum rate of 30 truck loads per hour for Vineyard I and 24 truck loads per hour for Aspen III, IV and V South. A maximum of 54 truck loads of overburden would be removed during the AM and PM peak hours. ~~Approximately 430,000 cubic yards of overburden are proposed to be removed from the project site.~~

Aggregate materials would be hauled from the Vineyard I site at a maximum rate of 50 truck loads during the AM and PM peak hours. Traffic generated by commercial sales at the new Vineyard I processing facility would replace an equivalent amount of traffic generated by the existing Bradshaw facility.

Some employees would be transferred from the existing Bradshaw facility to the new Vineyard I processing facility. The work shifts at the processing plant are from 6:00 AM to 2:30 PM, 2:30 to 10:30 PM, and 10:30 PM to 6:00 AM. Employees are not expected to travel during the peak commute periods, which occur between 7:00 - 9:00 AM and 4:00 - 6:00 PM.

A total of about 50 daily trips would be generated by employees and maintenance vehicle activity. These same trips are now being generated elsewhere in the general area in connection with the present mining operations, and would not represent an increase in traffic on roadways in the vicinity. As a result, no significant impacts are expected from employee traffic.

Mining at Vineyard I would occur simultaneously with mining at Aspen III, IV, and V South. As a result, four traffic scenarios were analyzed to determine traffic impacts. The first three scenarios include traffic generated by aggregate hauling from Vineyard I (with on-site plant) combined with overburden hauling from each of the Aspen III, IV, and V South sites. The fourth scenario includes traffic generated by overburden hauling from Vineyard I (Proposed Project Without the Vineyard I Processing Plant Alternative as discussed below). The trip generation rates for the four traffic scenarios are shown in Table 5-10.

Truck traffic for overburden removal and hauling to outside customers is expected to be distributed as follows:

- North on Bradshaw Road 50%
- West on Jackson Road 20%
- East on Jackson Road 15%
- South on Bradshaw Road 12%
- South on Watt Avenue 3%

Half of the commercial truck trips distributed to points west on Jackson Road are assumed to travel along South Watt Avenue; the other half along Bradshaw Road. Although Bradshaw Road is a better route, it is somewhat longer (Table 5-11).

Mining operations would result in increased traffic at the intersection of Elder Creek Road and South Watt Avenue. In the PM peak hour, this intersection currently operates at LOS F, which is in excess of the County's level of service standard. Mining operations would also reduce the PM peak hour LOS from D to E at the rural intersection of Elder Creek Road at Bradshaw Road. Addition of traffic at these two intersections is considered to be a significant impact.

On the roadway segment of Jackson Road between Mayhew Road and Bradshaw Road, the LOS would drop from LOS E to LOS F during the PM peak hour, when overburden is being hauled from Aspen III South. The intersections along this roadway would operate in compliance with County standards. Because the intersections are considered to be the critical points on arterial roadways, this is not considered a significant impact.

Mining operations would perpetuate the existing LOS F conditions at the roadway segment on Watt Avenue between Jackson Road and Fruitridge Road, and on Bradshaw Road between Jackson Road and Florin Road. Mitigation of impacts to congested intersections along these roadways is expected to reduce these impacts to less-than-significant.

2. Introduction of truck traffic on roads not designed to accommodate truck traffic or at access points to heavily traveled roads would have a significant adverse impact on traffic safety (*Significant Impact*).

Table 5-10
Trip Generation Estimates[a]
AM and PM Peak Hours

Scenario	1		2		3		4		4a	
Granite - Vineyard I	Option I: On-Site Processing Plant						Option 2: No Processing Plant			
Teichert Site	Aspen III South		Aspen IV South		Aspen V South		Aspen V South		Aspen V South	
	In	Out	In	Out	In	Out	In	Ou	In	Out
Granite - Vineyard I										
Overburden Removal	60[b]	60[b]	60[b]	60[b]	60[b]	60[b]	60	60	60	60
Aggregate Hauling	100	100	100	100	100	100				
Teichert										
Overburden Removal	48	48	48	48	48	48	48	48	48	48
Total (during maximum hauling conditions)	148	148	148	148	148	148	108	108	108	108

[a] Shown in passenger car equivalents: 2 passenger cars = 1 truck.
[b] Trips that would not occur during the period when the highest number of trips will be generated.

Table 5-11
Intersection Levels of Service
For Project Alternatives (Existing Conditions)
AM Peak Hour (PM Peak Hour)

	No Project		Scenario 1		Scenario 2		Scenario 3		Scenario 4		Scenario 4a	
Intersection	V/C	Level of Service	V/C	Level of Service	V/C	Level of Service	V/C	Level of Service	V/C	Level of Service	V/C	Level of Service
Elder Creek Rd at S. Watt Ave (urban)	0.84 (1.26)	C (F)	0.86 (1.28[c])	C (F)	0.86 (1.28[c])	C (F)	0.86 (1.28[c])	C (F)	0.85 (1.27[c])	C (F)	0.84 (1.26)	C (F)
Elder Creek Rd at Mayhew Rd (rural)	574[a] (606[a])	A (A)	441[a] (453[a])	A (A)	432[a] (444[a])	A (A)	441[a] (453[a])	A (A)	504[a] (520[a])	A (A)	574[a] (606)[a]	A (A)
Elder Creek Rd at Bradshaw Rd (rural)	0.77 (0.87)	C (D)	0.82 (0.93)	D (E[c])	0.82 (0.93)	D (E[c])	0.82 (0.93)	D (E[c])	0.80 (0.91)	D (E)[c]	0.78 (0.87)	C (D)
Bradshaw Rd at Jackson Rd[b] (urban)	0.82 (0.75)	D (C)	0.86 (0.79)	D (C)	0.86 (0.79)	D (C)	0.84 (0.80)	D (D)	0.85 (0.79)	D (C)	0.88 (0.77)	D (C)
Bradshaw Rd at Kiefer Blvd (urban)	0.52 (0.73)	A (C)	0.54 (0.75)	A (C)	0.54 (0.75)	A (C)	0.54 (0.75)	A (C)	0.54 (0.75)	A (C)	0.54 (0.75)	A (C)
Jackson Rd at Mayhew Rd (urban)	243[a] (171[a])	C (D)	210[a] (145[a])	C (D)	215[a] (151[a])	C (D)	235[a] (167[a])	C (D)	231[a] (163[a])	C (D)	177[a] (97)[a]	D (E)

[a] Unused capacity is shown for 2-way stop controlled intersections.
[b] Improvements planned for FY-95/96 are assumed to be in place.
[c] Potentially significant adverse impact.
Note: County LOS standards are LOS D for "Rural" roadways and LOS E for "Urban" roadways. Therefore, any reduction in LOS beyond the County Standards would be considered a potentially significant adverse impact.

The poorer operating capabilities of trucks and their significantly larger size and mass have the potential to reduce traffic safety. This is somewhat mitigated by the training and experience of professional truck drivers. On the other hand, other motorists do not always recognize the inherent limitations of truck vehicles, and may unwittingly contribute to potentially hazardous traffic situations. The design of existing major intersections in the general area of the project adequately provides for the geometric and operational parameters of truck traffic.

Mayhew Road is narrower than normal for a two-lane roadway: approximately 20 feet wide, and is insufficient to safely accommodate two-way truck traffic. The intersection of Mayhew Road with Elder Creek Road is insufficient for truck turning movements without encroachment into opposing traffic lanes. This is considered to be a significant impact.

Introduction of truck traffic at a new access to the Aspen V South site would have a significant adverse impact on traffic safety on Bradshaw Road. Because of the high traffic volumes on Bradshaw Road, trucks waiting to turn from Bradshaw Road into Aspen V South entrance could create a potentially significant safety impact. Egress from the Aspen V South site would be controlled by a stop sign; exercise of adequate care by professional truck drivers should result in reasonable levels of safety for site egress.

3. The increased truck traffic due to the project may contribute to additional deterioration of the pavement on roadways near the project site entrances, and have the potential to damage the roadway structural section (*Significant Impact*).

A major area of traffic impact related to truck traffic is the structural wear and tear caused by the heavy axle loadings which characterize truck vehicles. The larger the trucks, the heavier these loadings. Over time, truck traffic eventually breaks down the roadway surface and base material, necessitating maintenance or reconstruction. The structural deterioration of roadways is directly proportional to the number of truck trips using them. Thus, increased truck trips means more rapid deterioration, resulting in the need for additional pavement maintenance.

The greatest potential for pavement damage is where the concentrations of truck traffic are highest (i.e., near the site entrance points). The County maintains a computerized pavement management system which provides a rating of pavement conditions. A field inspection of roadway conditions was also performed. Along the primary haul routes, the following conditions were identified:

- Elder Creek Road: Good Condition;
- Mayhew Road: Good Condition;
- Bradshaw Road: Good Condition;
- Jackson Road: Fair Condition;
- Watt Avenue: Fair to Good Condition; and
- Hedge Avenue: Poor Condition (few truck trips are anticipated).

Cumulative Conditions:

4. The proposed project would result in deterioration of the LOS for cumulative conditions (*Significant and Unavoidable Impact*).

Cumulative traffic volumes were taken from the Mather Field DEIR (EIP Associates, 1994), and are based on the regional SACMET 2010 travel model. The traffic generated for full buildout of the County-Operated Aviation Facility, under Cumulative Scenario 1: Mather Field General Plan Amendment, was added to the SACMET model traffic, and was used as the base cumulative traffic for the Morrison Creek Mining Reach (South) project. Base traffic for roadways not contained in the Mather Field DEIR were developed by applying a factor (2.88) to existing traffic volumes. This factor, developed by comparing cumulative and existing traffic for area roadways which were contained in the Mather Field DEIR, is consistent with traffic growth for other roadways in the project area.

The transportation network used in the cumulative analysis is consistent with full development of roadways and transit systems included in the General Plan, plus changes to the General Plan network associated with the General Plan Amendment for Mather Field. The following roadway segments in the project study area are designated in the General Plan to be widened to 6-lane divided arterials under cumulative conditions:

- Jackson Road from South Watt Avenue to Bradshaw Road
- South Watt Avenue from Kiefer Boulevard to Florin Road
- Bradshaw Road from Kiefer Boulevard to Florin Road

Intersection improvements (including signalization) consistent with these roadway segment improvements are also assumed to be included.

Because the differences in impacts of the various project scenarios were shown to be minimal under existing conditions, Scenario 2 was analyzed for cumulative conditions. Scenario 2 considered the case of commercial aggregate hauling from Vineyard I and simultaneous overburden removal from Aspen IV South. This scenario resulted in maximum traffic for all project scenarios.

As shown in Table 5-12, under cumulative conditions, three intersections would operate in excess of the County's level of service policies:

- Elder Creek Road at Mayhew Road
- Elder Creek Road at Bradshaw Road
- Bradshaw Road at Kiefer Boulevard

Traffic operations at the Elder Creek Road / Mayhew Road intersection would be substantially affected by the mining project. The project would *not* have a substantial effect on traffic operations at the latter two intersections.

The following roadway segments are expected to operate in excess of the LOS standard of significance:

- Elder Creek Road - South Watt Avenue to Bradshaw Road
- Bradshaw Road - Kiefer Boulevard to Florin Road

Table 5-12
Intersection Levels of Service
For Project Alternatives (Cumulative Conditions)
AM Peak Hour (PM Peak Hour)

Intersection	No Project		Project (Scenario 2)		Project (Scenario 4a)	
	V/C	Level of Service	V/C	Level of Service	V/C	Level of Service
Elder Creek Rd at S. Watt Ave (urban)	0.86 (0.91)	D (E)	0.87 (0.91)	D (E)	0.86 (0.91)	D (E)
Elder Creek Rd at Mayhew Rd (rural)	204 [a] (209 [a])	C (C)	79 [a] (87 [a])	E [B] (E [B])	204 [a] (209) [a]	C (C)
Elder Creek Rd at Bradshaw Rd (rural)	0.91 (1.04)	E (F)	0.94 [b] (1.06 [b])	E (F)	0.92 (1.04)	E (F)
Bradshaw Rd at Jackson Rd (urban)	0.95 (0.95)	E (E)	0.96 (0.98)	E (E)	0.98 (0.96)	E (E)
Bradshaw Rd at Kiefer Blvd (urban)	1.06 (0.98)	F (E)	1.07 [b] (0.99)	F (E)	1.07 [b] (0.99)	F (E)
Jackson Rd at Mayhew Rd (urban)	84 [a] (88 [a])	E (E)	64 [a] (79 [a])	E (E)	0 [ab] (0) [ab]	F (F)

[a] Unused capacity is shown for 2-way stop controlled intersections.
[b] Potentially significant adverse impact.
Note: County LOS standards are LOS D for "Rural" roadways and LOS E for "Urban" roadways. Therefore, any reduction in LOS beyond the County Standards would be considered a potentially significant adverse impact.

Only the segment on Elder Creek Road from Mayhew Road to Bradshaw Road would be substantially affected by the project. The significant project impact at the Elder Creek Road / Mayhew Road intersection would not be mitigated by improving the transportation system. Widening the roadway and/or adding lanes would not substantially improve operations for this stop-sign controlled intersection. A traffic signal is not likely to be warranted, and should not be installed unless one or more warrants are satisfied.

Proposed Project Without the Vineyard I Processing Plant Alternative

1. Impacts to traffic and circulation would be similar to those listed for the proposed project (*Significant Impact*)

Mining operations would result in increased traffic at the intersection of Elder Creek Road and South Watt Avenue, which currently operates at LOS F during the PM peak hour. Mining operations would also reduce the PM peak hour LOS from D to E at the rural intersection of Elder Creek Road at Bradshaw Road. Addition of traffic at these two intersections is considered to be a significant impact.

In contrast to the proposed project, the project without the Vineyard I processing plant would maintain the roadway segment of Jackson Road between Mayhew Road and Bradshaw Road at LOS E.

Proposed Project Without Vineyard I Processing Plant (Scenario 4a)

1. Impacts to traffic and circulation would be similar to those listed for the proposed project and the traffic Scenario 4 described above (*Significant Impact*).

As described in Section 5.8.3, Scenario 4a represents the Proposed Project Without Vineyard I Processing Plant assuming that the new project conditions that eliminate access to Elder Creek Road for aggregate removal are implemented. As a result of these conditions, the significant LOS impact (during PM peak) at the Elder Creek at Bradshaw intersection would be avoided. The volume to capacity ratio at the Jackson at Mayhew Road intersection would increase; however, the significance threshold would not be exceeded as shown in Table 5-11. Therefore, the "with project" traffic conditions would be improved under Scenario 4a.

Under the "with project cumulative" conditions, there would be a new significant LOS impact at the Jackson at Mayhew intersection. Existing LOS would be reduced from E under both peak hours to LOS F under both peak hours. At the same time, the significant impact expected under Scenario 4 at the Elder Creek at Mayhew intersection (significant for both peak hours) would be avoided. Scenario 4a shows that a LOS C (same as existing) would occur during both peak hours. Refer to Table 5-12 for additional information. Implementation of the mitigation measure 8a (required for Scenario 4a only as described below) would reduce the only significant impact anticipated under Scenario 4a to a less-than-significant level.

County Drainage Alternatives (Part B)~~, 100-Year~~ and Floodplain Protection Alternatives

1. Impacts to traffic and circulation under these alternatives would be similar to those under the proposed project.

No Project Alternative

1. Under the No Project Alternative, the limited agricultural activity on the project site would generate very few vehicle trips on the existing major roadways. Therefore, the alternative would not directly degrade LOS on any roadways. However, increased highway maintenance costs may result from the need to import aggregate by trucks resources from outside locations (i.e., out of County).

5.8.3 Mitigation Measures (All Mining Alternatives)

Recommendations/Requirements of Various Agencies

Public Works Agency, Transportation Division:

1. No truck access for overburden removal or aggregate shall be allowed onto Fruitridge Road between South Watt Avenue and the previously approved Aspen III South access point.

2. Grant the County right-of-way for Fruitridge Road based on an 84-foot standard and install public street improvements pursuant to the Sacramento County Improvement Standards.

3. Grant the County right-of-way for Mayhew Road based on an 84' standard and widen/upgrade it to accommodate two-way truck traffic to the satisfaction of the Transportation Division.

4. Grant the County right-of-way for Bradshaw Road and Jackson Road based on 108' standard and install public street improvements pursuant to the Sacramento County Improvement Standards.

   Grant the County right-of-way for Hedge Avenue based on 60' standard and install public street improvements pursuant to the Sacramento County Improvement Standards.

   Grant the County additional right-of-way on Fruitridge Road/Mayhew Road, Elder Creek Road/Mayhew Road, Elder Creek Road/Hedge Avenue, and Bradshaw Road/Jackson Road for intersection widening per standard drawings H-24 and H-25 of the Sacramento County Improvement Standards.

   The proposed conveyor tunnels under various roadways shall be designed to accommodate the ultimate roadway cross-section to the satisfaction of the Transportation Division of the Public Works Agency/Caltrans.

   Fruitridge Road between the Aspen III South driveway and Mayhew Road shall be overlaid to the satisfaction of the Transportation Division of the Public Works Agency. This overlay shall be done within three months of the completion of the initial overburden removal for the Aspen III South project.

   No truck access for overburden removal or aggregate shall be allowed onto Fruitridge Road between South Watt Avenue and the previously approved Aspen III South access point.

~~4. Pave Mayhew Road from Elder Creek Road to 200 feet north Elder Creek Road.~~

5. The location, number and design of project access driveways for various project sites ~~on Mayhew Road~~ shall be to the satisfaction ~~requirements~~ of the Transportation Division of the Public Works Agency.

Mitigation Measures – With and Without Vineyard I Processing Plant Options (without new project conditions)

The following measures were identified during preparation of the Draft EIR/EIS. These conditions were applicable to both options under the "proposed project." A separate list of the mitigation measures that would be required for the new preferred alternative (Scenario 4a) follows this list.

1. The proponents shall limit total material to be removed from the site by truck to the initial ~~430,000~~ 1,000,000 cubic yards of overburden, 100,000 CY from the Vineyard I site and a

total of 900,000 from the Aspen III-V sites,-and the truck traffic associated with operation of the Vineyard I processing plant. No direct access to Jackson Road shall be permitted.

2. The proponents shall transport mined aggregate material to the processing plants only by conveyor and not by trucks.

3. The proponents shall contribute fair-share funding for construction of a traffic signal at the intersection of Elder Creek Road at South Watt Avenue. Fair-share funding shall be determined by the Director of the Transportation Division of the Public Works Agency.

   After installation of the traffic signal, the intersection would operate at LOS E during the PM peak period, in compliance with the County standard for urban roadways.

4. The proponent shall contribute fair share funding for construction of a second left turn lane on the eastbound Elder Creek Road approach to the Elder Creek Road/Bradshaw Road intersection. The complete improvements shall feature two left turn lanes and a combination right-through lane on the eastbound intersection approach. The installation of this improvement would require roadway widening on the west leg of the intersection to accommodate the new lane and on the east leg to accommodate the taper for the new lane. Bradshaw Road is scheduled to be improved to from two-lanes to four-lanes in the 2000-2002 time period. The above-described condition should be included in the Bradshaw Road project. Thus, the payment of countywide roadway and transit fees will cover the proponents fair share funding. ~~A new left turn lane shall be constructed for the eastbound Elder Creek Road approach at the Bradshaw Road intersection. The completed improvements shall feature two left turn lanes and a combination right-through lane for the eastbound approach. This improvement would require roadway widening on the west leg of the intersection for the new lane, and on the east leg of the intersection to provide a smooth travel path for through traffic on Elder Creek Road. Design of the improvements shall be in accordance with County Improvement Standards and approved by the Transportation Division. (After improvements are completed, the intersection would operate at LOS D.)~~

5. The intersection of Mayhew Road and Elder Creek Road shall be improved to provide a westbound right turn lane with sufficient improvements to roadway turning radii to prevent turning trucks from encroaching on the travel path of opposing traffic lanes. Design of the improvements shall be in accordance with County Improvement Standards and approved by the Transportation Division.

6. Mayhew Road shall be widened in accordance with County Improvement Standards. The design shall be approved by the Transportation Division before improvements are made.

   The intent of this mitigation measure is to improve Mayhew Road to a two-lane standard that would allow trucks to move simultaneously in both directions without having to leave the roadway surface.

7. Turn lanes shall be added on Bradshaw Road adjacent to the proposed access driveway to Aspen V South prior to overburden removal from the site. Design and location of the

turn lanes shall be in accordance with County Improvement Standards and approved by the Transportation Division.

8. The proponents shall agree to repair any damages to structural paving material along sections of project site roadway segments upon which loaded trucks are routed, to the extent such damage is caused by traffic which occurs during the period of hauling operations. Such agreement with the County Transportation Division of the Public Works Agency shall be formalized prior to issuance of the work authorization.

9. No mining shall take place within 25 feet of the ultimate right-of-way of Fruitridge Road and Mayhew Road, except that the Public Works Director may authorize mining to proceed up to 12 feet from the ultimate right-of-way, with appropriate backfill and compaction to preexisting grade to the required 25 foot setback line (with a slope no steeper than 1 1/2:1). The mining and backfilling proposal shall be supported by a soils report prepared by a qualified soils engineer, certifying that the overburden and underlying aggregate can support the proposed activity and anticipated traffic levels of Fruitridge Road and Mayhew Road without adversely affecting the County right-of-way. The 25 foot setback area adjacent to the right-of-way of Fruitridge Road and Mayhew Road shall be backfilled and compacted prior to the onset of the rainy season, and the compaction shall be certified to at least 90% by a soils engineer.

10. Beginning in the year 2005, hauling of materials from the project site shall not occur during the peak traffic periods for cumulative conditions: 7:00-9:00 AM and 4:00-6:00 PM. The year of mitigation has been determined by straight line interpolation of volume/capacity ratios between 1995 and 2010 for the roadway segment on Elder Creek Road between Mayhew Road and Bradshaw Road. The requirement for mitigation by 2005 may be reconsidered by the County at a later time if a competent traffic study shows future traffic operations on Elder Creek Road is expected to comply with County level of service policies.

Mitigation Measures – Without Vineyard I Processing Plant (with new conditions) – Scenario 4a

Mitigation Measures # 2, 6, 7, 8, and 9 above shall apply to Scenario 4a. In addition, the following measures shall also be required to mitigate traffic impacts to a less-than-significant level.

1. The proponent shall limit material to be removed from the site by truck to the initial 300,000 cubic yards of overburden from each of the Aspen III South, Aspen IV South, and Aspen V South sites and 100,000 cubic yards from the Vineyard 1 site.

~~1.~~2. All overburden removed from the site by trucks shall be routed onto Mayhew Road north to Jackson Road via an on site crossing of Morrison Creek. If required, the creek crossing shall be consistent with all Corps of Engineers, USFWS and CDFG permits required for the project. Overburden hauling (truck trips) at the Vineyard I site shall not exceed 30 per hour during peak the traffic periods. Overburden hauling at the Aspen III, Aspen IV and Aspen V sites shall not exceed 24 per hour during peak traffic periods.

~~2.~~3 The proponent shall contribute fair share funding for construction of a right-turn lane on the northbound Mayhew Road approach to the Jackson Road intersection. (This modification would mitigate cumulative impacts at the intersection by improving the level of service from LOS F to LOS E).

5.9 LAND USE

5.9.1 Affected Environment

Existing Land Use

The project site can be characterized as a rolling annual grassland surrounded by rural residential, industrial, and commercial urban areas. Seasonal wetlands, riparian and other wetland habitat represent approximately 3 percent of the total site. The primary location of these resources is along the Morrison Creek, associated drainages, and irrigated farmlands. Approximately 572 acres or 59 percent of the project site fall within the 100-year floodplain. Historically, the site has been used for agricultural practices, including irrigation and farming, and livestock grazing. Recent land use has been limited to cattle grazing, with supplemental cattle feed provided by on-site harvesting of oat and clover hay, and scattered rural residential properties.

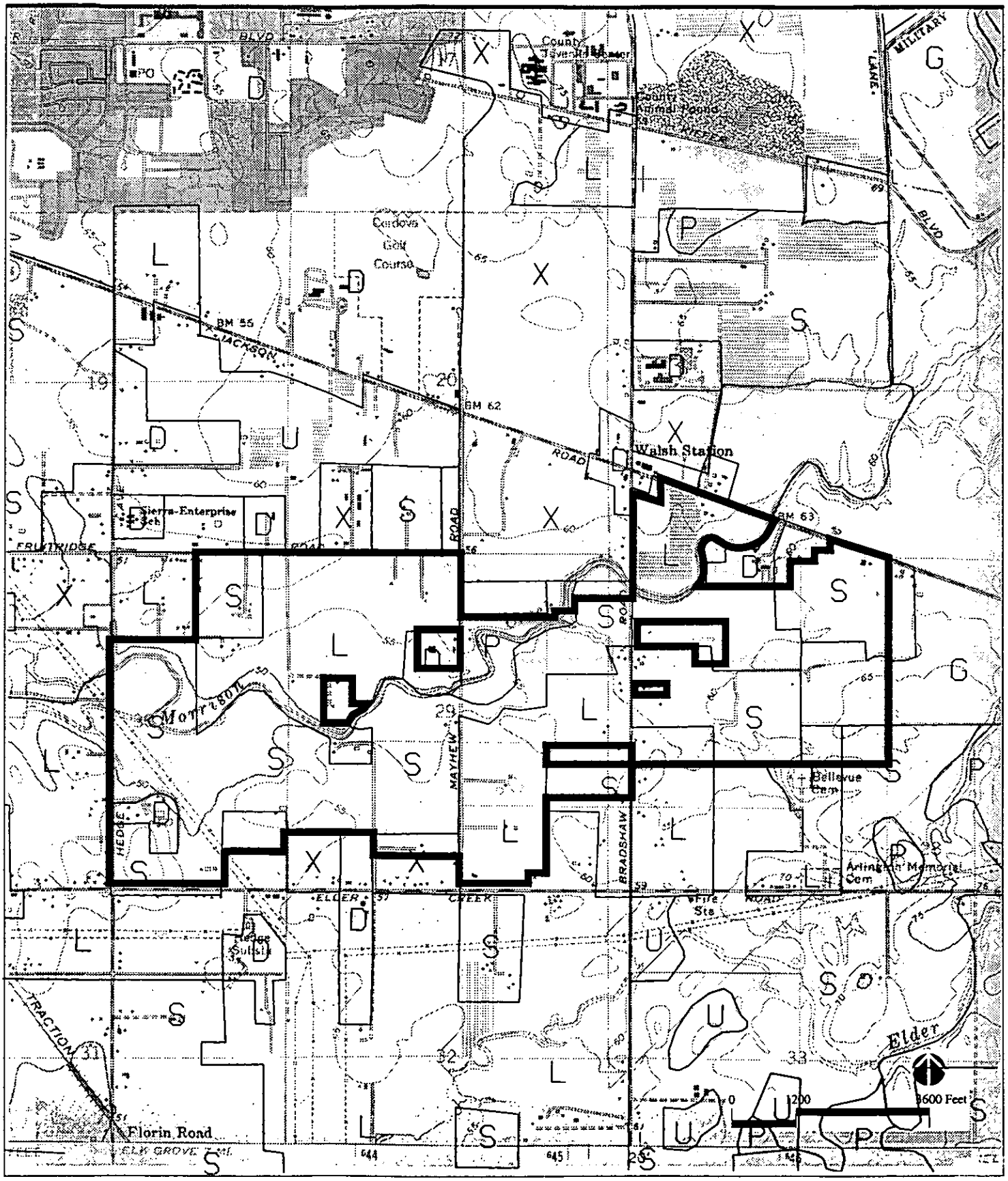
Eight residences on agricultural parcels are currently located within the project site and would be displaced as a result of the proposed project. Sixty-five residences, a religious temple, and a health club are located within 500 feet of the project site boundary. Most of the adjacent residences are single family homes located along Elder Creek Road, Hedge Avenue, Fruitridge Road, and Bradshaw Road.

Mather Field is located approximately one mile northeast of the project site. The former Air Force base has been closed since September 1993, and has remained in caretaker status with limited activity occurring on the base, including occasional use of the airfield. The County has adopted a General Plan Amendment to change the land use designations at Mather Field consistent with the Mather Field Reuse Plan. An amendment to the General Plan - Transportation Plan has also been adopted. Mather airfield is now designated as a civilian airport.

Important Farmland

The Natural Resources Conservation Service (NRCS, formerly the U.S. Soil Conservation Service) *Soil Survey Report of Sacramento County* indicates a variety of soil types within the project site, including the following: Columbia sandy loam, Hedge loam, Kimball silt loam, and San Joaquin silt loam. The available water capacity of these soil types is generally low (with the exception of Columbia sandy loam which is moderate), runoff is slow, and the hazard of water erosion is slight. Columbia sandy loam soil, which follows the creekbed throughout the project site, is classified by the NRCS as "prime farmland" where irrigated and with 0 to 2 percent slopes.

The California Department of Conservation, Office of Land Conservation, Farmland Mapping and Monitoring Program (FMMP) has mapped Important Farmland and other farmland categories within the project site (Figure 5-11). The FMMP was implemented in 1982 to map, monitor and report on important farmland, grazing land, and urban built-up areas in the state.



Morrison Creek Mining Reach, Downstream (South) of Jackson Highway EIR/EIS

Project Boundary

P Prime Farmland

S Farmland of Statewide Importance

L Farmland of Local Importance

G Grazing Land

D Urban and Built-up Land

Figure 5-11
Important Farmland Map Categories

EDAW Inc.

Source: California Department of Conservation, OLC 1992

N:5s052:025

The Important Farmland Series Maps cover areas for which there are existing NRCS modern soil surveys. Prime Farmlands and Farmlands of Statewide Importance are based upon qualifying soil types, as determined by the NRCS, *and* current land use. The FMMP has identified 31 acres of Prime Farmland, 435 acres of Farmland of Statewide Importance, and 419 acres of Farmland of Local Importance within the project site. Definitions for the potentially affected farmland map categories are provided below:

- *Prime Farmland:* Lands with the best combination of physical and chemical features able to sustain long term production of agricultural crops. The land must be cropped and be supported by a developed irrigation water supply that is dependable and of adequate quality during the growing season. Land must have been used for production of irrigated crops at some time during the two update cycles prior to the mapping date.

- *Farmland of Statewide Importance:* Land other than Prime Farmland which has a good combination of physical and chemical characteristics for the production of crops which have been used for the production of irrigated crops at some time during the two update cycles prior to the mapping date.

- *Farmland of Local Importance:* Land which does not qualify as Prime Farmland, Farmland of Statewide Importance, or Unique Farmland but is currently irrigated crops of pasture or nonirrigated crops; land that would be Prime or Statewide designation and have been improved for irrigation but are now idle; and land which currently supports confined livestock, poultry operations, and aquaculture.

It should be noted that the source of the farmland classifications presented in Figure 5-11 is dated 1992, and that land within the project site has not been used for the production of irrigated crops for some time and is now idle.

Farmland resource protection is addressed by the County Zoning Code and policies, programs, and objectives in the Agricultural Element of the General Plan. Mining operations, for example, are permitted on agricultural properties within the County's surface mining overlay zone, subject to a conditional use permit. Outside the surface mining overlay zone, mining operations on agricultural lands require a rezone of the property and a conditional use permit.

State and County Policies

To date, the County has consistently designated and protected the project site and surrounding areas for future mining, aided greatly by the lack of urban infrastructure and land use restrictions associated with aircraft noise from Mather Field. The *Sacramento County General Plan* recognizes the conflict and tries to accommodate both resource protection and urban growth. Policies address the need to carefully coordinate urban development and mining to minimize the inherent conflicts.

The need to conduct surface mining so as to minimize adverse environmental effects and ensure reclamation for future use is recognized by both State and County regulations. The Surface Mining and Reclamation Act of 1975 (SMARA) (Public Resources Code Section 2710 et seq.) and the State Mining and Geology Board regulations for surface mining and reclamation practice (California Code of Regulations (CCR) Title 14, Chapter 8, Article 1, Section 3500 et seq.,

Article 9 Section 3700 et seq.) require that specific measures for grading, backfilling, resoiling, revegetation, soil compaction, and other reclamation requirements, and for soil erosion control, water quality and watershed control, waste disposal, and flood control be addressed or included in reclamation plans. The County Zoning Code requires surface mining combining zoning; a conditional use permit addressing potential noise, dust, water quality, traffic and aesthetic problems; and a reclamation plan for future use of mined areas prior to initiating any mining. The *Sacramento County General Plan* (1993) provides support and direction for administering these regulations.

The Sacramento County General Plan Land Use Diagram (Figure 5-12) designates the project site for Extensive Industrial and Agricultural-Urban Reserve use. Specifically, the Aspen III South, Vineyard I and Aspen IV South sites are designated as Agricultural-Urban Reserve and most of the Aspen V South site is designated as Extensive Industrial. A portion of the Aspen V South site is indicated for General Agriculture (20 acres). Known mineral resources are protected under the General Plan from land uses which would preclude or inhibit timely mineral extraction to meet market demand. The General Plan Land Use Diagram identifies primary aggregate resources within the project site with an aggregate resources combining land use category. The following policy formalizes existing practice with respect to applying the combining land use category and Surface Mining Combining (SM) zone:

CO-41 *Apply the aggregate resources combining land use category to additional areas as subsequent studies determine them to contain mineral resources which are feasible and appropriate for mining. The aggregate resources combining land use category shall not be a prerequisite to (SM) surface mining combining zoning in conjunction with proposed surface mining.*

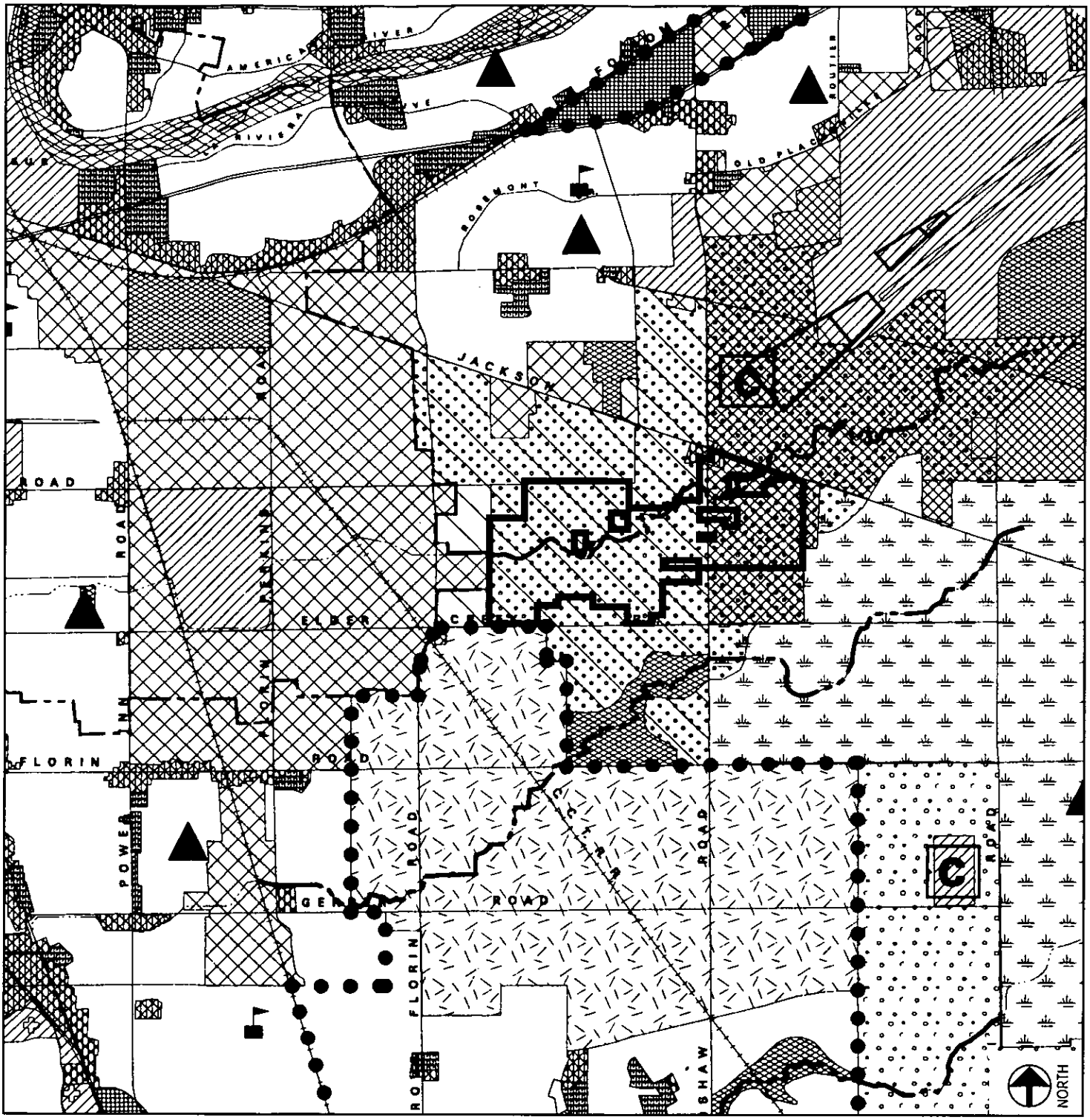
The General Plan provides for the orderly extraction of minerals and subsequent reclamation of mined areas with minimal adverse impacts on aquifers, streams, scenic values, and surrounding land uses. This objective is largely implemented through existing County Zoning Code provisions and CEQA. The policies below provide additional support:

CO-43 *Surface mining operations shall not, after mitigation measures are accounted for, create any significant nuisances, hazards, or adverse environmental impacts.*

CO-44 *Surface mining shall maintain substantial minimum setbacks from adjoining rural residential land uses.*

CO-45 *Surface mining shall not be allowed without adequate plans for reclamation of mined areas.*

CO-47 Gold extraction utilizing cyanide leaching systems shall not be permitted.



Project Boundary
Agricultural-Residential (1-10 ac/du)
Low Density Residential (1-12 du/ac)
Medium Density Residential (13-30 du/ac)
Urban Transit-Oriented Development
Core Area
Commercial and Office
Intensive Industrial
Extensive Industrial
Recreation
Agricultural-Urban Reserve
Natural Preserve
General Agriculture (20 ac)
Urban Development Area
High School
Park Site
Closed Landfill

Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

EDAW, Inc.

N:5s052:026

Figure 5-12
General Plan
Land Use Designations

Source: Sacramento County General Plan, 1993

Sacramento County considers aggregate mining as an interim use of land. Mined and reclaimed sites are generally reused for agriculture or open space, either permanently or as additional interim uses until such time as final reuse plans are adopted.

Zoning

Existing zoning of the project site and surrounding properties is shown in Figure 5-13. The project site is zoned as Industrial Reserve (Flood Combining) and Industrial Reserve (Surface Mining Combining) [IR(F) and IR(SM)], Light Industrial and Light Industrial (Flood Combining) [M-1 and M-1(F)], and Agricultural Residential 1 and Permanent Agriculture 160 (AR-1 and AG-160). This zoning is chiefly a result of the need to protect future aggregate mining areas from urban encroachment and the need for compatible uses within the approach and departure zone for Mather Field. Although surface mining is not precluded in the (F) Flood Combining Zone, past actions by the County have avoided it. The proposed project includes a request to rezone the entire project site to include the Surface Mining Combining (SM) Zone.

The Zoning Code requires that the following conditions be adhered to, prior to initiating any mining: surface mining combining zoning, a conditional use permit addressing potential noise, dust, water quality, traffic and aesthetic problems, and a reclamation plan for future use of mined areas.

Community Plans

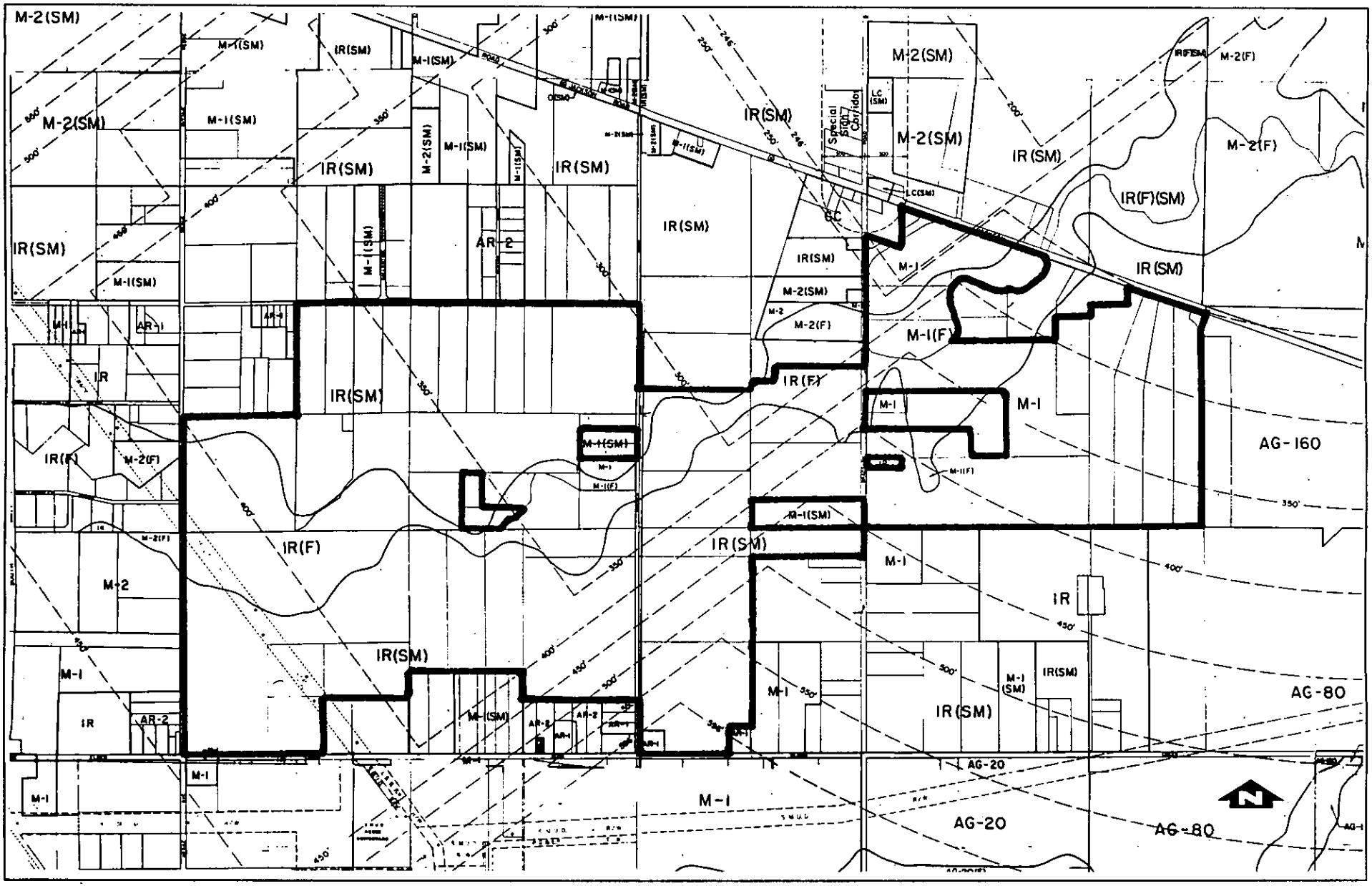
The project site is encompassed by the *Vineyard Community Plan* (Sacramento County, 1985). Zoning designations for the project site, as set forth in this plan, are consistent with County zoning designations illustrated in Figure 5-13 and are also consistent with the General Plan. The Vineyard Community Plan Land Use Map designates the site for Industrial Reserve (Surface Mining Combining), Industrial Reserve (Flood Combining), Industrial Reserve (Flood and Surface Mining Combining), Light Industrial, Light Industrial (Flood Combining), Light Industrial (Surface Mining Combining), Permanent Agriculture 160, and Agricultural Residential 1.

5.9.2 Environmental Consequences

Proposed Project (Part A)

1. Proposed mining operations would potentially conflict with on-site and nearby land uses, especially residences located on agricultural parcels surrounded by the project site, and the adjacent residences, religious temple, and health club (*Significant and Unavoidable Impact*).

Adjacent uses would be directly exposed to several nuisances throughout the life of the project including: increased noise associated with aggregate mining and processing; increased heavy truck traffic and traffic noise during initial overburden removal and throughout the life of the project (primarily associated with trips to and from the processing plant); windblown dust from mining operations and access roads; and adverse visual or aesthetic impacts resulting from changes in the adjacent landform.



Morrison Creek Mining Reach, Downstream (South) of Jackson Highway EIR/EIS

M-1	Light Industrial	IR(F)	Industrial Reserve (Flood Combining)
M-1 (F)	Light Industrial (Flood Combining)	IR(SM)	Industrial Reserve (Surface Mining Combining)
AR-1	Agricultural Residential 1	AG-160	Permanent Agriculture 160

Project Boundary

Figure 5-13
Existing Zoning

EDAW Inc.

Source: Sacramento County, 1978, 1985

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Upon completion of the project, residences surrounded by the Vineyard I site would be located on an elevated island surrounded by the mined area above the floodplain of Morrison Creek. Such property would no longer be adjacent to the realigned creek, but would be adjacent to the 600-foot wide creek corridor riparian zone to be created by the project.

These potential impacts are discussed more fully elsewhere in this document and mitigation measures are proposed, where possible, to reduce the impacts, but not to less-than-significant levels.

2. The proposed project would disturb 31 acres of Prime Farmland, 435 acres of Farmland of Statewide Importance, and 419 acres of Farmland of Local Importance (*Significant Impact*).

All of the farmland located within the project site would be temporarily disturbed during mining operations. Proposed post-reclamation land use for the project site at this time is primarily agriculture. Relatively elevated lands (e.g., above the 100-year flood level) would be used for growing alfalfa and grain crops. Low points on the pit floor would be used for stormwater detention ponds, wetlands, and other natural habitats, including upland vegetation.

Per the requirements of the Surface Mining and Reclamation Act of 1975, the proponent must prepare and implement an Agricultural Management Plan as part of the required work authorization. This plan will describe the methods used to accomplish successful post-reclamation agricultural use of the project site. In addition, the State Mining and Geology Board Regulations require that the proponent comply with specific performance standards for the salvage, maintenance, and redistribution of topsoil resources.

3. The mining activities proposed by the project would restrict the possibility of utilizing the project site for future (post-project) development including recreational open space (*Significant Impact*).

Post-reclamation use of the project site would be restricted to agriculture, flood control, and/or open space, because the mining pits would be designated as within the 100-year floodplain. As previously discussed, it is anticipated that the project site would be primarily used for agricultural practices, with limited areas along the bottom of the pit used for stormwater detention ponds, wetlands, and other natural habitats, including upland vegetation. No park facilities would be provided, and access to open space areas along the realigned Morrison Creek channel would not occur.

4. The proposed project's mining operations would alter the extent of the 100-year floodplain of Morrison Creek, requiring a modification to the existing Flood Combining Zone (F) boundary (*Less-Than-Significant Impact*).

Proposed Project Without the Vineyard I Processing Plant Alternative

1. Land use impacts under this alternative would be similar to the proposed project. However, nuisance impacts associated with processing facilities on surrounding uses would not occur (*Significant Impact*).

County Drainage Alternatives (Part B)

1. Land use impacts under the Part B Alternatives would be similar to the proposed project. However, under these alternatives, the ultimate land use potential could be different than the proposed project. These alternatives would provide the opportunity for a recreational corridor in the mining pit and/or in the inundation area, and the potential for a future land use application changing the agricultural land use to an urban (residential or industrial) use resulting from the more stringent construction standards required for a public facility (*Significant Impact*).

~~100-Year~~ Floodplain Protection Alternatives

1. Land use impacts identified for the ~~project (specifically Impacts 1 and 2)~~ Proposed Project Without Vineyard I Processing Plant would apply to ~~this~~ both floodplain protection alternatives (*Significant Impact*).

   Under the ~~However,~~ the 100-~~y~~Year ~~f~~Floodplain Protection Alternative, ~~would not be~~ a larger area (the entire 100 year floodplain) would not be mined for aggregates and would remain in its present condition. Under the Creek Buffer Alternative, mining and reclamation activities would extend into the 100-year floodplain, but not into a 150-foot buffer area on either side of Morrison Creek. Other uses consistent with the Industrial Reserve and Manufacturing land use designations and compatible with resource protection and flood control measures could be developed or agriculture could continue to be practiced within the floodplain. The County would regulate, through its flood combining zoning and other ordinances, land use and development within the floodplain and prohibit urban uses on unprotected flood land.

No Project Alternative

1. Impacts of the project would not apply to this alternative. The No Project Alternative would maintain the County policy of no mining in the 100-year floodplain of creeks. Rural open space and creek corridor would be maintained within the floodplain area in the short term. Areas zoned Surface Mining Combining would be preserved, which would leave open the possibilities that aggregate mining could eventually occur. Thus, there would be no guaranteed open space reserved for the future and no provisions for recreational amenities. Future aggregate mining activities would be required to receive approval from Sacramento County, and any environmental effects of the mining would be identified and mitigated at that time (*Less-Than-Significant Impact*).

Finally, flood control benefits associated with the proposed mitigation plan would not occur.

5.9.3 Mitigation

Recommendations/Requirements of Various Agencies (All Mining Alternatives)

Surface Mining and Reclamation Act of 1975 (SMARA):

1. An Agricultural Management Plan shall be submitted to the County as part of the required work authorization. The Agricultural Management Plan shall describe how the agricultural end use will be accomplished (SMARA Section 2772(h)).

State Mining and Geology Board Regulations:

2. Non-prime agricultural lands reclaimed to agricultural uses shall be reclaimed so as to be capable of sustaining economically viable production of crops commonly grown in the surrounding areas (Section 3708).

3. When an approved reclamation plan calls for revegetation or cultivation of disturbed lands, specific performance standards shall apply to topsoil salvage, maintenance, and redistribution activities (Section 3711).

Sacramento County General Plan:

4. Pertinent applications, plans and environmental documents shall be provided to all agencies that may be involved with future reclamation uses, including service providers, parks agencies, and resource management agencies (Conservation Element Implementation Measure "C," p. 36).

Zoning Code:

5. The County shall not allow surface mining until the Board of Supervisors has approved an adequate plan for reclamation of mined areas. The project site shall be reclaimed after completion of mining operations consistent with the approved reclamation plan. The site shall be free of derelict machinery, scrap, and nonnatural waste materials (Sections 235-45 and 235-61).

6. The proponents shall maintain 25-foot minimum setbacks from adjoining rural residential land uses, the first 5 feet of which shall consist of undisturbed land, and 25-foot minimum setbacks from all public streets consisting entirely of unmined land. The setback area consisting of mined land shall be reclaimed to original grade within one year or less of completion of mining. The County may require additional setbacks from the mined areas to reduce potential nuisances, hazards or land use impacts. The County may also waive this requirement if evidence is provided by the proponent that the setback can be reduced by engineering design, or that the neighboring property owners consent to the request (Section 235-59).

7. Unless otherwise provided as a condition of use permit, the proponent shall limit proposed operating hours (for both processing and extraction activities) to Monday through Friday: 6:00 a.m. to 10:00 p.m., and Saturday: 6:00 a.m. to 3:00 p.m. No work shall be conducted on Sundays and labor union holidays. The Zoning Administrator may

permit different operating hours on an interim basis from the specified operating hours if it is determined that the public benefit outweighs the community hardship and/or the work requires a continuous pour of concrete (Section 235-53).

Mitigation Measures (All Mining Alternatives)

1. In order to mitigate potential impacts to surrounding land uses, the proponents shall be required to comply fully with mitigation measures identified in the Noise, Traffic and Circulation; Air Quality; and Visual Resources sections of this EIR/EIS. These mitigation measures employ appropriate state-of-the-art techniques for erosion control, reclamation, nuisance prevention, and environmental impact mitigation relative to surface mining and processing operations.

2. In order to mitigate potential impacts to agricultural uses, prior to issuance of the work authorization, the proponents shall prepare a plan for the preservation and salvage of topsoil resources suitable for sustaining economically viable agricultural uses, consistent with the performance standards set forth in Sections 3708 and 3711 of the State Mining and Geology Board Reclamation Regulations.

3. Within six months of completing all mining and reclamation, the proponents shall identify, record, and grant to the County of Sacramento 600-foot wide open space easements as needed to delineate riparian corridors associated with the constructed seasonal drainages south of the reconstructed Morrison Creek bypass channel. Those easements shall identify the limits of agricultural activity so as to guarantee sufficient area to allow for regeneration of the riparian corridor, and shall also allow for the subsequent establishment of a public trail system when deemed appropriate by the County as part of an areawide trail network involving urban stream corridors.

5.10 NOISE

5.10.1 Affected Environment

The project site is located approximately 11,000 feet southwest of the southwest end of Mather Field's primary runway, a primary source of noise in the project area. The land use compatibility for land surrounding public use airports is presented in (Figure 5-14). Average ambient noise levels within the project site resulting from aircraft overflight have historically ranged from 70 - 80+ CNEL (daily average), with single event noise levels when aircraft fly over the project site much higher than this average. However, with the recent closure of the Air Force base, noise levels have been substantially reduced.

Another source of noise within the project site is adjacent roadways. These roadways include Jackson Highway and Bradshaw Road. Existing 24-hour traffic volumes on area roadways are approximately 12,200 vehicles on Jackson Highway, 15,400 vehicles on Bradshaw Road, and 3,400 vehicles on Elder Creek Road. Jackson Highway traffic volumes typically yield noise levels of up to 65 dB within 100 feet of the roadway.

Based on sound level readings taken by Teichert Aggregates, ambient noise levels on and near the project site were reported to range from 42 to 60 dB, with single event noise readings up to 75 dB for moderate traffic along Jackson Highway and 90 dB for jet aircraft.

Sections 235-60 and 235-53 of the Zoning Code set forth noise standards and operating hours for sand and gravel mining operations as follows:

235-60. Noise Standards. *Unless otherwise provided by ordinance, the sound level created by the mining use at the boundary line of the authorized mining area shall not exceed 70 dBA except along a boundary contiguous to another area authorized to mine for sand or aggregates. A violation of the noise standard would occur if the noise level at the property line exceeds:*

a. the noise limit for a cumulative period of more than thirty minutes in any hour, or

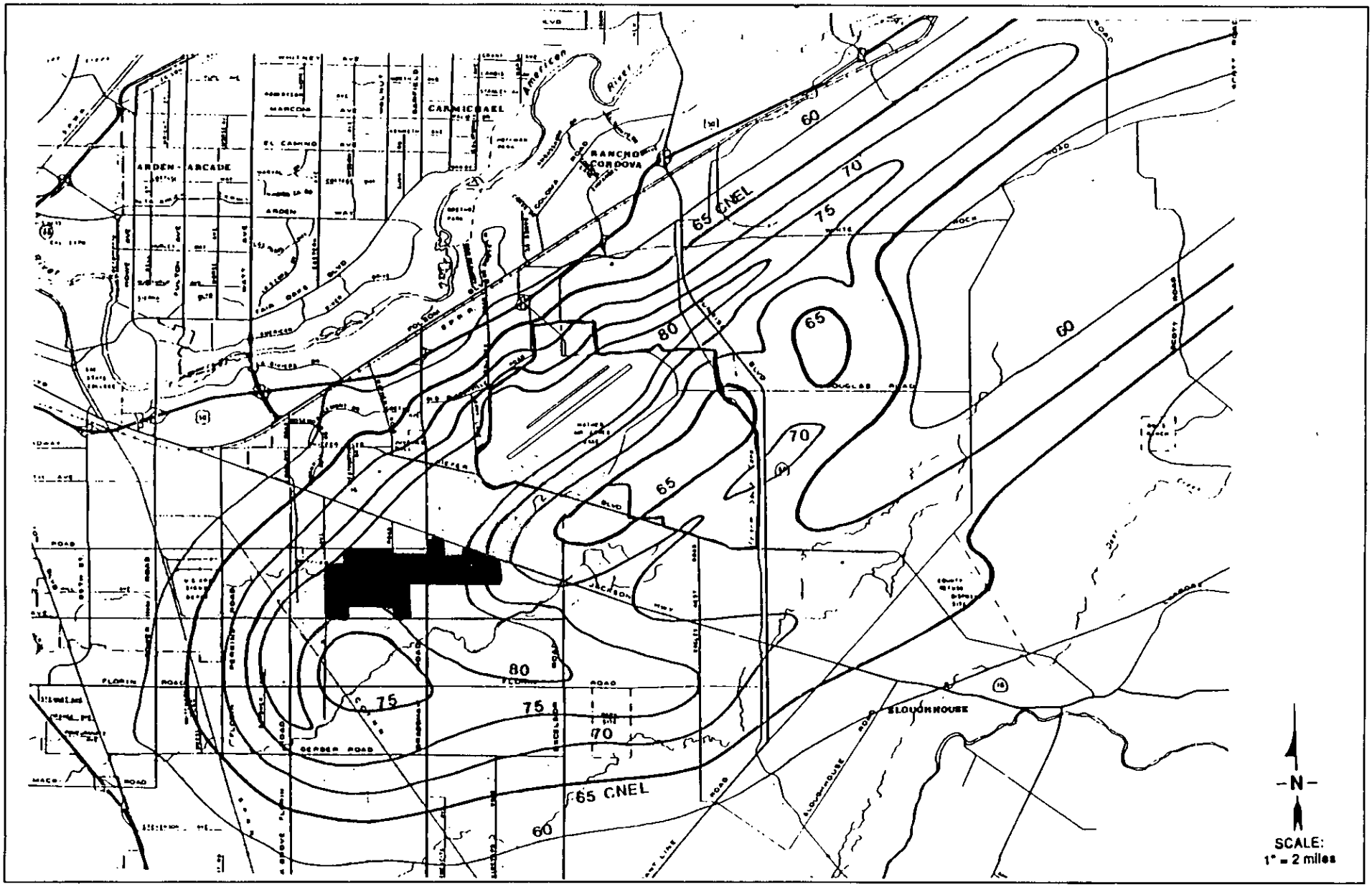
b. the noise limit plus 5 dBA for a cumulative period of more than one minute in any hour, or the noise limit plus 20 dBA for any period of time.

235-53. Operating Hours. *Unless otherwise provided as a condition of use permit, the hours of operation of mining, processing, and related activities shall be:*

a. Monday through Friday: 6 a.m. until 10 p.m.

b. Saturday: 6 a.m. through 3 p.m.

c. Sunday and labor union holidays: no mining or processing.



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Project Site

Figure 5-14
Land Use Compatibility for Community Noise Environments

EDAW Inc.

Source: SACOG, Mather Air Force Base Comprehensive Land Use Plan, January 1987; EIP Associates, 1994

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The Exterior Noise Standard of the Sacramento County Noise Ordinance (SCC 6.68.070) is more stringent than the Zoning Code mining noise standards and are intended to limit noise within residentially zoned property. Allowable noise levels are limited to 55 dBA (7 a.m.-10 p.m.) and 50 dBA (10 p.m.-7 a.m.), with violations occurring if this standard is exceeded in any one hour by the following:

Duration of Noise	*7 a.m.-10 p.m.*	*10 p.m.-7 a.m.*
≤ 30 min/hr	55 dBA	50 dBA
≤ 15 min/hr	60 dBA	55 dBA
≤ 5 min/hr	65 dBA	60 dBA
≤ 1 min/hr	70 dBA	65 dBA

Many properties contiguous to the project site are developed with residential uses. Some of these properties are zoned for residential use (AR-1 and AR-2), while others are zoned for industrial use [M-1 (SM) and IR (SM)]. The County Noise Ordinance regulates noise levels affecting residentially zoned properties. However, the Noise Ordinance noise levels may be considered a recommended maximum for all residential property, including adjacent residences in non-residentially zoned areas.

In addition, the following policies for new non-transportation noise sources are contained in the County General Plan Noise Element, and should therefore be considered within the context of the proposed project:

NO-2. *Noise created by new non-transportation noise sources shall be mitigated so as not to exceed any of the noise level standards of Table II-1 [as shown on Table 5-13], as measured immediately within the property line of any affected residentially designated lands or residential land use situated in the unincorporated areas.*

NO-3. *Where proposed non-transportation noise sources are likely to produce noise levels exceeding the performance standards of Table II-1 at existing or planned residential uses, an acoustical analysis shall be required as part of the environmental review process so that noise mitigation may be included in the project design.*

Table 5-13
Noise Level Performance Standards[1]
For Residential Areas Affected by Nontransportation Noise[2]

Statistical Noise Level Descriptor	**Table II-I Exterior Noise Level Standards (dBA)**	
	Daytime 7 a.m. to 10 p.m.	Nighttime 10 p.m. to 7 a.m.
L50	50	45
Lmax	70	65

1. These standards are for planning purposes and may vary from the standards of the County Noise Ordinance which are for enforcement purposes.
2. These standards apply to new or existing residential areas affected by new or existing nontransportation sources.

5.10.2 Environmental Consequences

Proposed Project (Part A)

1. Noise levels in excess of 75 dBA may occur at nearby residences and other sensitive off-site receivers due to scrapers and other mobile mining equipment, which would represent a violation of the Zoning Code and Noise Element. Noise standards could be exceeded when mining equipment is operating close to the mining site boundary (*Significant Impact*).

Noise from mobile mining equipment would be greatest when the mining equipment was operating near the property boundaries. During much of the mining phase, the mining equipment would be operating on the interior of the project site and the noise levels at the property lines would be lower. Noise-generating equipment that would be used during mining operations include one bulldozer, two scrapers, one motor grader, two dump trucks, one water truck, one mechanic's truck, and two front end loaders.

Previous environmental documents for surface mining operations in the area have cited noise levels from operating surface mining equipment as follows:

Equipment (dBA)	*Distance (feet)*	*Noise Level*
Front End Loader	225	70
Self-Loading Scraper	225	70
Dump Truck (at Hopper)	200	70

The following table presents the results of a 30 minute noise measurement test when self-loading scrapers were operating 15 feet from a mining site boundary. These test results have been extrapolated to estimate the number of minutes per hour that specified noise levels would be exceeded, thereby enabling a comparison with the Zoning Code Noise Standards cited above.

Noise Level	*Minutes per Hour*
at 15 Feet	Noise Level Exceeded
70 dBA	10 Minutes 52 Seconds
75 dBA	1 Minute 28 Seconds
80 dBA	28 Seconds

The table indicates the potential for violation of the Zoning Code noise standard when mining equipment is operating close to the project site's boundary (the 75 dBA level was projected to occur for longer than 1 minute per hour, thus violating the standard). Also the Zoning Code noise standard indicates that the 90 dBA limit at the property line is not to be exceeded for any length of time. Using the formula of a 6 dB change for every doubling or halving of distance for a point source of noise, mining equipment which generated 70 dBA at a 225 foot distance would generate about 93 dBA at a 15 foot distance. Thus, the 90 dBA level could be exceeded by mining equipment operating close to the property line and the Zoning Code noise standard could therefore be violated.

Mining equipment operating near the project site's boundary would likewise violate the more stringent Noise Ordinance and General Plan Noise Element noise standards. According to a

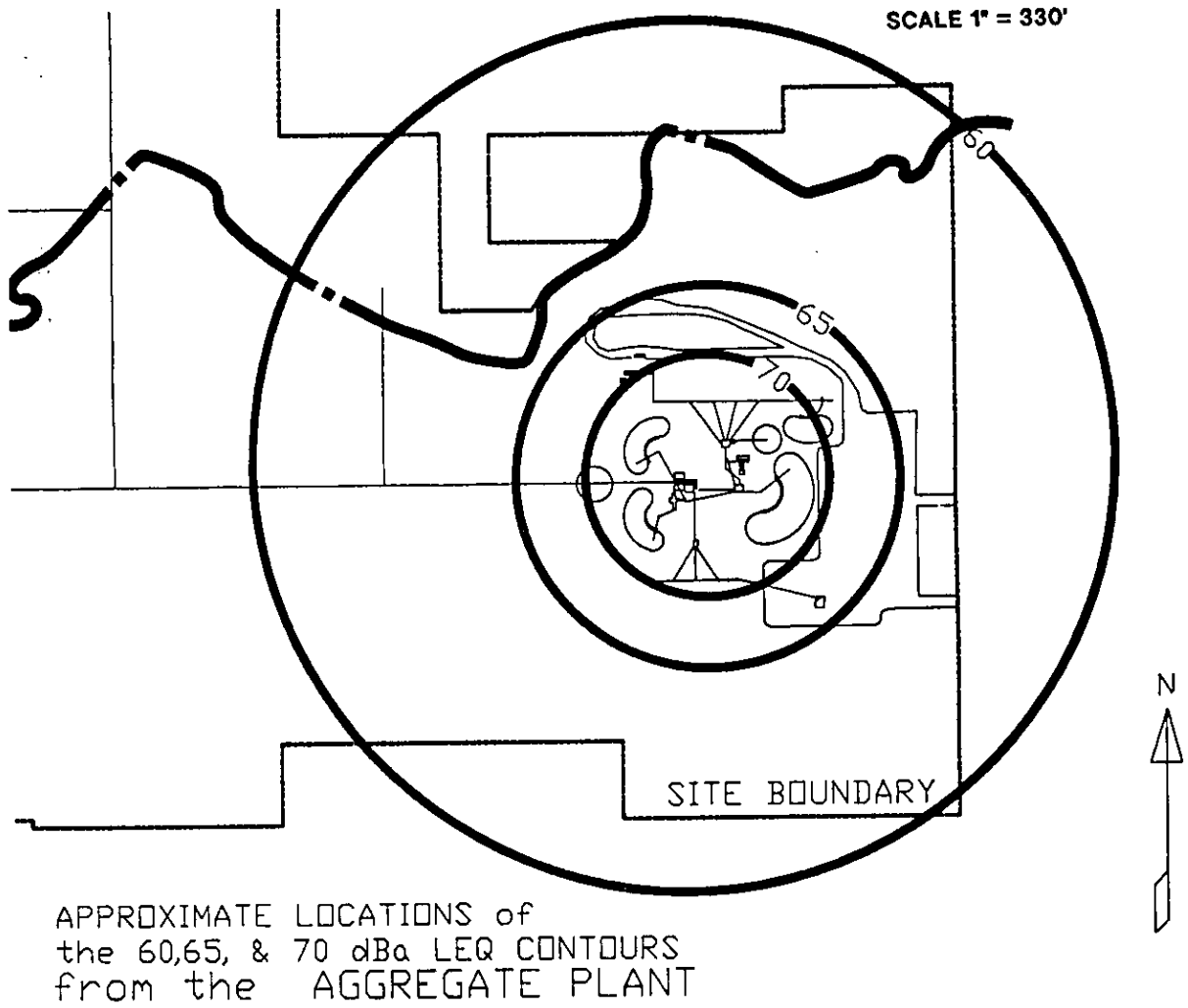
noise investigation prepared for Granite Construction Company (Shiningtree, 1991), noise from scrapers operating at the property lines could be reduced to within the 50 dBA standard provided that a berm sufficient to break the line of sight is installed. This noise level reduction would achieve the Zoning Code, Noise Ordinance and Noise Element standards, with the exception of the 45 dBA Leq nighttime Noise Element standard (which is applicable to mining operations between 6 and 7 AM). Therefore, installation of a perimeter berm around the mining site sufficient to block the line of sight from adjacent properties is expected to reduce mining equipment noise impacts to a less-than-significant level. A less expensive alternative to the permanent installation of berms would be to use portable noise barriers would be to use which break the line of sight between mining activities and adjacent sensitive receptors. Such portable barriers could be installed and moved along the mining site boundary as the mining equipment progresses from one part of the project site to another. As noted previously, these worst case mining equipment noise levels would be short-term in nature occurring when equipment operates nearest the project site boundary and before substantial pit excavation lowers (and blocks) the noise source.

2. The aggregate processing plant would increase noise levels at the project site boundary line (*Significant Impact*).

Noise modeling for the aggregate processing facilities was derived from previous studies of noise generated by five crushing screening plants and five asphalt concrete plants in California, including the Granite Construction Sacramento Plant and the Teichert Perkins Main Plant, both of which are located near the Vineyard I site. All of the readings were made on level terrain in clear view of the operations. Figure 5-15 shows the approximate location of the 60, 65 and 70 dBA Leq contours from the aggregate plant.

For noise sources operating continuously throughout a given hour such as would be expected with a processing plant, the measured Leq and L_{50} would be expected to be quite similar thus allowing comparison of project-related noise levels in terms of Leq to the County General Plan, Noise Ordinance and Zoning Code standards specified in terms of L_{50}.

As shown in Figure 5-15, the 70 dBA Leq noise contours from the proposed at-grade processing plant would not extend beyond the project site's boundary. Thus, the processing plant would not violate the Zoning Code noise standards for mining uses. However, noise levels on adjacent residential properties resulting from the unshielded processing plant would range as high as about 65 dBA Leq, which would exceed the 45-55 dBA L_{50} noise limits for residential properties set forth in the County Noise Ordinance and General Plan Noise Element. The primary sources of noise emanating form the processing plant are expected to be the crushers and the screens. The project proponent indicates the crushers would be 5-6 feet high, while the screens will be 50-60 feet high. The processing plant area would be partially surrounded by aggregate stockpiles which will be at least 25 feet in height. Where they break the line of sight between the processing plant noise sources and adjacent uses, these stockpiles would



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 5-15
Vineyard I Processing Plant Noise Predictions

EDAW Inc.

Source: Deem Shiningtree

N:5s052:047

substantially reduce noise levels from the plant. However, the stockpiles would not break the line of sight between the plant and all adjacent sensitive receptors, and would not be tall enough to shield noise emanating from the screens. Therefore, mitigating measures would be needed to reduce unshielded plant noise impacts on adjacent residential uses.

3. The conveyor system has the potential to violate the Zoning Code Noise Standard if operated close to the project site boundary (*Less-Than-Significant Impact*).

Conveyor generated noise levels (at grade) are reported to be the following:

Distance	**Empty**	**Loaded**
20 feet	68 dB	76 dB
40 feet	65 dB	72 dB
60 feet	60 dB	69 dB

Thus, a loaded conveyor operating for more than 30 minutes in any hour at a distance of 40 feet from the project site boundary, or a loaded conveyor operating for more than 1 minute in any hour at a distance of 20 feet from the project site boundary, would constitute a violation of the Zoning Code.

Conveyor systems have been planned such that they would be set back at least 250 feet from the nearest residential property line and over 500 feet from the nearest residence. Worst case conveyor system noise levels at the nearest adjacent residential uses were calculated on the Vineyard I site based on the formula: $R=20 \log_{10} (d_1/d_2)$, where R= the reduction or attenuation in noise level at a distance (d_2), given a known noise level at a known distance (d_1) from a point source of noise. The worst case conveyor noise level at the nearest residential property line was determined to be about 57 dB, while the worst case noise level at the nearest residence was determined to be less than 51 dB. The temporal nature of this aspect of the proposed project's operation, coupled with the comparatively low amounts of anticipated noise, make this a less-than-significant impact.

4. Heavy truck traffic during the initial overburden removal phase and during operation of the processing plant may constitute a noise source (*Less-than-Significant Impact*).

Approximately 28,600 truckloads of overburden would be removed from the project site over a period of six months to one year; this represents approximately 148 trip ends per hour. Following overburden removal, during operation of the processing plant, material could be hauled from the processing plant at an average rate of 600 trips per day and at a peak rate of 800 trips per day. These trips would generally occur from 6:00 a.m. to 3:30 p.m. This operation would generate a maximum of 50 truckloads or 100 trip ends per hour. Industrial, commercial, and residential uses on surrounding roads may be affected by noise from project-generated truck traffic. However, based on noise investigations within previous environmental documents for surface mining operations in the area, the short-term increase in noise levels on Jackson Highway is estimated to be less than 2 dB during the peak hour. Typically, a 3-5 dB change in Ldn is needed before the change in noise level becomes noticeable. Furthermore, the General Plan Noise Element indicates that residential uses in agricultural areas such as the project vicinity are

considered compatible with noise levels of up to 65 dB Ldn. Thus, the project's increased truck traffic along area roadways is not expected to result in significant noise impacts.

Proposed Project Without the Vineyard I Processing Plant Alternative

1. Under this alternative, the processing plant would not contribute to noise levels created by mining use at the boundary line of the project site. Use of conveyors for transport from the mining operations to the off-site processing plant would have negligible effect on off-site noise. Most of the noise is generated by loaders, scrapers, and dozers working at or near the final excavation line before loading into the conveyor feeder. Therefore, noise impacts due to other noise-generating equipment that would be used during mining operations would be similar to the proposed project, and could violate noise standards established in the Zoning Code, Noise Ordinance, and Noise Element (*Significant Impact*).

County Drainage Alternatives (Part B) and ~~100-Year~~ Floodplain Protection Alternatives

1. Noise-generating equipment to be used in the mining operation would be generally the same for all Part B alternatives and the floodplain protection alternatives, and therefore the expected noise levels resulting from these alternatives would be similar to the noise levels produced by the proposed project (*Significant Impact*).

The Downstream Bypass Channel Alternative would require a small electric pump (5 cfs/50 bhp) near Hedge Avenue to operate the drainage facilities. A pump of this size is not expected to produce noise levels higher than background noise at distances of 100 feet or more.

The duration of the mining activities (and hence noise) for 100-Year Floodplain Protection Alternative would be shorter. This would not necessarily reduce the primary noise impacts to adjacent residences, considering that the mining activities would still take place near the perimeter of the site boundary close to sensitive off-site receivers. The Creek Buffer Alternative would similarly include mining and reclamation activities within a smaller area than being proposed under the project. Under the Creek Buffer Alternative, more aggregate from a greater area would be mined as compared to the 100-Year Floodplain Protection Alternative. The duration of these activities would be longer than the 100-Year Floodplain Alternative, but less than the proposed project.

No Project Alternative

1. The No Project Alternative would not result in any changes to existing conditions at the project site. This alternative would not create any additional noise sources or bring new sensitive noise receptors into the project site. Therefore, this alternative would not be considered to have any new noise impacts, and noise mitigation measures would not be required.

5.10.3 Mitigation (All Mining Alternatives)

Recommendations/Requirements of Various Agencies

Zoning Code:

1. Unless otherwise provided as a condition of use permit, the proponents shall limit hours of excavation to be consistent to those required by Section 235-53 of the Zoning Code.

Mitigation Measures (All Mining Alternatives)

1. ~~The proponent of Vineyard I shall e~~Construct an earthen berm, sound wall, or combination berm/sound wall no less than 15 feet high early in the stripping phase along all common residential/project property lines within 1,200 feet of the Vineyard I processing plant to break the line of sight of loaders and crushers at the processing plant from any sensitive off-site receptor. (Note: This mitigation measure does not apply to the Proposed Project Without the Vineyard I Processing Plant Alternative or the Flood Plain Protection Alternatives.)

2. For all other common residential/project property lines, the proponents shall provide noise barriers consisting of 8-foot high earthen berms or temporary portable barriers installed and moved along property boundaries as mining progresses. The noise barriers shall be maintained at least until sufficient pit excavation has occurred to block the line of sight between nearby residences and mining activities. If temporary portable barriers are used, they shall either be constructed with 4 x 8 sheets of ¾-inch plywood, placed side by side with an overlap of 1-2 inches to prevent gapping, or shall be constructed with other materials which achieve equivalent or greater sound attenuation as verified by a qualified acoustical consultant. (Note: While the above cited ¾-inch plywood can provide acceptable temporary noise attenuation, this method as currently practiced is subject to weather damage, and lack of maintenance severely limits its effectiveness and aesthetic appeal. Alternatives which provide durability and improved aesthetics for nearby residents and passersby should be explored.)

3. The proponents shall provide for continuous movement of the excavation along the mining face of all common residential/project property lines to prevent noise from concentrating on any one receptor.

4. The proponent of Vineyard I shall lower the processing plant elevation to no less than 15 feet below existing grade and maintain stockpiles at least 25 feet in height between the plant and residential receptors. (Note: This mitigation measure does not apply to the Proposed Project Without the Vineyard I Processing Plant Alternative, the 100-Year Floodplain Protection Alternative, or the Creek Buffer Alternative.)

5. After processing plant start-up, the proponent of Vineyard I shall conduct a noise investigation of the plant to determine what adjustments if any must be made to comply with Sacramento County Code Section 6.68.070 (b-1,2,3,4,5 & d) (Noise Ordinance). If noise readings taken during initial start-up indicate that noise standards are exceeded by processing plant activities, additional noise measures potentially including but not limited

to rubber top deck screens, covers over the top deck screens, and rubber or spread metal liners on the bottom surfaces of rock chutes shall be utilized as necessary to ensure noise standards are met. (Note: This mitigation measure does not apply to the Proposed Project Without the Vineyard I Processing Plant Alternative, the 100-Year Floodplain Protection Alternative, or the Creek Buffer Alternative.)

5.11 PUBLIC SAFETY

5.11.1 Affected Environment

To foster public safety, sand and aggregate mines are subject to the following requirements set forth in Section 235-54 and Section 235-55 of the Zoning Code:

235-54. Fences. *Unless otherwise provided by condition of the use permit, the following fence requirements shall apply:*

(a) Fences shall be chain-link.

(b) The fence shall be not less than six feet in height above the grade of the property outside the fenced area.

(c) Gates shall be installed to fence height at all entrances.

(d) Fences shall be kept in good repair.

(e) Fences shall conform to the ground to preclude opening of more than four (4) inches between the ground and the fence.

235-55. Warning Signs. *The proponent shall provide warning and trespass signs advising of the mining operation on the fences at intervals of not less than 500 feet. Signs shall be kept legible and in good repair.*

In addition, any embankment greater than 25 feet in height (pit floor to top of channel) with a reservoir capacity of more than 15 acre-feet, or dams with more than 6 feet in height with a reservoir capacity of 50 acre-feet or more qualifies as a dam that falls under State jurisdiction for safety under Part 1 of Division 3 of the California Water Code. For any new dam that falls under the State jurisdiction, an application for construction must be filed with the California Division of Safety of Dams (DSD) and approved prior to start of construction. Embankment compaction must be consistent with DSD *Guidelines for the Design and Construction of Small Embankment Dams* (Sacramento County Public Works Agency, Water Resources Division, 1994). The guidelines require a spillway capable of safely conveying the 3-day probable maximum flood.

~~5.1.2~~5.11.2 Environmental Consequences

Proposed Project (Part A)

1. The proposed project would involve the use of heavy equipment such as bulldozers, scrapers, and front-end loaders, and without adequate fencing and warning signs, this equipment as well as the water channel reconstruction, stormwater detention, and pit slope reclamation activities could create potentially hazardous conditions should members of the general public inadvertently enter the project site (*Significant Impact*).

The proposed project would involve the use of heavy equipment such as bulldozers, scrapers, and front-end loaders, and would result in the creation of a 25± foot deep, steep-sided pit. In addition, the proposed project would result in the construction and operation of an aggregate

processing plant. Compliance with Zoning Code fencing and signing requirements for mining uses, with retention of the perimeter fencing until post-reclamation development/future use of the site occurs, would reduce potential impacts to public safety to a less-than-significant level.

Public access to the mining areas would not be anticipated. However, a driveway within the project site along the northwest boundary and through Aspen III South has historically provided two parcels within the Vineyard I site with their only access to a public street (Fruitridge Road). In order to protect public safety, the project's perimeter fencing would need to be installed between the driveway and the mining area to prevent public access to the mining area. Additionally, provisions would be required to protect pedestrians using the driveway and to prohibit heavy truck traffic from using the road to haul initial overburden. For example, a protected pedestrian walkway could be formed by providing additional chain link fencing along the entire length of the haul route, between the truck travel-way on the driveway and the project site boundary.

The proposed project (Part A) would require the mined areas to remain privately owned by the proponents (mining companies), relieving the County of any involvement in the operation and maintenance of the bypass channels. The elevated bypass channel and other drainage facilities would be constructed, operated, and maintained by the proponents, who would accept all costs and risks of failure and flooding. In the event that one of the channels failed, only the mining pit areas (reclaimed for agricultural uses) would be affected. To protect the public from any potential failure of the elevated channel, the Sacramento County Public Works Agency, Water Resources Division proposes to map the mining pits within the 100-year floodplain, with the appropriate restrictions on land use.

Proposed project (Part A) water detention features do not fall under the jurisdiction of California Division of Safety of Dams (DSOD) since the water surface within the bypass channel would not exceed a height of six feet and there are no proposed embankments greater than 25 feet in height (pit floor to top of channel). No increase in peak flows at Hedge Avenue would result from mining activities. The potential impact of increased flows resulting from future development located upstream of the project site (which may potentially affect onsite flows) would be analyzed and mitigated on a case-by-case basis.

Proposed Project Without the Vineyard I Processing Plant Alternative

1. Under this alternative, potentially hazardous conditions created by the onsite processing plant would not occur. However, impacts due to mining operations would be similar to the proposed project (*Significant Impact*).

County Drainage Alternatives (Part B)

1. Under the Part B Alternatives, a different ultimate land use potential could be considered, including park areas. Public facilities within the mining pits after the completion of mining would require more stringent construction standards to protect public health, safety, or general welfare (*Less-Than-Significant Impact*).

Bypass channels, drop structures, pumps and mining pit lands within the 100-year floodplain would be publicly owned, operated and maintained. Construction and inspection would be to a

standard consistent with safety requirements for public facilities. In addition, if one of the Part B alternatives is implemented, the increased detention would likely bring the project under DSOD jurisdiction. This would also require a higher standard of embankment construction.

The Part B Alternatives further reduce flood volume impacts to the Beach/Stone Lakes area for all future development of the entire Morrison Creek Stream Group watershed, but would not relieve the greater existing flooding risks from the Cosumnes and Mokelumne Rivers.

~~100-Year~~ Floodplain Protection Alternatives

1. Under th~~is~~e 100-Year Floodplain Protection and Creek Buffer A~~a~~lternatives, impacts due to mining operations would be similar to the proposed project with the exception of those directly associated with mining in the floodplain and the creek corridor (i.e., channel reconstruction and stormwater detention) (*Significant Impact*).

No Project Alternative

1. Under the No Project Alternative, there would be no impacts to public safety within the project site, and the existing level of storage in the floodplain of the creek would be maintained (*Less-Than-Significant Impact*).

However, the potential for future flooding downstream would exist even without future urban expansion.

5.11.3 Mitigation (All Mining Alternatives)

Recommendations/Requirements of Various Agencies

California Division of Safety of Dams:

1. An application for construction shall be filed with the California Division of Safety of Dams (DSD) and approved prior to start of construction for any new dam that falls under the State jurisdiction for safety.

Zoning Code:

2. The proponents shall install fences and provide warning/trespass signs to comply with Sections 235-54 and 235-55 of the Zoning Code.

Water Resources Division Design and Construction Standards and Objectives:

3. Existing public infrastructure (roads, water and sewer, electrical, etc.) shall be protected from undermining and collapse. To protect the roadway and other public infrastructure, the proponents shall be required to construct adjacent pit sides to standards approved by Water Resources Division (WRD). The proponents shall submit to WRD for approval: a) studies and design for appropriate embankment protection or other needs; and b) the plan, an ongoing construction inspection program, and the results of a program of soils testing during construction.

4. In anticipation that the elevated channel would be ultimately accepted as a public facility, the proponents should be conditioned to submit to WRD studies and designs for channel-lining, and the plan and results of a program for soils testing during construction.

Mitigation Measures (All Mining Alternatives)

1. All perimeter fencing shall be retained until post-reclamation development/future use of the project site occurs.

~~2. As required as a condition of the existing permit, the proponent of Aspen III South shall install perimeter fencing between the existing driveway (exiting on Fruitridge Road) and the site to prevent public access to the mining area.~~

~~3. As required as a condition of the existing permit, the proponent of Aspen III South shall provide protection from truck traffic for pedestrians who use the existing driveway along the site's northwest boundary for access to Fruitridge Road. Such protection could consist of a protected pedestrian walkway, formed by providing additional chain link fencing along the entire length of the haul route, between the truck travel-way on the driveway and the site boundary. Such fencing should be at least six feet high, and the pedestrian walkway should be at least three feet wide, provided on level ground and signed to indicate that it is for pedestrian/bicycle use. This fencing used to form the pedestrian walkway could be removed after all mining and reclamation activities are completed. Alternative methods of providing for pedestrian protection/safety may be considered, and could be implemented if found to be acceptable by the County Public Works Department. Such alternative methods might include restricting truck traffic on the driveway to the northernmost portion of the roadway.~~

5.12 AESTHETICS AND VISUAL RESOURCES

5.12.1 Affected Environment

Landscape characteristics of the project area consist of gently sloping rangeland in a rural setting. Single family residences, a religious temple, and commercial properties, including a health club, are located on properties adjacent to the project site, and would be subjected to views of the mining operations, and eventually the reclaimed pit areas, unless screening occurs. Travelers along Jackson Highway, Bradshaw Road, Elder Creek Road, Hedge Avenue, and Fruitridge Road would also have a view of the operations. Less sensitive receptors, including adjacent surface mining operations and industrial uses also surround the property.

The following policies in the Conservation Element of the *Sacramento County General Plan* provide for orderly extraction of minerals and subsequent reclamation of mined areas with minimal adverse impacts on surrounding residential uses and scenic values:

CO-44. *Surface mining shall maintain substantial minimum setbacks from adjoining rural residential land uses.*

CO-45. *Surface mining shall not be allowed without adequate plans for reclamation of mined areas.*

These policies are largely implemented through existing Zoning Code provisions and CEQA. The Zoning Code outlines standards for sand and gravel mines that provide minimal buffering for adjacent properties. Unless otherwise provided by condition of the use permit, the Zoning Code requires standard chain link fencing (Section 235-54), a 25-foot minimum setback from unmined land adjacent to public roadways, and a 25-foot setback (Section 235-59) along all other property lines around the mining site (the first five feet to consist of unmined land and the remainder to be reclaimed to original grade within one year of mining). The Board of Supervisors is also allowed to require, as a condition of the use permit, visual screening through the use of berms, screen fences, landscaping, setbacks, or combinations thereof (Section 235-56).

5.12.2 Environmental Consequences

Proposed Project (Part A)

1. Unless visual screening is adequate, nearby residents and travelers along adjacent roadways would be subjected to views of the mining operations, the bypass channel, the processing plant, and eventually the reclaimed pit area (*Significant Impact*).

The aesthetic value assigned to changed landforms resulting from mining activities is very subjective. To some viewers from the perimeter rim roads, the reclaimed pits would be seen as an interesting mosaic of cropland, uplands, wetlands, ponds, and riparian canopy. The visual contrast of water with irregular shoreline, undulating topography, and corresponding variable patterns of natural and agricultural vegetation would create an aesthetically pleasing viewshed from all sides of the pit perimeter. Inclusion of forest canopy throughout the basin would screen and soften the artificially steep sides of the pit. To others, especially those few properties that

would remain within the noncontiguous site area, the changed landforms resulting from the proposed project's mining activities, pits, and bypass channel may be visually objectionable

Interpretation of past actions taken by planning agencies and decision-making bodies suggests that these mining activities and resulting pits are visually undesirable, and measures have usually been taken to mitigate the visual effects Visual screening measures proposed by the proponents are shown in Figures 5-16a through 5-16d, and would include a 25-foot landscaped buffer between the perimeter boundary and the mined pits, and a 25-foot landscaped and bermed buffer between the perimeter boundary and the bypass channel

Perimeter landscaping would require time to establish and grow to sufficient "screening" height For this reason, it is often recommended that landscaping be used in combination with other screening techniques in order to provide immediate screening, or that landscaping be initiated several years prior to commencement of the mining operation

Placing berms or solid fencing along the project site perimeter would provide immediate screening from mining operations (and is being recommended in the Noise section to mitigate noise impacts) While berms and fencing would reduce visual effects from the mining activities, these features could appear monotonous and create an industrial appearance, at least until landscape vegetation had grown sufficiently to provide interest A negative aspect of visual screening is that the open space character offered by the existing landscape and the future mined landscape would be reduced

2 The nighttime landscape in the vicinity of the project will be changed Urban type lighting will exist on the project site which has not existed in the past and will be visible to existing residents and passersby (*Significant Impact*)

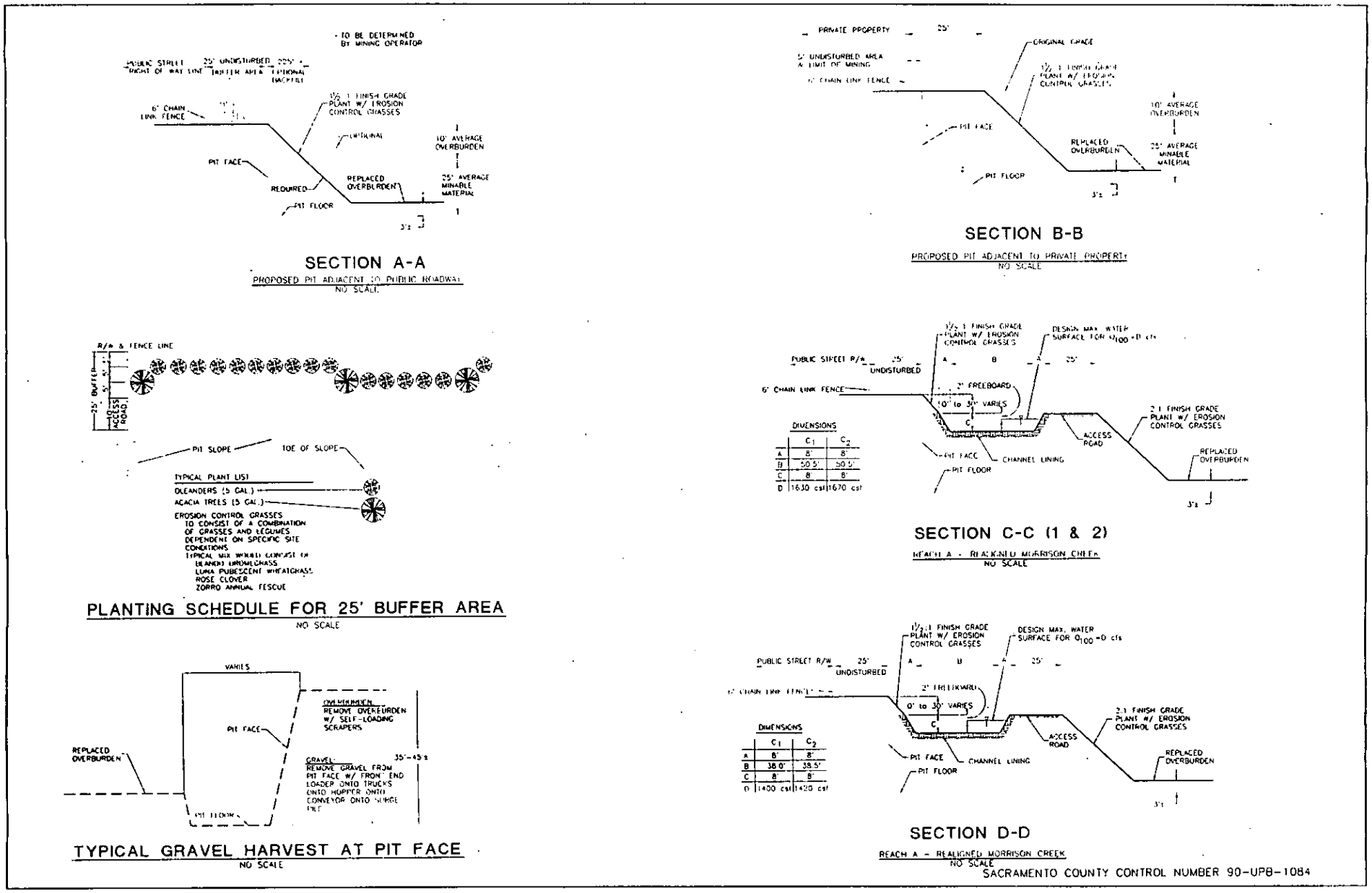
Most of the lighting would be located in the vicinity of the proposed processing plant The light within the mining area would vary in setback and height relative to adjacent uses, depending upon which area of the site is actively being mined at any particular time and the depth to which the mining of that particular area has proceeded

Proposed Project Without the Vineyard I Processing Plant Alternative

1 Under this alternative, the open space character of the project site would not be reduced by the industrial appearance of the processing plant However, neighboring uses and travelers along adjacent roadways would still be subjected to views of the mining operations, the bypass channel, and the reclaimed pit area (*Significant Impact*)

County Drainage Alternatives (Part B)

1 The Part B alternatives would generally include the same mosaic of cropland, uplands, wetlands, ponds and riparian canopy within the reclaimed pits as the proposed project,



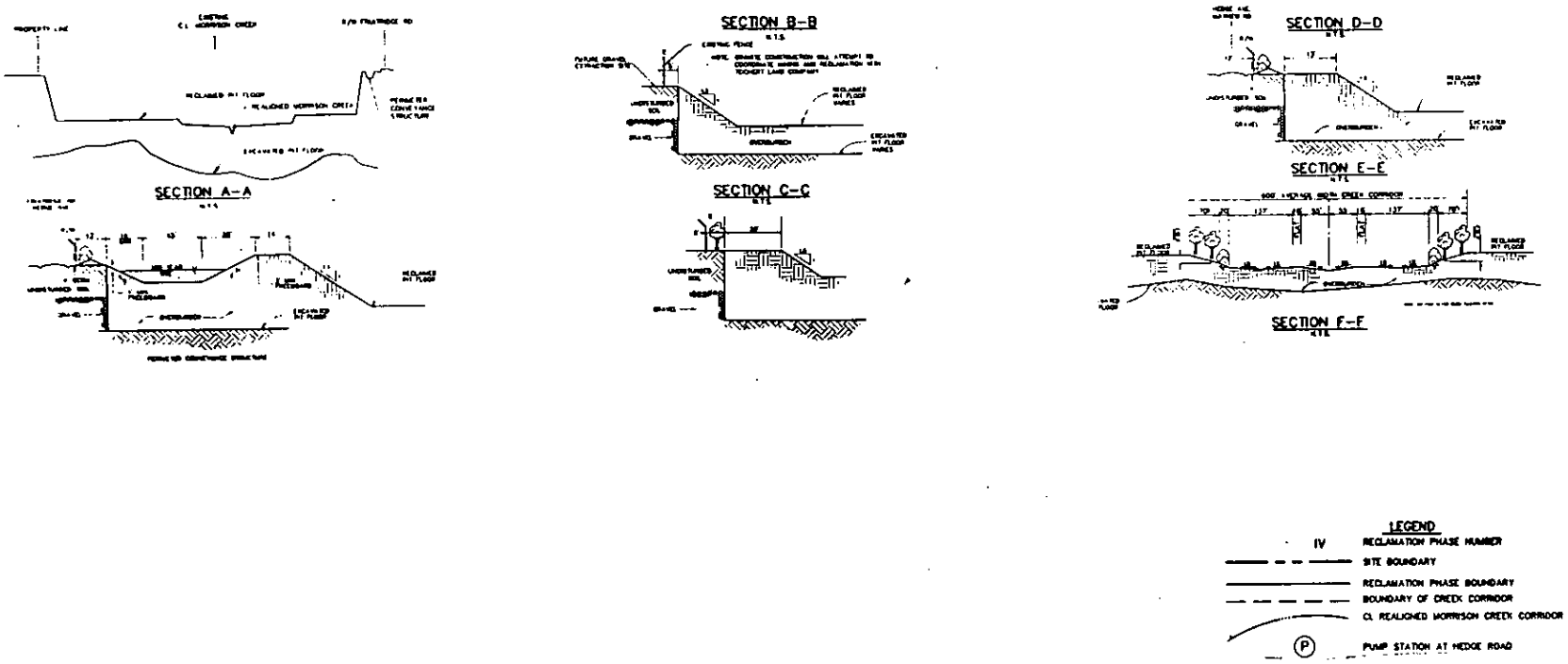
Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 5-16a
Visual Screening-Aspen III South
Proposed Project

EDAW Inc.

Source: GW Consulting Engineers

N:5s052:029



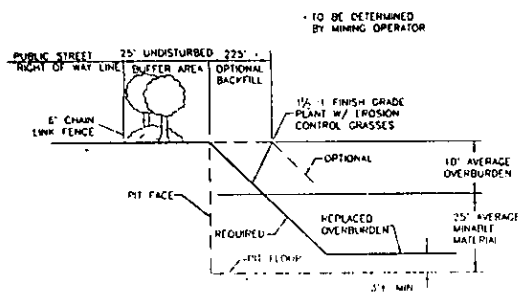
Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 5-16b
Visual Screening-Vineyard I
Proposed Project

EDAW Inc.

Source: Robert E. Young Engineers, 1994

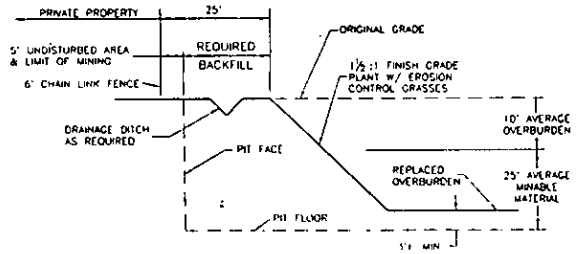
N:5s052:030



SECTION A-A

PROPOSED PIT ADJACENT TO PUBLIC ROADWAY

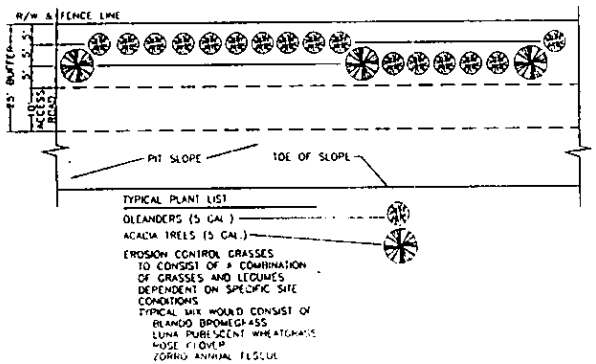
NO SCALE



SECTION B-B

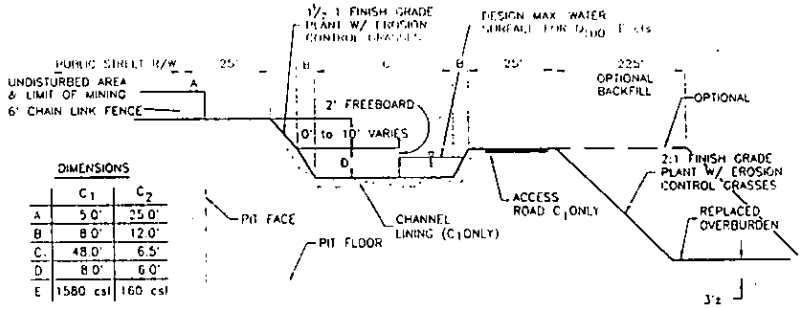
PROPOSED PIT ADJACENT TO PRIVATE PROPERTY

NO SCALE



PLANTING SCHEDULE FOR 25' BUFFER AREA

NO SCALE



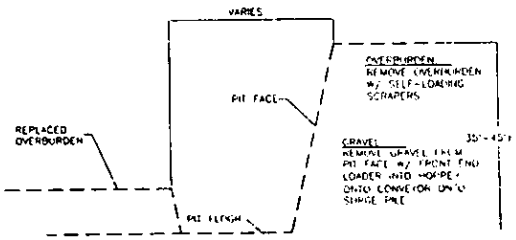
DIMENSIONS

	C_1	C_2
A	5.0'	25.0'
B	8.0'	12.0'
C	48.0'	6.5'
D	8.0'	6.0'
E	1580 cfs	160 cfs

SECTION C-C (1 & 2)

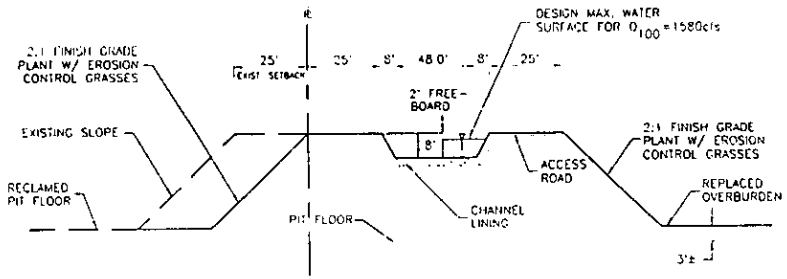
REACH A - REALIGNED MORRISON CREEK

NO SCALE



TYPICAL GRAVEL HARVEST AT PIT FACE

NO SCALE



SECTION D-D

REALIGNED MORRISON CREEK

NO SCALE

SACRAMENTO COUNTY CONTROL NUMBER 90-CZB-UPB-1607

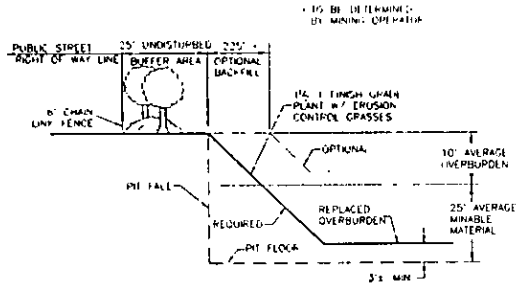
Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 5-16c
Visual Screening-Aspen IV South
Proposed Project

EDAW Inc.

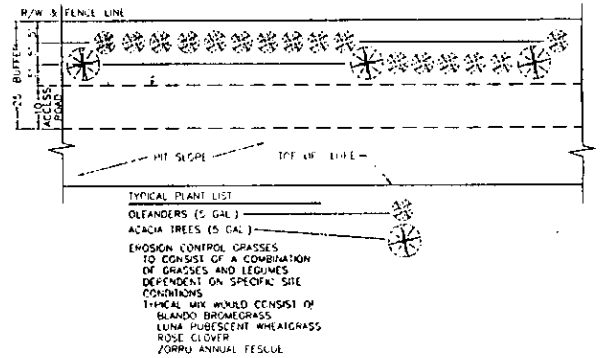
Source: GW Consulting Engineers

N:5\0152:031



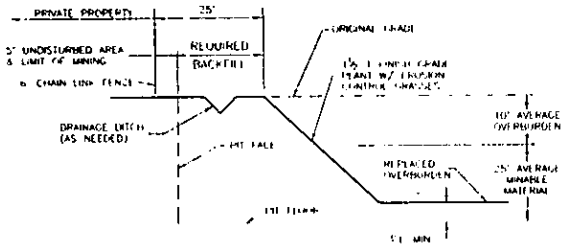
SECTION A-A

PROPOSED PIT ADJACENT TO PUBLIC ROADWAY
NO SCALE



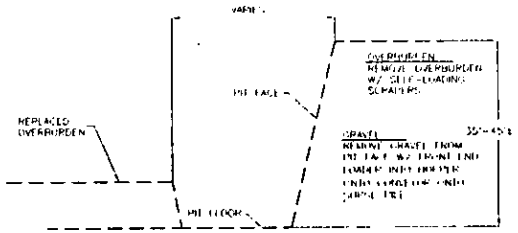
PLANTING SCHEDULE FOR 25' BUFFER AREA

NO SCALE



SECTION B-B

PROPOSED PIT ADJACENT TO PRIVATE PROPERTY
NO SCALE



TYPICAL GRAVEL HARVEST AT PIT FACE

NO SCALE

Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 5-16d
Visual Screening-Aspen V South
Proposed Project

EDAW Inc.

Source: GW Consulting Engineers

N:5s052:032

and therefore impacts would be similar. The Downstream Capacity Bypass Channel Alternative would establish a slightly larger "seasonal lake" adjacent to Hedge Avenue, and would create, for many viewers, the most aesthetically pleasing viewshed during wet years (*Significant Impact*).

~~100-Year~~ Floodplain Protection Alternatives

100-Year Floodplain Protection Alternative

1. This alternative would result in the least impacts of the mining alternatives to open space and visual resources since the natural streambed and associated vegetation would not be affected. Changed landforms resulting from mining activities would occur outside the floodplain and the bypass channel would not be built. However, mining operations and the reclaimed pit area would be visible from viewpoints surrounding the project site (*Significant Impact*).

Creek Buffer Alternative

2. Similar to the 100-Year Floodplain Protection Alternative, implementation of the Creek Buffer Alternative would result in partial mining and reclamation of the project site. The elevated creek corridor and surrounding pit areas would be visible from viewpoints surrounding the project site (*Significant Impact*).

No Project Alternative

1. Expansive visual open space and the creek corridor would be maintained in the short term. Thus, there would be no immediate adverse impacts on scenic values and surrounding residential uses (*Less-Than-Significant Impact*).

However, as much of the project site is within the industrial reserve land use categories, it is anticipated that future industrial development would reduce the open space character of the site eventually.

5.12.3 Mitigation (All Mining Alternatives)

1. The proponents shall screen mining operations from public roadways, private property, and other sensitive receptors by providing a combination of visual enhancements. These enhancements shall include 25-foot minimum buffers, chain link fencing, berming, and landscaping with fast-growing, closely spaced shrubs. To the extent possible, earthern berms shall meander and be contoured to reflect a more natural pattern with variations in width, height and direction.

2. Landscaping shall be initiated upon issuance of the use permit and, if possible, at least one year prior to commencement of the mining operations to allow plant establishment and sufficient screening growth. Plantings shall be irrigated by trenching or with individual bubblers on an automatic irrigation system. Landscaping shall be installed *exterior* to earthen berms or chain link fencing to provide the least "industrial" appearance and the highest compatibility with neighboring uses. Slats may be used in the fencing only if mining occurs before vegetation has reached screening height and density.

3. Any lighting shall be arranged and controlled so as not to illuminate public rights-of-way or adjacent properties. Mercury vapor type lights shall be used, similar to the type used as residential outdoor security lights. The top of the lights shall be covered with a metal cap, and a 10-12 inch plastic shield shall surround the bulb. The design of the light shall result in a minimum 90% of the light being projected downward, and the plastic shield shall prevent glare.

5.13 PUBLIC AND PRIVATE UTILITIES

5.13.1 Affected Environment

Sewage Disposal

The project site is located adjacent to and partially within the service area of Sacramento Regional County Sanitation District (SRCSD) and County Sanitation District No. 1 of Sacramento County (CSD-1). SRCSD and CSD-1 have completed a *Sewerage Expansion Study* and a *1994 Update Expansion Study*, in part to investigate the most feasible trunk and interceptor alignments to serve areas within the Urban Service Boundary. The 1994 Update provides for two interceptor alignments through the project site. The proposed alignments, as shown in Figure 5-17, can be roughly described as follows:

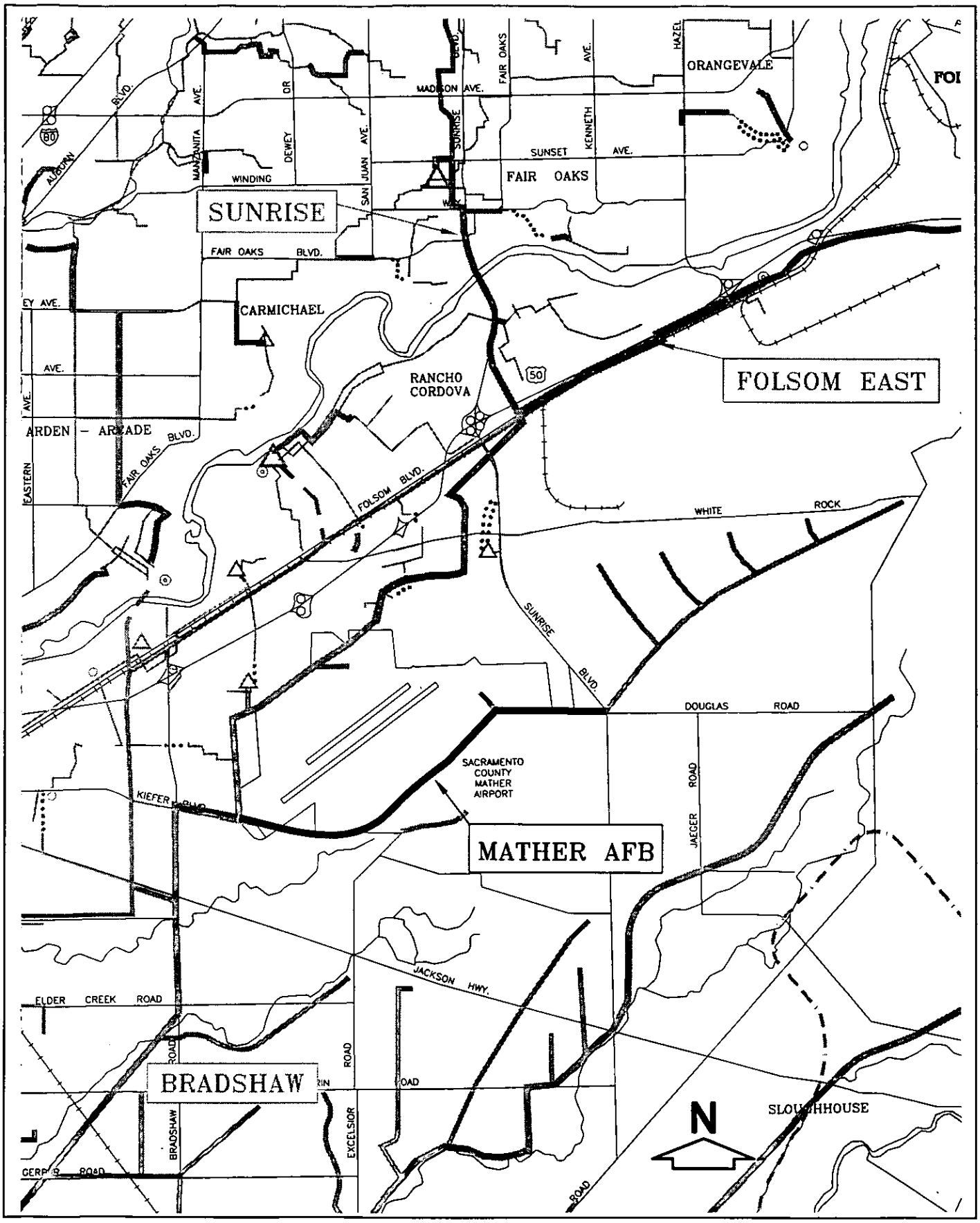
- The Bradshaw Interceptor alignment goes through the proposed project adjacent to Bradshaw Road.
- ~~The Mather Intercepter follows along the northern boundary of the project along Jackson Highway east of Bradshaw Road~~.

The Bradshaw Interceptor is expected to be constructed through this area in ~~1998~~ by 2005. Based on preliminary mining and sewerage expansion schedules, the mining operations would most likely not be started prior to construction of the planned sewers.

The following policies in the Conservation and Public Facilities Elements of the Sacramento County General Plan call to attention the need to plan sewer system extension carefully so as not to preclude mining or future reclamation options:

> CO-42. *Sewer interceptor and trunk alignments shall be routed to avoid areas planned for aggregate resource mining to the extent practical. Where such alignments are impractical, they shall be designed to minimize aggregate resources which would be precluded from mining, and make reasonable attempt to preserve the future use of mined areas for flood control or recharge purposes.*
>
> PF-10. *Development along corridors identified by the Sanitation Districts in their Master Plans as locations of future sewerage conveyance facilities shall incorporate appropriate easements as a condition of approval.*

Existing private septic systems within the project site and its vicinity are shown on Figure 5-18. Section 235-59(d) of the Zoning Code regulates mining setbacks from sewage disposal systems as follows:



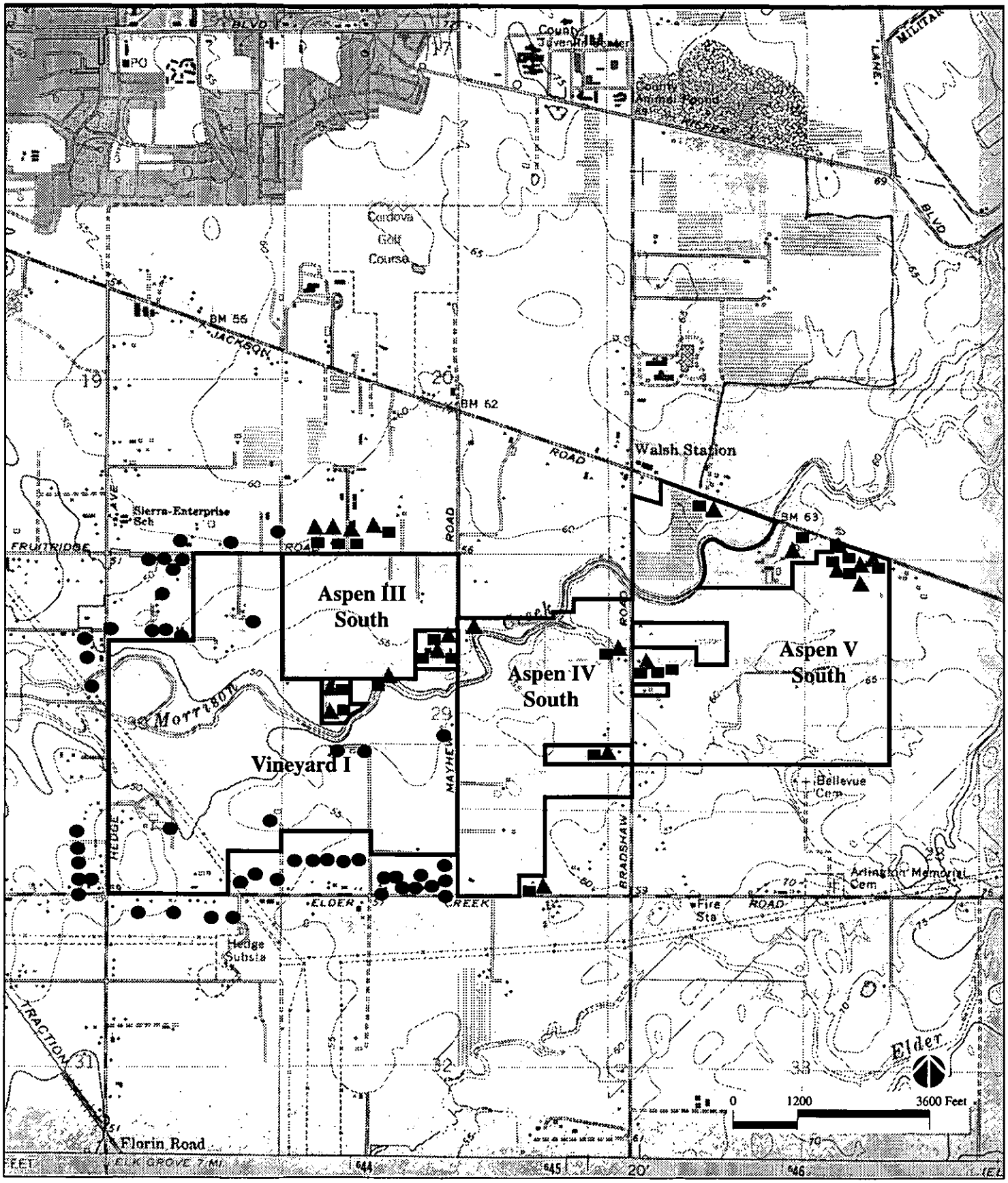
Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 5-17
Proposed Interceptor Alignments

EDAW, Inc.

Source: EDAW, Inc., 6/99

N:5s052



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Project Boundary
Well Site
Septic Tank
Wells and Septic Tanks not designated separately

Figure 5-18
Wells and Septic Tanks

EDAW Inc.

Source: County of Sacramento, 1991
Holliman, Hackard and Taylor, 1985

N:5s052:037

The mining plan shall also show all individual sewage disposal systems within three hundred feet of the proposed mining area. In the event there are individual sewage disposal systems near or within the mining site, the mining setbacks shall conform to the provisions of the Sacramento County Code, Chapter 6.32 - SANITARY SEWAGE SYSTEM, and the rules and regulations adopted pursuant thereto, and shall be subject to approval of the Sacramento County Health Agency and the Regional Water Quality Control Board. Approval of these agencies must be obtained on the minimum mining setback before a work authorization permit can be obtained.

Water Use

Wells located within and adjacent to the project site are shown in Figure 5-18.

Electric Facilities

The Sacramento Municipal Utility District (SMUD) provides electrical service to the project site and the surrounding area and extends its electrical facilities to serve all customers within its service area. SMUD is the lead agency responsible for all electric system improvements.

Natural Gas Service

The Pacific Gas and Electric Company (PG&E) provides natural gas service throughout the Sacramento area.

5.13.2 Environmental Consequences

Proposed Project (Part A)

Sewage Disposal:

1. The proposed mining operations would eliminate possible routes for the gravity sewers being considered by SRCSD and CSD-1 *(Significant Impact)*.

Based on preliminary mining and sewerage expansion schedules, the mining operations would most likely not be started prior to construction of the planned sewers. The Bradshaw Interceptor is expected to be constructed through the project site in ~~1998~~ by the year 2005.

2. Seepage from septic systems could cause adverse impacts when excavation occurs near a septic system site, especially in areas with gravelly soils *(Significant Impact)*.

3. Proposed mining operations would require the removal of onsite septic systems in compliance with Sacramento County Environmental Management Department and Building Department guidelines *(Less-Than-Significant Impact)*.

Water Use:

4. Mining activities would require water to be used for dust control and landscaping. The rate of use would depend upon dust control and plant needs. Aggregate processing would

incorporate both well water from new wells constructed within the project site and recycled settling-pond water *(Less-Than-Significant Impact)*.

There are no plans to provide public water to the project site or surrounding area during or following mining operations.

5. Proposed mining operations would require the removal of water wells in compliance with Sacramento County Environmental Management Department and Building Department guidelines (*Less-Than-Significant Impact*).

Electric Facilities:

6. Electrical facilities would need to be installed to serve the proposed project, including those for the aggregate processing facility. The processing facility would be served from SMUD's Sunrise/Jackson substation (*Less-Than-Significant Impact*).

During peak construction months (usually June, July and August), the processing facility can be expected to use approximately 750,000 to 1,000,000 KWH of electricity per month. The peak demand during these months is expected to be approximately 3,300 KWH/hr. Annually, the facility is expected to use between 7-8 million KWH of electricity. This electric power does not represent a significant increase in demand, since power is currently being supplied to the existing processing facility. Coordination with SMUD would ensure that any additional power requirements would not substantially affect the overall capacity of the substation.

Natural Gas Service:

7. Natural gas facilities would need to be installed to serve the proposed project, including those for the hot asphalt plant (*Less-Than-Significant Impact*).

The hot asphalt plant would burn between 200,000 and 300,0000 therms of natural gas per month during the peak construction season. Annually, the plant is expected to use approximately 1.2 million therms of natural gas. The maximum fuel usage of the burner would be 1,600 therms/hour. PG&E has indicated that these requirements would not significantly impact its facilities (PG&E, 1996).

Proposed Project Without the Vineyard I Processing Plant Alternative, County Drainage Alternatives (Part B), and ~~100-Year~~ Floodplain Protection Alternatives

1. The impact of these alternatives on sewage disposal would be similar to Impacts 1 and 2 described above for the proposed project (*Significant Impact*).

Each of these alternatives would result in excavation activities which may effect and/or eliminate possible routes for gravity sewers being considered by the SRCSD and CSD-1, and may also result in adverse impacts to existing septic systems (especially where excavation occurs in areas of gravelly soils).

2. The impact of these alternatives upon water use, and electrical facilities would be similar to the proposed project (*Less-Than-Significant Impact*).

The Proposed Project Without the Vineyard I Processing Plant Alternative would require less water and use less electricity. The Downstream Bypass Channel Alternative (Part B) would require a small, 5-cfs pump to operate the drainage facilities. This pump would need only minimal electric power and would not substantially affect the overall capacity of SMUD's Sunrise/Jackson substation.

No Project Alternative

1. The No Project Alternative would have no impacts on sewage disposal, sewerage expansion, water use, electric facilities, or natural gas services (*Less-Than-Significant Impact*).

5.13.3 Mitigation (All Mining Alternatives)

Recommendations/Requirements of Various Agencies

Water Quality Division, Public Infrastructure Planning and Finance and Water Resources Division:

1. As a condition of approval of this project, the proponents shall enter into an agreement with SRCSD for the dedication of a 130-foot wide strip of land to provide for construction of sanitation pipeline and/or drainage facilities. If interceptor construction occurs prior to mining, the proponent will not mine in the 40-foot strip of land designated SRCSD permanent easement. The proponents will protect the integrity of the pipeline from mining activities conducted adjacent to the permanent easement. ~~As a condition of approval of the project, the proponents shall enter into a formal agreement with Sacramento Regional County Sanitation District and County Sanitation District 1, and the Sacramento County Stormwater Utility, for the dedication of a strip of land along a 130-foot right of way for the purpose of constructing two public utility corridors. Where surface mining activities have lowered the grade below the expected flowline, suitable fill shall be required below the pipe to provide support and approximately 5 feet of fill shall be required over the pipe to protect it from surface impacts. If substantial deviations from Expansion Study routes are required to preserve aggregate resources, the proponents shall compensate SRCSD for the cost of additional interceptor line needed to go around the mining resources. Where the interceptor line is also in a drainage corridor, protection from erosion shall be required where the creek could overflow into the mining pit. Staff of the Water Quality Division and the Water Resources Division, and the project proponents shall negotiate further specific requirements within the strip of land as part of the formal agreement. The dedication shall not include mining rights to the areas encumbered by the dedication.~~

Zoning Code:

2. The proponents shall submit plans for proposed mining setbacks from existing sewage disposal systems to the County Environmental Management Department and the Regional Water Quality Control Board for approval in conformance with the provisions of Section 235-59(d) of the Zoning Code. The Project Planning Commission and the Board shall consider the setbacks and other relevant information in establishing setbacks

from the mined areas. If setbacks are established which exceed those normally prescribed by the relevant Zoning/County Codes, the Board shall specify in writing the reasons for requiring the additional setback.

Environmental Management Department:

3. The proponents shall submit for review by the Environmental Management Department a site plan showing the exact locations of existing wells and septic systems (including leach lines and seepage pits) within 300 feet of the project site. This plan shall also indicate the wells proposed for use during the mining operation, the wells and/or septic systems proposed for abandonment, and the proposed locations for any new wells.

4. The proponents shall abandon any existing septic systems according to the Environmental Management Department and Building Department procedures and standards. Use of the system to be excavated shall be discontinued six months prior to excavation and the tanks shall be pumped at that time. Should any septic system be uncovered during mining activities, it shall be destroyed as per the requirements of the Environmental Management Department.

5. The proponents shall ensure that water wells located in each phase of mining shall be abandoned to the satisfaction of the Environmental Management Department prior to initiation of the mining of that phase. Any existing wells shall be abandoned according to the Environmental Management Department and Building Department procedures and standards. Should any well be uncovered during mining activities, it shall be destroyed as per the requirements of the Environmental Management Department.

Sacramento Municipal Utility District (SMUD):

6. The proponents shall contact the SMUD Distribution Planning Department and consult with SMUD through project planning and development so that any required facilities and easements would be developed in a coordinated manner. The proponents shall keep SMUD informed of all decisions or changes in schedules that pertain to the proposed project including setbacks, landscaped corridors, processing plant needs, or any other planning efforts which may affect SMUD electrical facilities. The proponents shall coordinate with SMUD for the construction of SMUD facilities during the different phases of development.

Mitigation Measures

Sewage Disposal (All Alternatives):

1. The proponents shall enter into an agreement with the SRCSD regarding the placement and disposition of the utility corridors (to accommodate the gravity sewerage system) as they relate to the project site and the proposed project. The final plans shall be approved by SRCSD prior to implementation of the project. ~~The proponents shall consult with the County Water Quality Division regarding the placement of the utility corridors (to accommodate the gravity sewerage system) as they relate to the project site and the proposed project. The decision on placement of such corridors shall remain the sole~~

~~discretion of the County, and the proponents shall work with the County to facilitate final plans.~~

Water Use (Proposed Project):

2. All new wells constructed within the project site shall be located and designed to minimize interference with existing wells within and outside the project site, to the satisfaction of the Environmental Management Department (see Section 5.2 for a discussion of groundwater quality).

Electric Facilities (Proposed Project):

4. The proponents shall phase the start-up of the processing plant to avoid a major surge in demand on the system.

5. Any existing overhead power lines shall remain and, if necessary, be relocated at the proponents' expense as the operation proceeds.

5.14 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

The following section discusses existing socioeconomic characteristics of the area surrounding the project site and evaluates potential impacts of the proposed project and alternatives. In addition, specific consideration is given to the issue of environmental justice, per the requirements of Executive Order # 12898 (signed February 11, 1994). Environmental justice is the principle that low income and minority populations should not disproportionately bear the burden of environmental hazards.

5.14.1 Affected Environment

The project site is located in the Vineyard Community within unincorporated area of Sacramento County, California. At present, there are over one million people living in Sacramento County. This total represents a 33 percent increase over the past ten years. This growth trend is anticipated to continue, and it is estimated that total population would reach 1.5 million by the year 2000 (Sacramento County, 1994).

Population growth in Sacramento County has varied substantially by ethnic groups, with minorities experiencing greater overall growth. Today, one out of every eight Sacramento County residents is Hispanic, and one out of every ten is African American. Asian/Pacific Islanders represent the fastest growing group with an increase of 146 percent between 1980 and 1990 (Sacramento County, 1994).

During the 1980s, the ~~County~~ Sacramento region experienced strong economic growth. ~~This growth has since slowed and was marked by a downward trend in economic indicators in the third quarter of 1990, which has yet to recover.~~ The unemployment rate has steadily decreased from 9.7% in 1980 to 5.0% in 1998. The population of the six-county Greater Sacramento area increased by an average of 34,363 new residents per year between 1980 and 1998. The demand for aggregate products in the Sacramento region varies from year to year but is strongly correlated to the region's population and corresponding physical growth.

Historically, the population of the Vineyard Community has had proportionately fewer minorities than the overall County, with the exception of Asians/Pacific Islanders, which represent a slightly higher percentage of the total community population as compared to the corresponding percentage for the entire County. In addition, median household income has been higher for the Vineyard Community as compared to the County (Sacramento County, 1985).

5.14.2 Environmental Consequences

Proposed Project (Part A)

1. The proposed project (Part A) would continue and extend existing mining activities, including the operation of existing processing plants and a proposed processing plant (*Beneficial Impact*).

Based on information provided by the project proponents, it is estimated that each plant employs 200 people and contributes between $17 and $25 million per year to the local economy in the form of wages, salaries, sales and property taxes, and purchasing of local equipment and

materials. Continuation of this existing economic stimuli would have a beneficial impact on the local economy.

2. The proposed project would result in the continuation and extension of existing mining operations. It is not anticipated that any new adverse impacts to any specific segment of the population would occur (*Less-Than-Significant Impact*).

Through existing County Zoning provisions and CEQA requirements, the County provides for the orderly extraction of minerals and subsequent reclamation of mined areas with minimal adverse impacts on the surrounding community. General Plan policies provide support and direction for administering these regulations and address the need to conduct surface mining so as to minimize adverse effects (refer to the Land Use section for a discussion of potential project-generated nuisances to adjacent and displaced residents). Given that the project site represents some of the highest value remaining aggregate deposits within the region, it is unlikely that the proponents could relocate and mine a new resource site or import, at much higher cost, from more distant areas (and risk greater socioeconomic impacts elsewhere). In addition, it should be noted that aggregate mining is an interim use of land. Mined and reclaimed areas on the project site would be reused for agriculture or open space. These uses, which would enhance wildlife habitat, provide the potential for recreational opportunities, and offer a higher level of flood control, would be beneficial to the surrounding community.

Proposed Project Without the Vineyard I Processing Plant Alternative

1. This alternative would generally have the same impacts on the local economy and surrounding residences as the proposed project.

County Drainage Alternatives (Part B)

1. The County Drainage Alternatives (Part B) may have additional (beyond those associated with the proposed project) short-term economic benefits for the local economy as a result of additional construction activities required to implement the more extensive drainage mitigation plans proposed under these alternatives (*Beneficial Impact*).

~~100-Year~~ Floodplain Protection Alternatives

1. Under th~~is~~e 100-Year Floodplain Protection and Creek Buffer ~~a~~Alternatives, total reconstruction of the floodplain that would result from mining operations would not occur. In addition, high-quality gravel resources within the floodplain close to point-of-use and processing facilities would be precluded from mineral extraction. This would occur to a lesser extent under the Creek Buffer Alternative. ~~Therefore~~ and the economic benefits on the local economy would be less than the proposed project for both alternatives. However, th~~is~~ese alternatives would not substantially disrupt the construction industry and impacts would remain beneficial (*Beneficial Impact*).

No Project Alternative

1. The discontinuation of existing mining operations, including potential plant closures associated with the No Project Alternative, may have an adverse impact on the local

economy if future land uses do not provide comparable economic benefits (*Significant Impact*).

The No Project Alternative would perpetuate existing land uses (i.e., agricultural practices) and/or result in the further development of the project site based on existing zoning (refer to Land Use Section). Alternative aggregate sources would be needed to meet the projected consumption needs of the Sacramento area. Increased importation of aggregates from other source areas would ultimately increase construction costs in the Sacramento area and displace local ancillary industries that depend on the local presence of mining operations (i.e. concrete specialty products and heavy equipment sales/service).

5.14.3 Mitigation (All Mining Alternatives)

Socioeconomic impacts are expected to be less-than-significant or beneficial therefore no mitigation measures are recommended.

5.15 CONSISTENCY WITH MATHER FIELD

5.15.1 Affected Environment

The proposed project is located approximately 11,000 feet southwest of the Mather Field [formerly Mather Air Force Base (AFB)] primary runway. Because of the project site's proximity to Mather Field, an analysis of the consistency of the proposed project and alternatives with the Mather Air Force Base Comprehensive Land Use Plan (CLUP) is required.

~~Although m~~Military flight operations at Mather Field ended in May, 1993.~~,~~ ~~t~~At the time the Draft EIR/EIS for this project was circulated for public review, ~~the~~ the CLUP adopted by the Sacramento Area Council of Governments ~~in~~ (1987 ~~(and later~~ as amended in 1992) was the official plan for Mather Field. ~~)~~ Following the close of the Draft EIR/EIS review, the draft CLUP which had been revised and updated to reflect conversion of the base from military to civilian operations was officially adopted by the Sacramento Area Council of Governments (May 1997). ~~is still considered the official guide to land use compatibility in the Mather Field environs. The current CLUP therefore provides the authority for the consistency analysis in this EIR/EIS.~~ -

~~It should be noted that the County of Sacramento has recently approved the operation of a public-use airport at Mather Field. A new CLUP is being prepared and would reflect the airport's conversion to civilian aircraft operations. Although the new CLUP has not yet been adopted, preliminary projections made available as part of a related Draft EIR (Mather Field County Operated Aviation Facility, Control Number: 93-DAE-0041) indicate that air traffic safety zones and noise levels associated with the civilian operations would be less extensive than those which currently exist.~~

In general, the CLUP contains restrictions on land uses for properties adjacent to Mather Field in three major areas: safety, noise and height restrictions. The consistency analysis presented in the Draft EIR/EIS evaluated the proposed project for ~~The following analysis identifies~~ potential inconsistencies with ~~between the proposed project/alternatives and the existing (adopted)~~ the 1992 CLUP, as well as comparison with the proposed CLUP for the County-Operated Aviation Facility (which was subsequently adopted in May 1997 and is now the adopted plan for Mather). No changes to the 1997 CLUP were made that would alter the conclusions presented in the Draft EIR/EIS, and therefore the analysis of the "proposed" CLUP presented below is still relevant. The analysis of the prior plan has been left in the Final EIR/EIS as presented in the Draft for informational purposes and to maintain a complete administrative record. This analysis is consistent with the comments received from the Airport Land Use Commission (ALUC) and the Department of Airports during their review of the Notice of Preparation and Initial Study for the proposed project. As a note, because the proposed project/alternatives would not result in the construction of structures meeting Federal Aviation Regulations Part 77 that would constitute a hazard to air navigation, no impacts related to height restrictions are anticipated (and notification to appropriate agencies would be required to ensure that no future impacts related to this issue would occur).

5.15.2 Environmental Consequences

The following analysis is consistent with the comments received from the ALUC during their review of the Notice of Preparation and Initial Study for the proposed project.

Proposed Project (Part A)

1. The project site is located within the Airport-Area-of-Influence of the Mather Field ~~Air Force Base~~ CLUP, and would be subject to applicable ALUC policies and conditions related to safety and noise (~~*Significant*~~ *Less-than-Significant Impact*).

Safety:

~~Most of the Aspen III South site and part of the Vineyard I site are located within the current Approach-Departure Zone (see Figure 5-19). The remainder of t~~The Aspen V South and a portion of Aspen IV South sites would be ~~project site is~~ located within the Overflight Zone as shown on Figure 5-20.~~.~~ The CLUP defines mining and quarrying as being compatible within ~~both of these~~ this zones, subject to the following conditions:

~~a. Portions within Overflight Zone:~~

Uses compatible only if they do not result in a possibility that a water area may cause ground fog or result in a water hazard.

b. ~~Portions within Approach-Departure Zone:~~

~~*Uses compatible only if they do not result in a possibility that a water area may cause ground fog or result in a water hazard.*~~

~~and~~

~~*Uses compatible only if they do not result in a large concentration of people. A large concentration of people is defined as a gathering of individuals in an area that would result in an average density of greater than 25 people per acre per hour during a 24 hour period ending at midnight, not to exceed 50 persons per acre at any time.*~~

~~The Approach-Departure Zone proposed for the CLUP update is smaller than the existing zone, and would not encompass any of the project site. Only the northern portion of the Aspen V South site would fall within the Overflight Zone (see Figure 5-20).~~

Mining and quarrying would be compatible within the~~is~~ Overflight ~~z~~Zone, subject to the condition that such use does not result in a possibility that a water area may cause ground fog or result in a water hazard.

The newly created wetland and open water habitat resulting from the proposed project could potentially attract additional birds in the project site. However, because the wetlands would be distant from the Mather Field runway and would not be located in critical airspace, the potential for bird hazards to aircraft utilizing Mather Field is low.

Noise:

The project site is currently located partially within the ~~75-80 and 80-85~~ 60-65 and 65-70 CNEL noise contours (as shown on Figure 5-~~21~~22). The CLUP defines mining and quarrying, as well as the proposed-post reclamation use for agriculture, open space and potential trail use as being compatible within these contours.~~, subject to the following condition:~~

> ~~*Measures to achieve an interior noise level of 50 CNEL must be incorporated into the design and construction of portions of buildings where the public is received, office areas and other areas where people work or congregate.*~~

~~As with safety areas, the noise contours proposed in the CLUP update are less extensive than those which currently exist (Figure 5-22). Assuming these noise contours are the ones ultimately adopted by the ALUC, only the north central part of the project would be located within the 65-70 CNEL noise contour. Mining and quarrying would be compatible within this noise contour.~~

County Drainage Alternatives (Part B) and ~~100-Year~~ Floodplain Protection Alternatives

1. The impact of these alternatives related to airport safety and noise would be similar to the proposed project as described above (~~*Significant*~~ *Less-than-Significant Impact*).

Mining operations would be subject to applicable ALUC policies and conditions related to safety and noise. The Downstream Capacity Bypass Channel Alternative would create a slightly larger open water habitat within the pit nearest Hedge Avenue. Based on the proximity of this open water to the Mather Field runway, the potential for birds using the newly created habitat to increase the frequency of bird-aircraft collision incidents is low.

No Project Alternative

1. Potential air safety and noise-related impacts resulting from the No Project Alternative would be less-than-significant.

Existing rural open space in the short-term would be a compatible land use near Mather Field. Existing uses are not considered in conflict with the adopted CLUP. The CLUP would protect Mather Field from future non-compatible land uses and provide for orderly growth of the area surrounding the airport. Inhabitants within the vicinity of the airport and the public in general would be protected from the adverse effects of aircraft noise and aircraft-related hazards.

5.15.3 Mitigation

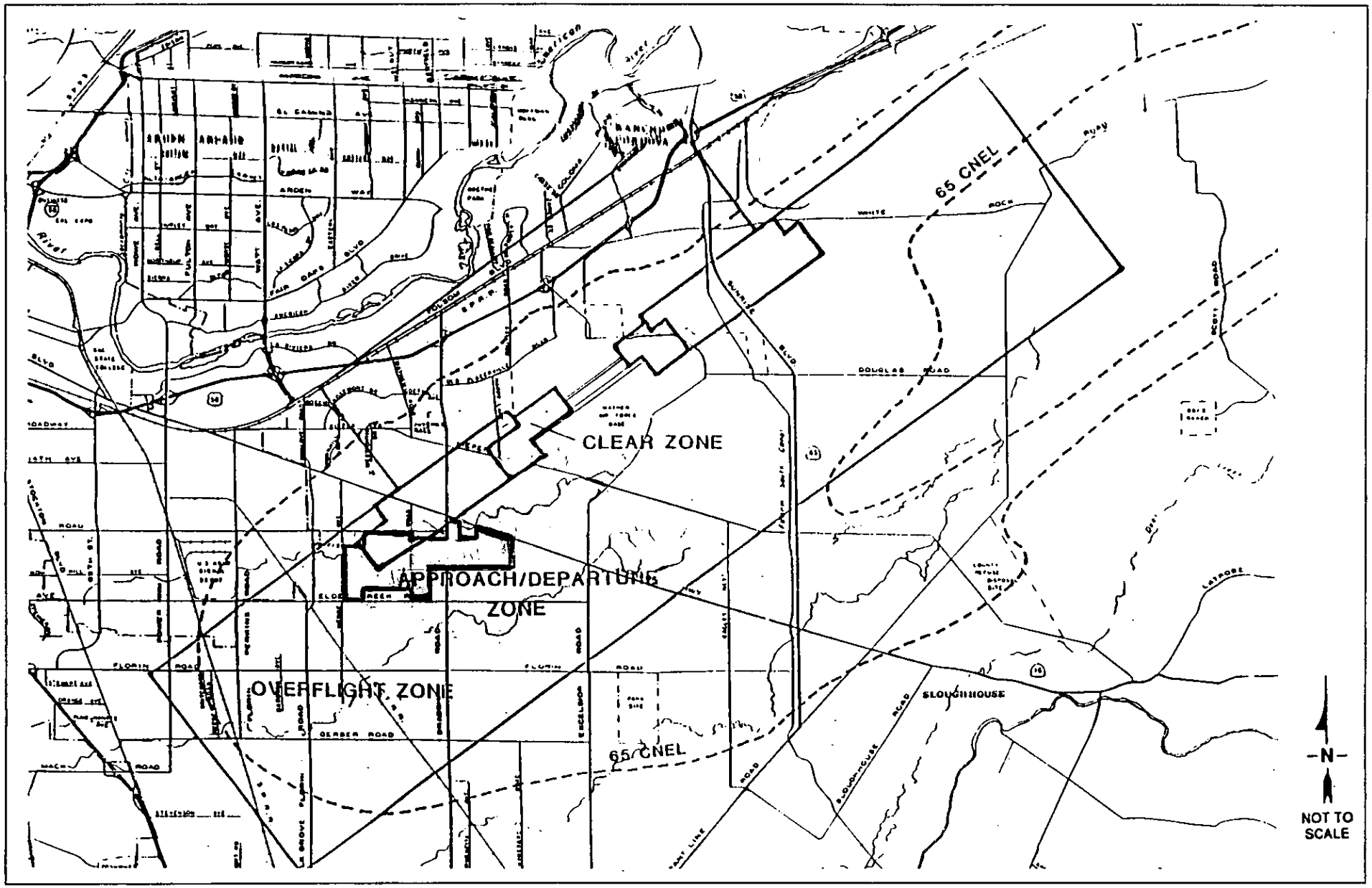
Recommendations/Requirements of Various Agencies

Mather Field ~~Air Force Base~~ Comprehensive Land Use Plan:

1. ~~Mining within the Approach-Departure Zone shall not result in a large concentration of people as defined by the CLUP.~~

2. Mining within the ~~Approach-Departure Zone and~~ Overflight Zone shall not result in a possibility that a water area may cause ground fog or result in a water hazard.

3. ~~Measures to achieve an interior noise level of 50 CNEL shall be incorporated into the design and construction of portions of buildings where the public is received, office areas, and other areas where people work or congregate.~~



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

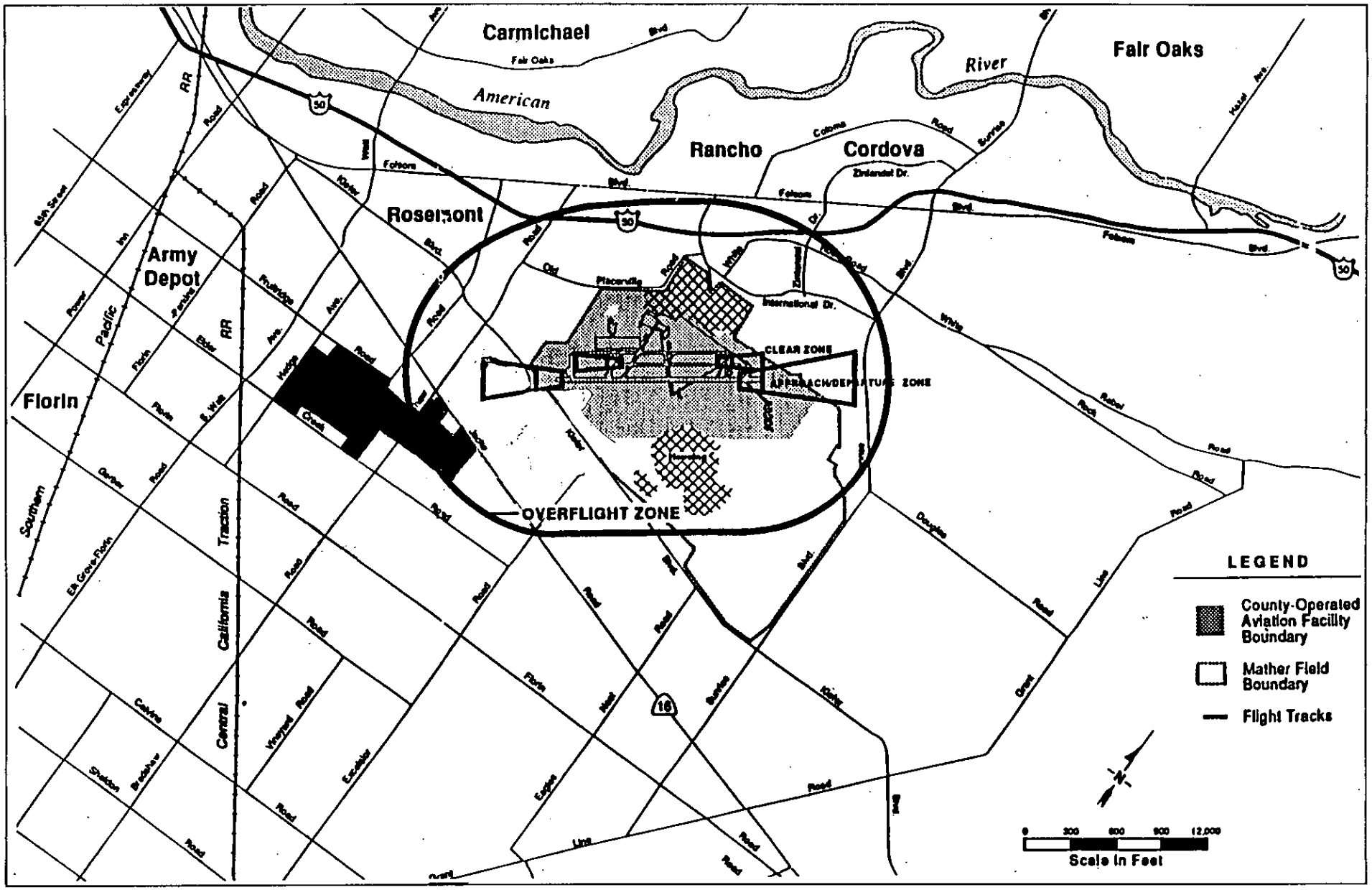
Project Boundary

Figure 5-19
Former CLUP Air Traffic Safety Zones

EDAW Inc.

Source: Mather Air Force Base Comprehensive Land Use Plan, SACOG/Airport Land Use Commission, January 1987.

N:5s052:033



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

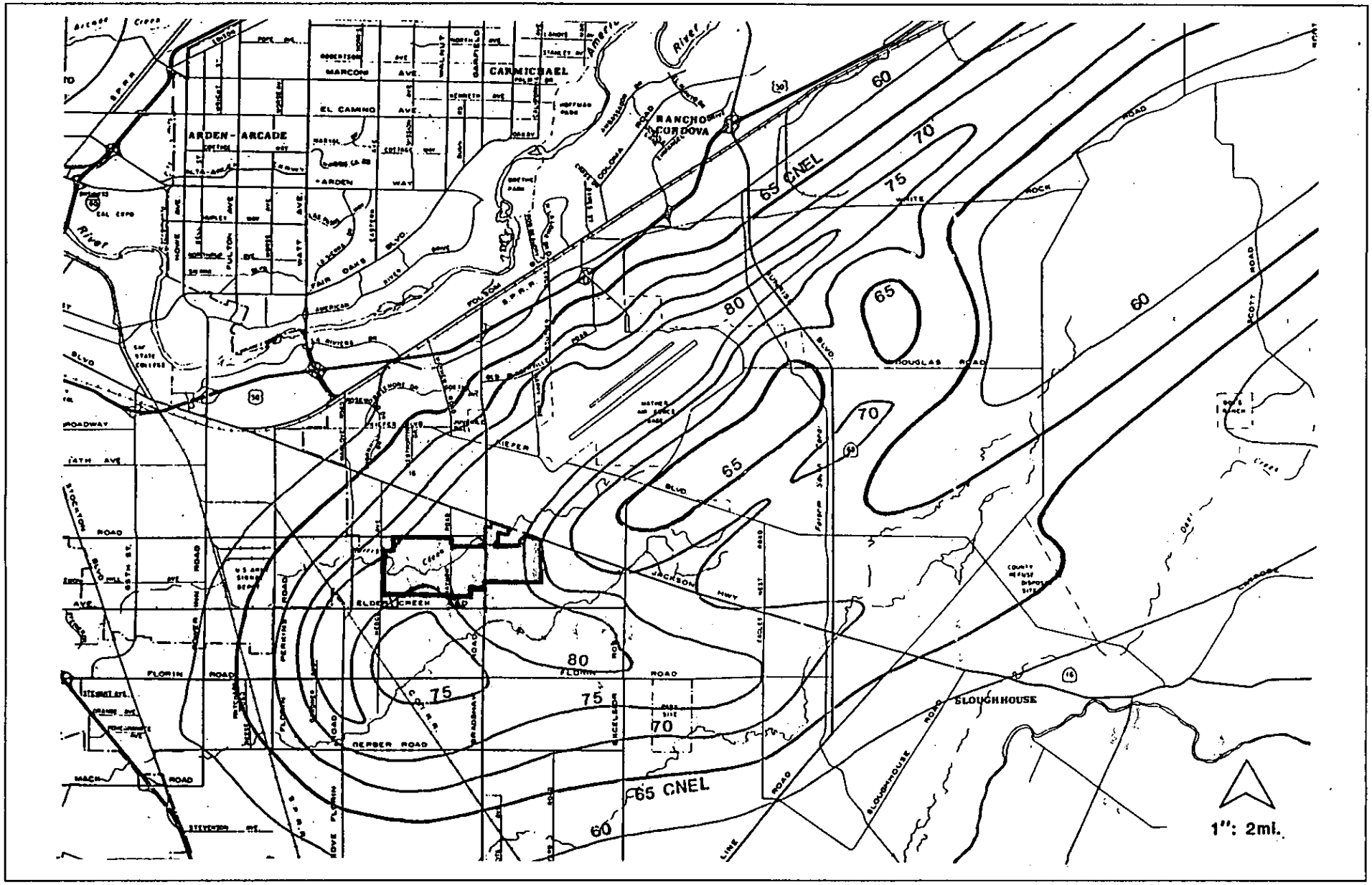
Project Site

Figure 5-20
Adopted ~~Proposed~~ CLUP Air Traffic Safety Zones

EDAW Inc.

Source: EIP

N:5s052:034



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

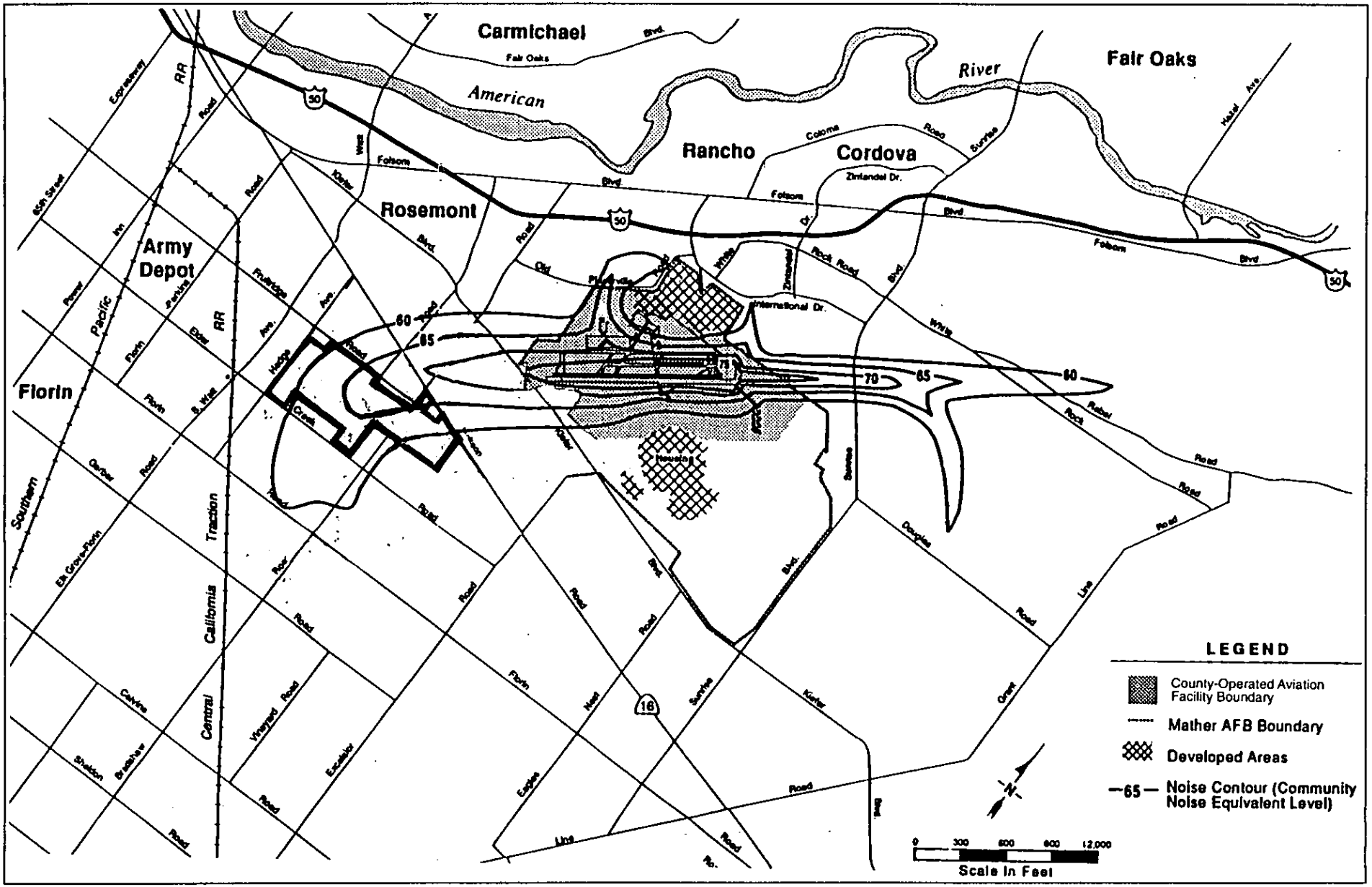
Project Boundary

Figure 5-21
Former CLUP Aircraft Noise Contours

EDAW Inc.

Source: EIP

N:5s052:035a



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Project Boundary

Figure 5-22
Current ~~Proposed~~ CLUP Aircraft Noise Contours

EDAW Inc.

Source: EIP

N:5s052:035

6.0 Disposition of Impacts

6.1 CUMULATIVE IMPACTS

Section 15130 of the CEQA Guidelines and 40 CFR 1508.25 of the NEPA Regulations require that an EIR/EIS evaluate and consider cumulative impacts. Cumulative impacts occur when two or more individual effects together create a considerable environmental impact or compound or increase other impacts. These impacts include those associated with the project and those of other reasonably foreseeable projects. The possible future projects considered typically consist of a list of specific projects that have either been approved, are under consideration for approval, or are contemplated in adopted general plans.

6.1.1 Affected Environment

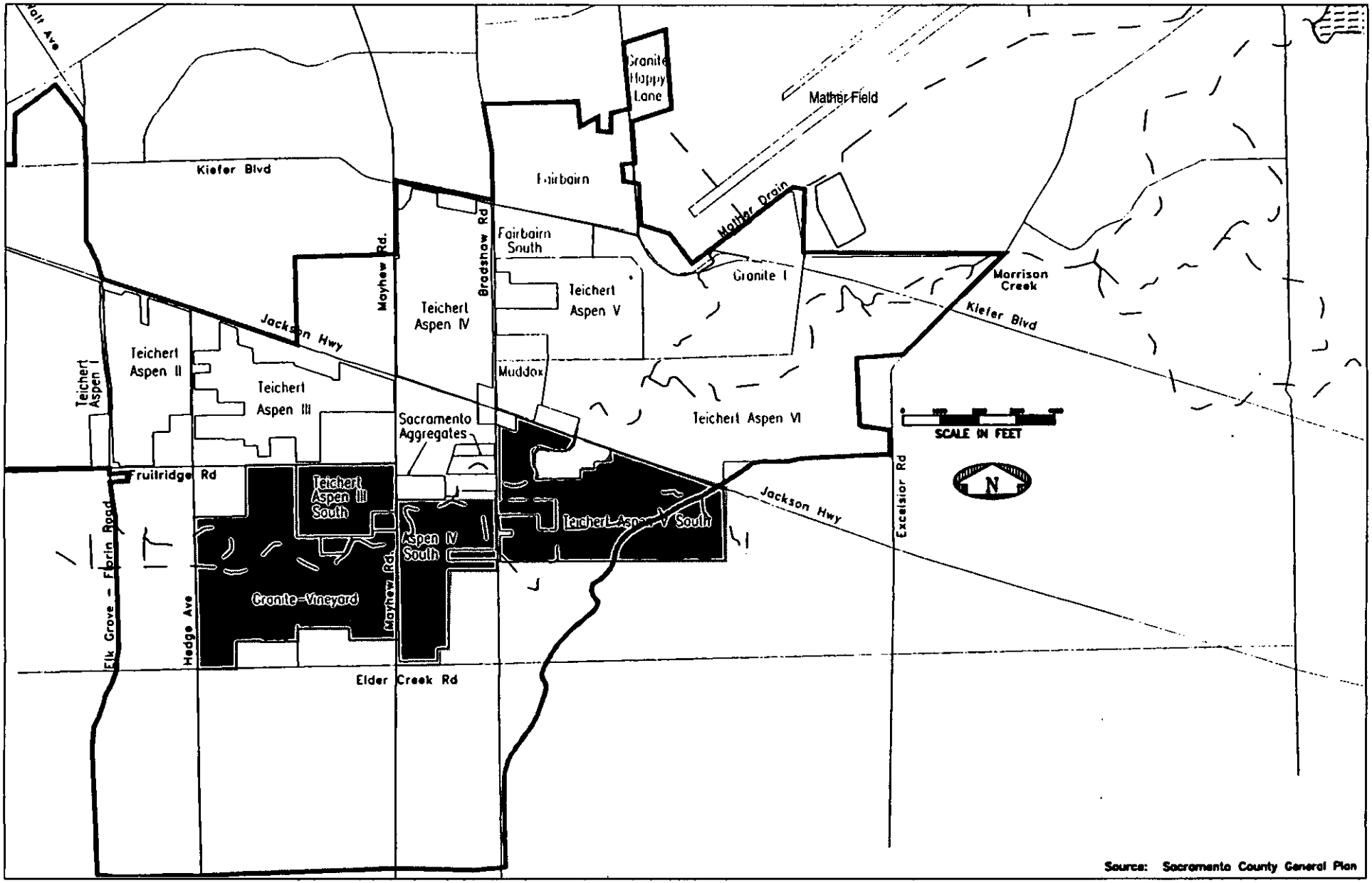
For the purposes of the cumulative impacts analysis for this EIR/EIS, the cumulative setting shall be defined as follows:

The cumulative study area includes an approximately 10.3 square-mile area on or near Morrison Creek that is designated as an Aggregate Resource Area in the Sacramento County General Plan. The areas reserved for surface mining in and around the Mining Reach are shown in Figure 6-1. Aggregate mining in the Morrison Creek Mining Reach watershed has occurred or is permitted on approximately 1,063 acres. Most of this area lies outside the 100-year floodplain. Additional areas in the headwaters of the Mather Drain watershed are being mined or are proposed for mining and would impact the floodplain of this tributary to Morrison Creek. Mining operations have begun within the vicinity of the project area. These areas are nearly fully mined, with minor reserves still left. At present, none of the areas have impacted the natural drainage courses of either Morrison Creek or Mather Drain. Submitted mining applications would expand current mine sites to include deposits under the channel and 100-year floodplain of Morrison Creek on the 4.5-mile reach between Excelsior Road and Hedge Avenue, southwest of Mather Field.

Mining applications include the following:

- Aspen III South, Aspen IV South, Aspen V South and Vineyard I (the proposed project): These applications would mine a total of approximately 882 acres south of Jackson Highway, north of Elder Creek Road, west of Excelsior Road, and east of Hedge Avenue. Mining of these and the individual project sites below would lower the creek into pits over nearly the entire 4.5-mile reach, and could permit floodwaters to flow into adjacent pits.

- Aspen V (portion within the 100-year floodplain), Aspen VI, and Granite I: These projects would affect 1,233 acres between Mather Field and Jackson Highway, and are referred to collectively as the Morrison Creek Mining Reach North (Upstream) of Jackson Highway. Approximately half of the acreage lies within the existing 100-year floodplain.



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Project Site

Figure 6-1
Cumulative Projects In and Around the Morrison Creek Mining Reach

EDAW Inc.

Source: County of Sacramanto Water Resources Division, Morrison Creek Mining Reach Drainage Mitigation Plan, 1994

N:5s052:038

- Vineyard II - This application is for mining and reclamation on 130 acres of the Vineyard I site. The entire 130-acre site is located outside of the 100-year floodplain. Granite Construction Company has submitted both applications to the County for review and approval.

As noted in Section 4.7 (Alternatives Considered but Rejected) and shown in Figure 4-3, other lands underlain by high-quality aggregates are extant in the Sacramento region. However, these lands have not been included in this discussion since they are subject to urban encroachment, incompatible zoning designations, public uses, multiple ownership, and/or adverse environmental consequences (associated with truck transportation over long distances), severely constraining or precluding mining.

6.1.2 Environmental Consequences

1. Mining operations and associated reclamation of the mined areas in the channel and active floodplain of Morrison Creek would result in the gross reconstruction of the floodplain, altered flows downstream and hydrologic and landform changes to the existing floodplain, and the loss of biological resources, open space, and aesthetic values inherently associated with the streambed, floodplain and uplands under natural conditions (*Significant Impact*).

Mining activities could occur within the entire 10.3-square-mile area designated by the General Plan for mining. The County has prepared a *Drainage Mitigation Plan for the Morrison Creek Mining Reach* to mitigate the impacts of flooding and drainage of the combined aggregate mining projects proposed within the floodplain. The mining companies would be required to reclaim the mining pits after mining operations are complete, as described by their mining permits (which include the Drainage Mitigation Plan). Mining of the entire aggregate resource within and adjacent to the Mining Reach (north and south) is expected to occur over a 23-year period.

Development of the mined areas as a detention basin and post-reclamation drainage improvements would provide for the safe conveyance of Morrison Creek flows through or around the reclaimed mining pits. In addition, implementation of Part B alternatives could supplement the Part A facilities that the proponents would build as part of their reclamation plan to mitigate future flooding impacts (peak flow or volume) on areas downstream of the Mining Reach. If implemented, the County drainage facilities would be dedicated for public ownership, operation and maintenance. Existing and future flood flows would be attenuated through the use of detention within the lowered land, while avoiding impacts to existing and planned sewer, transportation, and other infrastructure components. Construction standards for embankments would protect roadway corridors, and provide for future sewer interceptors. To protect the public from risks of failure and flooding, much of the surface area of the mining pit would be mapped within the 100-year floodplain, with appropriate restrictions on land use.

The mitigation measures presented in Section 5.7.3 are focused on reducing the significance of potential project-related biology impacts. These measures include the requirements of various government resource agencies, as well as additional recommendations made during the EIR/EIS process. Examples of these measures include the construction of wetland compensation areas, preservation of off-site vernal pool habitat, and pre-construction surveys for nesting by special

status birds ~~nests~~. In addition to these measures, it should be noted that the post-reclamation use of the project site would be agriculture, flood control, wetland restoration, and other habitat restoration. As a result, pre-project habitat value would be realized in some areas of the post-reclamation project site. The quality and extent to which these habitat areas would occur, however, is unknown at this time.

The open space and aesthetic values associated with the natural streambed, floodplain and other features on the project site would be lost during mining and reclamation activities. The post-reclamation use of the project site for habitat restoration, and potentially recreation, would help reduce the loss of these open space values. Successful implementation of the mitigation measures recommended in Section 5.12.3 (e.g., buffering/landscaping) would potentially decrease the impacts to viewers, including residents and travelers along adjacent roadways.

2. Development consistent with the Mather Field Reuse Plans, when combined with proposed mining operations, would also add to cumulative effects to regional habitat losses, roadway LOS deficiencies, increases in air emissions and noise levels, and exposure to risk (*Significant Impact*).

The only other planned, pending or approved project in the area that would exacerbate the cumulative impacts identified above is the Mather Field Reuse Plan. Development consistent with the Mather Field Reuse Plan would contribute to the cumulative loss of annual grassland, vernal pool, and riparian woodland habitat supporting known and potential habitat for special-status species. Development of the Mather Field project site combined with the proposed mining operations would result in cumulative roadway level of service (LOS) deficiencies and traffic volume increases in the vicinity of the proposed projects. Mather Field development, in conjunction with mining operations, could increase vehicular emissions of pollutants such as carbon monoxide along roadways in the air basin. The combination of three noise sources (aircraft operations, vehicular traffic, and operation of mining equipment) would increase noise levels and impact nearby residential and commercial uses. Development of the Mather Field site in conjunction with mining operations, could also increase the number of people exposed to risks associated with hazardous materials and conditions.

6.1.3 Mitigation Measures

1. Full replacement of the natural streamside resources would not be possible. However, reclamation and wetland mitigation activities would integrate riparian habitat, opportunities for recreation, and open space uses within the ultimate creek corridor and mining pits. In conjunction with the mitigation measures identified in this EIR/EIS, reclamation activities would minimize cumulative impacts of the proposed project within and downstream of the Morrison Creek Mining Reach, but not to a level of insignificance (*Significant and Unavoidable Impact*).

2. Beginning in the year 2005, hauling of materials from the project site shall not occur during the peak traffic periods for cumulative conditions: 7:00-9:00 AM and 4:00-6:00 PM. The year of mitigation has been determined by straight line interpolation of volume/capacity ratios between 1995 and 2010 for the roadway segment on Elder Creek Road between Mayhew Road and Bradshaw Road. The requirement for mitigation by 2005 may be reconsidered by the County at a later time if a competent traffic study shows

future traffic operations on Elder Creek Road is expected to comply with County level of service policies (*Significant and Unavoidable Impact*).

6.2 SIGNIFICANT IMPACTS THAT CAN MITIGATED

The following resources/environmental issues would experience impacts that are significant or potentially significant as a result of the proposed project and/or alternatives, but that can be reduced to a less-than-significant level by-incorporation of mitigation measures included in this EIR/EIS: surface water hydrology and quality (except for the Downstream Bypass Channel Alternative); groundwater hydrology and quality; cultural resources; air quality; paleontological resources; noise; public safety; aesthetics and visual resources; public and private utilities; and consistency with Mather Field CLUP.

6.3 SIGNIFICANT ADVERSE IMPACTS THAT CANNOT BE AVOIDED

The following significant environmental effects cannot be avoided if the proposed project or alternatives are implemented:

1. Implementation of the Downstream Bypass Channel Alternative would further decrease peak flows below Hedge Avenue. This would add to the disruption of the natural flow pattern that would occur upstream of Jackson Highway.

2. All Part A and Part B alternatives would result in the permanent alteration of the project site's landform.

3. All Part B alternatives would entail lining the bypass channel or using a pipe to carry Morrison Creek flows, which would reduce the general fish and wildlife habitat potential of the bypass channel and may reduce populations of fish and wildlife that might otherwise utilize or migrate through an unlined channel.

4. All Part B alternatives would reduce amount of suitable foraging habitat for Swainson's hawk and suitable foraging and nesting habitat for burrowing owls.

5. All Part A and Part B alternatives would result in the deterioration of traffic conditions (reduction in LOS) for cumulative conditions.

6. All Part A and Part B alternatives would potentially conflict with on-site and surrounding land uses, especially residences on agricultural parcels within the project site, and the adjacent residences, religious temple and health club.

6.4 GROWTH-INDUCING IMPACTS

In order to comply with CEQA, a Draft EIR must discuss the ways in which the proposed project could foster economic or population growth or the construction of housing, either directly or indirectly, in the surrounding environment [CEQA Guidelines Section 15126(g)]. A given project could induce growth within a community by lowering or removing barriers to growth, such as providing water service to an area where none currently exists, or by creating an amenity that attracts new population or economic activity. The growth-inducing potential of a project would be considered to have a significant impact if the project either induced growth or created

the capacity for growth above and beyond the levels permitted by existing public planning policies or recommended by independent projections. A project's growth-inducing potential does not, however, automatically result in growth, whether it be a portion of projected growth, or an actual exceedance of the projected growth levels. Growth at the local level is fundamentally controlled by the land use policies of local municipalities or counties, which are determined by the local policies in each jurisdiction. Growth-inducing potential or pressure, created by economic or social conditions, is transformed into actual growth only by decision makers.

Growth inducement may be considered detrimental, beneficial, or of insignificant consequence under CEQA. Induced growth is considered a significant impact only if it directly or indirectly affects the ability of agencies to provide needed public services, or if it can be demonstrated that the potential growth, in some other way, significantly affects the environment. For the reasons described below, the action of harvesting and reclaiming the project site would be considered moderately growth-inducing at best.

~~6.1.1~~6.4.1 Encouragement of Economic Growth

Implementation of the proposed project would not encourage economic growth, but would provide for further development of the region. Sand and gravel are "construction materials." These commodities, collectively referred to as aggregate, provide bulk and strength to Portland cement concrete, asphaltic concrete, and plaster, or stucco. Aggregate is also used as a roadbase, subbase, railroad ballast, or fill. Aggregate normally provides from 80 to 100 percent of the material volume in the above uses. Aggregate material is essential to the needs of a modern society, and is a resource of great importance to the economy of any metropolitan area. Under the proposed project, an estimated 36.7 million tons would be mined from the project site for use in the development of roadways, canals, parking lots, sidewalks, bridge abutments, foundations, buildings, public works projects, and general construction:

Implementation of the proposed project would provide for a continued availability of moderately-priced aggregate products in the Sacramento region in the near future at a level comparable to existing supplies, and thus would allow urban development to continue as dictated by other economic, environmental, and political factors. It should not be inferred from this discussion, however, that denial of this project would substantially disrupt urbanization. Rather, denial would cause a combination of market adjustments to occur resulting in potentially different production rates, prices, and levels of consumption.

~~6.1.2~~6.4.2 Remove Obstacles to Population Growth

The proposed project would actually create impediments to growth. Lands identified within the project site as having valuable mineral resources and being appropriate for future mining that have not previously been zoned as such would be rezoned SM (Surface Mining Combining). This combining designation would identify those areas as having valuable mineral resources and designate those resources as open space until the area is mined. While surface mining is an industrial activity, its locational requirements are dependent upon the physical location of the aggregate resources. Specific policies would apply to these areas that encourage the conservation and efficient use of mineral resources, while ensuring the maximum feasible protection of the environment. Thus, the SM combining designation would serve as a holding zone to allow long-range planning for lands that have been identified, thereby discouraging the

premature and unnecessary conversion of SM zoned lands to urban uses. The SM zoned lands would be ultimately reclaimed for agricultural, natural habitat, and other open space uses. Following reclamation, these lands would be designated as 100-year floodplain, which would serve as a constraint to development.

~~6.1.3~~6.4.3 Tax Existing Community Facilities

The proposed project would not significantly affect off-site public services or utilities. The mining companies would finance and construct the facilities associated with the proposed project (Part A) as reclamation measures for the mining operations for which they are requesting permitting. No public streets or roads would be used for the transportation of extracted resources to a processing facility. After processing, aggregate materials would be transported along existing public roads to construction sites or other destinations. The project would require mining companies to repair any structural damages to affected roadways upon which loaded trucks are routed; no new public roads, however, would be constructed. Increased employment would be negligible, and consequently, the demand for existing community service facilities would not be increased.

~~6.1.4~~6.4.4 Effect Upon Future Uses

The project's effect upon future uses of the site and off-site is difficult to determine precisely. Following aggregate resource extraction, the project site would be reclaimed for agriculture, habitat and open space. The project would not extend public infrastructure or urban services into this currently unserved area. No other lands in the project site vicinity would benefit from the project following reclamation. However, reconstruction of the mined areas with portions used as a drainage detention could reduce peak flows downstream, which may create premature pressures for rezoning and urbanization of lands in the watershed.

6.5 SHORT-TERM USES VS. LONG-TERM ENVIRONMENTAL PRODUCTIVITY

Implementation of the proposed project would result in increased short-term production from the site in the form of aggregate resources. Short-term agricultural productivity would be eliminated, but would be reestablished after completion of the project and rehabilitation of the project site.

6.6 IRREVERSIBLE ENVIRONMENTAL CHANGES

Section 15126(f) of the CEQA Guidelines and 40 CFR 1502.16 of the NEPA Regulations require the environmental analysis to identify any significant irreversible environmental changes which would be involved in the proposed action should it be implemented. This section also states that irretrievable commitments of resources should be evaluated to ensure that current consumption is justified.

The project would have as its objective the marketing of a limited natural resource. Therefore, implementation of the proposed project would result in increased short-term production from the project site in the form of aggregate resources. Short-term agricultural productivity would be eliminated, but would be reestablished to agriculture and other open space uses after completion of the project and reclamation of the mined lands within the project site.

Implementation of the proposed project would require the irreversible commitment of natural resources, because the project would permit mining and processing of minerals that would not be replenished within normal planning horizons, and would decrease the availability of aggregate resources in the future. It should be noted that not using this resource and allowing the site to be converted to a use that precluded harvesting of gravels would still result in loss of the resource, although it would not allow use of it.

Implementation of the proposed project would irreversibly alter the landform on the project site. Designation of the mining pits as within the 100-year floodplain would also contribute to the permanent conversion of the mined areas to agriculture, flood control, and/or open space.

The project would result in the irretrievable commitment of energy resources (primarily in the form of fossil fuels, including fuel oil, natural gas, and gasoline for automobiles, trucks, and construction equipment) to fuel mining, processing, and subsequent reclamation activities.

6.7 IDENTIFICATION OF ENVIRONMENTALLY SUPERIOR ALTERNATIVE

Section 15126(d)(4) of the CEQA Guidelines requires that the alternatives analysis identify the environmentally superior alternative. If that alternative is the No Project alternative, then the EIR must also identify an environmentally superior alternative among the other alternatives.

Based on the alternatives analysis in the individual sections in Chapter 5 (Affected Environment and Environmental Consequences), the 100-Year Floodplain Protection Alternative is the environmentally superior alternative. Under this alternative, the natural character of the 100-year floodplain for Morrison Creek would be maintained by avoiding aggregate extraction within the floodplain. Unlike the other mining alternatives, this alternative would not require reconstruction of the floodplain, would not alter flows downstream, and would not result in hydrologic and landform changes to the existing floodplain. Thus, impacts to biological resources, open space, and aesthetic values inherently associated with the streambed, floodplain and uplands under natural conditions would be avoided.

6.8 MITIGATION MONITORING AND REPORTING PROGRAM

The proponents shall comply with the Mitigation Monitoring and Reporting Program (MMRP) for this project as follows:

1. The proponents shall comply with the MMRP for this project, including the payment of 100 percent of the Department of Review and Assessment staff costs, and the costs of any technical consultant services incurred during implementation of the MMRP. The initial estimate of these costs is $ _____ . If the initial estimate exceeds the actual monitoring costs, the balance shall be refunded to the proponents, and if the actual monitoring costs exceed the initial estimate, the proponents shall be responsible to pay the additional amount.

2. Until the MMRP has been recorded and the estimated MMRP fee has been paid, no final parcel map or final subdivision map for the subject property(ies) shall be approved; and no encroachment, grading, building, sewer connection, water connection or occupancy permits from Sacramento County shall be approved.

7.0 List of Preparers

This EIR/EIS was prepared under contract with the County of Sacramento for the Board of Supervisors, Project Planning Commission, and the citizens of the County. The document was prepared under the direction of Dennis Yeast, Environmental Coordinator, and Catherine Hack, Project Leader, Department of Environmental Review and Assessment, and Larry Vinzant, Project Manager, U.S. Army Corps of Engineers, Sacramento District.

Technical services were performed by the following individuals:

LEAD CONSULTANT

EDAW

John Petrovsky, Principal-In-Charge
John Pelka, Project Manager
Gretchen Grani, Environmental Planner
Allison Stone, Environmental Planner
Don Lee, Graphics Support and Desktop Publishing
Brian Vahey, Word Processing

SUBCONSULTANTS

Biological Resources/Cultural and Paleontological Resources

Gregory Andrew, Garcia and Associates
Jim Gibson, Gibson & Skordal Wetland Consultants

Surface Water Hydrology and Quality/Groundwater Hydrology and Quality

Mitchell Swanson, Mitchell Swanson & Associates

Traffic and Circulation

Mark Bowman, Dowling Associates

Air Quality

Donald Ballanti, Certified Consulting Meteorologist

8.0 Environmental Review and Consultation Requirements

8.1 RELATIONSHIP TO ENVIRONMENTAL REQUIREMENTS

The following is a list of the primary federal, state and local environmental requirements beyond CEQA and NEPA, which are applicable to the proposed project. These requirements were considered during the preparation of this EIR/EIS, and the majority of these requirements/permits are being considered concurrently with this document. The federal and state lead agencies for this environmental review process (i.e., the Corps and the County, respectively) will determine whether the proponents have successfully complied with these requirements.

8.1.1 Federal Requirements

Legislation

Clean Water Act (33 U.S.C. 1344) - Section 404 of the Clean Water Act authorizes the Secretary of the Army, acting through the Chief of Engineers to issue permits, after notice and opportunity for public hearing, for the discharge of dredged or fill material, including any material in excess of incidental fallback during ~~redeposited during~~ excavation activities, into the waters of the United States. A Section 404 permit will be required of the proponents' proposal to fill 24.56 acres of jurisdictional waters. Waters of the United States include wetlands~~a~~, which are considered "special aquatic sites." Any issued permit must comply with the Section 404(b)(1) Guidelines promulgated by the U.S. Environmental Protection Agency. As a special aquatic site, there is a rebuttable presumption in the Guidelines that there are less damaging practicable alternatives to filling wetlands.

Section 401 of the Act requires any applicant for a federal license or permit to conduct any activity that may result in discharge of a pollutant (e.g., fill) into waters of the United States to obtain a certification from the State that the discharge will comply with the applicable effluent limitations and water quality standards. This certification or waiver is obtained from the State Regional Water Quality Control Board.

Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.) - This Act requires any federal agency that proposes to control or modify any body of water must first consult with the U.S. Fish and Wildlife Service and/or the National Marine Fisheries Service, as appropriate, and with the head of the appropriate state agency exercising administration over the wildlife resources (i.e., California Department of Fish and Game) of the affected state. The federal agency, in this case the Corps, must give full consideration to the recommendations of the consulted agencies.

National Historic Preservation Act of 1966, as amended (16 U.S.C. 470 et seq.) - The Act authorizes the Advisory Council on Historic Preservation, in coordination with the State Historic Preservation Officer, to review and comment upon activities licensed or permitted by the Federal Government which will have an effect upon properties listed on the National Register of Historic Places, or eligible for such listing. The Act provides for the recovery and preservation of any significant historical or archeological data prior to the commencement of the permitted activity.

Endangered Species Act (16 U.S.C. 1531 et seq.) - The Act requires that federal agencies consult, pursuant to Section 7 of the Act, with the U.S. Fish and Wildlife Service and/or National Marine Fisheries Service, as appropriate, and to use their authorities to take action necessary to ensure that any activity authorized, funded, or carried out by the federal agency is not likely to jeopardize the continued existence of endangered or threatened species or result in the destruction or adverse modification critical habitat of such species.

Executive Orders

Executive Order 11990 (May 14, 1977) - The Order directs federal agencies to avoid, to the extent possible, the long and short term adverse impacts associated with the destruction or modification of wetlands where there is a practicable alternative.

Executive Order 11988 (May 24, 1977) - The Order directs federal agencies to take action to reduce the risk of flood loss, to minimize the impacts of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains. Occupancy and modification of floodplains is to be avoided if there are practicable alternatives to floodplain development in order to avoid, to the extent possible, the long and short term adverse impacts associated with development.

Executive Order 11593 (May 15, 1971) directs federal agencies to take a leadership role in preserving, restoring, and maintaining the historic and cultural environment of the nation. Federal agencies must locate and nominate all historic resources to the National Register which are under their control and exercise caution to ensure that potentially qualified federal property is not inadvertently altered until an inventory is completed.

Executive Order 12088 (February 11, 1995) directs federal agencies to ensure environmental justice by focusing attention on the environmental and human health conditions in minority and low income communities, and ensuring that these communities do not disproportionately bear the burden of environmental hazards.

8.1.2 State Requirements

Streambed or Lake Alteration Agreement - Section 1600 *et seq.* of the California Fish and Game Code requires that any private or public entity seeking to alter a streambed must first reach an agreement with CDFG as to the nature of the alteration and any needed mitigation. Streambeds are broadly defined by the CDFG and almost always include any wetlands associated with waterways.

Clean Water Act - The Regional Water Quality Control Board administers Section 401 of the Clean Water Act (see discussion above under Federal Requirements).

California Endangered Species Act (CESA) - The CESA prohibits the taking or harassment of state-listed endangered or threatened species. The CDFG is the lead agency within the state for implementation of the CESA and makes written findings on a proposed project's impacts to listed species. The CDFG may request mitigation for such projects if, in its opinion, the project could reduce populations of the endangered or threatened species, or reduce habitat value or availability. The process for state-listed species is intended to mirror the federal process

discussed above; however, the CDFG has only recently developed permitting policies, which are still being refined.

California Surface and Mining Reclamation Act (SMARA) - Any reclamation activities approved by the County for this project must comply with the requirements of SMARA.

8.1.3 Local Requirements

Land Use Entitlements - The proposed project would result in a change in land use, and therefore would require approval by the County of Sacramento.

8.2 PUBLIC REVIEW AND SCOPING

The state and federal lead agencies for the proposed project (i.e., the County and Corps) have initiated the public review and scoping processes pursuant to the requirements of CEQA and NEPA, respectively. These requirements include the following:

- Per the requirements of CEQA, a Notice of Preparation (NOP) for the EIR/EIS was prepared and distributed to all Responsible and Trustee Agencies, and the State Clearinghouse on October 19, 1995 by the County. The NOP included a copy of the County of Sacramento Department of Environmental Review and Assessment's Initial Study for the proposed project, and was circulated for a 30-day review and comment period.

- Per the requirements of NEPA and Corps regulations, a Notice of Intent (NOI) for the EIR/EIS was published in the Federal Register on November 14, 1995. In addition, a public notice dated October 26, 1995 was distributed to all known, interested parties by the Corps. The notices included a summary of the proposed project, alternatives, significant environmental issues and other environmental review and consultation requirements. Input was requested on the topical scope, alternatives, and major issues to be covered in the Draft EIR/EIS.

8.3 AGENCIES AND ORGANIZATIONS CONSULTED

The following individuals and organizations furnished information used in this EIR/EIS. The individuals listed below are in addition to those already listed in Section 7.0 (List of Preparers) of this EIR/EIS.

8.3.1 County of Sacramento

Darrell K. Eck, John Goetz, James Paluck, Public Works Agency, Water Resources Division, Water Supply Master Planning Section

Thomas P. Engel, Director, Larry Kozub, Department of Airports

Hardeep Sidhu, Public Works Agency, Transportation Division

John Jaeger, Bob Lilly, Public Works Agency, Water Quality Division

Sue Jeffery, Nancy Ormandy, Environmental Management Department

Larry E. Kozub, Manager, Mather Airport

8.3.2 Project Proponents

B. Demar Hooper, Taylor & Hooper, Attorneys

Steve McCracken, Plant Engineer, Scott D. Wolcott, Corporate Real Estate Manager, Granite Construction Company

Rob Wainwright, Property Manager, Teichert Aggregates

8.3.3 Other Individuals or Organizations

Cathy Allen, Facilities Planner, Facilities and Planning Department, Folsom Cordova Unified School District

David Boyer, Associate Planner, Airport Land Use Commission for Sacramento, Sutter, Yolo and Yuba Counties

John Brode, Herpetologist, Terry Roscoe, David Zezulak, Acting Environmental Services Supervisor, California Department of Fish and Game, Region 2, Rancho Cordova, California

George M. Clark, Conservation Committee, Sacramento Valley Chapter, California Native Plant Society

Leanne Comrack, Bird and Mammal Conservation Program, Wildlife Management Division, California Department of Fish and Game, Sacramento, California

Louie Ellzondo, Research Technician, Regional Data Center, Sacramento Area Council of Governments, Sacramento, California

Dr. Victor Furtado, Environmental Services Department, Pacific Gas and Electric Company

Cay Goude, U.S. Fish and Wildlife Service, Sacramento, California

Claudia Gunter, Government Relations Officer, Southgate Recreation and Park District

William T. Hughs, Registered Geologist, Operational Technologies Corporation, c/o Air Force Base Conversion Agency, Mather Air Field, Sacramento

W. B. Lindsey, Hydrology/Hydraulics Engineer, California Department of Transportation, Division of Structures, Office of Structure Maintenance & Investigations

Tom Meyers, Jeffrey Pulverman, Chief, Office of Transportation Planning Metropolitan, California Department of Transportation

Don Mitchell, Fire Marshal, Florin Fire Protection Division

Jeff Philliber, David J. Farrel, Chief, Office of Federal Activities, United States Environmental Protection Agency, Region IX

James Pompy, Manager, Reclamation Unit, California Department of Conservation, Office of Mine Reclamation

John W. Pulver, Water Resources Coordinator, San Joaquin County Flood Control & Water Conservation District

Larry Serpa, Invertebrate Specialist, The Nature Conservancy, Tiburon, California

Kevin and Divi Smith, homeowners

Stan and Hazel Smith, homeowners

Phil Stafford, Associate Air Quality Planner, Sacramento Metropolitan Air Quality Management District

Nick Villa, Inland Fisheries Supervisor, California Department of Fish and Game, Region 2, Rancho Cordova, California

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William T. Hughes, Registered Geologist Operational Technologies Corporation, c/o Air Force Base Conversion Agency, Mather, CA.

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Consistency with Mather Field CLUP

Boyer, David. 1995. Associate Planner, Airport Land Use Commission for Sacramento, Sutter, Yolo and Yuba Counties. November 20, 1995 - *Request for Staff Comment.* ALUC Review No.: 96-10. Requested by Sacramento County Department of Environmental Review and Assessment.

Sacramento County. 1994. *Mather Field County-Operated Aviation Facility Environmental Impact Report (Control No. 93-DAE-0041; State Clearinghouse No. 93032006).* Prepared by EIP Associates for the Sacramento County Department of Environmental and Assessment.

_____. 1994. *Draft Environmental Impact Report. Mather Field General Plan Amendment (control No. 93-GPB-0666). State Clearinghouse No. 93102054.* Prepared by EIP Associates.

Section 6.0 Disposition of Impacts

Sacramento County. 1994. *Mather Field County-Operated Aviation Facility Environmental Impact Report (Control No. 93-DAE-0041; State Clearinghouse No. 93032006).* Prepared by EIP Associates for the Sacramento County Department of Environmental and Assessment.

_____. 1994. Draft Environmental Impact Report. *Mather Field General Plan Amendment (control No. 93-GPB-0666). State Clearinghouse No. 93102054.* Prepared by EIP Associates.

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The following is an alphabetical listing of the primary topics discussed in the EIR/EIS, including the in-text page numbers where these topics are discussed.

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Response to Comments

Response to Comments

The following is an index of the comments received on the Draft EIR/EIS. Following the index are copies of each letter/comment and responses to each.

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	Agency/Group/Address	Commentor	Date	Comment Page #
GOVERNMENT AGENICES				
Caltrans1	California Department of Transportation	Jeffrey Pulverman, Chief (Office of Trans. Planning - Metro)	4/15/97	RC-5
Caltrans2	California Department of Transportation	C.M. Crossett Avila, Hydrology/Hydraulics Engineer	4/28/97	RC-8
OPR	Office of Planning & Research	Antero Rivasplata, Chief State Clearinghouse	4/21/97	RC-10
OMR	Department of Conservation, Office of Mine Reclamation, Reclamation Unit	John Marshall, Assistant Director James Pompy, Manager Reclamation Unit (2 prior letters)	4/17/97 (6/2/95)	RC-12
OEPC	USDI, Office of Environmental Policy and Compliance	Patricia Sanderson Port, Regional Environmental Officer	5/9/97	RC-44
EPA	US Environmental Protection Agency	Deanna M. Wieman, Deputy Director	5/5/97	RC-51
SAC	City of Sac., Dept. of Utilities	Dave Brent, Supervising Engineer	4/21/97	RC-69
TD	County of Sac., Transportation Division	Hardeep Sidhu	4/29/97	RC-71
WRD	County of Sac., Water Resources Division	James Paluck	4/11/97	RC-75
WQD	County of Sac., Water Quality Division	Bob Lilly	4/24/97	RC-77
SRPD	Southgate Recreation & Park District	Claudia Gunter, Government Relations Officer	LATE 5/23/97	RC-80
ORGANIZATIONS / GROUPS				
SAS	Sacramento Audubon Society	Roy Greenaway, Vice President	4/29/97	RC-85
UCC	Urban Creeks Council	Jane Steele, President	4/29/97	RC-89
ECS	Environmental Council of Sacramento	Linda Whitney, Co-President	4/29/97v	RC-93
CNPS	California Native Plant Society	Linda Bell	4/29/97	RC-97
TA	Teichert Aggregates	Rob Wainwright, Property Manager	4/29/97	RC-108
T&H	Taylor & Hooper	R. Bruce Steubing	5/5/97	RC-112
PG&E	Pacific Gas & Electric	Lou A. Norton, Land Agent	3/10/97	RC-119

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GDT	Law Offices of Gregory D. Hatch	Gregory Hatch	4/29/97	RC-121
MCMPOC	Morrison Creek Mining Project Opposition Committee	Entire Committee	3/20/98	RC-135
SBH	Chua Dieu Quang Vietnamese Buddhist Community Temple	Susan Brandt-Hawley, Attorney	6/10/98	RC-142
AP	Chua Dieu Quang Vietnamese Buddhist Community Temple	Anthony Palik, Attorney at Law	3/9/98	RC-145
AP2	Chua Dieu Quang Vietnamese Buddhist Community Temple	Anthony Palik, Attorney at Law	6/3/98	RC-156
SBH2	Chua Dieu Quang Vietnamese Buddhist Community Temple	Rose Zola, Attorney	8/12/97	RC-159
INDIVIDUALS				
DB	3000 Cresthapen Drive	David Breinke	4/28/97	RC-163
SHS	9400 Fruitridge Road	Stan and Hazel Smith	4/20/97	RC-166
DKS3	9400 Fruitridge Road	Divi and Kevin Smith	8/-/98	
DKS2	9400 Fruitridge Road	Divi and Kevin Smith	3/3/98	
DKS	9400 Fruitridge Road	Divi and Kevin Smith	4/29/97	
TSM	9307 Elder Creek Road	Tony & Shay Melvold	4/23/97	RC-199
GW	7700 Eagles Nest Road	George Waegell	4/28/97	RC-201
GW2	7700 Eagles Nest Road	George Waegell	6/9/98	RC-204
GW3	7700 Eagles Nest Road	George Waegell	9/3/98	RC-207
T&RN	9298 Elder Creek Road	Ted and Robin Niles	4/28/97	RC-210
G&SS	9427 Elder Creek Road	Gary and Susana Scott	4/28/97	RC-213
LJ	6530 Mayhew Road	Loretta Johnson	10/26/97	RC-216
POLICY PLANNING COMMISSION HEARINGS				
SH	Vineyard Area Community Planning Advisory Council Chair	Stuart Helfand	10/30/97	RC-221
DS		Divi Smith	10/30/97	RC-222
HS		Hazel Smith	10/30/97	RC-223
RS		Ray Smith	10/30/97	RC-223
KS		Kevin Smith	10/30/97	RC-223
KF		Kevin Faeth	10/30/97	RC-223
CR		Carol Ring	10/30/97	RC-224
SF		Scott French	10/30/97	RC-224
DF		Darrel Finch	10/30/97	RC-224
KR	American Buddhist Members of the Chua Dieu Quang Vietnamese Buddhist Community Temple	Kristina Russell	10/30/97	RC-225
STQ	Chua Dieu Quang Vietnamese Buddhist Community Temple	Sister Tinh Quang	10/30/97	RC-225
GW		George Waegell	10/30/97	RC-225

Table RS-1
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	Agency/Group/Address	Commentor	Date	Comment Page #
TN		Ted Niles	10/30/97	RC-226
GS		Gary Scott	10/30/97	RC-226
DH		David Hueseman	10/30/97	RC-227
CS		Carolyn Stark	10/30/97	RC-228
RM		Roger Moyher	10/30/97	RC-228
RM1		Roger Moyher	6/10/98	RC-229
GS1		Gary Scott	6/10/98	RC-229
AT	Urban Creeks Council President	Alta Tura	8/12/98	RC-230
DH1		Dorthy Hrepich	8/12/98	RC-230
RS1		Ray Smith	8/12/98	RC-231
DS1		Divi Smith	8/12/98	RC-231
TN1		Ted Niles	8/12/98	RC-232
SS		Susana Scott	8/12/98	RC-232
GS2		Gary Scott	8/12/98	RC-232
GW1		George Waegell	8/12/98	RC-233
CR1		Carol Ring	8/12/98	RC-233
AP	Attorney-at-Law representing the Chua Diew Quang Vietmamese Buddhist Community Temple	Anthony Palik	8/12/98	RC-234
HN		Hoang Nguyen	8/12/98	RC-236
MT		Minh Thompkins	8/12/98	RC-236
CT		Cuong Truong	8/12/98	RC-236
CN		Cao Nguyen	8/12/98	RC-236
ML		Margaret Lam	8/12/98	RC-237
KR1	American Buddhist Members of the Chua Dieu Quang Vietnamese Buddhist Community Temple	Kristina Russel	8/12/98	RC-237
STQ1	Chua Dieu Quang Vietnamese Buddhist Community Temple	Sister Tinh Quang	8/12/98	RC-238
SH1		Stuart Helfand	8/12/98	RC-238

Government Agencies

CALTRANS 1

STATE OF CALIFORNIA-BUSINESS, TRANSPORTATION AND HOUSING AGENCY

PETE WILSON, Governor

DEPARTMENT OF TRANSPORTATION
DISTRICT 3, SACRAMENTO AREA OFFICE • MS 41
P. O. BOX 942874
SACRAMENTO, CA 94274-0001
TDD 916 741-4509
FAX no. 916 323-7669
Telephone 916 323-9543

April 15, 1997

ISAC033
Morrison Creek Reach Mining Plan
DEIR SCH 96102057
03-SAC-16 PM-6.2

Mr. Dennis Yeast
Sacramento County Planning
827 Seventh Street, Room 220
Sacramento, CA 95814

Dear Mr. Yeast:

We have reviewed the Draft Environmental Impact Report for the Morrison Creek Reach Mining Plan and have the following comments:

- Page 5-67. 3rd Paragraph. The base no-project traffic level should be without the new quarries. This traffic level will be without the currently existing quarry traffic since they will have ceased operations. Using offsets for determining project traffic impacts is inappropriate. New operations should be responsible for the impacts of their traffic on the surrounding circulation system. Impacts will also change location and the original permitted use that is discontinuing never addressed today's traffic. (i.e., there is no vesting of traffic impacts rights with a land use or a location.) CALTRANS 1-1

- Page 5-70. Cumulative conditions for traffic studies should use the year 2015 or 2020. The traffic study for this project uses 2010, which is only appropriate if this is the final operating year for all of the permitted uses (the year all sites have been exhausted and mining ceases). Please either update the traffic study appropriately or mining operation should cease in 2010. CALTRANS 1-2

- Page 5-70, 71. Cumulative Conditions. The widening of the 3 roads listed (Jackson Road, South Watt Avenue and Bradshaw Road) to six lanes is not indicated in the Sacramento Council of Governments (SACOG) Metropolitan Transportation Plan (MTP) for the year 2015. Sacramento County also does not have any plans to improve these roads to 6 lanes during the life of the mining projects. Thus, the cumulative traffic analysis should use only those improvements that are funded, programmed, and expected to be constructed prior to the year 2010 (which the study used as its horizon year). CALTRANS 1-3

- The gravel transport system shown going under Jackson Highway (SR-16) will require an encroachment permit from Caltrans. Upon its permanent closing, it must be CALTRANS 1-4

Mr. Dennis Yeast
April 15, 1997
Page 2

removed and the tunnel must be filled. For questions about the encroachment permit process, please contact Rich Jones at (916) 741-5374. CALTRANS 1-4

APPENDIX C

- Loss time shown for all signalized intersections is zero. Even with overlapping phasing (which is not done for safety reasons) there is an inherent loss time at all intersections. Please explain the reasoning for using zero loss time or make changes to the calculations as necessary. CALTRANS 1-5
- Intersection #4. For cumulative conditions. Use only the number of lanes that have been funded for construction prior to the year 2010. For eastbound and westbound traffic at this intersection, the right turn lane is not shared and will not be shared with through traffic. Please change the calculations using a right turn only at this location. CALTRANS 1-6
- Intersection #6. For cumulative conditions plus project. Why is there no northbound traffic shown on Mayhew Road? How would trucks get to Jackson Road from Aspen III and Aspen IV South? CALTRANS 1-7

Please provide our office with a copy of updated traffic calculations and any changes in impacts and mitigation related to those changes, prior to the final public hearings.

If you have any questions, please contact Tom Meyers at (916) 323-0543.

Sincerely,

JEFFREY PULVERMAN, Chief
Office of Transportation
Planning - Metropolitan

Caltrans 1, Letter from Jeffrey Pulverman dated 4/15/97

Caltrans 1-1: The base no-project traffic level does not assume the new quarries would be in place. The base no-project traffic is level is that of existing conditions. Other existing quarry operations in the area currently contribute to existing traffic levels.

Caltrans 1-2: It was determined that the most appropriate cumulative traffic base for the project was that contained in the Mather Field DEIR, which used the SACMET 2010 travel model. (SACOG did not have 2015 traffic forecasts available at the time of the study). The cumulative traffic base included full buildout of the County-operated Mather Aviation Facility. Although the Mather Field DEIR used the 2010 model as a base, the inclusion of buildout of the Mather Aviation Facility represents travel well beyond 2010.

Caltrans 1-3: The traffic volumes used in the analysis of cumulative conditions assume the roadways would be constructed in accordance with the General Plan. If the General Plan roadway improvements were not constructed, the traffic volumes would not increase to the level assumed for the analysis. It should be noted that the County of Sacramento Transportation Division's 1998 Transportation Improvement Program (TIP) has set aside development money for the widening of South Watt Avenue from Kiefer Boulevard to Florin Road and Jackson Road from South Watt Avenue to Bradshaw Road.

Caltrans 1-4: The need to obtain an encroachment permit for the conveyor system access under Jackson Highway is noted.

Caltrans 1-5: The Transportation Research Board Circular 212 planning method was used to analyze traffic impacts. Although loss time is shown on the calculation worksheets, it is not used in the Circular 212 planning method. Changing the loss time on the worksheet would not affect the results of the analysis.

Caltrans 1-6: Please refer to the response to comment Caltrans 1-3 above.

Caltrans 1-7: There are two sets of analysis for cumulative conditions: a "Base Volume Alternative" and a "Future Volume Alternative." The base volume calculations (for cumulative no-project conditions) show a total of 6 vehicles heading northbound on Mayhew Road during the AM peak hour. The future volume calculations (for cumulative plus project conditions) show a total of 47 passenger car equivalents for the same period.

CALTRANS 2

STATE OF CALIFORNIA BUSINESS, TRANSPORTATION AND HOUSING AGENCY PETE WILSON, Gove

DEPARTMENT OF TRANSPORTATION
DIVISION OF STRUCTURES
P.O. BOX 942874
SACRAMENTO, CA 94274-0001
TDD (916) 654-4014
FAX (916) 227-8031

April 28, 1997

File: 100.419
Morrison Creek Bridge #24-0075
SCH #95102057
PN 199400102

County of Sacramento
Department of Environmental Review and Assessment
827 Seventh Street, Room 220
Sacramento, CA 95814
Attn: Catherine Hack

Dear Ms. Hack:

Teichert Aggregates and Granite Construction Company propose to mine approximately 36.7 million tons of sand and gravel adjacent to Morrison Creek in Sacramento County. Route 16 crosses Morrison Creek immediately downstream from the proposed project (Br # 24-0075). The EIR did not address the potential impact of the proposed project on the Route 16 bridge structure as outlined in our comment on the Notice of Preparation dated November 2, 1995 including: CALTRANS 2-1

- Providing complete hydrologic and hydraulic analyses of the impacts of the project including changes in stage, discharge, and velocity through the Route 16 bridge structures.
- The realigned Morrison Creek will be a "perched" or "freestanding" channel. The following questions should be answered to Caltrans' satisfaction prior to certifying the EIR: CALTRANS 2-2
  - How will the proposed 35-45 foot deep excavations be physically separated from the Morrison Creek channel?
  - How will the proponent avoid, monitor and/or mitigate pit capture caused by potential lateral channel migration and resulting structure damage? CALTRANS 2-3
  - How will the proposed project change the sediment transport and/or geomorphological characteristics of the stream? CALTRANS 2-4

If you have any questions or require further information, please contact me at (916) 227-8035.

Sincerely,

C.M. CROSSETT AVILA
Hydrology/Hydraulics Engineer

cc: Erol Kaslan, OSM&I
Tom Meyers, District 3 IGR/CEQA
Mitchell Baker, Caltrans Planning

Caltrans 2, Letter from C.M. Crossett Avila dated 4/28/97

Caltrans 2-1: As stated on Page 5-7 under bullet #1 in the EIR/EIS, the approved mitigation plan requires that prior to commencement of mining, the project proponent shall gain approval from Caltrans and Sacramento County Water Resources Department (WRD) for the design and implementation of the proposed protective hydraulic structures (to protect Highway 16 bridge) and proposed mining plan. Such plans would include the requested analyses.

Caltrans 2-2: The approved mitigation plan requires the installation of berms, weirs, and other necessary hydraulic structures to safely contain the 100-year peak flow. This system will be designed to safely pass the 100-year peak flow without erosion or disruption of channels or the Jackson Highway Bridge. For additional information, refer to requirements/recommendations of public agencies and mitigation measures described in Sections 5.1.3 and 5.5.3 of the EIR/EIS.

Caltrans 2-3: The project proponents will be required to minimize the potential for pit capture through the construction and operation of hydraulic structures (i.e., berms, weirs, and inlet works) designed to direct flows up to the 100-year peak flows from the Jackson Highway crossing to the bypass channel system on Aspen IV South and away from the gravel pits. In the event that the flows exceed the 100-year design capacity and the channel or hydraulic structures fail, the project proponents will be required to restore the project conditions and repair any damages caused by erosion or pit capture. For additional information, refer to Section 5.1.3 in the EIR/EIS.

Caltrans 2-4: The proposed plan will alter geomorphological characteristics of Morrison Creek through replacing a degraded natural with an engineered channel. Morrison Creek does not display a high volume of sediment transport. It is not anticipated that the sediment supply to the project reach would change nor would transport through the project change. Engineered channel forms, most commonly trapezoidal channels, will dominate channel morphology.

OPR

State of California

GOVERNOR'S OFFICE OF PLANNING AND RESEARCH
1400 TENTH STREET
SACRAMENTO 95814

PETE WILSON
GOVERNOR

LEE GRISSOM
DIRECTOR

April 21, 1997

DENNIS E. YEAST
COUNTY OF SACRAMENTO
827 SEVENTH STREET
SACRAMENTO, CA 95814

Subject: MORRISON CREEK MINING REACH SOUTH OF JACKSON HIGHWAY SCH #: 95102057

Dear DENNIS E. YEAST:

The State Clearinghouse has submitted the above named draft Environmental Impact Report (EIR) to selected state agencies for review. The review period is now closed and the comments from the responding agency(ies) is(are) enclosed. On the enclosed Notice of Completion form you will note that the Clearinghouse has checked the agencies that have commented. Please review the Notice of Completion to ensure that your comment package is complete. If the comment package is not in order, please notify the State Clearinghouse immediately. Remember to refer to the project's eight-digit State Clearinghouse number so that we may respond promptly.

Please note that Section 21104 of the California Public Resources Code required that:

> "a responsible agency or other public agency shall only make substantive comments regarding those activities involved in a project which are within an area of expertise of the agency or which are required to be carried out or approved by the agency."

Commenting agencies are also required by this section to support their comments with specific documentation.

These comments are forwarded for your use in preparing your final EIR. Should you need more information or clarification, we recommend that you contact the commenting agency(ies).

This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. Please contact Kristen Derscheid at (916) 445-0613 if you have any questions regarding the environmental review process.

OPR-1

Sincerely,

Antero A. Rivasplata

ANTERO A. RIVASPLATA
Chief, State Clearinghouse

Enclosures
cc: Resources Agency

OPR, Letter from Antero Rivasplata (Governor's Office of Planning & Research) dated 4/21/97

OPR-1: Comment noted.

State of California **THE RESOURCES AGENCY**

MEMORANDUM

To: Project Coordinator
Resources Agency

Mr. Dennis Yeast
Department of Environmental
Review and Assessment
Sacramento County
827 7th Street, Room 220
Sacramento, CA 95814

From: **Department of Conservation**
Office of Governmental and Environmental Relations

Subject: Draft Environmental Impact Report (DEIR) for the Morrison Creek Mining Reach (South) of Jackson Highway - **SCH #95[redacted]2057**

The Department of Conservation's (Department) Office of Mine Reclamation (OMR) has reviewed the DEIR for Morrison Creek Mining Reach Upstream (South) of Jackson Highway. The proposed project entails a comprehensive mining plan for several mineral properties and provides a comprehensive drainage plan. OMR originally reviewed reclamation plans for two of the sites and provided comment in letters dated June 2, 1995 (Aspen IV South CA Mine Id #91-34-0008 and Aspen V South CA Mine Id #91-43-0009). Copies of these letters are attached for your reference. These comments remain applicable to the reclamation plans that OMR previously reviewed. Other than that information which is included in this DEIR, OMR finds no record of a Vineyard I reclamation plan submittal. The following comments prepared by James Pompy and Michael Sandecki are offered to assist in your review of this project. OMR-1

The "reclamation plans" included in the DEIR (Figure 3-5abc) are limited to only diagrams of the sites. Many of the elements required in a reclamation plan in accordance with the Surface Mining and Reclamation Act of 1975 (SMARA) (Public Resources Code Section 2710 et seq.) and the State Mining and Geology Board regulations for surface mining and reclamation practice (California Code of Regulations (CCR) Title 14, Chapter 8, Article 1, Section 3500 et seq., Article 9 Section 3700 et seq.) (attached) are either included as separate discussions and mitigation proposals throughout the DEIR, included in the DEIR as preliminary designs, or are provided in the DEIR but may not be feasible. The Department recommends that these elements be included in a stand alone reclamation plan for each project and that the mitigation proposals be revised where necessary.

Information that has been prepared as part of a permit application or pursuant to CEQA may be included in the project's reclamation plan by reference, if that item of OMR-2

information is attached to the reclamation plan when it is forwarded to the Department for review. To the extent that the referenced information is used to meet SMARA requirements, the information will become part of the reclamation plan and subject to all other requirements of SMARA, including calculation of financial assurances. OMR-2

The Department appreciates the opportunity to comment of the DEIR. If you have any questions on these comments or require any assistance with other mine reclamation issues, please contact James Pompy, Manager, Reclamation Unit, at (916) 323-8565.

Jason Marshall
Assistant Director

Attachments

cc: James Pompy, Office of Mine Reclamation

CALIFORNIA DEPARTMENT OF CONSERVATION
DIVISION OF MINES AND GEOLOGY

NOTE 26

SURFACE MINING AND RECLAMATION ACT

(Revised 1/97)

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THE RESOURCES AGENCY
DOUGLAS P. WHEELER
SECRETARY FOR RESOURCES

STATE OF CALIFORNIA
PETE WILSON
GOVERNOR

DEPARTMENT OF CONSERVATION
B. B. BLEVINS
ACTING DIRECTOR

RC 7/1
Response to Comments

Notice of Completion

Control Number: 94-UPB-0484, 91-CZB-UPB-0118, 90-CZB-UPB-1607, 94-CZB-UPB-0671 SEE NOTE BELOW SCH # 95102057

Mail to: State Clearinghouse, 1400 Tenth Street, Sacramento, CA 95814 916/445-0613

Project Title: MORRISON CREEK MINING REACH DOWNSTREAM (SOUTH) OF JACKSON HIGHWAY

Lead Agency: Sacramento County — Contact Person: Dennis E. Yeast

Street Address: 827 7th Street, Room 220 — Phone: 916 440-7914

City: SAcramento — Zip: 95814 — County: Sacramento

Project Location

County: Sacramento — City/Nearest Community: Vineyard

Cross Streets: Bradshaw Rd./Jackson Road — Total Acres: 966±

Assessor's Parcel No.: Various — Section: 21,28,29,30 — Twp: 8N — Range: 6E — Base: MDBM

Within 2 Miles: State Highway #: 16 — Waterways: Morrison Creek

Airports: Mather Field — Railways: — — Schools: Sierra Enterprise

FILED MAR 4 1997 STATE CLEARINGHOUSE

Document Type

CEQA: [ ] NOP [ ] Early Cons [ ] Neg Dec [X] Draft EIR [ ] Supplement/Subsequent [ ] EIR (Prior SCH No.) [ ] Other: NEPA: [ ] NOI [ ] EA [X] Draft EIS [ ] FONSI OTHER: [X] Joint Document [ ] Final Document [ ] Other:

Local Action Type

[ ] General Plan Update [ ] General Plan Amendment [ ] General Plan Element [X] Community Plan [ ] Specific Plan [ ] Master Plan [ ] Planned Unit Development [ ] Site Plan [X] Rezone [ ] Prezone [X] Use Permit [ ] Land Division (Subdivision, Parcel map, Tract Map, etc.) [ ] Annexation [ ] Redevelopment [ ] Coastal Permit [ ] Other:

Development Type

[ ] Residential: Units ____ Acres ____
[ ] Office: Sq. Ft. ____ Acres ____ Employees ____
[ ] Commercial Sq. Ft. ____ Acres ____ Employees ____
[ ] Industrial: Sq. Ft. ____ Acres ____ Employees ____
[ ] Educational
[ ] Recreational
[ ] Water Facilities: Type ____ MGD ____
[ ] Transportation: Type
[X] Mining Mineral SAND & gravel
[ ] Power Type
[ ] Waste Treatment: Type
[ ] Hazardous Waste: Type
[ ] Other:

Project Issues Discussed in Document

[X] Aesthetic/Visual
[X] Agricultural Land
[X] Air Quality
[X] Archeological/Historical
[X] Coastal Zone
[X] Drainage/Absorption
[X] Economic/Jobs
[ ] Fiscal
[X] Floodplain/Flooding
[ ] Forest Land/Fire Hazard
[X] Geologic/Seismic
[X] Minerals
[X] Noise
[X] Population/Housing Balance
[X] Public Services/Facilities
[X] Recreation/Parks
[ ] Schools/Universities
[ ] Septic Systems
[X] Sewer Capacity
[X] Soil Erosion/Compaction/Grading
[X] Solid Waste
[X] Toxic/Hazardous
[X] Traffic/Circulation
[X] Vegetation
[X] Water Quality
[X] Water Supply/Groundwater
[X] Wetland/Riparian
[X] Wildlife
[X] Growth Inducing
[X] Land Use
[X] Cumulative Effects
[X] Other:

Present Land Use/Zoning/General Plan Use: Industrial Reserve (IR) and Industrial (M-1) and M-2) zoning; Extensive Industrial & Agricultural-Urban Reserve General Plan designations; current use is for grazing land.

Project Description: See attached.

State Clearinghouse Contact: Ms. Angel Howell (916) 445-0613

State Review Begins: 3.4.97

Dept. Review to Agency: 4.11

Agency Rev to SCH: 4.16

SCH COMPLIANCE: 4.18

Please note SCH Number on all Comments: 95102057

Please forward late comments directly to the Lead Agency

AQMD/APCD ____ (Received: 3.6)

95102057

Project Sent to the following State Agencies

[X] Resources
[ ] Boating
[ ] Coastal Comm
[ ] Coastal Comm
[ ] Colorado Riv Bd
[X] Conservation
[X] Fish & Game # 2
[ ] Delta Protection Commission
[ ] Forestry
[ ] Parks & Rec/OHP
[ ] Reclamation
[ ] SCDC
[X] DWR
[ ] OES
[ ] Bus Transp Hous
[X] Aeronautics
[X] CHP
[X] Caltrans # 3
[ ] Trans Planning
[ ] Housing & Devel
[ ] Health & Welfare
[ ] Dept. of Health
[ ] Medical Waste
[ ] State/Consumer Svcs
[ ] General Services
[ ] Cal/EPA
[ ] ARB
[ ] CA Waste Mgmt Bd
[ ] SWRCB: Grants
[ ] SWRCB: Delta
[X] SWRCB: Wtr Quality
[ ] SWRCB: Wtr Rights
[X] Reg. WQCB # 5
[ ] DTSC/CTC Sac
[ ] Yth/Adt Corrections
[ ] Corrections
[ ] Independent Comm
[ ] Energy Comm
[ ] NAHC
[ ] PUC
[ ] Santa Mo Mtns
[X] State Lands Comm
[ ] Tahoe Rgl Plan
[ ] Other:

SURFACE MINING AND RECLAMATION ACT OF 1975

As amended by:

Senate Bill 1300, Nejedly - 1980 Statutes
Assembly Bill 110, Areias - 1984 Statutes
Senate Bill 593, Royce - 1985 Statutes
Senate Bill 1261, Seymour - 1986 Statutes
Assembly Bill 747, Sher - 1987 Statutes
Assembly Bill 3551, Sher - 1990 Statutes
Assembly Bill 3903, Sher - 1990 Statutes
Assembly Bill 1506, Sher - 1991 Statutes
Senate Bill 1569, Rogers - 1992 Statutes
Assembly Bill 3098, Sher - 1992 Statutes
Assembly Bill 723, Sher - 1993 Statutes
Assembly Bill 904, Sher - 1993 Statutes
Assembly Bill 867, Sher - 1994 Statutes
Senate Bill 273, Leslie - 1995 Statutes
Senate Bill 614, Craven *et al* - 1995 Statutes
Assembly Bill 1373, Olberg - 1996 Statutes, and
Senate Bill 1549, Monteith - 1996 Statutes

Article 1. General Provisions

§ 2710. This chapter shall be known and may be cited as the Surface Mining and Reclamation Act of 1975.

§ 2711. (a) The Legislature hereby finds and declares that the extraction of minerals is essential to the continued economic well-being of the state and to the needs of the society, and that the reclamation of mined lands is necessary to prevent or minimize adverse effects on the environment and to protect the public health and safety.

(b) The Legislature further finds that the reclamation of mined lands as provided in this chapter will permit the continued mining of minerals and will provide for the protection and subsequent beneficial use of the mined and reclaimed land.

(c) The Legislature further finds that surface mining takes place in diverse areas where the geologic, topographic, climatic, biological, and social conditions are significantly different and that reclamation operations and the specifications therefore may vary accordingly.

§ 2712. It is the intent of the Legislature to create and maintain an effective and comprehensive surface mining and reclamation policy with regulation of surface mining operations so as to assure that:

(a) Adverse environmental effects are prevented or minimized and that mined lands are reclaimed to a usable condition which is readily adaptable for alternative land uses.

(b) The production and conservation of minerals are encouraged, while giving consideration to values relating to recreation, watershed, wildlife, range and forage, and aesthetic enjoyment.

(c) Residual hazards to the public health and safety are eliminated.

§ 2713. It is not the intent of the Legislature by the enactment of this chapter to take private property for public use without payment of just compensation in violation of the California and United States Constitutions.

§ 2714. This chapter does not apply to any of the following activities:

(a) Excavations or grading conducted for farming or onsite construction or for the purpose of restoring land following a flood or natural disaster.

(b) Onsite excavation and onsite earthmoving activities that are an integral and necessary part of a construction project that are undertaken to prepare a site for construction of structures, landscaping, or other land improvements, including the related excavation, grading, compaction, or the creation of fills, road cuts, and embankments, whether or not surplus materials are exported from the site, subject to all of the following conditions:

(1) All required permits for the construction, landscaping, or related land improvements have been approved by a public agency in accordance with applicable provisions of state law and locally adopted plans and ordinances, including, but not limited to, Division 13 (commencing with Section 21000).

(2) The lead agency's approval of the construction project included consideration of the onsite excavation and onsite earthmoving activities pursuant to Division 13 (commencing with Section 21000).

(3) The approved construction project is consistent with the general plan or zoning of the site.

(4) Surplus materials shall not be exported from the site unless and until actual construction work has commenced and shall cease if it is determined that construction activities have terminated, have been indefinitely suspended, or are no longer being actively pursued.

(c) Operation of a plant site used for mineral processing, including associated onsite structures, equipment, machines, tools, or other materials, including the onsite stockpiling and onsite recovery of mined materials, subject to all of the following conditions:

(1) The plant site is located on lands designated for industrial or commercial uses in the applicable county or city general plan.

(2) The plant site is located on lands zoned industrial or commercial, or are contained within a zoning category intended exclusively for industrial activities by the applicable city or county.

(3) None of the minerals being processed are being extracted onsite.

(4) All reclamation work has been completed pursuant to the approved reclamation plan for any mineral extraction activities that occurred onsite after January 1, 1976.

(d) Prospecting for, or the extraction of, minerals for commercial purposes and the removal of overburden in total amounts of less than 1,000 cubic yards in any one location of one acre or less.

(e) Surface mining operations that are required by federal law in order to protect a mining claim, if those operations are conducted solely for that purpose.

(f) Any other surface mining operations that the board, as defined by section 2001, determines to be of an infrequent nature and which involve only minor surface disturbances.

(g) The solar evaporation of sea water or bay water for the production of salt and related minerals.

(h) Emergency excavations or grading conducted by the Department of Water Resources or the Reclamation Board for the purpose of averting, alleviating, repairing, or restoring damage to property due to imminent or recent floods, disasters, or other emergencies.

(i) (1) Surface mining operations conducted on lands owned or leased, or upon which easements or rights-of-way have been obtained, by the Department of Water Resources for the purpose of the State Water Resources Development System or flood control, and surface mining operations on lands owned or leased, or upon which easements or rights-of-way have been obtained, by the Reclamation Board for the purpose of flood control, if the Department of Water Resources adopts, after submission to and consultation with, the Department of Conservation, a reclamation plan for lands affected by these activities, and those lands are reclaimed in conformance with the standards specified in regulations of the board adopted pursuant to this chapter. The Department of Water Resources shall provide an annual report to the Department of Conservation by the date specified by the Department of Conservation on these mining activities.

(2) Nothing in this subdivision shall require the Department of Water Resources or the Reclamation Board to obtain a permit or secure approval of a reclamation plan from any city or county in order to conduct surface mining operations specified in paragraph (1). Nothing in this subdivision shall preclude the bringing of an enforcement action pursuant to Section 2774.1, if it is determined that a surface mine operator, acting under contract with the Department of Water Resources or the Reclamation Board on lands other than those owned or leased, or upon which easements or rights-of-way have been obtained, by the Department of Water Resources or the Reclamation Board, is otherwise not in compliance with this chapter.

(j) (1) Excavations or grading for the exclusive purpose of obtaining materials for roadbed construction and maintenance conducted in connection with timber operations or forest management on land owned by the same person or entity. This exemption is limited to excavation and grading that is conducted adjacent to timber operation or forest management roads and shall not apply to onsite excavation or grading that occurs within 100 feet of a Class One watercourse or 75 feet of a Class Two watercourse, or to excavation for materials that are, or have been, sold for commercial purposes.

(2) This exemption shall be available only if slope stability and erosion are controlled in accordance with subdivision (f) of Section 3704 and subdivision (d) of Section 3706 of Title 14 of the California Code of Regulations and, upon closure of the site, the person closing the site implements, where necessary, revegetation measures and postclosure uses in consultation with the Department of Forestry and Fire Protection.

(k) Excavations, grading, or other earthmoving activities in an oil or gas field that are integral to, and necessary for, ongoing operations for the extraction of oil or gas that comply with all of the following conditions:

(1) The operations are being conducted in accordance with Division 3 (commencing with Section 3000).

(2) The operations are consistent with any general plan or zoning applicable to the site.

(3) The earthmoving activities are within oil or gas field properties under a common owner or operator.

(4) No excavated materials are sold for commercial purposes.

§ 2715. No provision of this chapter or any ruling, requirement, or policy of the board is a limitation on any of the following:

(a) On the police power of any city or county or on the power of any city or county to declare, prohibit and abate nuisances.

(b) On the power of the Attorney General, at the request of the board, or upon his own motion, to bring an action in the name of the people of the State of California to enjoin any pollution or nuisance.

(c) On the power of any state agency in the enforcement or administration of any provision of law which it is specifically authorized or required to enforce or administer.

(d) On the right of any person to maintain at any time any appropriate action for relief against any private nuisance as defined in Part 3 (commencing with Section 3479) of Division 4 of the Civil Code or for any other private relief.

(e) On the power of any lead agency to adopt policies, standards, or regulations imposing additional requirements on any person if the requirements do not prevent the person from complying with the provisions of this chapter.

(f) On the power of any city or county to regulate the use of buildings, structures, and land as between industry, business, residents, open space (including agriculture, recreation, the enjoyment of scenic beauty, and the use of natural resources), and other purposes.

§ 2716. Any person may commence an action on his or her own behalf against the board, the State Geologist, or the director for a writ of mandate pursuant to Chapter 2 (commencing with Section 1084) of Title 1 of Part 3 of the Code of Civil Procedure to compel the board, the State Geologist, or the director to carry out any duty imposed upon them pursuant to this chapter.

§ 2717. (a) The board shall submit to the Legislature on December 1st of each year a report on the actions taken pursuant to this chapter during the preceding fiscal year. The report shall include a statement of the actions, including legislative recommendations, which are necessary to carry out more completely the purposes and requirements of this chapter.

(b) For purposes of ensuring compliance with Section 10295.5 of the Public Contract Code, on and after July 1, 1993, the department shall, at a minimum, quarterly publish in the California Regulatory Notice Register, or otherwise make available upon request to the Department of General Services or any other state agency, a list identifying all of the following:

(1) Surface mining operations for which a report has been submitted pursuant to Section 2207 which indicates that the reclamation plan and the financial assurances have been approved.

(2) Surface mining operations for which an appeal is pending before the board pursuant to subdivision (e) of Section 2770, provided that the appeal shall not have been pending before the board for more than 180 days.

§ 2718. If any provision of this chapter or the application thereof to any person or circumstance is held invalid, such invalidity shall not affect other provisions or applications of the chapter which can be given effect without the invalid provision or application, and to this end the provisions of this chapter are severable.

§ 2719. Notwithstanding any other provision of law, neither the state nor any county, city, district, or other political subdivision shall be exempt from any fee imposed upon a mining operation pursuant to subdivision (d) of Section 2207.

Article 2. Definitions

§ 2725. Unless the context otherwise requires, the definitions set forth in this article shall govern the construction of this chapter.

§ 2726. "Area of regional significance" means an area designated by the board pursuant to Section 2790 which is known to contain a deposit of minerals, the extraction of which is judged to be of prime importance in meeting future needs for minerals in a particular region of the state within which the minerals are located and which, if prematurely developed for alternate incompatible land uses, could result in the permanent loss of minerals that are of more than local significance.

§ 2727. "Area of statewide significance" means an area designated by the board pursuant to Section 2790 which is known to contain a deposit of minerals, the extraction of which is judged to be of prime importance in meeting future needs for minerals in the state and which, if prematurely developed for alternate incompatible land uses, could result in the permanent loss of minerals that are of more than local or regional significance.

§ 2727.1 "Idle" means to curtail for a period of one year or more surface mining operations by more than 90 percent of the operation's previous maximum annual mineral production, with the intent to resume those surface mining operations at a future date.

§ 2728. "Lead agency" means the city, county, San Francisco Bay Conservation and Development Commission, or the board which has the principal responsibility for approving a surface mining operation or reclamation plan pursuant to this chapter.

§ 2729. "Mined lands" includes the surface, subsurface, and ground water of an area in which surface mining operations will be, are being, or have been conducted, including private ways and roads appurtenant to any such area, land excavations, workings, mining waste, and areas in which structures, facilities, equipment, machines, tools, or other materials or property which result from, or are used in, surface mining operations are located.

§ 2730. "Mining waste" includes the residual of soil, rock, mineral, liquid, vegetation, equipment, machines, tools, or other materials or property directly resulting from, or displaced by, surface mining operations.

§ 2731. "Operator" means any person who is engaged in surface mining operations, himself, or who contracts with others to conduct operations on his behalf, except a person who is engaged in surface mining operations as an employee with wages as his sole compensation.

§ 2732. "Overburden" means soil, rock, or other materials that lie above a natural mineral deposit or in between mineral deposits, before or after their removal by surface mining operations.

§ 2732.5. "Permit" means any authorization from, or approval by, a lead agency, the absence of which would preclude surface mining operations.

§ 2733. "Reclamation" means the combined process of land treatment that minimizes water degradation, air pollution, damage to aquatic or wildlife habitat, flooding, erosion, and other adverse effects from surface mining operations, including adverse surface effects incidental to underground mines, so that mined lands are reclaimed to a usable condition which is readily adaptable for alternate land uses and create no danger to public health or safety. The process may extend to affected lands surrounding mined lands, and may require backfilling, grading, resoiling, revegetation, soil compaction, stabilization, or other measures.

§ 2734. "State policy" means the regulations adopted by the board pursuant to Section 2755.

§ 2735. "Surface mining operations" means all, or any part of, the process involved in the mining of minerals on mined lands by removing overburden and mining directly from the mineral deposits, open-pit mining of minerals naturally exposed, mining by the auger method, dredging and quarrying, or surface work incident to an underground mine. Surface mining operations shall include, but are not limited to:

(a) Inplace distillation or retorting or leaching.

(b) The production and disposal of mining waste.

(c) Prospecting and exploratory activities.

Article 3. District Committees

§ 2740. In carrying out the provisions of this chapter, the board may establish districts and appoint one or more district technical advisory committees to advise the board. In establishing districts for these committees, the board shall take into account physical characteristics, including, but not limited to, climate, topography, geology, type of overburden, and principal mineral commodities. Members of the committees shall be selected and appointed on the basis of their professional qualifications and training in mineral resource conservation, development and utilization, land use planning, mineral economics, or the reclamation of mined lands.

§ 2741. The members of the committee shall receive no compensation for their services, but shall be entitled to their actual and necessary expenses incurred in the performance of their duties.

Article 4. State Policy for the Reclamation of Mined Lands

§ 2755. The board shall adopt regulations which establish state policy for the reclamation of mined lands in accordance with the general provisions set forth in Article 1 (commencing with Section 2710) of this chapter and pursuant to Chapter 4.5 (commencing with Section 11371) of Part 1 of Division 3 of Title 2 of the Government Code.

§ 2756. State policy shall apply to the conduct of surface mining operations and shall include, but shall not be limited to, measures to be employed by lead agencies in specifying grading, backfilling, resoiling, revegetation, soil compaction, and other reclamation requirements, and for soil erosion control, water quality and watershed control, waste disposal, and flood control.

§ 2757. The state policy adopted by the board shall be based upon a study of the factors that significantly affect the present and future condition of mined lands, and shall be used as standards by lead agencies in preparing specific and general plans, including the conservation and land use elements of the general plan and zoning ordinances. The state policy shall not include aspects of regulating surface mining operations which are solely of local concern, and not of statewide or regional concern, as determined by the board, such as, but not limited to, hours of operation, noise, dust, fencing, and purely aesthetic considerations.

§ 2758. Such policy shall include objectives and criteria for all of the following:

(a) Determining the lead agency pursuant to the provisions of Section 2771.

(b) The orderly evaluation of reclamation plans.

(c) Determining the circumstances, if any, under which the approval of a proposed surface mining operation by a lead agency need not be conditioned on a guarantee assuring reclamation of the mined lands.

§ 2759. The state policy shall be continuously reviewed and may be revised. During the formulation or revision of the policy, the board shall consult with, and carefully evaluate the recommendations of, the director, any district technical advisory committees, concerned federal, state, and local agencies, educational institutions, civic and public interest organizations, and private organizations and individuals.

§ 2760. The board shall not adopt or revise the state policy, unless a public hearing is first held respecting its adoption or revision. At least 30 days prior to the hearing, the board shall give notice of the hearing by publication pursuant to Section 6061 of the Government Code.

§ 2761. (a) On or before January 1, 1977, and, as a minimum, after the completion of each decennial census, the Office of Planning and Research shall identify portions of the following areas within the state which are urbanized or are subject to urban expansion or other irreversible land uses which would preclude mineral extraction:

(1) Standard metropolitan statistical areas and such other areas for which information is readily available.

(2) Other areas as may be requested by the board.

(b) In accordance with a time schedule, and based upon guidelines adopted by the board, the State Geologist shall classify, on the basis solely of geologic factors, and without regard to existing land use and land ownership, the areas identified by the Office of Planning and Research, any area for which classification has been requested by a petition which has been accepted by the board, or any other areas as may be specified by the board, as one of the following:

(1) Areas containing little or no mineral deposits.

(2) Areas containing significant mineral deposits.

(3) Areas containing mineral deposits, the significance of which requires further evaluation.

The State Geologist shall require the petitioner to pay the reasonable costs of classifying an area for which classification has been requested by the petitioner.

(c) The State Geologist shall transmit the information to the board for incorporation into the state policy and for transmittal to lead agencies.

§ 2762. (a) Within 12 months of receiving the mineral information described in Section 2761, and also within 12 months of the designation of an area of statewide or

regional significance within its jurisdiction, every lead agency shall, in accordance with state policy, establish mineral resource management policies to be incorporated in its general plan which will:

(1) Recognize mineral information classified by the State Geologist and transmitted by the board.

(2) Assist in the management of land use which affect areas of statewide and regional significance.

(3) Emphasize the conservation and development of identified mineral deposits.

(b) Every lead agency shall submit proposed mineral resource management policies to the board for review and comment prior to adoption.

(c) Any subsequent amendment of the mineral resource management policy previously reviewed by the board shall also require review and comment by the board.

(d) If any area is classified by the State Geologist as an area described in paragraph (2) of subdivision (b) of Section 2761, and the lead agency either has designated that area in its general plan as having important minerals to be protected pursuant to subdivision (a), or otherwise has not yet acted pursuant to subdivision (a), then prior to permitting a use which would threaten the potential to extract minerals in that area, the lead agency shall prepare, in conjunction with preparing any environmental document required by Division 13 (commencing with Section 21000), or in any event if no such document is required, a statement specifying its reasons for permitting the proposed use, and shall forward a copy to the State Geologist and the board for review.

If the proposed use is subject to the requirements of Division 13 (commencing with Section 21000), the lead agency shall comply with the public review requirements of that division. Otherwise, the lead agency shall provide public notice of the availability of its statement by all of the following:

(1) Publishing the notice at least one time in a newspaper of general circulation in the area affected by the proposed use.

(2) Directly mailing the notice to owners of property within one-half mile of the parcel or parcels on which the proposed use is located as those owners are shown on the latest equalized assessment role.

The public review period shall not be less than 60 days from the date of the notice and shall include at least one public hearing. The lead agency shall evaluate comments received and shall prepare a written response. The written response shall describe the disposition of the major issues raised. In particular, when the lead agency's position on the proposed use is at variance with recommendations and objections raised in the comments, the written response shall address in detail why specific comments and suggestions were not accepted.

(e) Prior to permitting a use which would threaten the potential to extract minerals in an area classified by the State Geologist as an area described in paragraph (3) of subdivision (b) of Section 2761, the lead agency may cause to be prepared an evaluation of the area in order to ascertain the significance of the mineral deposit located therein. The results of such evaluation shall be transmitted to the State Geologist and the board.

§ 2763. (a) If an area is designated by the board as an area of regional significance, and the lead agency either has designated that area in its general plan as having important minerals to be protected pursuant to subdivision (a) of Section 2762, or otherwise has not yet acted pursuant to subdivision (a) of Section 2762, then prior to permitting a use which would threaten the potential to extract minerals in that area, the lead agency shall prepare a statement specifying its reasons for permitting the proposed use, in accordance with the requirements set forth in subdivision (d) of Section 2762. Lead agency land use decisions involving areas designated as being of regional significance shall be in accordance with the lead agency's mineral resource management policies and shall also, in balancing mineral values against alternative land uses, consider the importance of these minerals to their market region as a whole and not just their importance to the lead agency's area of jurisdiction.

(b) If an area is designated by the board as an area of statewide significance, and the lead agency either has designated that area in its general plan as having important minerals to be protected pursuant to subdivision (a) of Section 2762, or otherwise has not yet acted pursuant to subdivision (a) of Section 2762, then prior to permitting a use which would threaten the potential to extract minerals in that area, the lead agency shall prepare a statement specifying its reasons for permitting the proposed use, in accordance with the requirements set forth in subdivision (d) of Section 2762. Lead agency land use decisions involving areas designated as being of statewide significance shall be in accordance with the lead agency's mineral resource management policies and shall also, in balancing mineral values against alternative land uses, consider the importance of the mineral resources to the state and nation as a whole.

§ 2764. (a) Upon the request of an operator or other interested person and payment by the requesting person of the estimated cost of processing the request, the lead agency having jurisdiction shall amend its general plan, or prepare a new specific plan or amend any applicable specific plan, that shall, with respect to the continuation of the existing surface mining operation for which the request is made, plan for future land uses in the vicinity of, and access routes serving, the surface mining operation in light of the importance of the minerals to their market region as a whole, and not just their importance to the lead agency's area of jurisdiction.

(b) In adopting amendments to the general plan, or adopting or amending a specific plan, the lead agency shall make written legislative findings as to whether the future land uses and particular access routes will be compatible or incompatible with the continuation of the surface mining operation, and if they are found to be incompatible, the findings shall include a statement of the reasons why they are to be provided for, notwithstanding

the importance of the minerals to their market region as a whole or their previous designation by the board, as the case may be.

(c) Any evaluation of a mineral deposit prepared by a lead agency for the purpose of carrying out this section shall be transmitted to the State Geologist and the board.

(d) The procedure provided for in this section shall not be undertaken in any area that has been designated pursuant to Article 6 (commencing with Section 2790) if mineral resource management policies have been established and incorporated in the lead agency's general plan in conformance with Article 4 (commencing with Section 2755).

Article 5. Reclamation of Mined Lands and the Conduct of Surface Mining Operations

§ 2770. (a) Except as provided in this section, no person shall conduct surface mining operations unless a permit is obtained from, a reclamation plan has been submitted to and approved by, and financial assurances for reclamation have been approved by, the lead agency for the operation pursuant to this article.

(b) Any person with an existing surface mining operation who has vested rights pursuant to Section 2776 and who does not have an approved reclamation plan shall submit a reclamation plan to the lead agency not later than March 31, 1988. If a reclamation plan application is not on file by March 31, 1988, the continuation of the surface mining operation is prohibited until a reclamation plan is submitted to the lead agency. For purposes of this subdivision, reclamation plans may consist of all or the appropriate sections of any plans or written agreements previously approved by the lead agency or another agency, together with any additional documents needed to substantially meet the requirements of Sections 2772 and 2773 and the lead agency surface mining ordinance adopted pursuant to subdivision (a) of Section 2774, provided that all documents which together were proposed to serve as the reclamation plan are submitted for approval to the lead agency in accordance with this chapter.

(c) If a person with an existing surface mining operation has received lead agency approval of its financial assurances for reclamation prior to January 1, 1991, the lead agency shall administratively review those existing financial assurances in accordance with subdivision (d) prior to January 1, 1992. The review of existing financial assurances shall not be considered a project for purposes of Division 13 (commencing with Section 21000). Any person with an existing surface mining operation which does not have financial assurances that received lead agency approval prior to January 1, 1991, shall submit financial assurances for reclamation for review in accordance with subdivision (d).

(d) The lead agency's review of reclamation plans submitted pursuant to subdivision (b) or of financial assurances pursuant to subdivision (c) is limited to whether the plan or the financial assurances substantially meet the applicable requirements of Sections 2772, 2773, and 2773.1, and the lead agency surface mining ordinance adopted pursuant to subdivision (a) of Section 2774, but, in any event, the lead agency shall require that financial assurances for reclamation be sufficient to perform reclamation of lands remaining disturbed. Reclamation plans or financial assurances determined to substantially meet these requirements shall be approved by the lead agency for purposes of this chapter. Reclamation plans or financial assurances determined not to substantially meet these requirements shall be returned to the operator within 60 days. The operator has 60 days to revise the plan or financial assurances to address identified deficiencies, at which time the revised plan or financial assurances shall be returned to the lead agency for review and approval. Except as specified in subdivision (e) or (i), unless the operator has filed on or before July 1, 1990, an appeal pursuant to subdivision (e) with regard to nonapproval of the reclamation plan, or has filed on or before January 1, 1994, an appeal pursuant to subdivision (e) with regard to nonapproval of financial assurances, and that appeal is pending before the board, the continuation of the surface mining operation is prohibited until a reclamation plan and financial assurances for reclamation are approved by the lead agency.

(e) Any person who, based on the evidence of the record, can substantiate that a lead agency has either (1) failed to act according to due process or has relied on considerations not related to the specific applicable requirements of Sections 2772, 2773, and 2773.1, and the lead agency surface mining ordinance adopted pursuant to subdivision (a) of Section 2774, in reaching a decision to deny approval of a reclamation plan or financial assurances for reclamation, (2) failed to act within a reasonable time of receipt of a completed application, or (3) failed to review and approve reclamation plans or financial assurances as required by subdivisions (c) and (d), may appeal that action or inaction to the board.

(f) The board may decline to hear an appeal if it determines that the appeal raises no substantial issues related to the lead agency's review pursuant to this section.

(g) Appeals that the board does not decline to hear shall be scheduled and heard at a public hearing within 45 days of the filing of the appeal, or any longer period as may be mutually agreed upon by the board and the person filing the appeal. In hearing an appeal, the board shall only determine whether the reclamation plan or the financial assurances substantially meet the applicable requirements of Sections 2772, 2773, 2773.1, and the lead agency surface mining ordinance adopted pursuant to subdivision (a) of Section 2774. A reclamation plan or financial assurances determined to meet these requirements shall be approved. A reclamation plan or

financial assurances determined not to meet these requirements shall be returned to the person filing the appeal with a notice of deficiencies, who shall be granted, once only, a period of 30 days, or a longer period mutually agreed upon by the operator and the board, to correct the noted deficiencies and submit the revised reclamation plan or the revised financial assurances to the lead agency for review and approval.

(h)(1) Within 90 days of a surface mining operation becoming idle, as defined in Section 2727.1, the operator shall submit to the lead agency for review and approval, an interim management plan. The review and approval of an interim management plan shall not be considered a project for purposes of Division 13 (commencing with Section 21000). The approved interim management plan shall be considered an amendment to the surface mining operation's approved reclamation plan, for purposes of this chapter. The interim management plan shall provide measures the operator will implement to maintain the site in compliance with this chapter, including, but not limited to, all permit conditions.

(2) The interim management plan may remain in effect for a period not to exceed five years, at which time the lead agency shall do one of the following:

(A) Renew the interim management plan for another period not to exceed five years, if the lead agency finds that the surface mining operator has complied fully with the interim management plan.

(B) Require the surface mining operator to commence reclamation in accordance with its approved reclamation plan.

(3) The financial assurances required by Section 2773.1 shall remain in effect during the period that the surface mining operation is idle. If the surface mining operation is still idle after the expiration of its interim management plan, the surface mining operation shall commence reclamation in accordance with its approved reclamation plan.

(4) Within 60 days of the receipt of the interim management plan, or a longer period mutually agreed upon by the lead agency and the operator, the lead agency shall review and approve the plan in accordance with its ordinance adopted pursuant to subdivision (a) of Section 2774, so long as the plan satisfies the requirements of this subdivision, and so notify the operator in writing. Otherwise, the lead agency shall notify the operator in writing of any deficiencies in the plan. The operator shall have 30 days, or a longer period mutually agreed upon by the operator and the lead agency, to submit a revised plan.

(5) The lead agency shall approve or deny approval of the revised interim management plan within 60 days of receipt. If the lead agency denies approval of the revised interim management plan, the operator may appeal that action to the lead agency's governing body, which shall schedule a public hearing within 45 days of the filing of the appeal, or any longer period mutually agreed upon by the operator and the governing body.

(6) Unless review of an interim management plan is pending before the lead agency, or an appeal is pending before the lead agency's governing body, a surface mining operation which remains idle for over one year after becoming idle as defined in Section 2727.1 without obtaining approval of an interim management plan shall be considered abandoned and the operator shall commence and complete reclamation in accordance with the approved reclamation plan.

(i) Any enforcement action which may be brought against a surface mining operation for operating without an approved reclamation plan, financial assurance, or interim management plan, shall be held in abeyance pending review pursuant to subdivision (b), (c), (d), or (h) or the resolution of an appeal filed with the board pursuant to subdivision (e), or with a lead agency governing body pursuant to subdivision (h).

§ 2770.5. Whenever surface mining operations are proposed in the 100-year flood plain for any stream, as shown in Zone A of Flood Insurance Rate Maps issued by the Federal Emergency Management Agency, and within one mile, upstream or downstream, of any state highway bridge, the lead agency receiving the application for the issuance or renewal of a permit to conduct the surface mining operations shall notify the Department of Transportation that the application has been received. The Department of Transportation shall have a period of not more than 45 days to review and comment on the proposed surface mining operations with respect to any potential damage to the state highway bridge from the proposed surface mining operations. The lead agency shall not issue or renew the permit until the Department of Transportation has submitted its comments or until 45 days from the date the application for the permit was submitted, whichever occurs first.

§ 2771. Whenever a proposed or existing surface mining operation is within the jurisdiction of two or more public agencies, is a permitted use within the agencies, and is not separated by a natural or manmade barrier coinciding with the boundary of the agencies, the evaluation of the proposed or existing operation shall be made by the lead agency in accordance with the procedures adopted by the lead agency pursuant to Section 2774. If a question arises as to which public agency is the lead agency, any affected public agency, or the affected operator, may submit the matter to the board. The board shall notify in writing all affected public agencies and operators that the matter has been submitted, specifying a date for a public hearing. The board shall designate the public agency which shall serve as the lead agency, giving due consideration to the capability of the agency to fulfill adequately the requirements of this chapter and to an examination of which of the public agencies has principal permit responsibility.

§ 2772. (a) The reclamation plan shall be filed with the lead agency, on a form provided by the lead agency, by any person who owns, leases, or otherwise controls or operates on all, or any portion of any, mined lands, and

who plans to conduct surface mining operations on the lands.

(b) All documentation for the reclamation plan shall be submitted by the lead agency to the department at one time.

(c) The reclamation plan shall include all of the following information and documents:

(1) The name and address of the surface mining operator and the names and addresses of any persons designated by the operator as an agent for the service of process.

(2) The anticipated quantity and type of minerals for which the surface mining operation is to be conducted.

(3) The proposed dates for the initiation and termination of surface mining operation.

(4) The maximum anticipated depth of the surface mining operation.

(5) The size and legal description of the lands that will be affected by the surface mining operation, a map that includes the boundaries and topographic details of the lands, a description of the general geology of the area, a detailed description of the geology of the area in which surface mining is to be conducted, the location of all streams, roads, railroads, and utility facilities within, or adjacent to, the lands, the location of all proposed access roads to be constructed in conducting the surface mining operation, and the names and addresses of the owners of all surface interests and mineral interests in the lands.

(6) A description of, and a plan for, the type of surface mining to be employed, and a time schedule that will provide for the completion of surface mining on each segment of the mined lands so that reclamation can be initiated at the earliest possible time on those portions of the mined lands that will not be subject to further disturbance by the surface mining operation.

(7) A description of the proposed use or potential uses of the mined lands after reclamation and evidence that all owners of a possessory interest in the land have been notified of the proposed use or potential uses.

(8) A description of the manner in which reclamation, adequate for the proposed use or potential uses will be accomplished, including both of the following:

(A) A description of the manner in which contaminants will be controlled, and mining waste will be disposed.

(B) A description of the manner in which affected streambed channels and streambanks will be rehabilitated to a condition minimizing erosion and sedimentation will occur.

(9) An assessment of the effect of implementation of the reclamation plan on future mining in the area.

(10) A statement that the person submitting the reclamation plan accepts responsibility for reclaiming the mined lands in accordance with the reclamation plan.

(11) Any other information which the lead agency may require by ordinance.

(d) An item of information or a document required pursuant to subdivision (c) that has already been prepared as part of a permit application for the surface mining operation, or as part of an environmental document prepared for the project pursuant to Division 13 (commencing with Section 21000), may be included in the reclamation plan by reference, if that item of information or that document is attached to the reclamation plan when the lead agency submits the reclamation plan to the director for review. To the extent that the information or document referenced in the reclamation plan is used to meet the requirements of subdivision (c), the information or document shall become part of the reclamation plan and shall be subject to all other requirements of this article.

(e) Nothing in this section is intended to limit or expand the department's authority or responsibility to review a document in accordance with Division 13 (commencing with Section 21000).

§ 2773. (a) The reclamation plan shall be applicable to a specific piece of property or properties, shall be based upon the character of the surrounding area and such characteristics of the property as type of overburden, soil stability, topography, geology, climate, stream characteristics, and principal mineral commodities, and shall establish site-specific criteria for evaluating compliance with the approved reclamation plan, including topography, revegetation and sediment, and erosion control.

(b) By January 1, 1992, the board shall adopt regulations specifying minimum, verifiable statewide reclamation standards. Subjects for which standards shall be set include, but shall not be limited to, the following:

(1) Wildlife habitat.

(2) Backfilling, regrading, slope stability, and recontouring.

(3) Revegetation.

(4) Drainage, diversion structures, waterways, and erosion control.

(5) Prime and other agricultural land reclamation.

(6) Building, structure, and equipment removal.

(7) Stream protection.

(8) Topsoil salvage, maintenance, and redistribution.

(9) Tailing and mine waste management.

These standards shall apply to each mining operation, but only to the extent that they are consistent with the planned or actual subsequent use or uses of the mining site.

§ 2773.1. (a) Lead agencies shall require financial assurances of each surface mining operation to ensure reclamation is performed in accordance with the surface mining operation's approved reclamation plan, as follows:

(1) Financial assurances may take the form of surety bonds, irrevocable letters of credit, trust funds, or other forms of financial assurances specified by the board pursuant to subdivision (e), which the lead agency reasonably determines are adequate to perform reclamation in accordance with the surface mining operation's approved reclamation plan.

(2) The financial assurances shall remain in effect for the duration of the surface mining operation and any additional period until reclamation is completed.

(3) The amount of financial assurances required of a surface mining operation for any one year shall be adjusted annually to account for new lands disturbed by surface mining operations, inflation, and reclamation of lands accomplished in accordance with the approved reclamation plan.

(4) The financial assurances shall be made payable to the lead agency and the department. Financial assurances that were approved by the lead agency prior to January 1, 1993, and were made payable to the State Geologist shall be considered payable to the department for purposes of this chapter. However, if a surface mining operation has received approval of its financial assurances from a public agency other than the lead agency, the lead agency shall deem those financial assurances adequate for purposes of this section, or shall credit them toward fulfillment of the financial assurances required by this section, if they are made payable to the public agency, the lead agency, and the department and otherwise meet the requirements of this section. In any event, if a lead agency and one or more public agencies exercise jurisdiction over a surface mining operation, the total amount of financial assurances required by the lead agency and the public agencies for any one year shall not exceed that amount which is necessary to perform reclamation of lands remaining disturbed. For purposes of this paragraph, a "public agency" may include a federal agency.

(b) If the lead agency or the board, following a public hearing, determines that the operator is financially incapable of performing reclamation in accordance with its approved reclamation plan, or has abandoned its surface mining operation without commencing reclamation, either the lead agency or the director shall do all of the following:

(1) Notify the operator by personal service or certified mail that the lead agency or the director intends to take appropriate action to forfeit the financial assurances and specify the reasons for so doing.

(2) Allow the operator 60 days to commence or cause the commencement of reclamation in accordance with its approved reclamation plan and require that reclamation be completed within the time limits specified in the approved reclamation plan or some other time period mutually agreed upon by the lead agency or the director and the operator.

(3) Proceed to take appropriate action to require forfeiture of the financial assurances if the operator does not substantially comply with paragraph (2).

(4) Use the proceeds from the forfeited financial assurances to conduct and complete reclamation in accordance with the approved reclamation plan. In no event shall the financial assurances be used for any other purpose. The operator is responsible for the costs of conducting and completing reclamation in accordance with the approved reclamation plan which are in excess of the proceeds from the forfeited financial assurances.

(c) Financial assurances shall no longer be required of a surface mining operation, and shall be released, upon written notification by the lead agency, which shall be forwarded to the operator and the director, that reclamation has been completed in accordance with the approved reclamation plan. If a mining operation is sold or ownership is transferred to another person, the existing financial assurances shall remain in force and shall not be released by the lead agency until new financial assurances are secured from the new owner and have been approved by the lead agency in accordance with Section 2770.

(d) The lead agency shall have primary responsibility to seek forfeiture of financial assurances and to reclaim mine sites under subdivision (b). However, in cases where the board is not the lead agency pursuant to Section 2774.4, the director may act to seek forfeiture of financial assurances and reclaim mine sites pursuant to subdivision (b) only if both of the following occurs:

(1) The financial incapability of the operator or the abandonment of the mining operation has come to the attention of the director.

(2) The lead agency has been notified in writing by the director of the financial incapability of the operator or the abandonment of the mining operation for at least 15 days, and has not taken appropriate measures to seek forfeiture of the financial assurances and reclaim the mine site; and one of the following has occurred:

(A) The lead agency has been notified in writing by the director that failure to take appropriate measures to seek forfeiture of the financial assurances or to reclaim the mine site shall result in actions being taken against the lead agency under Section 2774.4.

(B) The director determines that there is a violation which amounts to an imminent and substantial endangerment to the public health, safety, or to the environment.

(C) The lead agency notifies the director in writing that its good faith attempts to seek forfeiture of the financial assurances have not been successful.

The director shall comply with subdivision (b) in seeking forfeiture of financial assurances and reclaiming mine sites.

(e) The board may adopt regulations specifying financial assurance mechanisms other than surety bonds, irrevocable letters of credit, and trust funds, which the board determines are reasonably available and adequate to ensure reclamation pursuant to this chapter, but these mechanisms may not include financial tests. These mechanisms may include reclamation bond pool programs.

(f) On or before March 1, 1993, the board shall adopt guidelines to implement this section. The guidelines are exempt from the requirements of Chapter 3.5 (commencing with Section 11340) of Part 1 of Division 3 of Title 2 of the Government Code, and are not subject to review by the Office of Administrative Law.

§ 2774. (a) Every lead agency shall adopt ordinances in accordance with state policy which establish procedures for the review and approval of reclamation plans and financial assurances and the issuance of a permit to conduct surface mining operations, except that any lead agency without an active surface mining operation in its jurisdiction may defer adopting an implementing ordinance until the filing of a permit application. The ordinances shall establish procedures requiring at least one public hearing and shall be periodically reviewed by the lead agency and revised, as necessary, to ensure that the ordinances continue to be in accordance with state policy.

(b) The lead agency shall conduct an inspection of a surface mining operation within six months of receipt by the lead agency of the surface mining operation's report submitted pursuant to Section 2207, solely to determine whether the surface mining operation is in compliance with this chapter. In no event shall a lead agency inspect a surface mining operation less than once in any calendar year. The lead agency may cause such an inspection to be conducted by a state-registered geologist, state-registered civil engineer, state-licensed landscape architect, or state-registered forester, who is experienced in land reclamation and who has not been employed by the surface mining operation in any capacity during the previous 12 months. All inspections shall be conducted using a form developed by the department and approved by the board. The operator shall be solely responsible for the reasonable cost of the inspection. The lead agency shall notify the director within 30 days of the date of completion of the inspection that the inspection has been conducted. The notice shall contain a statement regarding the surface mining operation's compliance with this chapter, shall include a copy of the completed inspection form, and shall specify which aspects of the surface mining operations, if any, are inconsistent with this chapter. If the surface mining operation has a review of its reclamation plan, financial assurances, or an interim management plan pending under subdivision (b), (c), (d), or (h) of Section 2770, or an appeal pending before the board or lead agency governing body under subdivision (e) or (h) of Section 2770, the notice shall so indicate. The lead agency shall forward to the operator a copy of the notice, a copy of the completed inspection form, and any supporting documentation, including, but not limited to, any inspection report prepared by the geologist, civil engineer, landscape architect, or forester.

(c) Prior to approving a surface mining operation's reclamation plan, financial assurances, including existing financial assurances reviewed by the lead agency pursuant to subdivision (c) of Section 2770, or any amendments, the lead agency shall submit the plan, assurances, or amendments to the director for review. All documentation for that submission shall be submitted to the director at one time. When the lead agency submits a reclamation plan or plan amendments to the director for review, the lead agency shall also submit to the director, for use in reviewing the reclamation plan or plan amendments, information from any related document prepared, adopted, or certified pursuant to Division 13 (commencing with Section 21000), and shall submit any other pertinent information. The lead agency shall certify to the director that the reclamation plan is in compliance with the applicable requirements of Article 1 (commencing with Section 3500) of Chapter 8 of Division 2 of Title 14 of the California Code of Regulations in effect at the time that the reclamation plan is submitted to the director for review.

(d) (1) The director shall have 30 days from the date of receipt of a reclamation plan or plan amendments submitted pursuant to subdivision (c), and 45 days from the date of receipt of financial assurances submitted pursuant to subdivision (c), to prepare written comments, if the director so chooses. The lead agency shall evaluate any written comments received from the director relating to the reclamation plan, plan amendments, or financial assurances within a reasonable amount of time.

(2) The lead agency shall prepare a written response to the director's comments describing the disposition of the major issues raised. In particular, if the lead agency's position is at variance with any of the recommendations made, or objections raised, in the director's comments, the written response shall address, in detail, why specific comments and suggestions were not accepted. Copies of any written comments received and responses prepared by the lead agency shall be forwarded to the operator.

(3) To the extent that there is a conflict between the comments of a trustee agency or a responsible agency that are based on the agency's statutory or regulatory authority and the comments of other commenting agencies which are received by the lead agency pursuant to Division 13 (commencing with Section 21000) regarding a reclamation plan or plan amendments, the lead agency shall consider only the comments of the trustee agency or responsible agency.

(e) Lead agencies shall notify the director of the filing of an application for a permit to conduct surface mining operations within 30 days of such an application being filed with the lead agency. By July 1, 1991, each lead agency shall submit to the director for every active or idle mining operation within its jurisdiction, a copy of the mining permit required pursuant to Section 2774, and any conditions or amendments to those permits. By July 1 of each subsequent year, the lead agency shall submit to the director for each active or idle mining operation a copy of any permit or reclamation plan amendments, as applicable, or a statement that there have been no changes during the previous year. Failure to file with the director the information required under this section shall be cause for action under Section 2774.4.

§ 2774.1. (a) Except as provided in subdivision (i) of Section 2770, if the lead agency or the director determines, based upon an annual inspection pursuant to Section 2774, or otherwise confirmed by an inspection of the mining operation, that a surface mining operation is not in compliance with this chapter, the lead agency or

the director may notify the operator of that violation by personal service or certified mail. If the violation extends beyond 30 days after the date of the lead agency's or the director's notification, the lead agency or the director may issue an order by personal service or certified mail requiring the operator to comply with this chapter or, if the operator does not have an approved reclamation plan or financial assurances, cease all further mining activities.

(b) An order issued under subdivision (a) shall not take effect until the operator has been provided a hearing before the lead agency for orders issued by the lead agency, or board for orders issued by the director, concerning the alleged violation. Any order issued under subdivision (a) shall specify which aspects of the surface mine's activities or operations are inconsistent with this chapter, shall specify a time for compliance which the lead agency or director determines is reasonable, taking into account the seriousness of the violation and any good faith efforts to comply with applicable requirements, and shall set a date for the hearing, which shall not be sooner than 30 days after the date of the order.

(c) Any operator who violates or fails to comply with an order issued under subdivision (a) after the order's effective date, as provided in subdivision (b), or who fails to submit a report to the director or lead agency as required by Section 2207, shall be subject to an order by the lead agency or the director imposing an administrative penalty of not more than five thousand dollars ($5,000) per day, assessed from the original date of noncompliance with this chapter or Section 2207. The penalty may be imposed administratively by the lead agency or the director. In determining the amount of the administrative penalty, the lead agency or the director shall take into consideration the nature, circumstances, extent, and gravity of the violation or violations, any prior history of violations, the degree of culpability, economic savings, if any, resulting from the violation, and any other matters justice may require. Orders setting administrative penalties shall become effective upon issuance thereof and payment shall be made to the lead agency or the director within 30 days, unless the operator petitions the legislative body of the lead agency, the board, or the superior court for review as provided in Section 2774.2. Any order shall be served by personal service or by certified mail upon the operator. Penalties collected by the director shall be used for no purpose other than to cover the reasonable costs incurred by the director in implementing this chapter or Section 2207.

(d) If the lead agency or the director determines that the surface mine is not in compliance with this chapter, so that the surface mine presents an imminent and substantial endangerment to the public health or the environment, the lead agency or the Attorney General, on behalf of the director, may seek an order from a court of competent jurisdiction enjoining that operation.

(e) Upon a complaint by the director, the department, or the board, the Attorney General may bring an action to recover administrative penalties under this section, and penalties under Section 2207, in any court of competent jurisdiction in this state against any person violating any provision of this chapter or Section 2207, or any regulation adopted pursuant to this chapter or Section 2207. The Attorney General may bring such an action on his or her own initiative if, after examining the complaint and the evidence, he or she believes a violation has occurred. The Attorney General may also seek an order from a court of competent jurisdiction compelling the operator to comply with this chapter and Section 2207.

(f) The lead agency has primary responsibility for enforcing this chapter and Section 2207. In cases where the board is not the lead agency pursuant to Section 2774.4, enforcement actions may be initiated by the director pursuant to this section only after the violation has come to the attention of the director and either of the following occurs:

(1) The lead agency has been notified by the director in writing of the violation for at least 15 days, and has not taken appropriate enforcement action.

(2) The director determines that there is a violation which amounts to an imminent and substantial endangerment to the public health or safety, or to the environment.

The director shall comply with this section in initiating enforcement actions.

(g) Remedies under this section are in addition to, and do not supersede or limit, any and all other remedies, civil or criminal.

§ 2774.2. (a) Within 30 days of the issuance of an order setting administrative penalties under subdivision (c) of Section 2774.1, the operator may petition that legislative body of the lead agency, if the lead agency has issued the order, or the board for orders issued by the director, for review of the order. If the operator does not petition for review within the time limits set by this subdivision, the order setting administrative penalties shall not be subject to review by any court or agency.

(b) The legislative body of the lead agency or the board shall notify the operator by personal service or certified mail whether it will review the order setting administrative penalties. In reviewing an order pursuant to this section, the record shall consist of the record before the lead agency or the director, and any other relevant evidence which, in the judgment of the legislative body or the board, should be considered to effectuate and implement the policies of this chapter.

(c) The legislative body or the board may affirm, modify, or set aside, in whole or in part, by its own order, any order of the lead agency or the director setting administrative penalties reviewed by the legislative body or the board pursuant to this section.

(d) Any order of the legislative body or the board issued under subdivision (c) shall become effective upon issuance thereof, unless the operator petitions the superior

court for review as provided in subdivision (e). Any order shall be served by personal service or by certified mail upon the operator. Payment of any administrative penalty which is specified in an order issued under subdivision (c), shall be made to the lead agency or the director within 30 days of service of the order; however, the payment shall be held in an interest bearing impound account pending the resolution of a petition for review filed pursuant to subdivision (e).

(e) Any operator aggrieved by an order of the legislative body or tne board issued under subdivision (c) may obtain review of the order by filing in the superior court a petition for writ of mandate within 30 days following the issuance of the order. Any operator aggrieved by an order of a lead agency or the director setting administrative penalties under subdivision (c) of Section 2774.1, for which the legislative body or board denies review, may obtain review of the order in the superior court by filing in the court a petition for writ of mandate within 30 days following the denial of review. The provisions of Section 1094.5 of the Code of Civil Procedure shall govern judicial proceedings pursuant to this subdivision, except that in every case the court shall exercise its independent judgment. If the operator does not petition for a writ of mandate within the time limits set by this subdivision, an order of the board or the legislative body shall not be subject to review by any court or agency.

§ 2774.3. The board shall review lead agency ordinances which establish permit and reclamation procedures to determine whether each ordinance is in accordance with state policy, and shall certify the ordinance as being in accordance with state policy if it adequately meets, or imposes requirements more stringent than, the California surface mining and reclamation policies and procedures established by the board pursuant to this chapter.

§ 2774.4. (a) If the board finds that a lead agency either has (1) approved reclamation plans or financial assurances which are not consistent with this chapter, (2) failed to inspect or cause the inspection of surface mining operations as required by this chapter, (3) failed to seek forfeiture of financial assurances and to carry out reclamation of surface mining operations as required by this chapter, (4) failed to take appropriate enforcement actions as required by this chapter, (5) intentionally misrepresented the results of inspections required under this chapter, or (6) failed to submit information to the department as required by this chapter, the board shall exercise any of the powers of that lead agency under this chapter, except for permitting authority.

(b) If, no sooner than three years after the board has taken action pursuant to subdivision (a), the board finds, after a public hearing, that a lead agency has corrected its deficiencies in implementing and enforcing this chapter, and the rules and regulations adopted pursuant to this chapter, the board shall restore to the lead agency the powers assumed by the board pursuant to subdivision (a).

(c) Before taking any action pursuant to subdivision (a), the board shall first notify the lead agency of the identified deficiencies, and allows the lead agency 45 days to correct the deficiencies to the satisfaction of the board. If the lead agency has not corrected the deficiencies to the satisfaction of the board within the 45-day period, the board shall hold a public hearing within the lead agency's area of jurisdiction, upon a 45-day written notice given to the public in at least one newspaper of general circulation within the city or county, and directly mailed to the lead agency and to all surface mining operators within the lead agency's jurisdiction who have submitted reports as required by Section 2207.

(d) Affected surface mining operators and interested persons have the right, at the public hearing, to present oral and written evidence on the matter being considered. The board may, at the public hearing, place reasonable limits on the right of affected surface mining operators and interested persons to question and solicit testimony.

(e) If, after conducting the public hearing required by subdivision (c), the board decides to take action pursuant to subdivision (a) the board shall, based on the record of the public hearing, adopt written findings which explain all of the following:

(1) The action to be taken by the board.

(2) Why the board decided to take the action.

(3) Why the action is authorized by, and meets the requirements of, subdivision (a).

In addition, the findings shall address the significant issues raised, or written evidence presented, by affected surface mining operators, interested persons, or the lead agency. The transcript of testimony and exhibits, together with all papers and requests filed in the proceedings, shall constitute the exclusive record for decision by the board.

(f) The lead agency, any affected surface mining operator, or any interested person who has presented oral or written evidence at the public hearing before the board pursuant to subdivision (d) may obtain review of the board's action taken pursuant to subdivision (a) by filing in the superior court a petition for writ of mandate within 30 days following the issuance of the board's decision. Section 1094.5 of the Code of Civil Procedure governs judicial proceedings pursuant to this subdivision, except that in every case the court shall exercise its independent judgment. If a petition for a writ of mandate is not filed within the time limits set by this subdivision, the board's action under subdivision (a) shall not be subject to review by any court or agency.

§ 2774.5. (a) If, upon review of an ordinance, the board finds that it is not in accordance with state policy, the board shall communicate the ordinance's deficiencies in writing to the lead agency. Upon receipt of the written communication, the lead agency shall have 90 days to submit a revised ordinance to the board for certification as being in accordance with state policy. The board shall review the lead agency's revised ordinance for certification

within 60 days of its receipt. If the lead agency does not submit a revised ordinance within 90 days, the board shall assume full authority for reviewing and approving reclamation plans submitted to the lead agency until the time the lead agency's ordinances are revised in accordance with state policy.

(b) If, upon review of a lead agency's revised ordinance, the board finds the ordinance is still not in accordance with state policy, the board shall again communicate the ordinance's deficiencies in writing to the lead agency. The lead agency shall have a second 90-day period in which to revise the ordinance and submit it to the board for review. If the board again finds that the revised ordinance is not in accordance with state policy or if no revision is submitted, the board shall assume full authority for reviewing and approving reclamation plans submitted to the lead agency until the time the lead agency's ordinances are revised in accordance with state policy.

(c) In any jurisdiction in which the lead agency does not have a certified ordinance, no person shall initiate a surface mining operation unless a reclamation plan has been submitted to, and approved by, the board. Any reclamation plan, approved by a lead agency under the lead agency's ordinance which was not in accordance with state policy at the time of approval, shall be subject to amendment by the board or under the ordinance certified by the board as being in accordance with state policy.

(d) Reclamation plans approved by the board pursuant to this section shall not be subject to modification by the lead agency at a future date but may be amended by the board. Reclamation plans approved by the board shall be remanded to the lead agency upon certification of the lead agency's ordinance, and the lead agency shall approve the reclamation plan as approved by the board, except that a subsequent amendment as may be agreed upon between the operator and the lead agency may be made according to this chapter. No additional public hearing shall be required prior to the lead agency's approval. Nothing in this section shall be construed as authorizing the board to issue a permit for the conduct of mining operations.

§ 2774.6. (a) On or before March 1, 1995, the department shall submit to the Governor and the Legislature a report, prepared by a qualified consultant, which may include an educational institution, which evaluates the effectiveness of lead agencies and the department in implementing this chapter and Section 2207, and in meeting the intent of the Legislature as set forth in Section 2712. The report shall be prepared to the extent that funds are appropriated by the Legislature for this purpose. Prior to encumbering any funds for preparation of the report, the board may conduct a public hearing to receive and respond to public comments concerning the scope of issues to be addressed.

(b) The report shall include, but is not limited to, an evaluation of all of the following:

(1) Compliance with this chapter and Section 2207 by operators of surface mines, lead agencies, the State Geologist, the department, and the board.

(2) Compliance with the reclamation requirements prescribed in Section 2773.

(3) The adequacy of resources needed to carry out this chapter and Section 2207.

(4) The adequacy of information available for purposes of preparing the report.

(5) Any recommended changes to administrative regulations or recommendations for further legislation.

§ 2775. (a) An applicant whose request for a permit to conduct surface mining operations in an area of statewide or regional significance has been denied by a lead agency, or any person who is aggrieved by the granting of a permit to conduct surface mining operations in an area of statewide or regional significance, may, within 15 days of exhausting his rights to appeal in accordance with the procedures of the lead agency, appeal to the board.

(b) The board may, by regulation, establish procedures for declining to hear appeals that it determines raise no substantial issues.

(c) Appeals that the board does not decline to hear shall be scheduled and heard at a public hearing held within the jurisdiction of the lead agency which processed the original application within 30 days of the filing of the appeal, or such longer period as may be mutually agreed upon by the board and the person filing the appeal. In any such action, the board shall not exercise its independent judgment on the evidence but shall only determine whether the decision of the lead agency is supported by substantial evidence in the light of the whole record. If the board determines the decision of the lead agency is not supported by substantial evidence in the light of the whole record it shall remand the appeal to the lead agency and the lead agency shall schedule a public hearing to reconsider its action.

§ 2776. No person who has obtained a vested right to conduct surface mining operations prior to January 1, 1976, shall be required to secure a permit pursuant to this chapter as long as the vested right continues and as long as no substantial changes are made in the operation except in accordance with this chapter. A person shall be deemed to have vested rights if, prior to January 1, 1976, he or she has, in good faith and in reliance upon a permit or other authorization, if the permit or other authorization was required, diligently commenced surface mining operations and incurred substantial liabilities for work and materials necessary therefor. Expenses incurred in obtaining the enactment of an ordinance in relation to a particular operation or the issuance of a permit shall not be deemed liabilities for work or materials.

The reclamation plan required to be filed under subdivision (b) of Section 2770, shall apply to operations conducted after January 1, 1976, or to be conducted.

Nothing in this chapter shall be construed as requiring the filing of a reclamation plan for, or the reclamation of, mined lands on which surface mining operations were conducted prior to January 1, 1976.

§ 2777. Amendments to an approved reclamation plan may be submitted detailing proposed changes from the original plan. Substantial deviations from the original plan shall not be undertaken until such amendment has been filed with, and approved by, the lead agency.

§ 2778. (a) Reclamation plans, reports, applications, and other documents submitted pursuant to this chapter are public records, unless it can be demonstrated to the satisfaction of the lead agency that the release of that information, or part thereof, would reveal production, reserves, or rate of depletion entitled to protection as proprietary information. The lead agency shall identify such proprietary information as a separate part of the application. Proprietary information shall be made available only to the director and to persons authorized in writing by the operator and by the owner.

(b) A copy of all reclamation plans, reports, applications, and other documents submitted pursuant to this chapter shall be furnished to the director by lead agencies on request.

§ 2779. Whenever one operator succeeds to the interest of another in any incompleted surface mining operation by sale, assignment, transfer, conveyance, exchange, or other means, the successor shall be bound by the provisions of the approved reclamation plan and the provisions of this chapter.

Article 6. Areas of Statewide or Regional Significance

§ 2790. After receipt of mineral information from the State Geologist pursuant to subdivision (c) of Section 2761, the board may by regulation adopted after a public hearing designate specific geographic areas of the state as areas of statewide or regional significance and specify the boundaries thereof. Such designation shall be included as a part of the state policy and shall indicate the reason for which the particular area designated is of significance to the state or region, the adverse effects that might result from premature development of incompatible land uses, the advantages that might be achieved from extraction of the minerals of the area, and the specific goals and policies to protect against the premature incompatible development of the area.

§ 2791. The board shall seek the recommendations of concerned federal, state, and local agencies, educational institutions, civic and public interest organizations, and private organizations and individuals in the identification of areas of statewide and regional significance.

§ 2792. Neither the designation of an area of regional or statewide significance nor the adoption of any regulations for such an area shall in any way limit or modify the rights of any person to complete any development that has been authorized pursuant to Part 2 (commencing with Section 11000) of Division 4 of the Business and Professions Code, pursuant to the Subdivision Map Act, (Division 2 [commencing with Section 66410] of Title 7 of the Government Code), or by a building permit or other authorization to commence development, upon which such person relies and has changed his position to his substantial detriment, and, which permit or authorization was issued prior to the designation of such area pursuant to Section 2790. If a developer has by his actions taken in reliance upon prior regulations obtained vested or other legal rights that in law would have prevented a local public agency from changing such regulations in a way adverse to his interests, nothing in this chapter authorizes any governmental agency to abridge those rights.

§ 2793. The board may, by regulation adopted after a public hearing, terminate, partially or wholly, the designation of any area of statewide or regional significance on a finding that the direct involvement of the board is no longer required.

Article 7. Fiscal Provisions

§ 2795. (a) Notwithstanding any other provision of law, the first two million dollars ($2,000,000) of moneys from mining activities on federal lands disbursed by the United States each fiscal year to this state pursuant to Section 35 of the Mineral Lands Leasing Act, as amended (30 U.S.C. Sec. 191), shall be deposited in the Surface Mining and Reclamation Account in the General Fund, which account is hereby created, and may be expended, upon appropriation by the Legislature, for the purposes of this chapter. However, if in any fiscal year, the amount of money disbursed to the state pursuant to Section 35 of the Mineral Lands Leasing Act is less than twenty million dollars ($20,000,000), then only the first one million one hundred thousand dollars ($1,100,000) of that money shall be deposited in the Surface Mining and Reclamation Account for the next fiscal year.

(b) Proposed expenditures from the account shall be included in a separate item in the Budget Bill for each fiscal year for consideration by the Legislature. Each appropriation from the account shall be subject to all of the limitations contained in the Budget Act and to all other fiscal procedures prescribed by law with respect to the expenditure of state funds.

§ 2796. (a) The Legislature hereby establishes a state abandoned minerals and mineral materials mine reclamation program for the purpose of administering funds received by the state under the Surface Mining

Control and Reclamation Act of 1977, or through amendments to the federal general mining laws (30 U.S.C. Secs. 1, 12A, 16, 161, and 162, and 602, et seq.).

(b) There is hereby created in the State Treasury, the Abandoned Mine Reclamation and Minerals Fund. The money in the fund may be expended, upon appropriation by the Legislature, as required by federal legislation amending the federal general mining laws, and for the following purposes:

(1) Development of an inventory of mined lands, water, and facilities eligible for reclamation.

(2) Establishment by the director of the abandoned minerals and mineral materials mine reclamation program pursuant to the pending federal legislation amending the federal general mining laws, if enacted, that provides for all of the following:

(A) (i) Reclamation and restoration of abandoned surface mined areas.

(ii) For purposes of this subparagraph, "abandoned surface mined area" means mined lands that meet all of the following requirements:

(I) Mining operations have ceased for a period of one year or more.

(II) There is no interim management plan in effect that meets the requirements of Section 2770.

(III) There are no approved financial assurances that are adequate to perform reclamation in accordance with this chapter.

(IV) The mined lands are adversely affected by past mineral mining, other than mining for coal, oil, and gas, and mineral material mining.

(B) Reclamation and restoration of abandoned milling and processing areas.

(C) Sealing, filling, and grading abandoned deep mine entries.

(D) Planting of land adversely affected by past mining to prevent erosion and sedimentation.

(E) Prevention, abatement, treatment, and control of water pollution created by abandoned mine drainage.

(F) Control of surface subsidence due to abandoned deep mines.

(G) The expenses necessary to accomplish the purposes of this section.

(3) To the extent those expenditures are allowed by the applicable statutes:

(A) Grants to lead agencies for the purposes of carrying out this chapter.

(B) Implementation of this chapter and Section 2207 by the department, which may include an offsetting reduction in the amount of reporting fees collected from each active and idle mining operation and deposited in the Mine Reclamation Account pursuant to subdivision (d) of the Section 2207, as determined by the director.

(c) The Abandoned Mine Reclamation and Minerals Fund shall be the depository for all moneys from mining activities on federal lands, as follows:

(1) (A) Disbursements made by the United States each fiscal year to this state pursuant to Section 35 of the Mineral Lands Leasing Act (30 U.S.C. Sec. 191), with respect to royalties levied on the production of locatable minerals or mineral concentrates from any mining claim located on federal lands in the state pursuant to the pending federal legislation amending the federal general mining laws, but excluding oil, gas, and geothermal revenues.

(B) The federal funds specified in this paragraph do not include the funds deposited in the Surface Mining and Reclamation Account pursuant to Section 2795, the funds deposited in the Geothermal Resources Development Account pursuant to Section 3820, or the funds deposited in the State School Fund pursuant to Section 12320 of the Education Code.

(2) Grants made by the Secretary of the Interior to this state from the Abandoned Minerals Mine Reclamation Fund pursuant to the pending federal legislation amending the federal general mining laws, for the implementation of an abandoned minerals and mining materials mine reclamation program.

(d) The expenditure of money from the Abandoned Mine Reclamation and Minerals Fund shall reflect the following priorities and other priorities as specified in federal statute in the following ranking:

(1) The protection of public health and safety and the environment from the adverse effects of past minerals and mineral materials mining practices.

(2) The protection of property that is in extreme danger as a result of past minerals and mineral materials mining practices.

(3) The restoration of land and water resources previously degraded by the adverse effects of past minerals and mineral materials mining practices.

(e) Proposed expenditures from the Abandoned Mine Reclamation and Minerals Fund shall be included in a separate item in the Budget Bill for each fiscal year for consideration by the Legislature. Each appropriation from the fund shall be subject to all the limitations contained in the Budget Act and to all other fiscal procedures prescribed by law with respect to the expenditure of state funds.

NOTE: Section 2796 shall become operative upon the effective date of any federal legislation which is enacted requiring the payment of a royalty on the production of locatable minerals, produced from any mining claim located or converted on federal lands in this state, excluding royalties paid on oil, gas, and geothermal lease activities, and not already subject to disposition under any of the following:

(1) The Mineral Lands Leasing Act (30 U.S.C. Sec. 191).
(2) The Geothermal Steam Act of 1970 (30 U.S.C. Sec. 100).
(3) The Materials Act of 1947 (30 U.S.C. Sec. 601).
(4) The Mineral Leasing Act for Acquired Lands (30 U.S.C. Sec. 351).

ANNUAL REPORTING REQUIREMENTS AND REPORTING FEE

Public Resources Code Section 2207
(Repealed and added by AB 3551, Chapter 1097, Statutes of 1990, Sher,
Amended by AB 3903, Chapter 1101, Statutes of 1990, Sher, AB 1506, Chapter 845,
Statutes of 1991, Sher, AB 3098, Chapter 1077, Statutes of 1992, Sher, and
SB 741, Chapter 1287, Statutes of 1993, Rogers)

§ 2207(a) The owner, lessor, lessee, agent, manager, or other person in charge of any mining operation of whatever kind or character within the state shall forward to the director not later than July 1, 1991, and every year thereafter not later than an anniversary date established by the director, upon forms which will be furnished by the board, a report which identifies all of the following:

(1) The name, address, and telephone number of the person, company, or other owner of the mining operation.

(2) The name, address, and telephone number of a designated agent who resides in this state, and who will receive and accept service of all orders, notices, and processes of the lead agency, board, director, or court.

(3) The location of the mining operation, its name, its mine number as issued by the Bureau of Mines or the director, its section, township, range, latitude, longitude, and approximate boundaries of the mining operation marked on a United States Geological Survey 7½-minute or 15-minute quadrangle map.

(4) The lead agency.

(5) The approval date of the mining operation's reclamation plan.

(6) The mining operation's status as active, idle, reclaimed, or in the process of being reclaimed.

(7) The commodities produced by the mine and the type of mining operation.

(8) Proof of annual inspection by the lead agency, starting with the 1992 report.

(9) Proof of financial assurances.

(10) Ownership of the property, including government agencies, if applicable, by the assessor's parcel number, and total assessed value of the mining operation.

(11) The approximate permitted size of the mining operation subject to Chapter 9 (commencing with Section 2710), in acres.

(12) The approximate total acreage of land newly disturbed by the mining operation during the previous calendar year.

(13) The approximate total of disturbed acreage reclaimed during the previous calendar year.

(14) The approximate total unreclaimed disturbed acreage remaining as of the end of the calendar year.

(15) The total production for each mineral commodity produced during the previous year.

(16) A copy of any approved reclamation plan and any amendments or conditions of approval to any existing reclamation plan approved by the lead agency.

(b) Every year, not later than the anniversary date established by the director, the person submitting the report pursuant to subdivision (a) shall forward to the lead agency, upon forms which shall be furnished by the board, a report which provides all of the information specified in paragraphs (1) to (14), inclusive, of subdivision (a).

(c) Subsequent reports shall include only changes in the information submitted for the items described in subdivision (a), except that, instead of the approved reclamation plan, the reports shall include any reclamation plan amendments approved during the previous year. The reports shall state whether review of a reclamation plan, financial assurances, or an interim management plan is pending under subdivision (b), (c), (d), or (h) of Section 2770, or whether an appeal before the board or lead agency governing body is pending under subdivision (e) or (h) of Section 2770. The director shall notify the person submitting the report and the owner's designated agent in writing that the report and the fee required pursuant to subdivision (d) have been received, specify the anniversary date by which the mining operation shall submit reports, specify the mining operation's mine number if one has not been issued by the Bureau of Mines, and notify the person and agent of any deficiencies in the report within 90 days of receipt. That person or agent shall have 30 days from receipt of the notification to correct the noted deficiencies and forward the revised reports to the director and the lead agency. Any person who fails to comply with this section, or knowingly provides incorrect or false information in reports required by this section, may be subject to an administrative penalty as provided in subdivision (c) of Section 2774.1.

(d) (1) The board shall impose, by regulation, pursuant to paragraph (2), an annual reporting fee on, and method for collecting annual fees from, each active or idle mining operation. The maximum fee for any single mining operation shall not exceed two thousand dollars ($2,000) annually and shall not be less than fifty dollars ($50) annually.

(2) (A) The board shall adopt, by regulation, a schedule of fees authorized under paragraph (1) to cover the department's cost in carrying out this section and Chapter 9 (commencing with Section 2710), as reflected in the Governor's Budget, and may adopt those

regulations as emergency regulations. In establishing the schedule of fees to be paid by each active and idle mining operation, the fees shall be calculated on an equitable basis reflecting the size and type of operation. The board shall also consider the total assessed value of the mining operation, the acreage disturbed by mining activities, and the acreage subject to the reclamation plan.

(B) Regulations adopted pursuant to this subdivision shall be adopted by the board in accordance with Chapter 3.5 (commencing with Section 11340) of Part 1 of Division 3 of Title 2 of the Government Code. The adoption of any emergency regulations pursuant to this subdivision shall be considered necessary to address an emergency and shall be considered by the Office of Administrative Law to be necessary for the immediate preservation of the public peace, health, safety, and general welfare.

(3) For the 1991-92 fiscal year the total revenue generated by the reporting fees established pursuant to this subdivision shall not exceed, and may be less than, one million one hundred thirty-two thousand dollars ($1,132,000), which shall be adjusted in the 1992-93 and 1993-94 fiscal years to reflect increases in the cost of living, as measured by the California Consumer Price Index for all urban consumers, calendar year averages, using the percentage change in the previous year. Beginning in the 1994-95 fiscal year, and for subsequent fiscal years the total revenue generated by the reporting fees shall not exceed, and may be less than, the amount of one million dollars ($1,000,000), as adjusted for the cost of living beginning with the 1991-92 fiscal year and annually thereafter. If the director determines that the revenue collected during the preceding fiscal year was greater or less than the cost to operate the program, the board shall adjust the fees to compensate for the overcollection or undercollection of revenues.

(4) The reporting fees established pursuant to this subdivision shall be deposited in the Mine Reclamation Account, which is hereby created. Any fees, penalties, interest, fines, or charges collected by the director or board pursuant to this chapter or Chapter 9 (commencing with Section 2710) shall be deposited in the Mine Reclamation Account. The money in the account shall be available to the department and board, upon appropriation by the Legislature, solely to carry out this section and Chapter 9 (commencing with Section 2710), and up to three hundred thousand dollars ($300,000) shall be available to the department upon appropriation by the Legislature to contract for preparation of the report required by Section 2774.6

(5) In case of late payment of the reporting fee, a penalty of not less than one hundred dollars ($100) or 10 percent of the amount due, whichever is greater, plus interest at the rate of 1½ percent per month, computed from the delinquent date of the assessment until and including the date of payment, shall be assessed. New mining operations which have not submitted a report shall submit a report prior to commencement of operations. The new operation shall submit its fee according to the reasonable fee schedule adopted by the board, and the month that the report is received shall become that operation's anniversary month.

(e) The lead agency may impose a fee upon each mining operation to cover the reasonable costs incurred in implementing this chapter and Chapter 9 (commencing with Section 2710).

(f) For purposes of this section, "mining operation" has the same meaning as "surface mining operation" as defined in Section 2735, unless excepted by Section 2714. For the purposes of fee collections only, "mining operation" may include one or more mines operated by a single operator or mining company on one or more sites, if the total annual combined mineral production for all sites is less than 100 troy ounces for precious metals, if precious metals are the primary mineral commodity produced, or less than 100,000 short tons if the primary mineral commodity produced is not precious metals.

(g) Any information in reports submitted pursuant to subdivision (a) which includes or otherwise indicates the total mineral production, reserves, or rate of depletion of any mining operation shall not be disclosed to any member of the public, as defined in subdivision (f) of Section 6252 of the Government Code. Other portions of the reports are public records unless excepted by statute. Statistical bulletins based on these reports and published under Section 2205 shall be compiled to show, for the state as a whole and separately for each lead agency, the total of each mineral produced therein. In order not to disclose the production, reserves, or rate of depletion from any identifiable mining operation, no production figure shall be published or otherwise disclosed unless that figure is the aggregated production of not less than three mining operations. If the production figure for any lead agency would disclose the production, reserves, or rate of depletion of less than three mining operations or otherwise permit the reasonable inference of the production, reserves, or rate of depletion of any identifiable mining operation, that figure shall be combined with the same such figure of not less than two other lead agencies without regard to the location of the lead agencies. The bulletin shall be published annually by June 30 or as soon thereafter as practicable.

SITE INSPECTIONS CONDUCTED BY THE DEPARTMENT OF CONSERVATION

Public Resources Code Section 2208
(Amended by AB 2943 [Allen, Chapter 999, Statutes of 1992])

§ 2208. The director or a qualified assistant may at any time enter or examine any and all mines, quarries, wells, mills, reduction works, refining works, and other mineral properties or working plants in this state in order to gather data to comply with the provisions of this chapter.

PURCHASE AND USE OF MINED MATERIALS BY STATE AGENCIES

Public Contract Code Section 10295.5
(Amended by AB 3098 [Sher, Chapter 1077, Statutes of 1992]
and AB 723 [Sher, Chapter 278, Statutes of 1993])

10295.5 (a) Notwithstanding any other provision of law, no state agency shall purchase or utilize sand, gravel, aggregates, or other minerals produced from a surface mining operation subject to the Surface Mining and Reclamation Act of 1975 (Chapter 9 (commencing with Section 2710) of Division 2 of the Public Resources Code), unless the operation is identified in the list published pursuant to subdivision (b) of Section 2717 of the Public Resources Code as having either of the following:

(1) An approved reclamation plan and financial assurances covering the affected surface mining operation.

(2) An appeal pending before the State Mining and Geology Board pursuant to subdivision (e) of Section 2770 of the Public Resources Code with respect to the reclamation plan or financial assurances.

(b) The Department of General Services shall revise its procedures and procurement specifications for state purchases of sand, gravel, aggregates, and other minerals to ensure maximum compliance with this section.

(c) For purposes of the section, "minerals" means any naturally occurring chemical element or compound, or groups of elements and compounds, formed from inorganic processes and organic substances, including, but not limited to, coal, peat, and bituminous rock, but excluding geothermal resources, natural gas, and petroleum.

(d) The requirements of this section shall apply to mining operations on federal lands or Indian lands that are subject to the Surface Mining and Reclamation Act of 1975 (Chapter 9 (commencing with Section 2710) of Division 2 of the Public Resources Code) pursuant to a memorandum of understanding between the Department of Conservation and the federal agency having jurisdiction over the lands.

(e)(1) This section does not apply to construction or maintenance contracts if the contractor has entered into a written subcontract, executed prior to July 1, 1993, for the purchase of materials from a mine operator that would not otherwise qualify under the list published pursuant to subdivision (b) of Section 2717 of the Public Resources Code.

(2) This subdivision shall become inoperative on July 1, 1996.

(f) This section shall become operative on July 1, 1993.

LIABILITY LIMITATIONS FOR REMEDIATION/RECLAMATION OF ABANDONED MINES

See Water Code Section 13397 et seq.
(Added by SB 1108 [Leslie, Chapter 878, Statutes of 1995])

NOTE: While this section amends the California Water Code, liabilities under the federal Clean Water Act may remain until similar federal amendments are adopted.

STATE MINING AND GEOLOGY BOARD RECLAMATION REGULATIONS

Article 1. Surface Mining and Reclamation Practice

§ 3500. Purpose. It is the purpose of this subchapter to establish state policy for the reclamation of mined lands and the conduct of surface mining operations in accord with the general provisions set forth in Public Resources Code, Division 2, Chapter 9, Section 2710 et seq. (Surface Mining and Reclamation Act of 1975, as amended by Statutes of 1980).
Note: Authority cited: Section 2755, Public Resources Code. Reference: Sections 2710-2795, Public Resources Code.

§ 3501. Definitions. The following definitions as used herein shall govern the interpretation of these regulations:

Angle of Repose. The maximum angle of slope (measured from horizontal plane) at which loose cohesionless material will come to rest on a pile of similar material.

Backfill. Earth, overburden, mine waste or imported material used to replace material removed during mining.

Borrow Pits. Excavations created by the surface mining of rock, unconsolidated geologic deposits or soil to provide material (borrow) for fill elsewhere.

Critical Gradient. The maximum stable inclination of an unsupported slope under the most adverse conditions that it will likely experience, as determined by current engineering technology.

Excavations for On-Site Construction. Earth material moving activities that are required to prepare a site for construction of structures, landscaping, or other land improvements (such as excavation, grading, compaction, and the creation of fills and embankments), or that in and of themselves constitute engineered works (such as dams, road cuts, fills, and catchment basins).

Grading. To bring an existing surface to a designed form by cutting, filling, and/or smoothing operations.

Minerals. Any naturally occurring chemical element or compound, or groups of elements and compounds, formed from inorganic processes and organic substances, including, but not limited to, coal, peat, and bituminous rock, but excluding geothermal resources, natural gas, and petroleum.

Person. Any individual, firm, association, corporation, organization, or partnership, or any city, county, district, or the state or any department or agency thereof.

Reclamation Plan. The applicant's (operator's) completed and approved plan for reclaiming the lands affected by his surface mining operations conducted after January 1, 1976, as called for in Section 2772 of the Act.

Resoiling. The process of artificially building or reconstructing a soil profile.

Stream Bed Skimming. Excavation of sand and gravel from stream bed deposits above the mean summer water level or stream bottom, whichever is higher.

Surface Mining Operations. In addition to the provisions of Section 2735 of the Act, borrow pitting, streambed skimming, segregation and stockpiling of mined materials (and recovery of same) are deemed to be surface mining operations unless specifically excluded under Section 2714 of the Act or Section 3505 of these regulations.

Temporarily Deactivated Operation. A surface mine that has been closed down and that the operator has maintained in the expectation of reopening it when the conditions justify.

Topsoil. The upper part of the soil profile that is relatively rich in humus, which is technically known as the A-horizon of the soil profile.

NOTE: Authority cited: Section 2755, Public Resources Code. Reference: Sections 2726-2735, Public Resources Code.

§ 3502. The Reclamation Plan.

(a) Objectives. Reclamation plans shall be developed to attain the objectives of Public Resources Code Section 2712(a)-(c).

(b) Reclamation Plan Elements. In addition to the information required by Public Resources Code Section 2772, the following elements shall be included in the reclamation plan:

(1) The environmental setting of the site of operations and the effect that possible alternate reclaimed site conditions may have upon the existing and future uses of surrounding lands.

(2) The public health and safety, giving consideration to the degree and type of present and probable future exposure of the public to the site.

(3) The designed steepness and proposed treatment of the mined lands' final slopes shall take into consideration the physical properties of the slope material, its probable maximum water content, landscaping requirements, and other factors. In all cases, reclamation plans shall specify slope angles flatter than the critical gradient for the type of material involved. Whenever final slopes approach the critical gradient for the type of material involved, regulatory agencies shall require an engineering analysis of the slope stability. Special emphasis on slope stability and design shall be necessary when public safety or adjacent property may be affected.

(4) Areas mined to produce additional materials for backfilling and grading, as well as settlement of filled areas, shall be considered in the reclamation plan. Where ultimate site uses include roads, building sites, or other improvements sensitive to settlement, the reclamation

plans shall include compaction of the fill materials in conformance with good engineering practice.

(5) Disposition of old equipment.

(6) Temporary stream or watershed diversions.

(c) Adequacy. In judging the adequacy of a particular reclamation plan in meeting the requirements described herein and within the Act, the lead agency shall consider the physical and land-use characteristics of the mined lands and their surrounding area pursuant to Public Resources Code Section 2773.

NOTE: Authority cited: Section 2755, Public Resources Code. Reference: Sections 2712(a)-(c), 2756-2757, 2770 and 2772-2773, Public Resources Code.

§ 3503. Surface Mining and Reclamation Practice.

The following are minimum acceptable practices to be followed in surface mining operations:

(a) Soil Erosion Control.

(1) The removal of vegetation and overburden, if any, in advance of surface mining shall be kept to the minimum.

(2) Stockpiles of overburden and minerals shall be managed to minimize water and wind erosion.

(3) Erosion control facilities such as retarding basins, ditches, streambank stabilization, and diking shall be constructed and maintained where necessary to control erosion.

(b) Water Quality and Watershed Control.

(1) Settling ponds or basins shall be constructed to prevent potential sedimentation of streams at operations where they will provide a significant benefit to water quality.

(2) Operations shall be conducted to substantially prevent siltation of ground-water recharge areas.

(c) Protection of Fish and Wildlife Habitat. All reasonable measures shall be taken to protect the habitat of fish and wildlife.

(d) Disposal of Mine Waste Rock and Overburden. Permanent piles or dumps of mine waste rock and overburden shall be stable and shall not restrict the natural drainage without suitable provisions for diversion.

(e) Erosion and Drainage. Grading and revegetation shall be designed to minimize erosion and to convey surface runoff to natural drainage courses or interior basins designed for water storage. Basins that will store water during periods of surface runoff shall be designed to prevent erosion of spillways when these basins have outlet to lower ground.

(f) Resoiling. When the reclamation plan calls for resoiling, coarse hard mine waste shall be leveled and covered with a layer of finer material or weathered waste. A soil layer shall then be placed on this prepared surface. Surface mines that did not salvage soil during their initial operations shall attempt, where feasible, to upgrade remaining materials. The use of soil conditioners, mulches, or imported topsoil shall be considered where revegetation is part of the reclamation plan and where such measures appear necessary. It is not justified, however, to denude adjacent areas of their soil, for any such denuded areas must in turn be reclaimed.

(g) Revegetation. When the reclamation plan calls for revegetation the available research addressing revegetation methods and the selection of species having good survival characteristics, for the topography, resoiling characteristics, and climate of the mined areas shall be used.

NOTE: Authority cited: Section 2755, Public Resources Code. Reference: Sections 2756 and 2757, Public Resources Code.

§ 3504. Administration by Lead Agency.

(a) Record Keeping. The lead agency shall establish and maintain inhouse measures and procedures to ensure organized record-keeping and monitoring of surface mining reclamation under its jurisdiction. The lead agency shall forward a copy of each permit and approved reclamation plan to the California Division of Mines and Geology (Sacramento).

(b) Performance Assurances. The lead agency shall ensure that the objectives of the reclamation plan will be attained. This may include provisions for liens, surety bonds or other security, to guarantee the reclamation in accordance with the approved reclamation plan.

NOTE: Authority cited: Section 2755, Public Resources Code. Reference: Sections 2757, 2758(b), 2774(a) and 2778, Public Resources Code.

§ 3505. Special Provisions.

(a) Exemptions. In addition to the provisions of Public Resources Code Section 2714(a), (c) and (d), any surface mining operation that does not involve either the removal of a total of more than 1000 cubic yards of minerals, ores, and overburden, or involve more than one acre in any one location, shall be exempt from the provisions of the Act.

(b) Vested Rights. The permit and reclamation plan requirements for persons with vested rights are stated in Public Resources Code Section 2776.

Where a person with vested rights continues surface mining in the same area subsequent to January 1, 1976, he shall obtain an approval of a reclamation plan covering the mined lands disturbed by such subsequent surface mining. In those cases where an overlap exists (in the horizontal and/or vertical sense) between pre- and post-Act mining, the reclamation plan shall call for reclamation proportional to that disturbance caused by the mining after the effective date of the Act.

NOTE: Authority cited: Sections 2714(d) and 2755, Public Resources Code. Reference: Sections 2714, 2758(c) and 2776, Public Resources Code.

Article 6. Mineral Resource Management Policies

§ 3675. Definitions. The following definitions as used herein shall govern the interpretation of these regulations:

Compatible Land Use. Land uses inherently compatible with mining and/or that require a minimum public or private investment in structures, land improvements, and which may allow mining because of the relative economic

value of the land and its improvements. Examples of such uses may include, but shall not be limited to, very low density residential, geographically extensive but low impact industrial, recreational, agricultural, silvicultural, grazing, and open space.

Incompatible Land Use. Land uses inherently incompatible with mining and/or that require public or private investment in structures, land improvements, and landscaping and that may prevent mining because of the greater economic value of the land and its improvements. Examples of such uses may include, but shall not be limited to, high density residential, low density residential with high unit value, public facilities, geographically limited but impact intensive industrial, and commercial.

NOTE: Authority cited: Section 2755, Public Resources Code. Reference: Sections 2761-2762, Public Resources Code.

§ 3676. Mineral Resource Management Policies.

Lead agency mineral resource management policies adopted pursuant to the provisions of PRC Section 2762 shall include but not be limited to, the following:

(a) A summary of the information provided by the classification and/or designation reports, or incorporation of PRC Sections 2710 et seq., and state policy by reference, together with maps of the identified mineral deposits or incorporation by reference of the classification and/or designation maps provided by the Board.

(b) Statements of policy in accordance with the provisions of PRC Section 2762(a).

(c) Implementation measures that shall include:

(1) Reference in the general plan of the location of identified mineral deposits, and a discussion of those areas targeted for conservation and possible future extraction by the lead agency.

(2) Use of overlay maps or inclusion of information on any appropriate planning maps to clearly delineate identified mineral deposits and those areas targeted by the lead agency for conservation and possible future extraction.

(3) At least one of the following:

(A) Use of special purpose overlay zones, mineral resource/open space zoning, or any other appropriate zoning that identifies the presence of identified mineral deposits and restricts the encroachment of incompatible land uses in those areas that are to be conserved.

(B) Record, on property titles in the affected mineral resource areas, a notice identifying the presence of identified mineral deposits.

(C) Impose conditions upon incompatible land uses in and surrounding areas containing identified mineral deposits for the purpose of mitigating the significant land use conflicts prior to approving a use that would otherwise be incompatible with mineral extraction.

NOTE: Authority cited: Section 2755, Public Resources Code. Reference: Sections 2757 and 2761-63, Public Resources Code.

Article 9. Reclamation Standards

§ 3700. Applicability. Reclamation of mined lands shall be implemented in conformance with the standards in this Article.

(a) The standards shall apply to each surface mining operation to the extent that:

(1) they are consistent with required mitigation identified in conformance with the California Environmental Quality Act, provided that such mitigation is at least as stringent as the standards; and

(2) they are consistent with the planned or actual subsequent use or uses of the mining site.

(b) Where an applicant demonstrates to the satisfaction of the lead agency that an exception to the standards specified in this article is necessary based upon the approved end use, the lead agency may approve a different standard for inclusion in the approved reclamation plan. Where the lead agency allows such an exception, the approved reclamation plan shall specify verifiable, site-specific standards for reclamation. The lead agency may set standards which are more stringent than the standards set forth in this Article; however, in no case may the lead agency approve a reclamation plan which sets any standard which is less stringent than the comparable standard specified in this Article.

(c) When substantial amendments are proposed to reclamation plans which were approved prior to January 15, 1993, the standards set forth in this Article shall be applied by the lead agency in approving or denying approval of the amended reclamation plan.

(d) The standards in this Article shall not apply to mining operations:

(1) which completed reclamation prior to January 15, 1993, in conformance with an approved reclamation plan; or

(2) for which a reclamation plan has been approved prior to January 15, 1993.

NOTE: Authority cited: Sections 2755, 2756 and 2773, Public Resources Code. Reference: Section 2773, Public Resources Code.

§ 3701. Definitions. The following definitions shall govern the interpretation of these regulations:

"Arid" means landscapes with an average annual precipitation of five inches or less.

"Contamination" means an impairment of the quality of the waters of the state to a degree which creates a hazard to the public health through poisoning or through the spread of disease.

"Highwall" means the unexcavated face of exposed overburden and ore in a surface mine.

"Indigenous Plants" means plants occurring naturally in an area, not introduced.

"Native Species" means plant species indigenous to California, using pre-European as the historic time reference.

"Noxious Weeds" means any species of plant that is or is likely to become destructive or difficult to control or eradicate, and is termed to be so by the Director of the

Department of Food and Agriculture in section 4500, Title 3 of the California Code of Regulations, pursuant to the Food and Agriculture Code section 5004 et seq.

"Vegetative Cover" means the vertical projection of the crown or shoot area of a species to the ground surface expressed as a percentage of the reference area (percentage can be greater than 100 percent).

"Vegetative Density" means the number of individuals or stems of each species rooted within the given reference area.

"Vegetative Species-richness" means the number of different plant species within the given reference area.

"Wetlands" for the purposes of these regulations, the definition of wetlands shall be the same as defined in the California Fish and Game Code, section 2785, subdivision (g).

NOTE: Authority cited: Sections 2755, 2756 and 2773, Public Resources Code. Reference: Section 2773, Public Resources Code.

§ 3702. Financial Assurances. Lead agencies shall require financial assurances for reclamation in accordance with Public Resources Code section 2773.1 to ensure that reclamation is performed in accordance with the approved reclamation plan and with this article.

NOTE: Authority cited: Sections 2755, 2773 and 2773.1, Public Resources Code. Reference: Sections 2773 and 2773.1, Public Resources Code.

§ 3703. Performance Standards for Wildlife Habitat.

Wildlife and wildlife habitat shall be protected in accordance with the following standards:

(a) Rare, threatened or endangered species as listed by the California Department of Fish and Game, (California Code of Regulations, Title 14, sections 670.2 - 670.5) or the U. S. Fish and Wildlife Service, (50 CFR 17.11 and 17.12) or species of special concern as listed by the California Department of Fish and Game in the Special Animals List, Natural Diversity Data Base, and their respective habitat, shall be conserved as prescribed by the federal Endangered Species Act of 1973, 16 U.S.C. section 1531 et. seq., and the California Endangered Species Act, Fish and Game Code section 2050 et seq. If avoidance cannot be achieved through the available alternatives, mitigation shall be proposed in accordance with the provisions of the California Endangered Species Act, Fish and Game Code section 2050 et seq., and the federal Endangered Species Act of 1973, 16 U.S.C. section 1531 et seq.

(b) Wildlife habitat shall be established on disturbed land in a condition at least as good as that which existed before the lands were disturbed by surface mining operations, unless the proposed end use precludes its use as wildlife habitat or the approved reclamation plan establishes a different habitat type than that which existed prior to mining.

(c) Wetland habitat shall be avoided. Any wetland habitat impacted as a consequence of surface mining operations shall be mitigated at a minimum of one to one ratio for wetland habitat acreage and wetland habitat value.

NOTE: Authority cited: Sections 2755, 2756 and 2773, Public Resources Code. Reference: Section 2773, Public Resources Code.

§ 3704. Performance Standards for Backfilling, Regrading, Slope Stability, and Recontouring. Backfilling, regrading, slope stabilization, and recontouring shall conform with the following standards:

(a) Where backfilling is proposed for urban uses (e.g., roads, building sites, or other improvements sensitive to settlement), the fill material shall be compacted in accordance with section 7010, Chapter 70 of the Uniform Building Code, published by the International Conference of Building Officials (1991), the local grading ordinance, or other methods approved by the lead agency as appropriate for the approved end use.

(b) Where backfilling is required for resource conservation purposes (e.g., agriculture, fish and wildlife habitat, and wildland conservation), fill material shall be backfilled to the standards required for the resource conservation use involved.

(c) Piles or dumps of mining waste shall be stockpiled in such a manner as to facilitate phased reclamation. They shall be segregated from topsoil and topsoil substitutes or growth media salvaged for use in reclamation.

(d) Final reclaimed fill slopes, including permanent piles or dumps of mine waste rock and overburden, shall not exceed 2:1 (horizontal:vertical), except when site-specific geologic and engineering analysis demonstrate that the proposed final slope will have a minimum slope stability factor of safety that is suitable for the proposed end use, and when the proposed final slope can be successfully revegetated.

(e) At closure, all fill slopes, including permanent piles or dumps of mine waste and overburden, shall conform with the surrounding topography and/or approved end use.

(f) Cut slopes, including final highwalls and quarry faces, shall have a minimum slope stability factor of safety that is suitable for the proposed end use and conform with the surrounding topography and/or approved end use.

(g) Permanent placement of piles or dumps of mining waste and overburden shall not occur within wetlands unless mitigation acceptable to the lead agency has been proposed to offset wetland impacts and/or losses.

NOTE: Authority cited: Sections 2755, 2756 and 2773, Public Resources Code. Reference: Section 2773, Public Resources Code.

§ 3705. Performance Standards for Revegetation.

Revegetation shall be part of the approved plan, unless it is not consistent with the approved end use.

(a) A vegetative cover suitable for the proposed end use and capable of self-regeneration without continued dependence on irrigation, soil amendments or fertilizer shall be established on disturbed land unless an artificially maintained landscape is consistent with the approved reclamation plan. Vegetative cover or density, and species-richness shall be, where appropriate, sufficient to stabilize the surface against effects of long-term erosion and shall be similar to naturally occurring habitats in the surrounding area. The vegetative density, cover and

species richness of naturally occurring habitats shall be documented in baseline studies carried out prior to the initiation of mining activities. However, for areas that will not be reclaimed to prior conditions, the use of data from reference areas in lieu of baseline site data is permissible.

(b) Test plots conducted simultaneously with mining shall be required to determine the most appropriate planting procedures to be followed to ensure successful implementation of the proposed revegetation plan. The lead agency may waive the requirement to conduct test plots when the success of the proposed revegetation plan can be documented from experience with similar species and conditions or by relying on competent professional advice based on experience with the species to be planted.

(c) Where surface mining activities result in compaction of the soil, ripping, disking, or other means shall be used in areas to be revegetated to eliminate compaction and to establish a suitable root zone in preparation for planting.

(d) Prior to closure, all access roads, haul roads, and other traffic routes to be reclaimed shall be stripped of any remaining roadbase materials, prepared in accordance with subsection 3705(g), covered with suitable growth media or topsoil, and revegetated. When it is not necessary to remove roadbase materials for revegetative purposes, lead agencies may set a different standard as specified in section 3700(b) of this Article.

(e) Soil analysis shall be required to determine the presence or absence of elements essential for plant growth and to determine those soluble elements that may be toxic to plants, if the soil has been chemically altered or if the growth media consists of other than the native topsoil. If soil analysis suggests that fertility levels or soil constituents are inadequate to successfully implement the revegetative program, fertilizer or other soil amendments may be incorporated into the soil. When native plant materials are used, preference shall be given to slow-release fertilizers, including mineral and organic materials that mimic natural sources, and shall be added in amounts similar to those found in reference soils under natural vegetation of the type being reclaimed.

(f) Temporary access for exploration or other short-term uses on arid lands shall not disrupt the soil surface except where necessary to gain safe access. Barriers shall be installed when necessary to gain safe access. Barriers shall be installed when necessary to prevent unauthorized vehicular traffic from interfering with the reclamation of temporary access routes.

(g) Native plant species shall be used for revegetation, except when introduced species are necessary to meet the end uses specified in the approved reclamation plan. Areas to be developed for industrial, commercial, or residential use shall be revegetated for the interim period, as necessary, to control erosion. In this circumstance, non-native plant species may be used if they are not noxious weeds and if they are species known not to displace native species in the area.

(h) Planting shall be conducted during the most favorable period of the year for plant establishment.

(i) Soil stabilizing practices shall be used where necessary to control erosion and for successful plant establishment. Irrigation may be used when necessary to establish vegetation.

(j) If irrigation is used, the operator must demonstrate that the vegetation has been self-sustaining without irrigation for a minimum of two years prior to release of the financial assurances by the lead agency, unless an artificially maintained landscape is consistent with the approved end use.

(k) Noxious weeds shall be managed: (1) when they threaten the success of the proposed revegetation; (2) to prevent spreading to nearby areas; and (3) to eliminate fire hazard.

(l) Protection measures, such as fencing of revegetated areas and/or the placement of cages over individual plants, shall be used in areas where grazing, trampling, herbivory, or other causes threaten the success of the proposed revegetation. Fencing shall be maintained until revegetation efforts are successfully completed and the lead agency authorizes removal.

(m) Success of revegetation shall be judged based upon the effectiveness of the vegetation for the approved end use, and by comparing the quantified measures of vegetative cover, density, and species-richness of the reclaimed mined-lands to similar parameters of naturally occurring vegetation in the area. Either baseline data or data from nearby reference areas may be used as the standard for comparison. Quantitative standards for success and the location(s) of the reference area(s) shall be set forth in the approved reclamation plan. Comparisons shall be made until performance standards are met provided that, during the last two years, there has been no human intervention, including, for example, irrigation, fertilization, or weeding. Standards for success shall be based on expected local recovery rates. Valid sampling techniques for measuring success shall be specified in the approved reclamation plan. Sample sizes must be sufficient to produce at least an 80 percent confidence level. There are standard statistical methods in commonly available literature for determining an 80 percent confidence level on a site-by-site basis. Examples of such literature include, but are not limited to, D. Mueller-Dombois and H. Ellenberg, 1974, "Aims and Methods of Vegetation Ecology", John Wiley and Sons, Inc., or C. D. Bonham, 1988, "Measurements for Terrestrial Vegetation", John Wiley and Sons, Inc., and are available at many university libraries. The texts are also available at some local libraries through the Inter-Library Loan Program.

NOTE: Authority cited: Sections 2755, 2756 and 2773, Public Resources Code. Reference: Section 2773, Public Resources Code.

§ 3706. Performance Standards for Drainage, Diversion Structures, Waterways, and Erosion Control.

(a) Surface mining and reclamation activities shall be conducted to protect on-site and downstream beneficial uses of water in accordance with the Porter-Cologne Water Quality Control Act, Water Code section 13000, et seq., and the Federal Clean Water Act, 33 U.S.C. section 1251, et seq.

(b) The quality of water, recharge potential, and storage capacity of ground water aquifers which are the source of water for domestic, agricultural, or other uses dependent on the water, shall not be diminished, except as allowed in the approved reclamation plan.

(c) Erosion and sedimentation shall be controlled during all phases of construction, operation, reclamation, and closure of a surface mining operation to minimize siltation of lakes and watercourses, as required by the Regional Water Quality Control Board or the State Water Resources Control Board.

(d) Surface runoff and drainage from surface mining activities shall be controlled by berms, silt fences, sediment ponds, revegetation, hay bales, or other erosion control measures, to ensure that surrounding land and water resources are protected from erosion, gullying, sedimentation and contamination. Erosion control methods shall be designed to handle runoff from not less than the 20 year/1 hour intensity storm event.

(e) Where natural drainages are covered, restricted, rerouted, or otherwise impacted by surface mining activities, mitigating alternatives shall be proposed and specifically approved in the reclamation plan to assure that runoff shall not cause increased erosion or sedimentation.

(f) When stream diversions are required, they shall be constructed in accordance with:

(1) the stream and lake alteration agreement between the operator and the Department of Fish and Game; and

(2) the requirements of the Federal Clean Water Act, Sections 301 (33 U.S.C. 1311) and Section 404 (33 U.S.C. 1344) and/or Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

(g) When no longer needed to achieve the purpose for which they were authorized, all temporary stream channel diversions shall be removed and the affected land reclaimed.

NOTE: Authority cited: Sections 2755, 2756 and 2773, Public Resources Code. Reference: Section 2773, Public Resources Code.

§ 3707. Performance Standards for Prime Agricultural Land Reclamation. In addition to the standards for topsoil salvage, maintenance, and redistribution, the following standards shall apply to mining operations on prime agricultural lands where the approved end use is agriculture:

(a) Mining operations which will operate on prime agricultural lands, as defined by the U.S. Soil Conservation Service, shall return all disturbed areas to a fertility level as specified in the approved reclamation plan.

(b) When distinct soil horizons are present, topsoil shall be salvaged and segregated by defined A, B, and C soil horizons. Upon reconstruction of the soil, the sequence of horizons shall have the A atop the B, the B atop the C, and the C atop graded overburden.

(c) Reclamation shall be deemed complete when productive capability of the affected land is equivalent to or exceeds, for two consecutive crop years, that c the premining condition or similar crop production in the area. Productivity rates, based on reference areas described in the approved reclamation plan, shall be specified in the approved reclamation plan.

(d) Use of fertilizers or other soil amendments shall not cause contamination of surface or ground water.

NOTE: Authority cited: Sections 2755, 2756 and 2773, Public Resources Code. Reference: Section 2773, Public Resources Code.

§ 3708. Performance Standards for Other Agricultural Land. The following standards shall apply to agricultural lands, other than prime agricultural lands, when the approved end use is agriculture.

In addition to the standards for topsoil salvage, maintenance, and redistribution, non-prime agricultural lands shall be reclaimed so as to be capable of sustaining economically viable production of crops commonly grown in the surrounding areas.

NOTE: Authority cited: Sections 2755, 2756 and 2773, Public Resources Code. Reference: Section 2773, Public Resources Code.

§ 3709. Performance Standards for Building, Structure, and Equipment Removal.

(a) All equipment, supplies and other materials shall be stored in designated areas (as shown in the approved reclamation plan). All waste shall be disposed of in accordance with state and local health and safety ordinances.

(b) All buildings, structures, and equipment shall be dismantled and removed prior to final mine closure except those buildings, structures, and equipment approved in the reclamation plan as necessary for the end use.

NOTE: Authority cited: Sections 2755, 2756 and 2773, Public Resources Code. Reference: Section 2773, Public Resources Code.

§ 3710. Performance Standards for Stream Protection, Including Surface and Groundwater.

(a) Surface and groundwater shall be protected from siltation and pollutants which may diminish water quality as required by the Federal Clean Water Act, sections 301 et seq. (33 U.S.C. section 1311), 404 et seq. (33 U.S.C. section 1344), the Porter-Cologne Act, section 13000 et seq., County anti-siltation ordinances, the Regional Water Quality Control Board or the State Water Resources Control Board.

(b) In-stream surface mining operations shall be conducted in compliance with Section 1600 et seq. of the California Fish and Game Code, section 404 of the Clean

Water Act, and Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

(c) Extraction of sand and gravel from river channels shall be regulated to control channel degradation in order to prevent undermining of bridge supports, exposure of pipelines or other structures buried within the channel, loss of spawning habitat, lowering of ground water levels, destruction of riparian vegetation, and increased stream bank erosion (exceptions may be specified in the approved reclamation plan). Changes in channel elevations and bank erosion shall be evaluated annually using records of annual extraction quantities and benchmarked annual cross sections and/or sequential aerial photographs to determine appropriate extraction locations and rates.

(d) In accordance with requirements of the California Fish and Game Code section 1600 et seq., in-stream mining activities shall not cause fish to become entrapped in pools or in off-channel pits, nor shall they restrict spawning or migratory activities.

NOTE: Authority cited: Sections 2755, 2756 and 2773, Public Resources Code. Reference: Section 2773, Public Resources Code.

§ 3711. Performance Standards for Topsoil Salvage, Maintenance, and Redistribution. When the approved reclamation plan calls for revegetation or cultivation of disturbed lands, the following performance standards shall apply to topsoil salvage, maintenance, and redistribution activities:

(a) All salvageable topsoil suitable for revegetation shall be removed as a separate layer from areas to be disturbed by mining operations. Topsoil and vegetation removal shall not precede surface mining activities by more than one year, unless a longer time period is approved by the lead agency.

(b) Topsoil resources shall be mapped prior to stripping and the location of topsoil stockpiles shall be shown on a map in the reclamation plan. If the amount of topsoil needed to cover all surfaces to be revegetated is not available on site, other suitable material capable of sustaining vegetation (such as subsoil) shall be removed as a separate layer for use as a suitable growth media. Topsoil and suitable growth media shall be maintained in separate stockpiles. Test plots may be required to determine the suitability of growth media for revegetation purposes.

(c) Soil salvage operations and phases of reclamation shall be carried out in accordance with a schedule that: (1) is set forth in the approved reclamation plan; (2) minimizes the area disturbed; and (3) is designed to achieve maximum revegetation success allowable under the mining plan.

(d) Topsoil and suitable growth media shall be used to phase reclamation as soon as can be accommodated by the mining schedule presented in the approved reclamation plan following the mining of an area. Topsoil and suitable growth media that cannot be utilized immediately for reclamation shall be stockpiled in an area where it will not be disturbed until needed for reclamation. Topsoil and suitable growth media stockpiles shall be clearly identified to distinguish them from mine waste dumps. Topsoil and suitable growth media stockpiles shall be planted with a vegetative cover or shall be protected by other equally effective measures to prevent water and wind erosion and to discourage weeds. Relocation of topsoil or suitable growth media stockpiles for purposes other than reclamation shall require prior written approval from the lead agency.

(e) Topsoil and suitable growth media shall be redistributed in a manner that results in a stable, uniform thickness consistent with the approved end use, site configuration, and drainage patterns.

NOTE: Authority cited: Sections 2755, 2756 and 2773, Public Resources Code. Reference: Section 2773, Public Resources Code.

§ 3712. Performance Standards for Tailing and Mine Waste Management.

State Water Resources Control Board mine waste disposal regulations in Article 7 of Chapter 15 of Title 23, California Code of Regulations, shall govern mine waste and tailings, and mine waste disposal units shall be reclaimed in conformance with this article.

NOTE: Authority cited: Sections 2755, 2756 and 2773, Public Resources Code. Reference: Section 2773, Public Resources Code.

§ 3713. Performance Standards for Closure of Surface Openings.

(a) Except those used solely for blasting or those that will be mined through within one year, all drill holes, water wells, and monitoring wells shall be completed or abandoned in accordance with each of the following:

(1) Water Code sections 13700, et seq. and 13800, et seq.;

(2) the applicable local ordinance adopted pursuant to Water Code section 13803;

(3) the applicable Department of Water Resources report issued pursuant to Water Code section 13800; and

(4) Subdivisions (1) and (2) of section 2511(g) of Chapter 15 of Title 23 regarding discharge of waste to land.

(b) Prior to closure, all portals, shafts, tunnels, or other surface openings to underground workings shall be gated or otherwise protected from public entry in order to eliminate any threat to public safety and to preserve access for wildlife habitat.

NOTE: Authority cited: Sections 2755, 2756 and 2773, Public Resources Code. Reference: Section 2773, Public Resources Code.

Article 11. Financial Assurance Mechanisms

§ 3800. Purpose. It is the purpose of this article to specify additional financial assurance mechanisms to assure reclamation pursuant to Public Resources Code Section 2710 et seq. (Surface Mining and Reclamation Act, as amended).

NOTE: Authority cited: Section 2773.1, Public Resources

Organizations/Groups

Code. Reference: Section 2773.1(e), Public Resources Code.

§ 3801. Authority. Review, approval, adjustment, enforcement, notification, forfeiture and all other responsibilities of the lead agency, operator and Department of Conservation with respect to financial assurances shall be conducted as prescribed in Public Resources Code Section 2710 et seq. unless expressly outlined in this article.

NOTE: Authority cited: Section 2773.1, Public Resources Code. Reference: Section 2773.1(e), Public Resources Code.

§ 3802. Definitions. The following definitions shall govern the interpretation of this article:

(a) "Budget Set Aside" means a financial assurance mechanism, meeting the requirements of Section 3806.2 of this article, by which a government entity proposes to make specific identified monies within the entity's budget available to perform reclamation pursuant to the approved reclamation plan.

(b) "Financial Assurance Amount" means that amount of money necessary to conduct and complete reclamation on the mined lands in accordance with the approved reclamation plan, plus a reasonable estimate of the administrative costs and expenses which would be incurred by the lead agency or the Department of Conservation, the total of which shall be calculated in accordance with section 3804, and shall constitute an obligation to pay by the operator.

(c) "Financial Assurance" means an instrument, fund or other form of Financial Assurance as provided in Section 2773.1(a) and (e) of the Public Resources Code and this Article.

(d) "Pledge of Revenue" means a financial assurance mechanism meeting the requirements of Section 3806.1, of this Article, by which a governmental entity proposes to make specific, identified future revenue available to perform reclamation pursuant to the approved reclamation plan.

NOTE: Authority cited: Section 2755, Public Resources Code. Reference: Sections 2726-2734, Public Resources Code.

§ 3803. Financial Assurance Mechanisms. As outlined by this article, financial assurances may take the form of any one or a combination of the following, which the lead agency, upon review by the Department of Conservation, reasonably determines are adequate to perform reclamation in accordance with the approved reclamation plan.

(a) For non-governmental entity operators:

(1) Surety bonds;

(2) Irrevocable letters of credit; and

(3) Trust funds;

(b) For governmental entity operators:

(1) Surety bonds;

(2) Irrevocable letters of credit;

(3) Trust funds;

(4) Pledges of Revenue; or

(5) Budget Set Aside.

NOTE: Authority cited: Section 2773.1, Public Resources Code. Reference: Section 2773.1(e), Public Resources Code.

§ 3804. Calculation of Financial Assurance Amount.

(a) The Financial Assurance Amount shall be calculated as prescribed in Public Resources Code Section 2773.1 and based on:

(1) an analysis of the physical activities and materials necessary to implement the approved reclamation plan;

(2) the lead agency's unit costs, or costs for third party contracting, for each of these activities, if applicable;

(3) the number of units of each of these activities, if applicable;

(4) a contingency amount not to exceed 10% of the reclamation costs.

(b) The calculated amount should not include the cost of completing mining of the site.

(c) In order for the lead agency or the Department of Conservation to determine what annual adjustments, if any, are appropriate to the Financial Assurance Amount, the operator shall annually submit to the lead agency a revision of the written calculation required under Section 3804(a).

NOTE: Authority cited: Section 2773.1, Public Resources Code. Reference: Section 2773.1(e), Public Resources Code.

§ 3805. Review by the Department of Conservation.

Pursuant to Section 2774(c), Public Resources Code, the lead agency shall submit a copy of the proposed Financial Assurance and the Calculation of Financial Assurance Amount submitted by the operator pursuant to Section 3804 to the Director of the Department of Conservation for review. With this submittal the lead agency shall include the information and documentation relied upon in calculating the amount of the proposed Financial Assurance and indicate to the Director that the Financial Assurance Amount is adequate for the lead agency or the Department of Conservation to conduct and complete reclamation on the mined lands in accordance with the approved reclamation plan. The Director shall have 45 days, upon receipt, to prepare written comments regarding the proposed Financial Assurance, if he/she so chooses.

NOTE: Authority cited: Section 2774, Public Resources Code. Reference: Section 2774(c), (d), Public Resources Code.

§ 3806. Surface mining operations owned and operated by state or local governmental entities.

In addition to the mechanisms provided in Public Resources Section 2773.1 and this article, a financial assurance mechanism for reclamation for a surface mining operation owned and operated by the state, county, city, district or other political subdivision may be in the form of a:

(a) Pledge of Revenue; or

(b) Budget Set Aside.

These financial assurance mechanisms may only be

used by the state, county, city, district, or other political subdivision.

NOTE: Authority cited: Section 2773.1, Public Resources Code. Reference: Section 2773.1(e), Public Resources Code.

§ 3806.1. Pledge of Revenue.

(a) A pledge of revenue shall consist of a resolution or other appropriate document from the governing body of the state, county, city, district, or other political subdivision responsible for reclamation of the mined lands pursuant to the approved reclamation plans. The resolution or document shall remain effective continuously throughout the period in which the pledge of revenue is used to satisfy the requirements of Section 2773.1, Public Resources Code.

(b) The pledge of revenue shall contain the following items:

(1) The resolution or document establishing the pledge of revenue;

(2) The types and sources of pledged revenue;

(3) The period of time that each source of revenue is pledged to be available;

(4) The calculation amount of the financial assurance prepared pursuant to Section 3804; and

(5) The authorization for the lead agency or the Department of Conservation to use the proceeds of the pledge to conduct and complete reclamation if the lead agency or the Department of Conservation determines that the operator is incapable of performing the reclamation covered by the pledge pursuant to Section 2773.1(b).

(c) The state, county, city, district, or other political subdivision may pledge any following types of revenue that it controls and that will be available in a timely manner to conduct and complete reclamation:

(1) Fees, rents, or other charges;

(2) Tax revenues within statutory limitations; and/or

(3) Other guaranteed revenues that are acceptable to the lead agency and the Board.

(d) If the governmental entity ceases at any time to retain control of its ability to allocate any pledged revenue to conduct and complete reclamation, the entity shall notify the lead agency and the Department of Conservation and shall obtain alternative coverage within 60 days after control lapses.

NOTE: Authority cited: Section 2773.1, Public Resources Code. Reference: Section 2773.1(e), Public Resources Code.

§ 3806.2. Budget Set Aside.

(a) A Budget Set Aside shall consist of a specific fund or line item set aside by the state, county, city, district or other political subdivision responsible for reclamation of the mined lands. The Budget Set Aside shall remain in effective continuously throughout the period in which the Budget Set Aside is used to satisfy the requirements of Section 2773.1, Public Resources Code.

(b) The set aside shall contain the following items:

(1) A resolution or other appropriate document establishing the set aside or line item including proof of approval by the governing body or appropriate official of the state, county, city, district or other political subdivision;

(2) The types and sources of specific funds;

(3) The period of time that each funding source is to be available;

(4) The calculation amount of the financial assurance prepared pursuant to Section 3804; and

(5) The authorization for the lead agency or the Department of Conservation to use the funds to conduct and complete reclamation if the lead agency or the Department of Conservation determines that the operator is incapable of performing the reclamation covered by the set aside pursuant to Section 2773.1(b).

NOTE: Authority cited: Section 2773.1, Public Resources Code. Reference: Section 2773.1(e), Public Resources Code.

OMR, Letter from Office of Mine Reclamation dated 4/17/97

OMR-1: Information presented in the Draft EIR/EIS related to the proposed mining and reclamation plans is not intended to fulfill the requirements of the SMARA or the State Mining and Geology Board regulations. It is the County Planning Department's standard practice to submit complete mining and reclamation applications to OMR for review. Comments on these applications are addressed and incorporated with the conditions of approval in the final documents and re-submitted to OMR. Thank you for the attached copy of SMARA regulations and comment letters previously submitted on the various project applications. These resources will be considered in the revision and update of the proposed mining and reclamation plans.

OMR-2: Comment noted.

United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
600 Harrison Street, Suite 515
San Francisco, California 94107-1376

May 9, 1997

ER97/153

U.S Army Corps of Engineers
Sacramento District
Attn: Regulatory Section (L. Vinzant)
1325 J Street
Sacramento, California 95814-2922

Subject: Review of the Draft Environmental Impact Report/Statement (DEIR/S) for Morrison Creek Mining Reach Downstream (South) of Jackson Highway, Morrison Creek, Sacramento, Sacramento County, California

Dear Mr. Vinzant:

The Department of the Interior has received and reviewed the February 28, 1997, Draft Environmental Impact Report/Statement (DEIR/S) for the Morrison Creek Mining Reach Downstream (South) of Jackson Highway. The DEIR/S was provided in reference to a proposal for expanding aggregate mining by Teichert Aggregates and Granite Construction in the Morrison Creek drainage. The following comments are provided to assist your review of the proposal, and will not take the place of any formal comments that may be required under the provisions of the Fish and Wildlife Coordination Act or the Endangered Species Act of 1973, as amended (Act).

PROJECT DESCRIPTION

The proposed project is the expansion of aggregate mining in the Morrison Creek watershed on a 966 acre site south of Jackson Highway operated by Teichert Aggregates and Granite Construction. The site contains four adjoining properties referred to as the Aspen III South, Vineyard I, Aspen IV South, and Aspen V South sites. Construction of a new processing plant located on the Vineyard I site would be included in the project in order to have an onsite facility. In addition to sand and gravel, placer gold will be mined. Mining would occur in phases with 50-150 acres of the 966 acres being actively mined at one time. The area is currently used for livestock grazing. OEPC-1

WETLANDS

The project would impact a total of 24.56 acres of wetlands and waters of the United States. According to Table 5-8 in the DEIR/S, 13 65 acres were identified as riparian habitat along Morrison Creek, 4.58 acres were documented as a jurisdictional tributary, 5.5 acres consist of

seasonal wetland habitat, and 0.83 acre is an irrigated seasonal wetland. As mitigation for these impacts, the applicant proposes to construct a total of 43.21 acres of wetland habitats to mitigate for impacts; this acreage consists of 16.56 acres of perennial marsh, 15.01 acres of riparian woodland associated with Morrison Creek, and 11.74 acres of seasonal marsh. This is a ratio of 1.76 acres created:1 acre impacted. Wetlands supporting special status species may require mitigation at higher ratios. OEPC-1

Much of the proposed mitigated habitat is out-of-kind replacement for the habitat lost. The Fish and Wildlife Service recommends in-kind mitigation for lost wetlands in order to retain the value of those habitats. The mitigation plan should include as much in-kind replacement as possible. OEPC-2

VERNAL POOLS

The DEIR/S states that vernal pools have been delineated on the Aspen V South site (page 5-43). The vernal pools on this site could be affected by potential changes in hydrology resulting from mining the upland drainage area. This would result in the loss of ecological and biological values of the pools There is no information on acreage of the pools that are to be impacted. Vernal pool acreage is also not differentiated in Table 5-8 with the rest of the wetland habitats. Further information is needed on the acreage of vernal pools being impacted by this project. Vernal pools are not proposed for construction in the mitigation plan either. Mitigation for impacted vernal pools should also be addressed in the plan. OEPC-3

MORRISON CREEK

The Drainage Mitigation Plan for Morrison Creek would consist of constructing an unlined trapezoidal bypass channel at the existing (unmined) elevation of the site Morrison Creek would be routed through the center of the site within a 600-foot wide riparian corridor that would contain the creek, perennial marsh, riparian woodland, seasonal marsh, and valley oak woodland in a series of terraces. The downstream end of the creek may include a sump pond to allow pumping of the flow back up to grade. This channel would be designed to handle a portion of the current 100 year flow event, and excess flow would be diverted into one of the pit floor detention areas via weiring/outfall structures. The DEIR/S does not state how many of these structures will be present or their location. Additional information on these structures is needed. OEPC-4

The DEIR/S covers the range of alternatives to the proposed project. The 100-Year Floodplain Protection Alternative provides for the protection of the floodplain and the natural course of Morrison Creek. This would allow for the preservation of the resources and floodplain associated with Morrison Creek. The Service recommends the Corps strongly consider this alternative as the preferred project proposal in order to maintain the natural course of Morrison Creek This would provide for retention of the biological and hydrologic values of the stream. OEPC-5

CUMULATIVE IMPACTS

This project is an expansion of the Morrison Creek mining project located north of the Jackson Highway and creates a significant cumulative impact in this area. The DEIR/S states that mining in the area results in the gross reconstruction of the floodplain, altered downstream flows, as well as hydrologic and landform changes to the existing Morrison Creek floodplain (page 6-3). There would also be a loss of biological resources and open space associated with the stream, floodplain, and uplands under natural conditions. The DEIR/S also states that full replacement of the natural riparian resources would not be possible (page 6-4). The 100-Year Floodplain Alternative would lessen the cumulative impacts to the Morrison Creek watershed. OEPC-6

SPECIAL STATUS SPECIES

Any endangered or threatened species populations found in the project area should be avoided. If avoidance is not possible, a project design that minimizes impacts, and an appropriate mitigation plan, should be developed in consultation with the Service and California Department of Fish and Game.

Surveys for special status plants should be completed in the appropriate season for the various species by a qualified botanist. The Fish and Wildlife Service's guidelines for botanical inventories of listed species can be obtained from the Endangered Species Division office at the phone number below. OEPC-7

Thank you for providing the Department of the Interior with the opportunity to comment on this DEIR/S. If you have any further questions regarding these comments, please contact Kelly Oliver-Amy, Wetlands Branch, U.S. Fish and Wildlife Service, at (916) 979-2113. For an updated species list or other questions regarding endangered species, please contact the Endangered Species Division at (916) 979-2725.

Sincerely,

Patricia Sanderson Port
Regional Environmental Officer

cc:
Director, OEPC, w/original incoming
Regional Director, FWS, Region I

3

ATTACHMENT A

Endangered and Threatened Species that May Occur in
or be Affected by Projects in the Following Selected Quads

April 9, 1997

QUAD : 512D CARMICHAEL

Listed Species

Birds

American peregrine falcon, *Falco peregrinus anatum* (E)

Aleutian Canada goose, *Branta canadensis leucopareia* (T)

bald eagle, *Haliaeetus leucocephalus* (T)

Reptiles

giant garter snake, *Thamnophis gigas* (T)

Amphibians

California red-legged frog, *Rana aurora draytonii* (T)

Fish

delta smelt, *Hypomesus transpacificus* (T)

Invertebrates

vernal pool tadpole shrimp, *Lepidurus packardi* (E)

vernal pool fairy shrimp, *Branchinecta lynchi* (T)

valley elderberry longhorn beetle, *Desmocerus californicus dimorphus* (T)

Proposed Species

Fish

Central Valley steelhead, *Oncorhynchus mykiss* (PE)

Sacramento splittail, *Pogonichthys macrolepidotus* (PT)

Candidate Species

Birds

mountain plover, *Charadrius montanus* (C)

Amphibians

California tiger salamander, *Ambystoma californiense* (C)

Species of Concern

Mammals

small-footed myotis bat, *Myotis ciliolabrum* (SC)

long-eared myotis bat, *Myotis evotis* (SC)

fringed myotis bat, *Myotis thysanodes* (SC)

long-legged myotis bat, *Myotis volans* (SC)

QUAD : 512D CARMICHAEL

Species of Concern

Mammals

Yuma myotis bat, *Myotis yumanensis* (SC)

San Joaquin pocket mouse, *Perognathus inornatus* (SC)

Pacific western big-eared bat, *Plecotus townsendii townsendii* (SC)

Birds

tricolored blackbird, *Agelaius tricolor* (SC)

western burrowing owl, *Athene cunicularia hypugea* (SC)

ferruginous hawk, *Buteo regalis* (SC)

little willow flycatcher, *Empidonax traillii brewsteri* (SC)

white-faced ibis, *Plegadis chihi* (SC)

Reptiles

northwestern pond turtle, *Clemmys marmorata marmorata* (SC)

California horned lizard, *Phrynosoma coronatum frontale* (SC)

Amphibians

western spadefoot toad, *Scaphiopus hammondii* (SC)

Fish

green sturgeon, *Acipenser medirostris* (SC)

KEY:

(E)	*Endangered*	Listed (in the Federal Register) as being in danger of extinction.
(T)	*Threatened*	Listed as likely to become endangered within the foreseeable future.
(P)	*Proposed*	Officially proposed (in the Federal Register) for listing as endangered or threatened.
(C)	*Candidate*	Candidate to become a *proposed* species.
(SC)	*Species of Concern*	May be endangered or threatened. Not enough biological information has been gathered to support listing at this time.
(*)		Possibly extinct.
	Critical Habitat	Area essential to the conservation of a species.

SACRAMENTO COUNTY

Species of Concern

Fish

green sturgeon, *Acipenser medirostris* (SC)
river lamprey, *Lampetra ayresi* (SC)
Kern Brook lamprey, *Lampetra hubbsi* (SC)
Pacific lamprey, *Lampetra tridentata* (SC)
longfin smelt, *Spirinchus thaleichthys* (SC)

Invertebrates

Antioch Dunes anthicid beetle, *Anthicus antiochensis* (SC)
Sacramento anthicid beetle, *Anthicus sacramento* (SC)
San Joaquin dune beetle, *Coelus gracilis* (SC)
curved-foot hygrotus diving beetle, *Hygrotus curvipes* (SC)

Plants

Suisun Marsh aster, *Aster lentus* (SC)
valley spearscale, *Atriplex joaquiniana* (SC)
Tuolumne coyote-thistle, *Eryngium pinnatisectum* (SC)
Ahart's rush, *Juncus leiospermus var. ahartii* (SC)
delta tule-pea, *Lathyrus jepsonii var. jepsonii* (SC)
legenere, *Legenere limosa* (SC)
Mason's lilaeopsis, *Lilaeopsis masonii* (SC)
valley sagittaria, *Sagittaria sanfordii* (SC)
Northern California black walnut, *Juglans californica var. hindsii* (SC)

KEY:

(E)	*Endangered*	Listed (in the Federal Register) as being in danger of extinction.
(T)	*Threatened*	Listed as likely to become endangered within the foreseeable future.
(P)	*Proposed*	Officially proposed (in the Federal Register) for listing as endangered or threatened.
(C)	*Candidate*	Candidate to become a *proposed* species.
(SC)	*Species of Concern*	May be endangered or threatened. Not enough biological information has been gathered to support listing at this time.
(*)	Possibly extinct.	
	Critical Habitat	Area essential to the conservation of a species.

OEPC, Letter from Office of Environmental Policy and Compliance (US Department of the Interior) dated 5/9/97

OEPC-1: If changes to the mitigation ratio for wetland replacement are being required by the federal government, such changes should be articulated to the applicants and included as a condition of the United States Army Corps of Engineers Section 404 permit.

OEPC-2: In-kind mitigation is an expressed goal in the mitigation plans. For additional detail on the proposed mitigation plans, please refer to Appendix B of the EIR/EIS.

OEPC-3: No vernal pools would be directly affected as a result of the proposed project. As shown on Figures 3-6c and 5-8, the vernal pools identified on the Aspen V South site are in an area that is not proposed for mining. The potential for indirect impacts to the pools from mining in the adjacent areas was identified as a significant impact of the proposed project. As such, mitigation to reduce this potential impact was identified in the Draft EIR/EIS (refer to measure 1.d. in Section 5.7.3). The proposed mitigation includes monitoring of the hydrologic and botanical conditions within the pools to document consistency and identify any potential changes. If monitoring reveals that the vernal pools have been significantly impacted, mitigation for the vernal pools will be developed by the applicant in consultation with USFWS, CDFG, Corps, and the County.

OEPC-4: The overall design of the proposed flood control facilities for the entire Morrison Creek Mining Reach are described in the Drainage Mitigation Plan (Montgomery Watson, 1995). The inclusion of hydraulic structures such as berms, weirs and inlet works within the southern reach (i.e., project site) was identified as mitigation for potential flow capture. As stated in mitigation measure 1 on page 5-7, detailed engineering plans for these improvements must be submitted to the County of Sacramento County Public Works Agency, Water Resources Division for review and approval prior to implementation of any mining activities on the project site.

OEPC-5: The commentor's recommendation that the Corps consider the 100-year floodplain protection alternative as a preferred project alternative is noted for the record and taken under advisement.

OEPC-6: The commentor references a statement taken from the cumulative impact section of the DEIR/DEIS which states that "full replacement of the natural riparian resources would not be possible. Information provided elsewhere in the EIR/EIS concurs with the commentor's statement that the 100-year floodplain protection alternative would lessen environmental impacts to the Morrison Creek Watershed. Specifically, Section 6.7 (Identification of Environmentally Superior Alternative) indicates that the 100-year floodplain would be environmentally superior to the proposed project.

OEPC-7: As indicated in Section 5.7.3 of the EIR/EIS, the applicants would be required to comply with several regulatory agency requirements as well as a series of recommended mitigation measures in implementing the project. Such requirements include completion of Section 7 consultation pursuant to the Federal Endangered Species Act and approval by the California Department of Fish and Game of the needed Streambed Alteration Agreement. These requirements are also identified in Section 5.7.3 of the EIR/EIS. With regard to plant surveys, please refer to response to comment CNPS-11that addresses this issue in detail.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

MAY 0 9 1997

Art Champ, Chief
Regulatory Branch, Sacramento
U.S. Army Corps of Engineers
1325 J Street
Sacramento, California 95814

Dear Mr. Champ:

The U.S. Environmental Protection Agency (EPA) has reviewed the Draft Environmental Impact Statement/Report (DEIS/R) for the MORRISON CREEK MINING REACH DOWNSTREAM (SOUTH) OF JACKSON HIGHWAY, Sacramento County, California. The document has been jointly prepared by the Corps of Engineers and the County of Sacramento to satisfy the respective requirements of the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). EPA provided scoping comments on the Notice of Intent in December, 1995. Our comments on the DEIS/R are provided pursuant to NEPA, Section 309 of the Clean Air Act, the Council on Environmental Quality's Regulations for Implementing NEPA (40 CFR 1500-1508), and Section 404 of the Clean Water Act (CWA). Regarding the completeness of the document's Section 404 analysis, our comments are advisory and provided in keeping with Section 404 since the proposed Federal action is the issuance or denial of a permit or permits under Section 404 and 40 CFR Part 230. EPA will provide additional comments to the Corps on the proposed project's Public Notice(s) when available. EPA-1

The DEIS/R analyzes the environmental impacts associated with the surface mining of sand and gravel on 881.7 acres of the 966.3-acre downstream mining reach of Morrison Creek in the community of Vineyard. The project proponents are two mining companies, Teichert Aggregates and Granite Construction Company. The project site is composed of four mining sites: Aspen III South, Vineyard I, Aspen IV South and Aspen V South. Three of the four sites are subject to the Corps' jurisdiction under CWA Section 404; Aspen III South has no acreage under Section 404 jurisdiction. The project site has approximately 24.56 acres of wetlands and other waters of the United States that would be impacted by the proposed mining and reclamation plans: 21.95 acres at Vineyard I, 1.78 acres at Aspen IV, and 0.83 acre of an irrigated seasonal wetland at Aspen V. The DEIS/R estimates that the site contains 36.7 million tons of sand and gravel, approximately 29% of the Sacramento region's remaining likely supply. The proposed action site is adjacent to the Morrison Creek North site, the subject of Draft and Final EIS's in 1995-1996. The Corps' permit approval has already been granted for the northern mining reach.

The DEIS/R analyzes the environmental effects of several action alternatives and a No Action Alternative. Alternatives examined in the DEIS/R include the Proposed Project, the proposed project without the Vineyard I processing plant alternative, the county drainage alternatives, and the 100-year floodplain protection alternative. In addition to sand and gravel mining, the proposed project includes reclamation work, construction and operation of a new processing plant on the Vineyard I site, and the likely recovery of placer gold as part of processing operations. Three other alternatives are identified but rejected: a recycling alternative, offsite alternative(s), and a Mather Field alternative. We presume that the action alternatives assessed in detail in the DEIS/R are "practicable" alternatives as defined in the CWA 404(b)(1) Guidelines ("Guidelines"), while the three rejected alternatives are not practicable. EPA-2

We have several objections to the proposed project and its accompanying environmental documentation - chiefly with regard to the proposed project's failure to comply with the requirements of CWA Section 404 and the Guidelines. We object to the adverse impacts that would occur to wetlands and other protected waters of the United States as a result of the proposed project. The DEIS/R fails to demonstrate a purpose and need for the proposed project that would necessitate the placement of dredged or fill material in approximately 24.56 acres of wetlands and other waters. The DEIS/R also does not clearly demonstrate that all appropriate measures have been taken to first avoid and then minimize the placement of dredged or fill material in areas subject to Section 404 jurisdiction. EPA-3

Specifically, the DEIS/R projects the loss of seasonal wetlands (including vernal pools), riparian woodland, portions of Morrison Creek, and irrigated seasonal wetlands. However, there is no consideration of whether the proposed project could be designed or configured to avoid or minimize the loss of these aquatic resources. For example, by avoiding Section 404 jurisdictional areas, the project proponents would spare significant environmental impacts at a cost of perhaps three percent of potential aggregate resources available at the site; this alternative is not considered. Similarly, the DEIS/R provides only brief mention of a recycling alternative (p. 4-9) which may greatly reduce the loss of wetlands and other waters of the United States. We strongly encourage the Corps and the County to determine whether the proposed project can be designed to avoid or minimize the loss of Section 404 areas <u>and</u> whether a recycling alternative could be pursued further to minimize or avoid the loss of Section 404 habitats. We also believe that the proposed mitigation may be inadequate to compensate for adverse impacts to the aquatic ecosystem because the DEIS/R does not accurately reflect the proposed project's adverse effects (cumulative and indirect) on downstream resources such as Beach and Stone Lakes. EPA-4

On a related matter, we are concerned that the DEIS/R contains no discussion regarding the proposed project's consistency with the Water Quality Control Plan developed by the State of California and approved by U.S. EPA. This Plan requires the control of pollutants which may adversely affect water quality and beneficial uses such as the downstream uses at Beach and Stone Lakes and the Stone Lakes National Wildlife Refuge. In that regard, we believe that the discussion about cumulative and indirect impacts needs to be considerably strengthened. EPA-5

These issues, which are expressed in greater detail in the attached comments, form the basis for our rating of EO-2, Environmental Objections - Insufficient Information. We strongly recommend that the Corps evaluate EPA's comments and incorporate the information we found to be lacking in a more comprehensive EIS/EIR rather than proceeding directly to the Final EIS/EIR (FEIS/R). We also suggest that the Corps consider re-issuing the NEPA document in draft form for public review and comment with a minimum 45-day public comment period. Please refer to the attached "Summary of Rating Definitions and Follow-Up Action" for an explanation of EPA's rating system. EPA-6

We appreciate the opportunity to comment on the DEIS/R and welcome an opportunity to meet with the Corps and the County prior to issuance of the FEIS/R. Please send two copies of the subsequent EIS/EIR to our office (mailcode: CMD-2) at the letterhead address when it is filed with EPA's Washington, D.C. office. If you have any questions, please call David Farrel, Chief of the Federal Activities Office at 415-744-1584 or David Tomsovic of his staff at 415-744-1575. Questions regarding our Section 404 review may also be directed to Elizabeth White of our Clean Water Act Compliance Section at 415-744-1988.

Sincerely,

Deanna M. Wieman, Deputy Director
Cross-Media Division

Attachments: 2
(a) Summary of Rating Definitions and Follow-Up Action
(b) EPA's detailed comments on DEIS/R

cc: Patricia Port, DOI
Cay Goude, F&WS
Mark Littlefield, F&WS
Thomas E. Harvey, F&WS, Stone Lakes NWR
Dave Zezukak, CDF&G
Dennis E. Yeast, Sacramento County

M.I. 002588

SUMMARY OF RATING DEFINITIONS AND FOLLOW-UP ACTION

Environmental Impact of the Action

LO-Lack of Objections

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC-Environmental Concerns

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

EO-Environmental Objections

The EPA review has identified significant environmental impacts that must be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU-Environmentally Unsatisfactory

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of environmental quality, public health or welfare. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommend for referral to the Council on Environmental Quality (CEQ).

Adequacy of the Impact Statement

Category 1-Adequate

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2-Insufficient Information

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

Category 3-Inadequate

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From: EPA Manual 1640, "Policy and Procedures for the Review of Federal Actions Impacting the Environment."

EPA COMMENTS ON DRAFT EIS/R, MORRISON CREEK MINING DOWNSTREAM OF JACKSON HIGHWAY, SACRAMENTO COUNTY, CA. MAY 5, 1997

CLEAN WATER ACT, SECTION 404

Introduction: The Draft Environmental Impact Statement/Report (DEIS/R) does not include a fully detailed discussion of the overall requirements of 40 CFR 230. For example, the Clean Water Act (CWA) Section 404(b)(1) Guidelines ("Guidelines") are very specific in terms of the requirements that must be clearly demonstrated before an applicant can receive a Section 404 permit. For example, 40 CFR 230.10(a) stipulates that no discharge of dredged or fill material shall be permitted "...if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences..." The DEIS/R fails to demonstrate that the placement of dredged or fill material in approximately 24.56 acres of wetlands and other waters of the United States is absolutely essential in order to satisfy the project's basic purpose, nor is there any clear demonstration in the DEIS/R that the proponents have examined measures to avoid or minimize the loss of these 24.56 acres such as mining a smaller portion of the project site. EPA-7

Project Purpose: The DEIS/R defines the project's purpose and need (as defined by the proponents) as "...aggregate mining and reclamation activities located along the Morrison Creek Mining Reach Downstream (South) of Jackson Highway in the unincorporated area of Sacramento County, within the community of Vineyard." We believe that the proponents' statement of project purpose is too limiting as it narrows the scope of alternatives to those onsite at Morrison Creek. Moreover, this purpose is not supported by statements elsewhere in the document which describe the project need as meeting the aggregate requirements of Sacramento County. We believe that the purpose statement should be amended in the FEIS/R to avoid the limiting geographic parameters imposed by that definition of project purpose in the DEIS/R. EPA-8

Project Need: The proponents recently received authorization from the Corps to mine a site known as Morrison Creek Mining Reach - North (Upstream) which is projected to supply an estimated 66.3 million tons of aggregate. Because that 66.3 million tons could meet the Sacramento region's aggregate needs for approximately eight years (i.e., the annual consumption of 8.5 million tons per year mentioned on p. 2-2), we do not understand the need for additional mining at this time. The FEIS/R should discuss in greater detail the need for the proposed project at this time. EPA-9

Least Environmentally Damaging Practicable Alternative (LEDPA): Neither the DEIS/R nor the technical appendix clearly demonstrates which of the action alternatives analyzed in detail EPA-10

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is considered to be the Least Environmentally Damaging Practicable Alternative (LEDPA), pursuant to Section 404 and 40 CFR 230.10 (Restrictions on Discharge). We believe that other, less-damaging practicable alternatives may exist which would allow a reasonable economic return on the property and meet the project's purpose and need of supplying aggregate to the Sacramento area. EPA-10

The DEIS/R also does not clearly portray the proposed project's indirect and cumulative impacts over the life of the project. In terms of indirect impacts, the documentation contains little analysis of such effects on downstream habitats and resources such as Beach and Stone Lakes and the national wildlife refuge. Similarly, the cumulative effects to the Morrison Creek ecosystem and downstream habitats are not clearly portrayed (i.e., effects due to this project, the Morrison north project and other watershed-affecting projects). Because of this lack of information on direct, indirect and cumulative effects, the reader cannot determine which of the action alternatives is the LEDPA. We recommend that the FEIS/R identify which of the action alternatives is the LEDPA, taking into account all reasonably foreseeable direct, indirect and cumulative impacts over the life of the project. EPA-11

Alternatives Analysis: The DEIS/R (Technical Appendix) contains a January, 1994 alternatives analysis for 403 acres of the 966.3-acre project site. However, according to p. 1-1 of the DEIS/R, the proposed project would allow surface mining on 881.7 acres of the 966.3-acre downstream mining reach. The 404(b)(1) alternatives analysis needs to reflect the entire project area that would be subject to mining, reclamation and drainage work, as identified in the FEIS/R. EPA-12

Recycling Alternative: The Technical Appendix (Executive Summary, p. 1, Granite Vineyard Wetland Mitigation Plan) indicates that the demand for aggregate in the Sacramento-Fairfield area "will outstrip useable supplies within approximately 10 years at current rates of development." The projected output from the Morrison south field is 36.7 millions tons of sand and gravel, approximately 29 percent of the remaining likely supply for the Sacramento area. The Sacramento area uses 8.5 million tons of sand and gravel per year. Wetlands and other waters under Section 404 jurisdiction comprise approximately 24.56 acres or the 881.7-acre project site (i.e., 2.79 percent). Presumably, the aggregate extracted from beneath the 404 jurisdictional areas would account for a corresponding 2.79 percentage of the total mining output, or somewhat more than 1.00 million tons of the total projected output of 36.7 million tons. EPA-13

The DEIS/R (p. 4-9) indicates that the Sacramento County General Plan requires that 10 percent of aggregate demand be met by recycled or substitute materials by 2000 (20 percent by 2010).

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Thus, of the annual area consumption of 8.5 million tons, 850,000 tons per year must be recycled or substitute by 2000, and 1.7 million tons recycled or substitute by 2010. The DEIS/R gives no indication as to how those figures will be met. However, in terms of restoring and maintaining the integrity of waters of the United States, we believe that it is incumbant upon the Corps to provide a more detailed rationale, both in the FEIS/R and the 404(b)(1) alternatives analysis, as to why a recycling alternative is not practicable.

The DEIS/R dismisses the recycling alternative by contending that it "may not be feasible at this time." This is due to a lack of private companies in Sacramento that recycle concrete and asphalt; available recyclable material; and county enforcement of the general plan's requirement. This rationale does not recognize the general plan requirements that recycled or substitute material be used (10 percent in 2000 and 20 percent in 2010). Neither does the DEIS/R explore whether a recycling alternative would be useful in protecting wetlands and other waters of the United States. Finally, the analysis does not investigate whether a recycling element could be incorporated into the proposed project. EPA-13

We believe that it may be feasible to develop a new hybrid alternative that would permit development of the four sites, avoid or substantially avoid wetland impacts by using recycled material to replace the sand and aggregate that would be obtained from areas under Section 404 jurisdiction, and be practicable as well. We strongly encourage the Corps, the County and the proponents to explore the feasibility of such a hybrid alternative in the FEIS/R.

Offsite Alternatives: The DEIS/R analysis does not clearly demonstrate that mining offsite resources is not practicable. As stated by the proponents, Sacramento County currently receives aggregate from Yolo County's Cache Creek area and the Yuba River area outside Sacramento County. Cache Creek and the Yuba fields are, respectively, 28 and 40 miles from Sacramento (Technical Appendix, p. B-101). The alternatives analysis identifies aggregate reserves and resources in various sectors. While these sectors have been identified as having waters of the United States, they may nevertheless be less environmentally damaging. The proponents should provide additional information on these offsite alternatives. Additionally, the FEIS/R should explore other alternative sites such as south of Sacramento County. EPA-14

For the purpose of supplying Sacramento County with aggregate, we agree that importing aggregate from outside Sacramento County has associated environmental impacts (increased truck traffic, air pollution, consumption of fossil fuels), however, the alternatives analysis does not provide enough specific detail to clearly demonstrate that the environmental consequences are more

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environmentally-damaging than the proposed project. The proponents state that transportation costs are high relative to other costs of producing aggregate, but the alternatives analysis does not demonstrate this quantitatively. EPA-14

Onsite Avoidance and the 100-Year Floodplain Alternative: The 404(b)(1) Guidelines prohibit the discharge of dredged or fill material unless appropriate and practicable steps have been taken that will minimize potential adverse impacts of the discharge on the ecosystem [40 CFR 230.10(d)]. Chapter 4 of the DEIS/R discusses the 100-year floodplain alternative. The 100-year floodplain alternative avoids impacts to Morrison Creek and, instead, impacts ruderal, disced and cultivated habitats. The 100-year floodplain alternative is less environmentally damaging practicable alternative to the proposed project. It would also reduce or eliminate long-term channel maintenance costs, provide flood protection, reduce the potential of flooding the pit floor, enhance water quality and habitat functions, and reduce the project's indirect and cumulative impacts on important downstream habitats. The Corps has not clearly demonstrated that the 100-year floodplain alternative is not practicable in terms of achieving the project purpose, even the very narrow purpose described in the DEIS/R. This alternative should be further analyzed in the FEIS/R. EPA-15

Mining Plan: The mining plan section (DEIS/R, p. 3-7) states that mining would occur simultaneously at several locations on the site. Based on the mining plan section, it is unclear whether other sequencing options may be available that could avoid adverse impacts to wetlands, other waters of the United States and water quality. We recommend that the FEIS/R discuss whether other scenarios or options might be more protective of natural resources and water quality than the simultaneous operations described on page 3-7, while practically achieving the project purpose and need. If so, we recommend that appropriate mitigation measures and/or permit conditions be included in the FEIS/R, the ROD and the Corps' permit(s) for the proposed project. EPA-16

Cumulative Impacts: The cumulative impacts section of the DEIS/R fails to sufficiently consider the cumulative effects of stream channelization on valuable downstream ecological reserves at Beach and Stone Lakes. The DEIS/R (p. 5-3) alludes generally to the project's cumulative environmental consequences due to "...gross reconstruction of the floodplain, [and] altered flows downstream..." However, there is no discussion as to the actual effects on downstream water quality, wildlife and other natural resources that would occur from altered flows. EPA-17

Beach and Stone Lakes offer a mosaic of extremely valuable wetlands and wildlife habitat supporting herons, egrets, white pelicans, waterfowl, shorebirds and other wildlife. Beach and

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Stone Lakes and the Stone Lakes National Wildlife Refuge are in part dependent on the quality of surface waters flowing from Morrison Creek's watershed. The DEIS/R offers no discussion about how the proposed project, or the proposed project in combination with the already-permitted northern sector, will affect these valuable downstream resources. Substantial investment has been made to enhance and restore portions of Morrison Creek, including the National Audubon Society's improvement of the Morrison Creek corridor to improve waterfowl nesting habitat in and around Upper Beach Lake, and the 135-acre Caltrans mitigation bank to enhance and restore the lakes' riparian connectivity. This is of particular concern to EPA because section 4.3 states that the proposed project may cause impacts to Beach and Stone Lakes due to increased stormwater flows. There is no comparison of the present and proposed hydrologic regime and sediment budget of Morrison Creek, and its impacts to downstream resources such as the lakes and the national wildlife refuge. EPA-17

Mitigation: As noted, we believe that the FEIS/R should more clearly document whether avoidance and minimization can reduce the impacts to approximately 24.56 acres of wetlands and other waters of the United States. Once avoidance and minimization have been clearly demonstrated, we believe that the approximate 1.5:1 ratios outlined in the DEIS/R (at 3.6.4, Wetland Mitigation Plan) are minimum ratios which should be carried forth in the FEIS/R, the ROD, and the Public Notice, subject to review and approval by Federal and State resource agencies. We note that the mitigation ratios may need to be improved to compensate for both adverse temporal impacts and cumulative and/or indirect impacts to downstream natural resources (e.g., Beach and Stone Lakes) from mining in the Morrison north and Morrison south sectors. EPA-18

We encourage the proponents to examine a range of both onsite and offsite mitigation to adequately compensate for unavoidable adverse impacts to wetlands and other waters of the United States. One example may be to acquire offsite vernal pools for preservation, possibly in conjunction with other agencies (Caltrans, U.S. Fish & Wildlife Service, California Department of Fish & Game, etc.) and private groups such as the Nature Conservancy. Areas within southern Sacramento County offer a range of opportunities. EPA is quite willing to work with the Corps, the County and the proponents on investigating potential mitigation opportunities for unavoidable project-related impacts, both onsite and offsite.

Request for Clarification: The DEIS/R contains a large number of references to "seasonal wetlands," which can include vernal pools. We request that the acreage and location of vernal pools be specifically identified in the text of the FEIS/R, the updated 404(b)(1) alternatives analysis, and the various figures and tables in the EIS. EPA-19

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CLEAN WATER ACT, WATER QUALITY

Water Quality Control Plan: We are seriously concerned that the DEIS/R contains no reference to the project's compliance with the Water Quality Control Plan ("Plan"), developed by the Regional Water Quality Control Board and approved by U.S. EPA pursuant to the Clean Water Act. The Plan, which is federally enforceable, contains provisions to protect water quality and existing and potential beneficial uses. Beneficial uses may include municipal and domestic water supply, ground water recharge, freshwater replenishment, cold and warm freshwater habitat, wildlife habitat, and the protection of rare, threatened, endangered species. EPA-20

The Plan for the project area contains specific provisions to protect surface waters from pollutants. In the case of this project, the primary cause of concern would be increased erosion and sedimentation, however, the potential for increased spills of hydrocarbons and chemicals from onsite equipment is also a concern. The Plan specifically provides that the suspended sediment load and sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses. Similarly, the Plan provides that waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses, and provides specific limits for increases in turbidity. The Plan also contains specific requirements concerning floating materials, oil and grease, toxicity, dissolved oxygen, settleable material and other factors or conditions that may adversely affect water quality and beneficial uses.

We recommend that the Corps and the County contact the Regional Water Quality Control Board to ensure the project's consistency with the Plan's requirements on sediment, turbidity and other factors. Appropriate mitigation measures to protect water quality and beneficial uses should be included in the FEIS/R, the ROD and, as appropriate, permit conditions. The Stormwater Pollution Prevention Plan mentioned on p. 5-5 may be an appropriate forum to reference the requirements of the Water Quality Control Plan.

MONITORING WELLS, MATHER FIELD CONTAMINATION PLUME

The DEIS/R (pp. 5-10 and 5-11) discusses potential consequences and proposed mitigation associated with the monitoring wells for the Mather Field (formerly Mather Air Force Base) contamination plume. The DEIS/R indicates that proposed gravel mining operations "could affect or destroy some monitoring wells" (p. 5-10). Page 5-11 describes mitigation that the project proponents would undertake with the Air Force Base Conversion Agency. EPA-21

According to EPA's records, there are three Mather groundwater monitoring wells on Teichert property, but these three wells are located north of Jackson Highway (the subject of the 1995-96 NISs for the northern mining sector). Although there are currently no wells located in the area covered by the southern sector DEIS/R, it is probable that the Air Force may want to locate monitoring wells in this area to monitor plume migration at some future point. Accordingly, we recommend that the text on page 5-11 under 5.2.3 Mitigation, number 2 be modified to read: EPA-21

> "The proponents shall coordinate mining in the vicinity of groundwater contamination with the Air Force's groundwater monitoring program [added text], planned groundwater...."

AIR QUALITY

The DEIS/R provides useful information on a variety of air quality-related issues, including information on State and Federal air quality standards, the current air quality status of the project area, air emissions at the project site, and air permits required for the proposed facility. However, it is unclear whether any of the project's direct or indirect emissions may be subject to the requirements of Section 176(c) of the Federal Clean Air Act (general conformity) and EPA's general conformity regulations. EPA's final rule on general conformity is codified at 40 CFR Part 93, Subpart B. The FEIS/R should discuss the applicability of EPA's general conformity rule to the proposed project. If the Corps determines that a general conformity determination is needed for the proposed project, the conformity determination should be circulated for agency review pursuant to 40 CFR 93.155 before or concurrent with the FEIS/R. EPA-22

POLLUTION PREVENTION OPPORTUNITIES

The DEIS/R does not address pollution prevention mechanisms in the proposed project to the extent recommended in guidance issued by the Council on Environmental Quality (January 29, 1993 Federal Register, pp. 6478-6481). We believe that the proposed project could be strengthened by specifically designing, constructing and operating the project with pollution prevention measures. One example may be to incorporate the latest energy and water conservation features in the new processing plant at the Vineyard I site, another may be to adopt a comprehensive solid waste recycling program for the proposed project and the companies' daily operations. A third measure may be to inventory the use of any chemicals and hazardous materials used in the mining, processing and reclamation work so as to reduce the use of hazardous compounds and/or substitute less hazardous materials. This would have the added benefit of reducing the generation of hazardous waste. We encourage the adoption of reclamation and vegetation restoration efforts that minimize or avoid using EPA-23

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pesticides and herbicides. We recommend that appropriate pollution prevention commitments be identified in the FEIS/R and that appropriate commitments be included in the ROD and, as appropriate, as 404 permit conditions. EPA-23

PLACER GOLD RECOVERY

The DEIS/R (p. 3-12) indicates that the recovery of placer gold would likely be part of the processing operations. The gold would be recovered through a mechanical device known as a "jig system." According to the DEIS/R, no chemicals are used in this process. The FEIS/R should indicate whether subsequent environmental documentation would be required by the Corps and/or the County should future gold recovery at the site require the use of chemicals or other hazardous agents. EPA-24

EPA, Letter from United States Environmental Protection Agency dated 5/5/97

EPA-1: The commentor's overview of the EPA's jurisdiction and responsibility in reviewing the EIR/EIS and the draft 404 permit are noted. As instructed by the commentor, all comments related specifically to the 404 permit completeness are considered advisory and will be given due consideration. The Public Notice for the proposed project was distributed January 26, 1996. A second Public Notice will indicate the availability of the final EIR/EIS.

EPA-2: The commentor's summary of the project and assumption regarding the "practicable" alternatives and alternatives withdrawn from further consideration is noted.

EPA-3: The commentor's objection to the proposed project "...chiefly with regard to the proposed project's failure to comply with the requirements of CWA Section 404 and the Guidelines" is noted. With regard to demonstration of the proposed project's purpose and need, additional information on this topic may be found in Chapter 2 in the EIR/EIS which presents an overview of the applicant's stated purpose for the project. The information provided in Chapter 2 is supported by Appendix B (pages B-96-115) which provides additional detail on the availability, consumption and predicted demand for aggregate materials (project purpose). Also refer to response to comments EPA-6 and 8. The Corps has not concluded that the proposed project is the least damaging alternative and is evaluating a reasonable range of alternatives.

EPA-4: The EIR/EIS includes two alternatives aimed at reducing or avoiding impacts to jurisdictional waters: the 100-Year Floodplain Protection Alternative and the Creek Buffer Alternative (150-foot setback from the lateral extent of Corps jurisdiction). The latter was added to the EIR/EIS at the request of the EPA and other commentors. Please refer to Section 4.4 of the EIR/EIS for additional discussion of these alternatives. As a point of clarification, no vernal pools would be displaced by the proposed project. The only vernal pool habitat identified within the project site occurs in area on the Aspen V South property in an area not proposed for mining. Refer to Section 5.7 (and Figure 3-6c) for additional detail.

EPA-5: The project proponents will have to obtain Section 401 water quality certification or waiver from the Regional Water Quality Control Board. The RWQCB is responsible for implementation of the adopted Water Quality Control Plan. In its review of the proposed permit applications, the RWQCB will determine consistency with the existing Water Quality Control Plan and either approve, conditionally approve or deny such permits. Conditional approval may include assigning specific performance standards and other criteria such that the proposed action will be made consistent with the goals and objectives of the adopted Water Quality Control Plan including those directly linked to the protection and preservation of downstream beneficial uses. In this role, the RWQCB will be the judge of the adequacy of the proponents' proposed water quality protection program including the mitigation identified in the EIR/EIS. The EIR/EIS has been revised (see Section 5.1.3) to include reference to this existing requirement. For additional information related to Beach and Stone Lakes, please see response to comment EPA-17.

EPA-6: Please refer to response to comments EPA-7 through EPA-24. As recommended by the EPA, additional consideration of alternatives was given in the Final EIR/EIS. The Final EIR/EIS also addresses all comments on the draft document. The preparers of this document do not believe issuance of another draft would result in new information or additional substantive

comments. Please refer to response to comment UCC-2 for additional information on this subject.

EPA-7: With regard to the issue raised by the commentor regarding practicable alternatives to the proposed action, please refer to response to comment EPA-6 above. For additional information on the purpose and need for the project, refer to EPA-3 above.

EPA-8: Although the primary objective of the applicants for the project is related to mining and reclamation on the project site (which is currently owned by the applicants), the scope of alternatives considered was not restricted by this fact. Consistent with Section 15126.6 of the State CEQA Guidelines, the Lead Agency is responsible for the selection of the alternatives to be evaluated. Both CEQA and NEPA provide guidance for Lead Agencies to use when selecting alternatives to the project, including consideration of off-site alternatives. Chapter 4 of the EIR/EIS describes the alternatives to the project which include variations of the proposed mining plan, a floodplain protection alternative, a creek buffer alternative, a recycling alternative and several off-site alternatives. Some of these alternatives were removed from further consideration in the EIR/EIS because they would not avoid or eliminate the environmental impacts of the project, would create additional impacts, or for other reasons as explained in Chapter 4. It is also important to note that aggregate is a diminishing resource in high demand. This restricts practicable alternatives with regard to resource location where the aggregate would be used, and availability (e.g., for sale) of other sites.

EPA-9: An EIR/EIS for the north project was prepared in 1995. In August of 1996, final approval from the United States Army Corps of Engineers was granted for the north project. There are approximately 68 million tons of aggregate resources located within the north project site. Assuming the average annual rate of aggregate consumption in the Sacramento region continues at a rate of 8.5 million tons per year, the north project would provide about 8 years of supply or approximately until the year 2003 (four years from the release of this Final EIR/EIS). However, at this time aggregate is being consumed at a faster rate due to improved economic conditions and increased construction. This scenario assumes that mining and reclamation *is* allowed, as proposed and evaluated in the EIR/EIS for the north project. If, however, mining is permanently precluded in the 150-foot buffer area (imposed by Special Condition 1 in the approved 404 Permits for the north project), then the total aggregate available from the north site would be reduced, thereby shortening the mine's life. It is also important to note that considerable lead time in the permitting process is necessary.

EPA-10: Section 6.7 of the EIR/EIS identifies the environmentally superior alternative consistent with the requirements of the California Environmental Quality Act and the National Environmental Policy Act. Consistent with Corps procedures, the Least Environmentally Damaging Practicable Alternative (LEDPA) is not identified until completion of the permitting process, including publication of the FEIS and production of the Record of Decision. As described in Section 6.7, the 100-Year Floodplain Protection Alternative is considered the environmentally superior alternative. Under that alternative, mining would occur entirely outside of the 100-year floodplain. Since release of the Draft EIR/EIS, various commentors, including the EPA, have requested that a variation of the 100-year floodplain alternative be considered. This variation, now referred to as the "Creek Buffer Alternative," would allow additional mining

such that project feasibility is enhanced, while minimizing the wetland/riparian habitat impacts. Please refer to response to comment UCC-2 for additional information on this alternative.

EPA-11: Comments noted. Please refer to response to comment EPA-5 above and Section 6.7 (Identification of Environmentally Superior Alternative).

EPA-12: The referenced alternatives analysis from the Technical Appendix (B) of the EIR/EIS was prepared specifically for the Vineyard I parcel and represents the Granite portion of the larger project site. A separate alternative analysis dated January 18, 1984, was completed for the Aspen IV and V South sites and is included in Appendix F (Refer to Chapter 3, Project Description, in the EIR/EIS for additional detail).

EPA-13: Avoidance of the 24.56 acres of jurisdictional wetlands on the project site during mining, or roughly 2.7% of the proposed mining area, would not translate to a 2.7% reduction in aggregate material unless mining was conducted to the edge of each wetland, resulting in perched wetlands 35 to 45 feet above the resulting ground surface. (Please note that in their letter dated 7/2/97, the US Army Corps of Engineers verified that the total amount of jurisdictional waters on the Vineyard I site was reduced from 21.95 acres to 17.22 acres thereby reducing project total to 19.83 acres.) The depth and quality of aggregate within the project site varies and is most abundant and of highest quality along the creek. Thus avoidance of the 2.7% land area would not result in a commensurate reduction in aggregate resources of "...somewhat more than 1.00 million tons..." In addition, avoidance of the wetland areas only would also require setback/buffer areas and additional land for the side slopes of the proposed mining activities and would therefore require more than 24 acres of land. Regardless of this, the EIR/EIS does evaluate two alternatives focused on the protection of wetland resources: the 100-Year Floodplain Protection Alternative and the Creek Buffer Alternative (that establishes a 150-foot buffer on either side of the creek). The latter alternative was included in the Final EIR/EIS at the request of the EPA and other commentors (refer to response to comment UCC-2 for additional information on this subject).

Currently, there are private companies in the County which recycle concrete and asphalt and the EIR/EIS has been corrected to reflect this fact. Additional information on current recycling opportunities within the County was provided to the US Army Corps of Engineers in a letter from one of the project proponents (Granite Construction Company) dated March 18, 1998, and updated May 17, 1999. As described in the letter, possible uses for recycled materials are currently limited to aggregate base materials, and as an additive to asphalt production (generally at a maximum of 20%). Despite ongoing efforts by private sector and local and state agencies, recycling has historically had the potential to only provide approximately 25% of the materials under demand (assuming that an adequate supply of recyclable material has been available for reprocessing). It is expected that as aggregate resources are depleted, recycling will become more cost effective and important in extending supplies. For additional information on recycling, please refer to Chapter 4 and Appendix B of the EIR/EIS.

EPA-14: Additional information on the alternative off-site locations considered is provided in Appendix B, specifically on pages B-105 through 116. This discussion presents a site-by-site analysis of the reasonable off-site locations, including an analysis of available aggregate resources, onsite wetlands, land uses, and ownership. Regarding the cost of transportation,

information is provided in the EIR/EIS related to this subject. The commentor is referred to page 2-2, which indicates that based on the California Public Utilities *Commission's 1993 Minimum Rate Tariff Area 7 Rates*, it was assumed that transporting aggregate 40 miles would increase the cost at least 65 percent.

EPA-15: The comments regarding the 404(b) analysis are noted. Refer to response to comment UCC-2 for information on the modified floodplain protection alternative evaluated in the Final EIR/EIS.

EPA-16: Although different sequences may, in the short-term, preserve some wetlands, the end result would be elimination. Appropriate mitigation for a Corps permit would be required prior to determining the LEDPA.

EPA-17: No increase in downstream stormwater flows would occur as a result of the proposed project. If detention facilities are permitted, downstream flows would likely be attenuated. Detention facilities would probably reduce erosion and sedimentation. The commentor expresses concern based on referenced statement from Section 4.3 of the EIR/EIS: "...the proposed project may cause impacts to Beach and Stone Lakes due to increased stormwater flows." Section 4.3 of the EIR/EIS does not state this. Chapter 4 of the EIR/EIS presents the alternatives to proposed project, and Section 4.3 describes the County Drainage Alternatives (Part B). Within this discussion there is one reference to Beach and Stone Lakes. The reference, made in the first paragraph under 4.3, states that: "The studies also indicated that further downstream, because the outlet of Beach/Stone Lakes can be blocked by high Delta flood stages, any increases in the volume of storm water flowing into the lake would aggravate (to some degree) flooding in the surrounding area." This statement is referring to an existing condition that was identified in studies conducted by the City of Sacramento and Corps of Engineers that identified flood control deficiencies within the Morrison Creek channel downstream of the project site. It is not related to conditions that might be induced by the proposed project or the Part B drainage alternatives. Both Part A and B Drainage Alternatives were identified as part of comprehensive flood control study entitled Drainage Mitigation Plan for Morrison Creek Mining Reach (Montgomery Watson, August 1995). The purpose of the alternatives and the plan itself is to provide for the long-term, safe conveyance of flood flows within the Morrison Creek Reach.

The proposed project's impacts on downstream uses, including water quality and biological resources, are analyzed in Chapter 5 of the EIR/EIS. Refer to Sections 5.1 and 5.7 for a discussion of impacts and mitigation that would be required if the project is approved. As described in these sections, potential downstream impacts would be reduced to a less-than-significant level by implementation of a series of mitigation measures and existing regulatory controls.

EPA-18: An additional alternative was considered per the commentor's recommendation. Please refer to response to comment UCC-2 that addresses this issue. The commentor's recommendations regarding mitigation ratios and potential off-site locations is noted. As a point of clarification, no vernal pools would be displaced by the proposed project.

EPA-19: The only vernal pools on the project site are on the Aspen V South property, and these vernal pools would be avoided by the proposed mining and reclamation activities (refer to Figures 3-6c and 5-8). Also refer to response to comment OEPC-3.

EPA-20: The project would not result in increased erosion, turbidity or significant changes in sediment transport offsite. The upstream section of natural channel would remain unchanged and "natural". The new bypass channels would be constructed to withstand a 100-year flow, and therefore would be constructed to be stable in lesser flows. The project and its construction would be subject to permit requirements for Stormwater Pollution Protection Plan (SWPPP) and Waste Discharge Requirements by Regional Water Quality Control Board (RWQCB). This permit will consider the construction impacts of the bypass channel and will likely require measures to protect water quality and compliance with the Water Quality Control Plan. Since the final project design will be subject to modification during the EIR/EIS approval process, formulating precise water quality measures is not practical. As the EPA suggests in the last comment, the RWQCB is best qualified in this circumstance to formulate specific requirements under the SWPPP to carry out water quality protection. Also see response to comment EPA-5.

EPA-21: Comment noted. The mitigation related to water quality monitoring that was conducted by the Air Force has been revised to reflect that no on-site monitoring wells currently exist.

EPA-22: As discussed in Section 5.4 of the EIR/EIS, the project is located within the southern portion of the Sacramento Valley Air Basin, which is designated a nonattainment for the federal carbon monoxide standard and severe nonattainment for the federal ozone standard. The U.S. Environmental Protection Agency's general conformity rule, codified in 40 CFR Part 93, Subpart B, provides that a general conformity determination be conducted for increases in pollutants which could affect existing nonattainment or maintenance conditions. Conformity determinations are required for increases in nonattainment pollutants that equal or exceed 100 tons per year for emissions of carbon monoxide and 25 tons per year for emissions of ozone precursor pollutants within severe nonattainment areas.

The analysis of impacts to regional air quality is presented in Section 5.4.2 of the EIR/EIS. Based on this analysis, under the worst-case project scenario (i.e., on-site processing plant alternative) would result in emissions of carbon monoxide and ozone precursor emissions, including an estimated 4 tons/year of ROG and 51 tons/year of NO_x. However, according to the proponents, equipment used on the proposed project site would be transferred from active mining areas, as the currently mined areas are depleted. The emissions associated with activities conducted at the project site, though substantial, would be replacing emissions currently occurring in other mining areas. In addition, the overall capacity and annual throughput of aggregate, asphaltic concrete and Portland cement concrete in the region would not be changed by the proposed project. As a result, no net change in regional emissions associated with the proposed project would occur. Because the proposed project is not expected to result in a net increase in emissions of carbon monoxide or ozone precursor pollutants, a formal conformity determination is not an anticipated requirement for project.

EPA-23: The recommendations related to pollution prevention are noted. As a point of clarification, the on-site processing plant option has been removed from further consideration by the project applicants. Following the review period on the Draft EIR/EIS, the applicants were able to successfully negotiate the required easements to allow conveyor access to an existing plant north of the project site. The EIR/EIS currently has mitigation to reduce potential water quality impacts associated with the use of hazardous materials (please refer to Sections 5.1.3 and

5.1.2 – under "Recommendations/Requirements of Public Agencies" and "Mitigation Measures" for detailed information on this subject).

EPA-24: If future gold recovery operations at the project site require the use of chemicals or hazardous materials and such uses require discretionary action by the County Board of Supervisors then additional environmental review of the project under CEQA and NEPA would be required. This activity may not be subject to Section 404 jurisdiction. There are several federal and state environmental laws governing the use of hazardous materials that may also be triggered by such uses and would require the applicant to comply with specific preventative, safety, reporting and contingency planning requirements should such uses be proposed in the future.

SAC

DEPARTMENT OF UTILITIES

ENGINEERING SERVICES

CITY OF SACRAMENTO
CALIFORNIA

5770 FREEPORT BLVD.
SUITE 100
SACRAMENTO, CA
95822-2011

PH 916-433-6318
FAX 916-433-6652

April 21, 1997
970214:DRS

MEMORANDUM

TO: Grace Garcia, Environmental Services Division

FROM: David R. Schamber, Associate Engineer DRS

SUBJECT: DEIR/EIS for the Morrison Creek Mining Reach Downstream (South) of Jackson Highway (Control Numbers: 94-UPB-0484, 91-CZB-UPB-0118, 90-CZB-UPB-1607 and 94-CZB-UPB-0671)

Thank you for the opportunity to review and comment on the above subject document. Our comments are as follows:

- **Flood Control.** The City of Sacramento supports the County Drainage Alternatives (Part B) which will reduce downstream flooding. The plan which lowers the downstream 100-year channel discharge below the existing channel capacity and provides for detention storage is preferable to the City. SAC-1

- **Sediment.** The County Drainage Alternatives (Part B) will utilize the gravel pits created by the mining operation as detention basins for flood control. If sediment loading from the upstream watershed is significant, a portion of the storage volume in the gravel pits should be reserved for the accumulation of sediment. A maintenance program needs to be established to periodically remove the accumulated sediment. SAC-2

If you have any questions regarding the above comments, please contact me at 433-6660.

cc: Dave Brent, Supervising Engineer

SAC, Letter from the City of Sacramento dated 4/21/97

SAC-1: Following additional consideration and evaluation of the "Part B County Drainage Alternatives," the County of Sacramento determined that the incremental downstream flood control benefits would be minimal. Therefore, the County has decided to forgo additional consideration of this alternative at this time.

SAC-2: Comment noted. Please refer to response to comment SAC-1 above.

TD

COUNTY OF SACRAMENTO

Inter-Agency Correspondence

April 29, 1997

To: Bob Davison
Public Infrastructure Planning and Financing Section

From: Hardeep Sidhu HS
Transportation Division

Subject: **NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT / ENVIRONMENTAL IMPACT STATEMENT FOR MORRISON CREEK MINING REACH SOUTH OF JACKSON HIGHWAY: ASPEN III SOUTH (94-0484), VINEYARD I (91-0018), ASPEN IV SOUTH (90-1607), ASPEN V SOUTH (94-0671).**

The Transportation Division has reviewed the Draft Environmental Impact Report / Environmental Impact Statement for the above referenced project and recommends the following conditions for it's approval. All recommended conditions and mitigation measures in the DEIR which require the installation of improvements and recordation of right-of-way shall be met before the issuance of the work authorization permit, unless otherwise stated.

1. Grant the County right-of-way for Fruitridge Road based on an 84' standard and install public street improvements pursuant to the Sacramento County Improvement Standards.

2. Grant the County right-of-way for Mayhew Road based on an 84' standard and install public street improvements pursuant to the Sacramento County Improvement Standards.

3. Grant the County right-of-way for Elder Creek Road based on an 84' standard and install public street improvements pursuant to the Sacramento County Improvement Standards.

4. Grant the County right-of-way for Bradshaw Road based on an 108' standard and install public street improvements pursuant to the Sacramento County Improvement Standards.

5. Grant the County right-of-way for Hedge Avenue based on an 60' standard and install public street improvements pursuant to the Sacramento County Improvement Standards.

6. Grant the County right-of-way for Jackson Road based on an 108' standard and install public street improvements pursuant to the Sacramento County Improvement Standards.

TD-1

7. Grant the County additional right-of-way on Fruitridge Road/Mayhew Road for intersection widening per standard drawings H-24 and H-25 of the Sacramento County Improvement Standards.

8. Grant the County additional right-of-way on Elder Creek Road/Mayhew Road for intersection widening per standard drawings H-24 and H-25 of the Sacramento County Improvement Standards.

9. Grant the County additional right-of-way on Elder Creek Road/Hedge Avenue for intersection widening per standard drawings H-24 and H-25 of the Sacramento County Improvement Standards.

10. Grant the County additional right-of-way on Bradshaw Road/Jackson Road for intersection widening per standard drawings H-24 and H-25 of the Sacramento County Improvement Standards.

11. The proposed conveyor tunnels under various roadways shall be designed to accommodate the ultimate roadway cross-section to the satisfaction of the Transportation Division of the Public Works Agency/Caltrans. TD-1

12. Fruitridge Road between the Aspen III South driveway and Mayhew Road shall be overlaid to the satisfaction of the Transportation Division of the Public Works Agency. This overlay shall be done within three months of the completion of the initial overburden removal for the Aspen III South project.

13. Install Class "C" intersection widening on Elder Creek Road/Mayhew Road per standard drawing H-28 of the Sacramento County Improvement Standards. This widening should include an eastbound left turn lane in addition to the right turn deceleration lane as shown in the mitigation measures to the satisfaction of the Transportation Division of the Public Works Agency.

14. Retain a qualified geotechnical consultant to prepare a soils report for Elder Creek Road between South Watt Avenue and Bradshaw Road to assess the structural section of the existing pavement. The report should include recommendations regarding the need to upgrade the pavement section to accommodate the additions truck traffic from the project site.

15. The location, number and design of the access driveways for various project sites shall be to the satisfaction of the Transportation Division of the Public Works Agency.

16. No truck access for overburden removal or aggregate shall be allowed onto Fruitridge Road

TD

between South Watt Avenue and the previously approved Aspen III South access point.

17. Pave Mayhew Road from Elder Creek Road to 200 feet north of Elder Creek Road TD-1

The above mentioned recommended conditions are in addition to the mitigation measures listed in the DEIR for this project. Please call me at 440-5966, if you have any questions.

c: Steve Hetland
Steve Hartwig
Kevin Crawford & Paul Philleo, LD&SIR

TD, Letter from County of Sacramento, Public Works Agency - Transportation Division dated 4/29/97

TD-1: The recommended conditions of approval have been incorporated into Section 5.8.3 of the EIR/EIS with the exception of numbers 13, 14 and 17. These conditions would no longer be relevant to the proposed project based on another condition restricting access to and from Elder Creek. Please refer to the mitigation measures presented in Section 5.8.3 of the EIR/EIS for additional information.

WRD

COUNTY OF SACRAMENTO
WATER RESOURCES DIVISION
INTER-DEPARTMENT CORRESPONDENCE

MEMORANDUM

April 11, 1997

TO: **Susan Goetz**
Public Infrastructure Planning and Financing Section

FROM: **James J. Paluck**
Water Resources Division

SUBJECT: **Comments on the DEIR for Morrison Creek Mining Reach Downstream (South) of Jackson Hwy, Control No. 94-0484, 91-0118, 90-1607 & 94-0671**

The Water Resources Division (WRD) has the following comments on the subject project.

On Pages ES-2 and 5-6 (#4), the Draft EIR includes the following condition of approval:

> "Drainage easements shall be provided and facilities installed pursuant to the Sacramento County Floodplain Management Ordinance, Sacramento County Land Grading and Erosion Control Ordinance, Sacramento County Water Agency Code, and Sacramento County Improvement Standards, including any fee required by Ordinance No. 1 of the County Water Agency."

This condition should be deleted or revised. In my previous memorandum dated November 20, 1995, it states that the SCWA <u>will not</u> accept operation and maintenance of the drainage improvements, including pump stations and the reconstructed channel of Mather Drain and Morrison Creek. Therefore, no easements will be taken over the proposed drainage channels. WRD-1

On Pages ES-3 and 5-6 (#6), the Draft EIR includes the following condition of approval:

> "Prior to the improvement plan approval or recordation of the final map, whichever occurs first, a fair-share contribution to the costs of the following shall be paid: delineating wetlands; preparing a drainage master plan; acquiring right-of-way for and constructing flood control detention and water quality facilities; and providing environmental mitigation for drainage improvements..."

This condition should be deleted since the new SCWA code incorporates this fair-share contribution into the revised drainage fees. WRD-2

If you have any questions, please feel free to contact me at 440-6851.

302/13.08

cc: Craig Crouch Terri Wegener Pete Ghelfi

WRD, Letter from County of Sacramento, Public Works Agency - Water Resources Division dated 4/11/98

WRD-1: Comment noted. The EIR/EIS has been revised as requested to correctly reflect that no drainage easements will be necessary or accepted by the County.

WRD-2: Comment noted. The EIR/EIS has been revised as requested.

WQD

COUNTY OF SACRAMENTO

Public Works Agency
Water Quality Division Memorandum

April 24, 1997
E225.000

TO: Susan Goetz
Public Infrastructure Planning & Finance Section

FROM: Bob Lilly BL
Water Quality Division

SUBJECT: **DRAFT EIR FOR THE MORRISON CREEK MINING REACH SOUTH OF JACKSON HIGHWAY**
CONTROL NO. 94-UPB-0484, 91-CZB-UPB-0118, 90-CZB-UPB-1607, 94-CZB-UPB-0671

Water Quality Division staff on behalf of Sacramento Regional County Sanitation District (SRCSD) and County Sanitation District No. 1 (CSD- No. 1) has reviewed the subject document on and has the following comments.

The following comments should be changed on page ES-21, Table ES-1.

Heading: Requirements/Recommendations of Public Agencies

Existing comment: "As a condition of approval of the project ... two public utility corridors."

Replace with: As a condition of approval of this project , the proponents shall enter into an agreement with SRCSD for the dedication of a 130-foot wide strip of land to provide for construction of sanitation pipeline and/or drainage facilities. If interceptor construction occurs prior to mining, the proponent will not mine in a 40-foot strip of land shown as SRCSD PERMANENT EASEMENT on Exhibit A enclosed. Proponent will protect the integrity of the pipeline from mining activities conducted adjacent to the permanent easement.

WQD-1

WQD

Susan Goetz
April 24, 1997
Page 2

Heading: Mitigation Measures

Existing Comment: "The proponents shall consult ... to facilitate final plans..."

Replace With: The proponents shall enter into an agreement with SRCSD staff regarding the placement and disposition of the utility corridors (to accommodate the gravity sewerage system) as they relate to the project site and the proposed project. The final plans shall be approved by SRCSD staff WQD-2

On page 5-109 the description of the projects includes the Mather Interceptor. This facility is no longer affected by this project as the current alignment proposed for the Mather Interceptor is along Kiefer Boulevard. WQD-3

If you have any questions, please contact me at Ext. 5-6865.

BL

cc: Michael A. Maggi
John C. Boehm
Neal B. Allen

lilly/goetz714.mem/203641

WQD, Letter from County of Sacramento, Public Works Agency – Division of Water Quality dated 4/24/97

WQD-1: Comment noted. The EIR/EIS has been revised as requested.

WQD-2: Comment noted. The EIR/EIS has been revised as requested.

WQD-3: Comment noted.

May 23, 1997

Mr. Dennis Yeast
Environmental Coordinator
County of Sacramento
Department of Environmental Review and Assessment
827 7th Street, Room 220
Sacramento, CA 95814

SOUTHGATE
RECREATION & PARK DISTRICT

Sheldon
ministrative Headquarters
6000 Orange Avenue
acramento, CA 95823
Phone 916-428-1171
acsimile 916-428-7334

Board of Directors
Robert D. Cochran
ohn E. Cockerham
r. Dennis McKibben
Edwin A. Smith
hristine Thompson

General Manager
Larry Gury

ant General Manager
Ward Winchell

Dear Dennis:

Enclosed please find Southgate Recreation and Park District Resolution #96-148 which was approved by our Board of Directors at their meeting of May 20, 1997. This Resolution provides comments regarding the Draft EIR/EIS for the Morrison Creek Mining Reach South of Jackson Highway. The project is identified by Control Numbers 94-UPB-0484; 91-CZB-UPB-0118; 90-CZB-UPB-1607; and 94-CZB-UPB-0671.

Our Board of Directors has reviewed the project and the project site. They have also met with the mining representatives. Their comments in this resolution reflect a strong desire to utilize natural areas such as creekways as logical corridors for off-street bicycle travel; not limited to recreation, but also as functional commuter routes for our ever-increasing population. The Board has noted their desired options for providing such an amenity which could be provided after the completion of any mining, either through the project's reclaimed creek corridor, or along the bypass channel's maintenance road. SRPD-1

Regarding the timing of our comments, I spoke to Cathy Hack who indicated that although the 45 day review period is passed, our District can submit comments anytime prior to the Planning Commission hearing for this project. Therefore, please review the attached comments and include them in information sent to the Planning Commission and the Board of Supervisors regarding this project.

Sincerely,

Claudia Gunter
Government Relations Officer

cc: Supervisor Don Nottoli
Larry Vinzant, Army Corps of Engineers

Resolution 96-148

COMMENTING ON THE MORRISON CREEK MINING REACH DOWNSTREAM (SOUTH) OF JACKSON HIGHWAY

SOUTHGATE
RECREATION & PARK DISTRICT

Sheldon
Administrative Headquarters
6000 Orange Avenue
Sacramento, CA 95823
Phone 916-428-1171
Facsimile 916-428-7334

Board of Directors
Robert D. Cochran
John E. Cockerham
Dr. Dennis McKibben
Edwin A. Smith
Christine Thompson

General Manager
Larry Gury

Assistant General Manager
Ward Winchell

WHEREAS, the Southgate Recreation and Park District is in receipt of a Draft Environmental Impact Report/Environmental Impact Statement from the County of Sacramento Department of Environmental Review and Assessment, identified by Control Numbers 94-UPB-0484; 91-CZB-UPB-0118; 90-CZB-UPB-1607; and 94-CZB-UPB-0671 which are owned by Granite Construction Company and Teichert Aggregates; and

WHEREAS, this project is bounded by Jackson Highway to the north, Elder Creek Road to the south, Hedge Avenue to the west, and Excelsior Road to the east; and

WHEREAS, the project applicants propose to impact the existing Morrison Creek through mining, and to construct an elevated bypass channel around the portions of the perimeter of the project site to handle diverted creek flows; and also to create a realigned Morrison Creek Corridor which will contain mitigation consisting of perennial marsh, riparian woodlands, seasonal marsh and valley oak woodland; and

WHEREAS, the Southgate Recreation and Park District places a high value on identifying locations for and encouraging development of off-street bicycle trail systems throughout the District wherever possible to accommodate both recreational users and commuters; and

WHEREAS, the County of Sacramento has identified measures in the 2010 Bikeway Master Plan *(1992)* which support bikeways, with specific references to:

> *1. Requiring the dedication of trail corridors and street rights of way as property is reviewed and approved for development (Chapter 3, page 11)*
> *2. Establishing, where appropriate, bikeways along existing trails, levees, railroads, streams, rivers, power lines, and drainage canals for both recreational and commuter bicycling. (Chapter 5, page 9); and*

NOW, THEREFORE, BE IT RESOLVED, that the Board of Directors does hereby comment of the Draft EIR/EIS for the Morrison Creek Mining Reach Downstream of Jackson Highway as follows:

1. The proposed Morrison Creek Mining Reach project should include a **publicly accessed trail requirement as a condition of approval** due to the importance placed on such facilities by the public and the County of Sacramento as published in the Bikeway 2010 Master Plan document and adopted by the Sacramento County Board of Supervisors. **SRPD-2**

Resolution 96-148
Page 2 of 2

2. The Southgate Recreation and Park District has identified that such a trail could exist either along the proposed maintenance road which will be required along the elevated bypass channel, with such a road to meet the requirements for safe bicycle travel and constructed by the project developers; or through the re-created Morrison Creek Corridor through the project site, with the developer to adjust the pit side slopes at the areas leading into the Corridor to allow for safe entry into and out of the project site by trail users. SRPD-3

3. The nature of business by the mining operators allows them access to the types of simple materials required for an asphalt trail improvement, and therefore the proposed bicycle trail should be constructed by the developer, and dedicated to the Park District for ongoing preservation and maintenance, placing the land into public trust, when mining operations are completed. SRPD-4

4. The Southgate Recreation and Park District will continue to provide coordination and planning efforts to link this proposed trail to future District and County-wide recreational and trail facilities to provide logical bicycle commuting routes and recreational opportunities for the residents of Sacramento County. SRPD-5

BE IT FURTHER RESOLVED, that the Southgate Recreation and Park District Board of Directors encourages the developers to maintain close communication and discussions with the Park District regarding the aforementioned concerns in order to achieve a mutually acceptable solution to this request. SRPD-6

PASSED AND ADOPTED by the Board of Directors of the Southgate Recreation and Park District this 20th day of May, 1997, by the following vote to wit:

AYES:
Cochran, Cockerham, McKibben Smith and Thompson

NOES:
None

Edwin A. Smith, Chair

Christine Thompson, Clerk

SRPD, Letter from Southgate Recreation & Park District dated 5/23/97

SRPD-1: Comment noted.

SRPD-2: Comment noted. Please refer to response to comment UCC-3.

SRPD-3: The District's recommendations regarding placement of a proposed trail are noted.

SRPD-4: The District's recommendation regarding the applicant's role in constructing a proposed trail and its future dedication are noted. Also see response to comment UCC-3.

SRPD-5: The District's commitment and ongoing coordination of the countywide trail system is noted.

SRPD-6: The District's recommendation for the proponents to maintain close communication on the aforementioned issues is noted.

SAS

April 29, 1997

Dennis Yeast
County of Sacramento
Department of Environmental Review and Assessment
827 7th Street, Room 220
Sacramento, CA 95814

Regarding: DEIR/DEIS, Morrison Creek Mining Reach Downstream (South) of Jackson Highway

Dear Mr. Yeast,

After reviewing the environmental documentation for this project, we have concerns that we would like to see addressed. We intend to elaborate on this letter at the Policy Planning Commission hearing. We have been informed by your staff that written and oral comments presented at that hearing will be responded to in the FEIR.

Project Description

We question whether the Project Description is proper. The DEIR/EIS states that the applicant must prepare an analysis that considers the possibility that mining and detention may not occur on the upstream reach and detention may be required in the downstream reach. This possibility is not considered in any of the project alternatives. Neither does the Project Description include this possibility. Therefore the Project Description may be inadequate. However, inclusion of this possibility would seem to introduce instability to the project description. In either case, the DEIR fails to meet its purpose of informing the public. We have had difficulty analyzing the impacts and proposed mitigations for the various project alternatives and County drainage alternatives. Much of that difficulty may stem from the above-mentioned uncertainties. SAS-1

Mitigation

We have questions regarding the mitigation plans. Our first question is how will mitigation be affected if the south reach is required in the future to supply more detention capacity than is shown in any of the alternatives described in the DEIR? How will mitigation be affected if the Board of Supervisors approves the Mining Plan (Part A) and later (before construction begins) approves one of the County Drainage Alternatives (Part B)? We have been advised by your staff that this is a realistic possibility. Mitigation appears to be uncertain. SAS-2

Natural Resources are the Wealth of the Nation

Please address the mitigation corridor interface between Aspen IV South and Vineyard I. It is unclear to us how the two mitigation plans would mesh. Additionally, are the proposed blackberry plantings expected to provide adequate thickets for tri-colored blackbird nesting? SAS-3

Thank you for considering our comments.

Sincerely,

Roy Geenaway

Roy Geenaway, Vice President
Sacramento Audubon

Alta Tura

Alta Tura, Conservation Committee
Sacramento Audubon
4633 Q Street
Sacramento, CA 95819
454-4544

SAS, Letter from Sacramento Audubon Society dated 4/29/97

SAS-1: In August 1996 the United States Army Corps of Engineers issued Section 404 permits (#198900074 and #198900076) for the "north project" located upstream of Jackson Highway). Included in the final permits was "Special Condition 1" which required that a 150-foot setback be established from the lateral extent of the Corps jurisdiction along Morrison Creek. The buffer area is being required for a period of 5 years to determine if riparian vegetation can establish itself within the creek corridor and if an elevated creek channel is safe and feasible. If these two conditions are successfully demonstrated, than the 150-foot buffer will remain as a permanent component of the northern reach and mining will be precluded within that area. If either of these two conditions are not met, and subject to approval by the Corps, mining and reclamation of the entire northern site will occur as proposed and evaluated in the prior EIR/EIS for the northern project (and as previously approved by the County Board of Supervisors).

When the Section 404 permits were issued for the north site in August 1996, the proposed mining, reclamation and drainage plans for the south property had already been prepared and work on the Draft EIR/EIS was in progress. Based on the 5-year waiting period and potentially temporal nature of "Special Condition 1" on the north property, it was determined that modification to the mining, reclamation and drainage plans to develop an alternative scenario based on "Special Condition 1" was not necessary at that time. Such modifications are also not being proposed by the project proponents at this time. In the event that the mining and reclamation is precluded within the 150-foot buffer area on the north site by the Corps, the proponents may be required to prepare necessary revisions to the proposed mining and reclamation plans. Such revisions will be subject to review and approval by the County, and will undergo subsequent environmental review

SAS-2: The "County Drainage Alternatives (Part B)" were evaluated in the Draft EIR/EIS and are provided in Appendix D of that document. These drainage alternatives were originally considered by the County as means to obtain additional downstream flood control benefits. As a result of independent studies conducted by the County Public Works Agency Water Resources Division and the Army Corps of Engineers; however, it was determined that the amount of flood control benefit that would be realized (under both current and anticipated future conditions) would be minimal. Thus, the County has decided to forego further consideration of the Part B Drainage Alternatives. A letter from the WRD stating this is provided in Appendix D of the FEIR/FEIS.

SAS-3: The proposed Wetland Mitigation Plans for all properties within the project site are presented in Appendix B of the Draft EIR/EIS, including the referenced Aspen IV South (see page B-124) and Vineyard I (see page B-35). Although Aspen IV South and Vineyard I plans are presented on different maps (as different applicants own them), the overall design of the proposed mitigation plan is consistent. As described in Appendix B, a contiguous 600-foot creek corridor would be established to accommodate the realigned Morrison Creek. Emergent wetland, riparian and upland habitat would be established throughout the corridor. Mitigation has been proposed in the EIR/EIS that would not only require implementation of the proposed plans, but also would require additional monitoring, compliance with specific performance standards, and contingency requirements to ensure successful implementation. As discussed under impact # 11 in Section 5.7.2 of the EIR/EIS, the proposed perennial marsh and lower riparian habitat areas

are intended to provide suitable habitat for the tricolored blackbird. For additional information on the wetland mitigation plans and biological impacts and mitigation, refer directly to Appendix B and Section 5.7 of the EIR/EIS.

UCC

Urban Creeks Council
4855 Hamilton Street, Sacramento, CA 95841
(916) 482-8377 Fax (916) 482-8410

SACRAMENTO CHAPTER

April 29, 1997

Dennis E. Yeast
County of Sacramento
Department of Environmental Review and Assessment
827 7th Street, Room 220
Sacramento, CA 95814

Subject: Morrison Creek Mining Reach Downstream (South) of Jackson Highway DEIR/EIS
Control Numbers: 94-UPB-0484, 91-CZB-UPB-0118, 90-CZB-UB-1607, and 94-CZB-UPB-0671

Dear Mr. Yeast:

As you know, we are a chapter of the Urban Creeks Council of California whose purpose is to encourage the preservation, protection, restoration, and maintenance of natural streams in urban environments. Our efforts are directed to protect natural streams and prevent incursions into floodplains and floodways of natural creeks. As with the Upstream mining project, we find ourselves in the predicament of commenting on the removal of a natural stream and its incumbent wildlife habitat.

Fish

As with the North Reach, we request a fish survey be conducted to determine the potential loss to fisheries. The EIR mentions that the native Sacramento blackfish might be present as well as non-native species of fish. Please address the impacts to aquatic wildlife from pumps and low flows in the mitigation area. UCC 1

Loss of Natural Riparian Corridor and Creek

All of the existing riparian corridor along the portion of the creek to be mined will be lost. None of the alternatives adequately address replacement of the creek bed and banks and corridor. The Army Corps of Engineers has conditioned its permits for the Mining Reach Upstream to prohibit mining within a 150 foot creek corridor for the first five years of the permits. It seems this would be a more reasonable alternative than the 100 year Floodplain Protection Alternative. A Creek Corridor Protection Alternative would be more feasible in that it would allow more mining than the 100 Year Floodplain Protection Alternative. It would also lessen significant biological and geological impacts of the proposed project. We feel the EIR/EIS discussion of alternatives is inadequate due to the omission of this known alternative. UCC 2

Parks/Public Access

Whatever alternative is chosen, it should contain a parks/public access component. Although the property will remain in private ownership and inaccessible to the public for at least another twenty (20) years, now is the time for the mining companies to make a commitment of giving the public an opportunity to enjoy wildlife habitat and passive recreation with a trail/wildlife corridor in the reclaimed pit floor. Park staff and the County Parks Commission should have preliminary and continuing input into issues such as public access, possible passive recreation uses, and the restoration of the site. A process or structure should be set up by the mining companies to turn over property to the County for public access and passive recreation as the land is restored and mining activities cease. UCC 3

Flood Protection and Consequences of Flooding

We have concerns about the bypass channel that not only include, but go beyond aesthetics. Keeping in mind that historically engineers have underestimated storm and flood events when designing capacities of drainage systems, it seems prudent to design for more than the 100 year event. To our knowledge, in the last ten years, we have had three 500 year events. The alternative plans should look at the 200 year volume and what would be required to accommodate that flood or storm event. Planning for the 200 year event would support County staff's commitment to flood protection for the downstream communities. At the least, the proposed project alternatives should include an analysis on the impacts of the greater than 100 year flood to the project area, downstream and upstream. UCC 4

Conclusion

The Urban Creeks Council cannot select any of the alternatives presented in the Environmental Impact Report. We can only support an alternative that best provides for habitat and aesthetics, keeping in mind the creek's present and potential value as habitat, as a place for passive recreation, and a place that provides a greenway within the urban area. The EIR/EIS should present and discuss such an alternative. UCC 5

Sincerely,

Jane A. Steele
President

UCC, Letter from Urban Creeks Council dated 4/29/97

UCC-1: Impacts to fisheries have been evaluated based upon reconnaissance-level field visits, existing reports, and based on the habitat conditions of the creek and assumptions about the fish that it supports; namely, a warm water fishery. Fish habitat was recognized as a value of Morrison Creek. However, it is not believed to be a significant fishery resource since these habitats, both pre-project and post-project, would only be seasonal and could not support year-round fish populations. The only exception would be small isolated pools subject to intensive predator pressure. The wetland mitigation plan for the proposed project was designed to restore wetland habitat along the creek corridor, including perennial marsh habitat that should be suitable for sustaining warm water fish. Some warm water fish may also migrate through and become established in the bypass channel. Mitigation measure 3 in Section 5.7.3 of the EIR/EIS requires that the bypass channel be designed to incorporate suitable habitat features for fish movement/migration and that the design of these features are developed in consultation with the USFWS, CDFS, Corps, and County. -

Impacts to fish from the pumps may include the loss of some fish taken up (entrained) in the pumps but the extent of this potential impact is not known. This potential impact seems more likely to occur at the pump that will be located at the sump pond in the downstream end of the mitigation corridor (on the Vineyard I parcel), which may support fish, than at the pump described on page 3-26 of the Draft EIR/EIS, because that pump would be at the pond/detention area on the north side of Jackson Highway and that pond/detention area is not likely to support fish. Impact #7 in Section 5.7.2 of the EIR/EIS has been expanded to explain the potential loss of individual fish from the pump. Impacts to fish and aquatic wildlife from low flows do not appear likely. The restored creek corridor will include a perennial marsh area that will provide permanent open water in several ponds, scattered throughout the perennial vegetation, that are at least three feet deep during summer water conditions (Zentner and Zentner, 1994). Fish and other aquatic wildlife will be able to congregate in and around these perennial ponds. This should mimic existing conditions of Morrison Creek.

UCC-2: A modified floodplain protection alternative, or "Creek Buffer Alternative" as proposed by the commentor has been evaluated in the Final EIR/EIS. For a description of the alternative, refer to Chapter 4. The environmental impacts of the alternative are evaluated within each subsection of Chapter 5 under the "Floodplain Protection Alternatives" heading. Provided under this heading is a comparison of the anticipated environmental effects of both the 100-Year Floodplain and Creek Buffer Alternatives.

UCC-3: Mitigation is recommended that would require both applicants to identify, record and grant to the County of Sacramento 600-foot wide open space easements within six months of completing all mining reclamation activities. The easements would be needed to delineate riparian corridors associated with the construction of the proposed seasonal drainages. The easements would identify the limits of agricultural activities so as to guarantee sufficient area to allow for regeneration of the riparian corridor and to allow for the subsequent establishment of a public trail system when deemed appropriate by the County as part of an areawide trail network involving urban stream corridors. Refer to Section 5.9.3 for additional information on this issue (mitigation measure #3).

UCC-4: The 100-year peak event has been selected as the design flood by the Sacramento County Public Works Agency Water Resources Division, and as such is used as the current standard for design of flood control facilities in the County. The purposed of preparing the Drainage Mitigation Plan for the Morrison Creek Mining Reach (Montgomery Watson, August 1995) was to provide a comprehensive evaluation of the potential long-term flood impacts. The "Part A" drainage alternative being proposed by the applicants is one of the alternatives identified in that study.

UCC-5: Comment noted. Please refer to response to comments UCC-3 and UCC-2 above.

ECS

ENVIRONMENTAL COUNCIL OF SACRAMENTO

April 29, 1997

Dennis E. Yeast
County of Sacramento
Department of Environmental Review and Assessment
827 Seventh Street, Room 220
Sacramento, CA 95814

Re: Draft EIR/EIS forMorrison Creek Mining Reach Downstream (South) of Jackson Highway
Public Notice Number 199400102

Dear Mr. Yeast:

We have reviewed the DEIR and Appendices for the project. Our concerns are many. We concur with comments from California Native Plant Society, Sacramento Audubon Society, and Sacramento Urban Creeks Council regarding project impacts on the biological resources and proposed mitigation for those impacts. This letter will outline what we see as inadequacies in planning for the Morrison Creek watershed drainage and exacerbation of those inadequacies by approval of the mining project.

ECS-1

Review of the documents is complicated by weaknesses of the Morrison Creek Mining Reach Drainage Mitigation Plan.

Page ES-2 of the DEIR states, "The proposed mining operations shall be consistent with the Drainage Mitigation Plan for the Morrison Creek Mining Reach which is currently being developed by the Water Resources Division." Consistency is impossible to determine at this time if the Drainage Mitigation Plan is still being developed.

ECS-2

Page ES-2 continues, "An analysis shall be submitted to WRD showing the reclamation plan and ultimate land use for the site. This analysis shall be consistent with WRD studies and the Drainage Mitigation Plan for the Morrison Creek Mining Reach." Are these WRD studies contained within the Drainage Mitigation Plan or are these future studies?

ECS-3

The paragraph concludes, "The analysis shall also consider the possibility that mining (and detention) may not occur upstream of Jackson Highway (as currently proposed), and detention may be required downstream of Jackson Highway (Public Works Agency, Water Resources Division)." Why should the analysis contain that possibility? Are there inconsistencies in the phasing between the North and South reach mining plans? What is the linkage between the two? Page I-1 states that the Downstream and Upstream EIR/EIS are related, but does not elaborate. It appears to us to be a vital link. Are there other possible constraints on the North Reach project not mentioned or discussed in the DEIR for the South Reach? Is WRD alluding to the Corps condition prohibiting mining

* AMERICAN LUNG ASSOCIATION OF SACRAMENTO, EMIGRANT TRAILS * CALIFORNIA NATIVE PLANT SOCIETY *
* CALIFORNIANS AGAINST WASTE * LEAGUE OF WOMEN VOTERS * LIGHT RAIL AND TRANSIT ADVOCATES *
* NATOMAS COMMUNITY ASSOCIATION * SACRAMENTO AREA BICYCLE ADVOCATES * SACRAMENTO AUDUBON SOCIETY *
* SACRAMENTO HOUSING ALLIANCE * SACRAMENTO LOCAL CONSERVATION CORPS * SACRAMENTO NATURAL FOODS COOP *
* SACRAMENTO RIVER PRESERVATION TRUST * SACRAMENTO OLD CITY ASSOCIATION * SAVE THE AMERICAN RIVER COALITION * SIERRA CLUB *
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within 150 feet of Morrison Creek on the Upstream reach? Wouldn't substantial changes in the Downstream Reach projects be required if mining and detention did not occur upstream? This issue should be fully disclosed and discussed before approval of the South Reach mining applications. Perhaps the better forum for this discussion would be within the formulation of a Master Drainage Plan for the watershed concurrent with the mining projects. ECS-3

Part A of the Drainage Mitigation Plan appears to have been approved by the Board of Supervisors when the North Mining Reach approvals were granted. This seems to have resulted in de facto and piece meal planning for drainage of the Morrison Creek watershed. The inadequate process continues as we review the South Mining Reach environmental documentation. Where is the policy and criteria based on what is in the best interest of the public? ECS-4

It appears that a Master Drainage Plan for the proposed mining area has not been approved by the County Board of Supervisors as an official planning document intended to guide physical alterations to the land within the drainage study area. The drainage planning conducted by the county with the assistance of the mining industry appears to have been done for the purpose of assisting and not guiding mining proposals within the subject area. We are led to believe that the intent of the County is to adopt whatever drainage plan is worked out with the mining companies as a result of their mining proposals. ECS-5

The processing and judging of a drainage master plan for the area at the same time as the mining proposals has merit, not only because of the proposed mining of aggregates within the floodplain of Morrison Creek, but because an "approved" drainage plan, in this case, will help shape the where and the how mining will take place on the site. However, it is inappropriate to use the processing of mining proposals as the means of establishing drainage and flood protection policies whose impacts reach beyond the mining sites. It also robs the public of the opportunity to judge in a more objective setting the full merits of the drainage master plan. The drainage issues being contemplated in this case transcend the interests of the mining companies and deserve being fully and properly reviewed by the general public, as a separate matter. ECS-6

Thank you for considering our comments.

Linda Whitney

Co-President

ECS, Letter from Environmental Council of Sacramento dated 4/29/97

ECS-1: The *Morrison Creek Mining Reach Drainage Mitigation Plan* was prepared under the direction of the Sacramento County Public Works Agency, Water Resources Division (WRD) in 1995, and the Final EIR/EIS has been revised as appropriate. Additional refinement of the design and construction-level detail for the facilities proposed under each of the alternatives will be needed prior to implementation. Part of this refinement process will include consideration of the progress and results of implementation on the northern portion of the reach (that was approved for implementation in 1996). Oversight and a determination of "consistency" with the Drainage Mitigation Plan for implementation of any flood control infrastructure facilities within the mining reach will continue to be the responsibility of the WRD. Please refer to response to comment SAS-1 for additional information on this subject.

ECS-2: The "WRD studies" refers to various studies conducted by and/or for the Water Resources Division. These are general studies that address issues such as drainage, flood elevation, and water supplies within the Sacramento area. These studies are not specifically related to the proposed project and, therefore, are not incorporated into the Drainage Mitigation Plan. Instead they are to be used as reference and guidance when preparing the reclamation plan.

ECS-3: Please refer to response to comment SAS-1.

ECS-4: The purpose of preparing *the Drainage Mitigation Plan for the Morrison Creek Mining Reach* (Montgomery Watson, August 1995) was to ensure that the cumulative effects of potential mining activities within the entire reach were evaluated, rather than consider such effects on a project-by-project basis. The recommendation to prepare the drainage mitigation plan came from an EIR that was prepared in 1989 for two proposed mining and reclamation projects located within the northern reach (Granite I and Aspen VI). Following the EIR's recommendation that such a plan be prepared, the Granite I and Aspen VI conditional use permit applications were put on hold for several years to allow adequate time to fully analyze the cumulative effects of mining within the Morrison Creek reach. The study was prepared under the direction of the Water Resources Division (WRD) of the County Public Works Agency. The WRD is charged with long-range planning for the ultimate needs of the County in the areas of stormwater quality, drainage, and flood control. The stated objective of the Drainage Mitigation Plan is to prepare a plan that provides for "...the safe conveyance of Morrison Creek flows through or around the reclaimed mining pits under potential land use development." To achieve this, the study evaluated existing and projected hydrologic and hydraulic conditions within the reach (for a detailed description of the methodology used, refer directly to the plan). As a result of the analysis, a series of alternatives, including the "Part A" and "Part B" drainage alternatives evaluated in the EIR/EIS were developed. These alternatives do not represent "...de facto and piece meal planning..." as the commentor suggests, rather they represent a comprehensive plan that was developed over many years of study and guidance from the Sacramento County Public Works Agency WRD.

ECS-5: Approval of the proposed project would include approval of the Drainage Mitigation Plan for that area.

ECS-6: Please refer to Response to Comment ECS-5.

RECEIVED

APR 3 0 1997

DEPT. OF ENVIRONMENTAL
REVIEW & ASSESSMENT
SACRAMENTO COUNTY

April 30, 1997

CNPS

Dennis Yeast,

To make sure I made the cut-off time on April 29th, I had to turn in my comments before I was able to reread them and make any needed corrections. I have provided you this second copy, so I can at least make chances to the most glaring mistakes - such as directing the letter to you, as opposed to Catherine Hack - and obvious typos. The rest will have to stay, since there was a deadline.

I hope this is acceptable.

Thank you very much,

Linda Bell

Linda Bell
California Native Plant Society, Sacramento Valley Chapter

CNPS

April 29, 1997

County of Sacramento
Department of Environmental Review and Assessment
827 Seventh Street, Room 220
Sacramento, CA 95814

Attn: Dennis Yeast

RE: Draft Environmental Impact Report/Environmental Impact Statement for the Morrison Creek Mining Reach Downstream (South) of Jackson Highway (Control Numbers: 94-UPB-0484 [Aspen III South], 91-CZB-UPB-0118 [Vineyard I], 90-CZB-UPB-1607 [Aspen IV South] and 94-CZB-UPB-0671 [Aspen V South]

From: Linda Bell
CNPS Sacramento Valley Chapter
2239 4th. Avenue
Sacramento, CA 95818

Dear Dennis Yeast:

Since the California Native Plant Society (CNPS) did not receive a copy of the Morrison Creek Mining Research Downstream (South) of Jackson Highway EIR/EIS until April 24th and had to borrow a copy of the Appendix (because none were available), we did not have sufficient time to thoroughly review the report. We would like the comment period to be extended, since this is such an important project which will significantly impact the Morrison Creek drainage and all of the biological, economic, and sociological communities associated with the drainage. There are ecological issues, such as the destruction of riparian communities (a very threatened plant community in California), which are being discussed in this report which can have much larger, regional effect through the precedent set by the issuance of a permit for mining aggregate in this drainage.

This report is presented "in a programmatic manner" (page 1-2). I believe that such a report should be given a longer comment period because of it's significant cumulative effect on the environment of Sacramento. The list of issues of concern included in the Scope of the EIR/EIS (page 1-2) are extensive and there was no time to adequately address all of these issues. CNPS-1

Overall Plan Comments

EIR/EIS and Appendix

Reproduction Standards: Reproduction standards must be raised so that the copies sent out for review are useable. Figures (specifically maps and their legends) are often eligible. Many of the maps in the appendix require a magnifying glass to read, and even with a magnifying glass, much of the fine lines have disintegrated and the type plugged due to poor reproduction methods. These maps and figures are integral to the evaluation process, and so have to be improved.

Appendices: The EIR/EIS reports are of little use without the accompanying details contained in the Appendices. The same number of EIR/EIS and Appendices should always be printed. The usual response is that the appendices cost too much to reproduce. If some of the sections of the report, such as the Morrison Creek Mining Reach Drainage Mitigation Plan, were written without the massive amount of repetition in certain sections, there would be enough funds to print the additional appendicies.

Table of Contents: It would be very helpful if there was a Table of Contents for the Appendix. CNPS-2

Master Plan

The County needs to develop a Master Plan for the rivers, streams, and creeks of the Sacramento Area in which their numerous values and functions are evaluated and analyzed. This Stream System Master Plan should then analyzed along with a Master Plan for the resources, demands and alternatives for aggregates to figure out how to avoid future impacts on natural stream systems. This study should cover the use of recycling and the development of alternative materials which could replace aggregate use. Riverine gravels are a finite resource and their exhaustion is inevitable. CNPS-3

The final EIR/EIS should address the importance of investigating alternative resources. We need to investigate these alternatives now, and not push this decision into the future when we have mined all the riparian corridors and have no other recourse. CNPS-4

Corp of Engineer's Conditional Permit for Morrison Creek Mining Reach Upstream (N) of Jackson Highway

The Corp gave approval for the Morrison Creek North project under the condition that no mining and grazing within 150 feet of jurisdictional waters associated with Morrison Creek be allowed within the first five years of the permits to determine if avoiding the creek corridor is feasible and will result in a stable and viable riparian community (pg 1-1).

This condition should also be applied to the southern mining reach since CEQA requires that agencies "..focus on alternatives to the project or its location that are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the projects objectives, or would be more costly." (CEQA Guidelines, 815126, subd. (d)(1).) CNPS-5

However, in Plan A, (pg 1-7) it states that construction of the perimeter bypass channel between Morrison Creek and Mather Drain will take place during mining years 2-7. It would be helpful if the final EIR/EIS will explain how these two programs will be reconciled if, after 5 years, it is determined that the creek can maintain itself. What would happen with the constructed channel, etc?

Habitat Mitigation

The EIR/EIS does not adequately address the long-term survival of the habitats created as mitigation for mining. Depending on which alternative or alternatives are choisen for implementation, there will be different levels of water detention in Vineyard I and the upstream, North of Jackson HW mining reach. In the Executive Summary (pg ES-2) it mentions that "The analyses shall also consider the possibility that mining (and detention) may not occur upstream of Jackson HW (as currently proposed), and detention may be required downstream of Jackson HW."

In the present EIR/EIS (Southern Reach), the habitat mitigation plans emphasize detention in the North of Jackson HW pit and only a small area of detention in the western end of Vinyard I. If detention was shifted from from the northern portion to the southern portion of the project, or if future development or planning decisions modify this decision, there could be a major impact on the mitigation habitat. CNPS-6

The effects of any changes in detention areas must be discussed in the Final EIR/EIS.

Water Supply to Mitigation Habitat Areas and Downstream Communites

The draft EIR/EIS says that " a flow pattern similar to the existing regime" (pg 3-20) will be maintained in the bypass channel to attempt to maintain the natural values downstream, while it will also provide flows to regulate and maintain the mitigation corridor by releasing water from the bypass channel (pg 5-60). The flows to the habitat mitigation corridor are to be determined in consultation with the USFWS, CDFG, Corps and County and shall be sufficient to support the mosaic of habitat proposed in the corridor (pg 5-60). This consultation is supposed to establish the minimum low flow and optimal high flow conditions. CNPS-7

The Final EIR/EIS should have a detailed discussion of where these water flows will come from and how they will be sustained during drought conditions.

Unlined Channel

If the County does not supplement the Preferred Plan A with one of the additional alternatives discussed in the plan (Plan B) the at-grade bypass channel will be constructed as an unlined channel. As an unlined channel there is an increased chance of failure which could flood areas of the pits, and their associated mitigation habitat. Not all areas of the pits were designed, with drop structures, to receive releases from the raised channel. CNPS-8

Details must be included in the Final EIR/EIS on what actions will be taken to ensure the mitigation habitat will survive any unforseen failures of the unlined channel.

Reconstructed Creek Corridor

Throughlout the draft EIR/EIS, the habitat mitigation plans refer to the "reconstructed creek corridor", but the creek corridor is composed of various types of wetlands, riparain woodland and scrub and oak savannah. There is no actual creek - bed and bank - being created throughout most of the mitigation plans. The only area which refers to an actual creek channel is the area proposed by Sugnet & Associates for Aspen IV (fig. 1-2, pg. B-124). This area has a proposed low-flow channel which will be allowed to meander within the proposed habitat corridor. CNPS-9

The Final EIR/EIS must clarify the use of the term "reconstructed creek corridor", because it is misleading. Details should also be provided as to the actual construction of Sugnet & Associates "low-flow channel". CNPS-9

Adequacy of Biological Reports and Mitigation Plans

As stated on page 2-3 of the EIR/EIS, the Corps has determined that the cumulative effects to wetlands and other waters subject to the Corps in the project area will "significantly impact the quality of the human environment".

The Granite Vineyard project site has the most wetlands and other waters, which will be directly impacted, and it has the most detailed biological assessment, but Aspen IV and V should also have detailed reports. Sugnet & Associates wetlands mitigation report for Aspen IV is very loosely defined and Aspen V has no mitigation plan included in the Appendix.

Aspen V, which includes the oak woodland and vernal pool areas which have been considered significant enough to be avoided, also has only a "Biological Resource Assessment Report". There is no rare plant survey report or detailed monitoring program included in the Appendix.

The different levels of biological detail in the reports for the different mining areas must be addressed in the Final EIR/EIS. CNPS-10

Rare Plant Surveys

Page 5.54 of the draft EIR/EIS (under Special Status Species) says "The project (Plan A) would not significantly impact any special status plants since none are known to occur within the project site."

There are no references to any rare plant surveys included in the EIR/EIS or the Appendix for any of the mining project areas. This needs to be addressed in the Final EIR/EIS. The mitigation plans all note the possibilities of special status species occurence, so rare plant surveys are needed to determine if they occur within the project area.

The Final EIR/EIS needs to include any rare plant surveys which were carried out for the project area and these surveys should follow the guidelines for rare plant survey laid out by CNPS. Qualifications must be supplied for the consultants which performed or will perform the surveys and the following information must be included in the surveys: 1) project description, including a detailed map of the project location and study are; 2) a written description of the biological setting referencing the community nomenclature used, and a vegetation map; 3) detailed description of survey methodology; 4) dates of field surveys; 5) results of survey (including detailed maps); 6) an assessment of potential impacts; 7) discussion of the importance of rare plant populations with consideration of nearby populations and total species distribution; 8) recommended mitigation to reduce or avoid impacts; 9) list of all species identified; 10) copies of all California Native Species Field Survey Forms or Natural Community Field Survey Forms; 11) name of field investigator(s); and references cited, persons contacted, herbaria visited, and disposition of voucher specimens. CNPS-11

Transition Zones Between the Mining Project Areas

The draft EIR/EIS does not adequately address the transition zones between the different mining areas and how the different mitigation plans in these mining areas will integrate. Detailed descriptions must be included in the Final EIR/EIS for these transition zones: North of Jackson HW to Aspen V, Aspen V to Aspen IV and Aspen IV to Vineyard I.

North of Jackson HW to Aspen V: How will the hydrological transition from an elevated unlined channel to a natural stream bed be constructed and how will it affect the natural oak community which is being protected south of Jackson HW.

Aspen IV to Vineyard I: Though Aspen IV and Vineyard I both utilize the 600 foot "reconstructed Morrison Creek corridor" for mitigation (pg 5.3), the mitigation plans are quite different in their design and installation. See B-124 & B-139 for Aspen IV and B-35 & B-40 for Vineyard I. Zentner and Zentner have a very detailed plan (B-40) with well defined zones and a detailed planting plan, while Sugnet & Associates have what they call a "conceptual wetlands mitigation plan" which they say will be "contiguous and compatible with Zentner & Zentners plan (pg B-137). Sugnet & Associates plan however, has a much looser planting plan and a different layout of vegetation communities. Of special interest is the "meandering, unmanaged habitat corridor" which will connect (under a roadway) to the highly defined Zentner and Zentner habitat. These differences, and how they may affect the success of the mitigation plan, must be addressed in the Final EIR/EIS. CNPS-12

Specific Comments on Mining Areas

Aspen V

Mitigation Plan:

1) Figure 3-6c, in the EIR/EIS, and Figure 3-1, in the Appendix report for Aspen IV, show the Wetland Mitigation Plan for Aspen V. There is also a very brief description of the plan on page 3-27, but there is no detailed mitigation plan included for Aspen V in the Appendix. It is somewhat humorous that the mitigation plan map for Aspen V, in the Appendix, is only included in the Aspen IV report. And where it is included it is the wrong map - the report is alluding to the Aspen IV mitigtion map, but they mistakenly put in the Aspen V map. CNPS-13

2) Figure 3-6c shows that the SE vernal pool section of Aspen V and the wetland compensation area, south of Rancho Arroyo, will be set aside as preserve areas and not be mined, but in the Mining Reach Phasing and Hydraulics Proposed Project map (figure 3-8 (EIR/EIS), there is no indication that these areas will not be mined. The oak woodland preserve in the NW portion of Aspen V is the only area set aside in the Mining Reach Phasing and Hydraulics map. CNPS-14

3) There is also no detailed description of the Wetland Compensation Area in the Aspen V section of the Appendix. The only reference to a compensation wetland is included in the Aspen IV report by Sugnet & Associates. CNPS-15

A detailed description of the wetland compensation area must be included in the Final EIR/EIS and corrections must be made to the Mining Reach Phasing and Hydraulics Project maps.

Monitoring Plan:

The monitoring plan for the vernal pools should be described in detail in the final Appendix along with the steps which will be taken for additional mitigation, if monitoring reveals that the pools are being degraded or otherwise impacted.

The monitoring plan for th NW oak woodland preserve area must also be included in the Final Appendix. Page 5-60 refers to a 10 year monitoring plan for riparian woodland, riparian scrub, and Valley oak savanna habitats, but I believe this is referring to the Zentner & Zentner report for the Vineyard I mitigation plan. A detailed monitoring plan needs to be included in the Appendix for the Aspen V oak woodland/riparian preserve. CNPS-16

Rare Plants:

As mentioned in the earlier commments on Rare Plant Surveys, a rare plant survey is needed for Aspen V, especially because of the vernal pools. Sugnet & Associates' preliminary plant survey shows that a species of *Sagittaria* occurs on the site and their document search indicates that a number of special status species could occur in this area. CNPS-17

Aspen IV

Appendices:

The following 2 appendices are not included in the report. They are given a page designation and referred to in the report, but they are not included: Appendix C - Delineation Verification Letter and Appendix E - Wetland Compensation Plan. CNPS-18

These two reports need to be included in the Fnal Appendix.

Mitigation Plan:

In the Wetland Mitigation Plan for Aspen IV, the map of the mitigation plan is included as Figure 1-2 on page 124, but it is not referred to in the report. The report refers to figure 3-1 which is the wetland mitigation plan for Aspen V. This needs to be corrected. CNPS-19

More details are also needed on how the various components of Sugnet & Associates mitigation plan will be constructed. Figure 1-2 on page 124 seems to indicate that a "woodlan habitat" will occur along the most northern section of the corridor and then will stop and a habitat corridor with a meandering, low-flow channel will commence. Details as to how these two zones will interface and how this meandering channel will be constructed are needed in the final report. CNPS-20

The monitoring requirements, stated on page B-143 of the Appendix, seem to refer to the "woodland habitat" section of the mitigation plan. What kind of monitoring plan will be established for the rest of the corridor. CNPS-21

Vineyard I

Discrepancies Between the Zentner & Zentner (1992and 1994) Report and the Gibson & Skordal and Garcia & Associates Reports:

Details must be presented in regards to the discrepancies between the wetland delineations completed by Zentner & Zentner in 1992, and verified by the Corps in 1992, and the Gibson & Skordal 1995 report. Information is needed as to why these difference in wetlands delineations occurred. Zentner & Zentener and the Corps reports were prepared in the winter (November & December of 1992), while Gibson & Skordal reviewed the areas in the summer and fall of 1995. The time of year may be significant. CNPS-22

The loss of the elderberry shrubs recorded by Zentner & Zentner in 1994 is significant and details as to who and under what conditions these shrubs were removed must be investigated and included in the final EIR/EIS. The shrubs were recorded to have had several stems with exit holes typical of the Valley Elderberry Longhorn Beetle which is a federally liseted species. Corrective actions should be taken to deal with the removal of these shrubs. CNPS-23

Thank you for the chance to comment on this report, and I hope that the comment period can be extended.

Sincerely,

Linda Bell

Linda Bell
CNPS, Sacramento Valley Chapter

cc: Larry Vinzant, U.S. Army Corps of Engineers

CNPS, Letters from California Native Plant Society dated 4/29/98 & 4/30/97

CNPS-1: The commentor's request for extension of the comment period is noted. The formal comment period for the Draft EIR/EIS was 45 days, as required by the California Environmental Quality Act and the National Environmental Policy Act. Since the close of the comment period in April 1997, the County has continued to accept letters and comments from the public including oral comments during three Policy Planning Commission hearings on the project. During the hearings members of the public, other regulatory agencies and the applicants were present to discuss and resolve existing concerns regarding the project design and the EIR/EIS evaluation of various alternatives. Refer to the Summary Table (Table ES-1) for an overview of the changes in the mitigation and other revisions to conditions of project approval that resulted from this process. In total, more than a year has been available to make public comments.

CNPS-2: Comments noted. The Draft EIR/EIS and Appendices were available at the Sacramento Central Library and the Rancho Cordova Library throughout the review period. In addition, copies were also available for purchase (for cost of reproduction) at the Sacramento County Department of Environmental Review and Assessment.

CNPS-3: Comment noted. The commentor states the County needs to develop a Master Plan for the rivers, streams, and creeks of the Sacramento Area. This Stream System Master Plan would be utilized for, among other things, describing the use of recycling and the development of alternative materials that could replace aggregate use. Although a comprehensive Countywide Stream System Master Plan would be beneficial in determining and the quantity of resources available and their function, this is outside the scope of this document.

CNPS-4: Comment noted. The EIR/EIS describes alternatives to the project, including alternative sources for aggregate. Refer to Chapter 4 of the EIR/EIS for a complete discussion of alternatives.

CNPS-5: At the request of several commentors, a 150-foot buffer alternative was evaluated in the EIR/EIS (refer to response to comment UCC-2 for additional information on this subject). The questions related to "Plan A" and implementation of the bypass channel is referring to a page from the *Drainage Mitigation Plan for the Morrison Creek Mining Reach* (Montgomery Watson, August 1995). The phasing outlined in this document was prepared prior to the condition of approval requiring a minimum 5-year 150-year buffer zone along the creek placed on the northern project by the Corps of Engineers. Please refer to response to comment SAS-1 for additional information on this subject. The referenced page (1-7) from the drainage plan describes the proposed perimeter bypass channel between Morrison Creek and Mather Drain that would be implemented beginning in year 2 of the project. Special Condition 1 of the 404 Permits (#198900074 and 198900076) for the north project excludes this proposed improvement from the 150-foot buffer zone restrictions and the proposed diversion of Morrison Creek at this location (near Jackson Highway) has already been implemented.

CNPS-6: The proposed wetland mitigation plans do address the long-term viability of the proposed mitigation areas/habitat and include performance standards and monitoring requirements to ensure success. In addition to the measures proposed in the plans (see Appendix B of the EIR/EIS for additional detail), the EIR/EIS includes mitigation that requires a written determination of success of the proposed habitat areas be prepared after a five year period of

monitoring. The determination will be prepared by a qualified biologist and will be submitted to the USFWS, CDFG, Corps and County. If the proposed mitigation does not meet the specified success criteria, then the proponents will be required to take additional remedial actions (refer to mitigation measure #2 in Section 5.7.3 of the EIR/EIS). No changes in the proposed wetland mitigation plans are being proposed at this time. For information related to the conditions of approval for the north project and its effect on the south project, refer to response to comment SAS-1.

CNPS-7: As described in mitigation measure #2 in Section 5.1.3, water needed for the wetland mitigation area may come either from an approved surface water diversion from Morrison Creek or from groundwater and reliable urban or agricultural flows. The precise amount of flows needed to sustain the proposed wetlands will be established through the consultation with the Corps, CDFG, USFWS, and County as required by mitigation in the EIR/EIS. Drought is a reoccurring natural phenomenon within the Morrison Creek watershed and long-term mitigation for such existing conditions would not be required by the project. However, if drought conditions persist during the initial planting and restoration phases of the project, supplemental water may be needed so that the proponents can successfully meet required performance criteria for establishing habitat mitigation. As described in Section 5.1.3 of the EIR/EIS, any proposed diversion of surface water from Morrison Creek for use in the mitigation area will require application to the California State Water Resources Control Board (SWRCB). This measure will not be necessary if other proven long term water supplies (i.e., groundwater and reliable urban or agricultural flows) for perennial marsh, open water, emergent marsh and riparian vegetation are demonstrated and utilized. For additional detail on the wetland mitigation plans, refer to Appendix B of the EIR/EIS.

CNPS-8: Mitigation measure 1 in Section 5.1.3 requires that the proposed facilities be designed to allow the safe passage of the 100-year peak flow without disruption. That means that erosion shall not change the alignment of the bypass channel. The channel may have to be protected from erosion in vulnerable reaches, by utilizing lining or other stabilizing methods if necessary.

CNPS-9: The "reconstructed creek corridor" is one of the primary wetland mitigation areas being proposed within the project site. The commentor is referred to Appendix B of the EIR/EIS for additional detail on the components of the proposed wetland mitigation plan, including Figure 9 on page B-40, which presents a schematic diagram of the reconstructed creek corridor. As shown on Figure 9, the corridor is comprised of a variety of habitat and transition areas beyond just a "low-flow channel" including perennial marsh, low-terrace riparian woodland, seasonal marsh and mid-terrace riparian woodland.

CNPS-10: Avoidance of the primary wetland and oak woodland resources on the Aspen V South site was incorporated into the project design as a way to reduce the potential adverse impacts of the project. As a result, no vernal pools would be displaced by the proposed project. The only jurisdictional wetland that would be disturbed on the Aspen V South site is 0.83 acres of irrigated seasonal wetland. To compensate for this loss, 1.5 acres of perennial marsh will be established in an unmined area of the project site. The effect of this loss and subsequent mitigation were fully evaluated in Section 5.7 of the Draft EIR/EIS. The commentor is correct, a copy of the Wetland Mitigation Plan for the Aspen V South site was not included in Appendix B. A copy of the plan was submitted as part of the project application and was reviewed and used in the

preparation of the impact analysis (as is indicated by the in-text references to the plan). A copy is now available as part of the Final EIR/EIS in Appendix B. Additional copies are available for review at the US Army Corps of Engineers Sacramento District Office and the Sacramento County Department of Environmental Review and Assessment.

CNPS-11: The Draft EIR/EIS (Table 5-6) lists eleven special status plant species that have the potential to occur within the project site, describes the habitat that these species most commonly occur within and identifies the flowering phenology of each species. Two species are listed under the federal Endangered Species Act. One additional species is proposed for federal listing. The Draft EIR/EIS (page 5-50) also states that none of the eleven species were observed within the project site during surveys conducted by the project proponents. All potential habitats on the Aspen IV South parcel were inspected by a botanist on at least two occasions in April and June, 1991 (Sugnet & Associates, 1991a) and a field survey for wetland plants was conducted on that parcel by a field biologist on May 5, 1995 (Sugnet & Associates, 1995a). A reconnaissance-level biotic resource assessment was conducted on the Aspen V South parcel during June, 1994 which included walking meandering transects and assessing the potential for the presence of special status species within the parcel boundaries (Sugnet & Associates, 1994a). A field survey for wetland plants was also conduct on the Aspen V South parcel by a field biologist on May 19, 1995 (Sugnet & Associates, 1995b). Biological surveys were conducted on the Vineyard I parcel between March and July of 1993 (Zentner and Zentner, 1994). In addition, site visits to portions of that parcel were conducted on July 6, 1995 (Zentner and Zentner, 1995a) and in August 1995 (Zentner and Zentner, 1995b). Based upon habitat conditions it appears that the highest potential for occurrences of special status plant species would be on the Aspen V South parcel where vernal pools occur. The vernal pool area would be preserved as no mining or reclamation activities are proposed in this area, and mitigation for the ongoing monitoring to ensure that no indirect effects could occur are included in the EIR/EIS. Refer to the appendices of the proposed wetland mitigation plans (presented in Appendix B of the EIR/EIS) for additional information.

CNPS-12: Mitigation measure #1 in Section 5.1.3 requires containment of a peak 100-year flow. From the natural section to the inlet of the perched channel, this will be accomplished by levees situated along the north boundary of Aspen V South. This should not affect the oak conservation area. With regard to the mitigation plan connectivity questions, the proposed creek mitigation corridor would be continuous from one project area to the next, as shown on Figure 3-70 of the Draft EIR/EIS. Both mitigation plans provide sufficient detail for purposes of the EIR/EIS. However, additional information will be required prior to implementing any mitigation plan. The mitigation measures presented in Section 5.7.3 provide additional assurance of successful mitigation that would be applicable to the entire mitigation area.

CNPS-13: Comment noted. A copy of the Wetland Mitigation Plan for Aspen V South has been included in Appendix B of the EIR/EIS. Also refer to response to comment CNPS-10 above.

CNPS-14: Figure 3-8 presented in the EIR/EIS presented phasing within the entire mining reach. This figure was prepared several years ago before information regarding the vernal pool resources on the Aspen V South property was known. As a result of the environmental review process, this area has been removed from the proposed mining and reclamation activities on Aspen V South as is reflected in Figures 3-3d (proposed mining plan), 3-5d (proposed reclamation plan), and 3-6c (proposed wetland mitigation plan). Mining of the vernal pool area

on Aspen V South is not part of the project application and would not be allowed in the event that the County and Corps grant approval on the proposed project or an alternative.

CNPS-15: Refer to response to comments CNPS-10 and 13 above. Figure 3-8 represents the entire reach and modification of the figure for the purposes of this project is not necessary. Please refer to response to comment CNPS-14 above.

CNPS-16: The reference to the 10-year monitoring plan is relevant to all wetland mitigation plans. Please see first line of mitigation measure #1 in Section 5.7.3 and item c. under #1. Also, please refer to response to comments CNPS-10 and 13 above.

CNPS-17: Refer to response to comments CNPS-10, 11 and 13 above. A copy of the Wetland Mitigation Plan for Aspen V South has been included in the Final EIR/EIS Appendix B that includes a list of plant species for the site.

CNPS-18: The "Appendix C" to the Aspen IV South Wetland Mitigation Plans is the wetland delineation verification letters from the Corps of Engineers. These letters were not available for inclusion in the Draft EIR/EIS or the Final EIR/EIS. With regard to Appendix E "Wetland Compensation Plan," this plan is a 1:200 scale oversized drawing of Figure 3-6b in the EIR/EIS. A copy of the oversized drawing can be made available for review at the Sacramento County Department of Environmental Review and Assessment or the US Army Corps of Engineers Sacramento District Office

CNPS-19: Comment noted. Figure 1-2 represents the proposed wetland compensation plan for the Aspen IV South property as indicated by the commentor.

CNPS-20: As discussed in the wetland mitigation plan for Aspen IV South (in Appendix B of the EIR/EIS), most of the restored creek corridor will be unmanaged and allowed to develop natural plant and animal communities. Specific areas of replacement habitat, such as the referenced woodland habitat, will be planted within or along the restored corridor. Also proposed for construction within the Aspen IV South site are areas of riparian and emergent marsh. It is anticipated that the transition from the planted woodland habitat into the unmanaged corridor will not be an abrupt line of plants. Comment noted regarding the incorrect placement of the Aspen V South wetland mitigation plan for the Aspen IV South site in the Appendices of the EIR/EIS (correct figures were provided in Chapter 3 and the Appendix has been corrected).

CNPS-21: Page B-143 in the Draft EIR/EIS addresses both wetland and woodland monitoring.

CNPS-22: The difference between the two delineations is likely the result of varied irrigation practices. When Zentner & Zentner conducted their delineation, the area in question had been flood irrigated and contained hydrophytic plants. The area had not been irrigated prior to the Gibson & Skordal delineation. Because of this discrepancy, Zentner & Zentner subsequently field reviewed this area and submitted a revised delineation to the Corps of Engineers. The revised delineation excluded the area in question. The Corps verified the revised delineation in a letter dated July 2, 1997. The total acreage of jurisdictional waters was reduced from 21.95 acres to 17.22 acres. This change has been incorporated into the Final EIR/EIS.

CNPS-23: Elderberry bushes are the host plants for the federally threatened valley elderberry longhorn beetle. The USFWS has the responsibility and authority to implement the potential corrective actions recommended by the commentor, pursuant to Section 10 of the ESA. Likewise, this impact can be addressed through Section 7 consultation between the Corps and USFWS. The USFWS may incorporate these actions into the required permit and consultation process for the proposed project and/or may choose to independently implement such actions.

TA

Corporate Office
3500 American River Drive
P.O. Box 15002
Sacramento, CA 95851-1002
(916) 484-3011 • FAX (916) 484-7012

TEICHERT AGGREGATES

April 29, 1997

Mr. Dennis Yeast
County of Sacramento
Department of Environmental Review
and Assessment
827 Seventh Street, Room 220
Sacramento, California 95814

Dear Mr. Yeast:

This letter contains, for your review and consideration, Teichert's comments on the Draft Environmental Impact Report / Environmental Impact Statement (DEIR/EIS) for the Morrison Creek Mining Reach Downstream (South) of Jackson Highway. Teichert has three projects covered by this document, Aspen III South, Aspen IV South, and Aspen V South. The following comments deal primarily with those projects and the distinction between Teichert's projects and Granite Construction's Vineyard project.

Comments

Page 1-1 of DEIR/EIS incorrectly states that Teichert's Aspen III South and V South projects have direct impacts on Morrison Creek. Both sites avoid Morrison Creek. TA-1

Teichert and Granite are proponents of separate projects. Teichert is the project proponent of Aspen III South, IV South, and V South. TA-2

The description of wetland acres on Teichert's project sites is inconsistent between page 2-3 (4.74 acres) and page 3-4 (2.61 acres). TA-3

Page 3-7 describes 430,000 cubic yards of overburden removed from the site. Teichert's applications for its three projects Aspen III South, IV South, and V South request the removal of 300,000 cubic yards from each site. TA-4

Neither the project description for Teichert Aspen IV South nor the Drainage Mitigation Plan calls for detention of excess flows in the excavated areas. Excess flows are not anticipated since the upstream volume is limited by the upstream bypass channel and detention facilities. TA-5

It is unclear what preserve area, flood detention area, and bypass channel are referred to under the Aspen V South portion of the description on page 3-27. No detention area or bypass channel is part of the Aspen V South site reclamation. TA-6

The assumption that Granite will gain conveyor access from Vineyard I is presumptuous. Such TA-7

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an access route would have to cross Teichert's property. Approval of the Granite Vineyard project without the processing plant should in no way require Teichert to provide access. TA-7

It is unclear where the berm described in MM 1(1) page 5-7 would be located and what purpose it would serve. It is most unlikely that the Morrison Creek floodplain would overtop into Aspen V South since the flow in Morrison Creek will be capped upstream of Jackson Hwy. MM 1(2) is incorrect. There is no pit floor wetland mitigation area in Aspen V South. TA-8

It is assumed that the reference to Aspen V and IV in MM 2 page 5-7 should be Aspen V South and IV South. Again, there is no pit floor wetland mitigation area in Aspen V South. TA-9

The monitoring and clean up of groundwater contamination is the responsibility of the U.S. Air Force. Any impacts to landowners' uses of land caused by the contamination is the responsibility of the Air Force. The replacement of wells removed by mining and/or compensation for the lost value of unmined aggregate is the responsibility of the Air Force. TA-10

Since the separate Teichert and Granite projects appear to be lumped together as one project it is unclear what portion of the ozone and PM-10 exceedances mentioned on page 5-22 are due to the new plant site proposed by Granite Construction. Teichert Aggregates will transport all mined aggregate from the Aspen III South, IV South, and V South sites via conveyor to its existing processing facility. Table 5-5 on page 5-23 should break down the emissions by company and site. TA-11

Previous biological surveys by Foothill Associates for the Aspen VI and Granite I projects have shown that the downstream reach of Morrison Creek is not Sacramento blackfish habitat. TA-12

The Mitigation Measure 1(b) on page 5-60 erroneously calls for placement of Valley elderberry longhorn beetle (VELB) mitigation on Teichert's Aspen IV South site. The DEIR/EIS indicates that the impact to the VELB is caused by Granite's Vineyard I project. Mitigation should take place on that property. Teichert should not be required to provide mitigation for Granite's impacts. TA-13

Mitigation Measures 3,4,5, and 6 on page 5-73 mitigate the impacts of Granite's proposed processing facility and are their sole responsibility. TA-14

I hope you will consider these comments as you prepare the Final EIR/EIS. If you have any questions regarding these projects, please call me at (916)484-3317.

Sincerely,

Rob Wainwright

Rob Wainwright
Property Manager

cc: Demar Hooper

TA, Letter from Teichert Aggregates dated 4/29/97

TA-1: Implementation of the proposed mining and reclamation activities on Aspen III South and Aspen V South sites would not directly impact Morrison Creek. Page 1-1 of the EIR/EIS has been revised to clarify this.

TA-2: Page 3-1 of the EIR/EIS has been revised to further clarify which mining and which applicant is proposing reclamation projects.

TA-3: Page 2-3 of the EIR/EIS has been corrected to indicate that the amount of jurisdictional waters affected by the proposed project on the Aspen V South site would be 0.83 acres.

TA-4: Section 3.6.1 on page 3-7 of the Final EIR/EIS has been corrected to indicate that a total of 1,000,000 cubic yards of overburden are proposed for removal.

TA-5: As shown on Figure 3-7 in the EIR/EIS, the proposed project includes one detention area at the western edge of the Vineyard I site. The other detention area included in the "Part A" drainage alternative is located on the upstream side of Jackson Highway and is part of the north project (that was analyzed in a prior EIR/EIS and approved by the Corps and County). Also, please refer to response to comment T&H-6 below.

TA-6: The EIR/EIS has been revised to clarify that no detention or bypass channels are being proposed on the Aspen V South site.

TA-7: Since preparation of the Draft EIR/EIS, Granite Construction Company and Teichert Aggregates have reached an agreement to allow the required access (conveyor belt alignment) across Teichert-owned property. Such an agreement would be a prerequisite for implementation of the "Proposed Project Without Vineyard I Processing Plant" Alternative.

TA-8: The proposed berm or levee would be designed to prevent a 100-year peak flow from entering the proposed Aspen V South pit, and would extend from Jackson Highway just south of the unmined portion of Morrison Creek across the Aspen V South site and be tied into the proposed inlet of the Aspen IV South bypass channel. The mitigation measure requires approval of the 100-year peak flow containment plan by WRD, which has the authority to choose the with or without upstream flood storage option upstream of Jackson Highway. The option was left open to account for uncertainties over the interim and ultimate configuration of North of Jackson Highway flood control facilities. With regard to pit detention on the Aspen V South site, refer to response to comment TA-6 above.

TA-9: Comment noted. The EIR/EIS have been revised to reflect that no flood detention is being proposed for Aspen V South, and the terminology used to describe each site has been corrected as requested.

TA-10: The EIR/EIS identifies a significant impact related to the project's potential to disrupt ongoing ground water quality monitoring efforts being conducted by the United States Air Force as part of the Mather Field remediation effort. The remediation program was developed and is being implemented consistent with the requirements of the Solid Waste Disposal Act as amended by the Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental

Response, Compensation and Liability Act (CERCLA). The mitigation identified in the EIR/EIS is in coordination with appropriate parties to ensure that project actions do not adversely affect the ongoing monitoring program (i.e., testing wells), and in the event that project could affect such wells, that the applicants be responsible for their replacement. The applicants in no way would be responsible for past contamination caused by land uses at Mather Field.

TA-11: The projected emissions for the proposed project, including a Vineyard I processing plant, are presented in Table 5-5. This alternative represents the worst-case scenario with regard to air quality emissions and is therefore presented in the EIR/EIS for the consideration of the decision-makers. The mitigation measures presented in Section 5.4.3 of the EIR/EIS would be required by both applicants. These measures represent standard practices for the reduction of particulate matter (dust), an impact that would be significant under the proposed project (with or without the Vineyard I processing plant), and would be required by both applicants during overburden removal and operation of conveyor systems. Since all mitigation would be required of both applicants, it is not necessary to try to differentiate their respective shares of pollutants.

TA-12: The EIR/EIS analysis of fisheries resources was based on prior studies, field observations, and discussions with California Department of Fish and Game staff. While Sacramento blackfish (*Orthodon microlepidotus*) may not be present in this reach of Morrison Creek on a regular basis, the historic range of this native fish extended up Morrison Creek. It now probably exists further downstream, but may move up into the project site reach during wet years. The oxbow section and some other portions of this reach of Morrison Creek may provide suitable slow-water habitat to be used by Sacramento blackfish in wet years, thus the need to consider this species in the impact analysis.

TA-13: The EIR/EIS states that a total of nine elderberry bushes will be lost and describes this as a significant impact. Two of these bushes are located on the Aspen IV South parcel with the remaining seven on the Vineyard I parcel. The commentor is referring to mitigation measure 1(b) in Section 5.7.3 of the EIR/EIS that specifically requires mitigation for this significant impact on the Aspen IV South parcel. As stated under item 1 of that same mitigation measure, the proponents will be required to implement the wetland mitigation plans they proposed "Except as modified below for the proposed mitigation, ..." The proposed mitigation plan for the Vineyard I parcel already included the required mitigation for the planting of elderberry bushes and thus is not repeated as part of the mitigation measure. The Aspen IV South plan did not specifically address this requirement, and thus was included as mitigation measure 1(b) in the EIR/EIS.

TA-14: Comment noted. Per the applicants' requests, the Summary Table (Table ES-1) in the EIR/EIS has been revised to indicate applicability, by property(ies) (i.e., Aspen III South) for the required mitigation measures.

TAYLOR & HOOPER
A PROFESSIONAL CORPORATION
ATTORNEYS
1435 RIVER PARK DRIVE, SUITE 300
SACRAMENTO, CALIFORNIA 95815
TELEPHONE: (916) 929-5545
TELEFAX: (916) 929-0283

JOHN M. TAYLOR
B. DEMAR HOOPER
JAMES B. WILEY
R. BRUCE STEUBING
KATHLEEN R. MAKEL

May 5, 1997

Mr. Dennis Yeast
COUNTY OF SACRAMENTO
Department of Environmental Review & Assessment
827 7th Street, Rm. 220
Sacramento, CA 95814

Re: Comments to Draft Environmental Impact Report/ Environmental Impact Statement (DEIR/S) for Teichert Aggregates Aspen III South, Aspen IV South, and Aspen V South Morrison Creek Mining Reach Downstream (South) of Jackson Highway (State Clearinghouse No. 95102057)

Dear Dennis:

Taylor & Hooper represents Teichert Aggregates (hereafter "Teichert") for the referenced project. Thank you for the opportunity to comment on the referenced DEIR/S. This letter supplements, clarifies, and if inconsistent, supersedes, Teichert's April 29, 1997, letter to you. Teichert believes the DEIR/S adequately addresses the substantive impacts of the project and its alternatives, and that the document satisfies the requirements of the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). The comments provided below fall principally into the categories of corrections and clarification. **T&H-1**

DEIR/EIS: 1-1

Page 1-1 incorrectly states that Aspen III South and Aspen V South projects have direct impacts on Morrison Creek. Both Aspen III South and Aspen V South avoid Morrison Creek. Therefore, please revise the DEIR/EIS to state that Aspen III South and Aspen V South avoid Morrison Creek. **T&H-2**

DEIR/EIS: 2-3 AND 3-4

The description of wetland acres on Teichert's project sites is inconsistent and inaccurate. Page 2-3 inaccurately states that Teichert project sites will impact 6.52 acres. Page 3-4 accurately states that Teichert's projects will impact 2.61 acres of wetland. Please revise page 2-3 to accurately reflect Teichert projects' proposed impact on wetlands (2.61 acres). **T&H-3**

Mr. Dennis Yeast
Re: DEIR/S - Teichert
May 5, 1997
Page 2

DEIR/EIS: 3-1 to 3-4.

Teichert and Granite are processing separate applications. Teichert is the applicant for the Aspen III South, Aspen IV South, and Aspen V South projects. Granite is the project proponent for the Vineyard I project. Please revise the DEIR/EIS's Project Description on pages 3-1 to 3-4 to specify that Teichert is the applicant for the Aspen South projects and Granite is the project proponent for the Vineyard I project. **T&H-4**

DEIR/EIS: 3-7

Page 3-7 inaccurately notes that the project proponents will remove 430,000 cubic yards overburden from the site. Teichert proposes to remove 300,000 cubic yards from each of its sites. Thus, Teichert proposes to remove a total of 900,000 cubic yards of overburden from Aspen III South, Aspen IV South, and Aspen V South. Therefore, the DEIR/EIS should be revised to discuss the 900,000 cubic yards of overburden that Teichert proposes to remove as well as the amount of overburden that Granite proposes to remove from its Vineyard I project. **T&H-5**

DEIR/EIS: 3-20 to 3-27

Neither the project description for Teichert's Aspen IV South (3-26 to 3-27) nor the Drainage Mitigation Plan (3-20 to 3-26) requires detention of excess flows in the excavated areas. Excess flows are not anticipated on the Aspen IV South site because the upstream volume is proposed to be limited by the upstream bypass channel and detention facilities. Therefore, please revise the DEIR/EIS to delete any reference to excess flows on the Aspen IV South site. **T&H-6**

DEIR/EIS: 3-27

The project description of Aspen V South (page 3-27) refers to a preserve area, flood detention area, and bypass channel. Teichert's reclamation plans for Aspen V South do not include either a detention area or bypass channel. Therefore, please revise the DEIR/EIS to clarify that the Aspen V South project does not have flood detention and bypass channel components. **T&H-7**

DEIR/EIS: 5-22

Page 5-22 assumes that Granite's proposed processing plant will gain conveyor access from Vineyard I. This assumption is not necessarily accurate. Such an access route would have to cross Teichert's property. Approval of the Granite Vineyard I project should not, and will not, require Teichert to provide access for a future conveyor system between Granite's proposed **T&H-8**

RBS/1632.09/050597

processing plant and its Vineyard I project. Granite would have to purchase any access on, under, or over Teichert's property. Therefore, please revise page 5-22 to clarify that Granite will have to obtain the necessary right-of-way through Teichert's property to operate a conveyor system between its proposed processing plant and its Vineyard I project. **T&H-8**

DEIR/EIS: 5-7, Mitigation Measure (MM) 1(1):

Page 5-7, MM 1(1) describes a berm. It is unclear where this berm would be located and what purpose it would serve. It is unlikely that any flood flows will overtop Morrison Creek onto the Aspen V South property because the flow in Morrison Creek will be capped upstream of Jackson Highway. Hence, please revise the DEIR/EIS to explain the location and purpose of any berm proposed to be located on the Aspen V South project site. **T&H-9**

DEIR/EIS: 5-7, MM 1(2):

MM 1(2) incorrectly discusses a pit floor mitigation area on the Aspen V South property. Teichert does not propose a pit floor mitigation area on the Aspen V South property. Therefore, please revise MM 1(2) on page 5-7 by deleting any reference to a pit floor wetland mitigation area. **T&H-10**

DEIR/EIS: 5-7, MM 2

Please revise page 5-7, MM 2's reference to Aspen IV and Aspen V to refer to Aspen IV South and Aspen V South. Again, please delete any reference to a pit floor wetland mitigation area on Aspen V South property. **T&H-11**

DEIR/EIS: 5-9

The U.S. Air Force is responsible for monitoring and clean up of groundwater contamination. The U.S. Air Force is responsible for any impacts caused by the contamination on a landowner's land uses. The U.S. Air Force is also responsible for the replacement of their monitoring or remediation wells that are removed by mining. Further, the U.S. Air Force must compensate landowners for the lost value of unmined aggregate reserves caused by contamination of groundwater resources. Please revise page 5-9 to include a discussion of these important U.S. Air Force responsibilities. **T&H-12**

DEIR/EIS: 5-18 to 5-25

The Air Quality Section of the DEIR/EIS does not distinguish between Teichert's and Granite's air quality impacts. Specifically, page 5-22's discussion of ozone and PM-10 exceedences does not distinguish between Teichert's **T&H-13**

impacts and Granite's proposed processing plant's impacts. Teichert Aggregates will transport all mined aggregate from its Aspen III South, IV South, and V South sites by conveyor to its existing processing facility. Therefore, please revise the DEIR/EIS's air quality discussion to explicitly distinguish between Teichert's air quality impacts and Granite's impacts to air quality. Further, please revise Table 5-5 on page 5-23 to reflect the allocation of emissions by company and site. **T&H-13**

DEIR/EIS: 5-54

Previous biological surveys by Foothill Associates for the Aspen VI and Granite I projects show that the downstream reach of Morrison Creek is not Sacramento blackfish habitat. Therefore, please revise page 5-54 by deleting reference to the potential loss of Sacramento blackfish habitat. **T&H-14**

DEIR/EIS: 5-60, MM 1(b)

MM 1(b) on page 5-60 incorrectly requires the placement of Valley elderberry longhorn beetle (VELB) mitigation on Teichert's Aspen IV South Property. The DEIR/EIS indicates that Granite's Vineyard I project impacts the VELB. Teichert cannot be required to mitigation for Granite's impacts to the VELB. Therefore, please revise MM 1(b) by deleting reference to Aspen IV South, and stating that Granite is responsible for mitigating for its impacts on the VELB. **T&H-15**

DEIR/EIS: 5-73, MM 3, 4, 5, and 6

MM 3, 4, 5, and 6 on page 5-73 mitigate for the impacts caused by Granite's proposed processing facility. Thus, please revise these mitigation measures to specifically state that compliance with these measures is the sole responsibility of Granite. **T&H-16**

RBS/1632.09/050597

Teichert looks forward to completion of the hearing process and issuance of the Final EIR/S for the project. Teichert also appreciates the efforts of County and Corps staff to expedite processing consistent with legal requirements.

Please call if you have any questions or concerns.

Very truly yours,

R. Bruce Steubing

cc: Rob Wainwright, *Teichert Aggregates*
Jeff Gamel, *County of Sacramento*
Larry Vinzant, *Corps of Engineers*

RBS/1632.9/L.DYeir

RBS/1632.09/050597

T&H, Letter from Taylor & Hooper dated 5/5/97

T&H-1: Comment noted.

T&H-2: No direct impacts to Morrison Creek would occur as a result of mining and reclamation on the Aspen III South or Aspen V South sites, and the EIR/EIS has been revised as appropriate.

T&H-3: Please refer to response to comment TA-3 above which addresses this same issue (EIR/EIS correction regarding wetland acreage for Aspen V South).

T&H-4: Page 3-1 of the EIR/EIS has been modified to clearly distinguish which proponent is proposing which mining project.

T&H-5: Page 3-7 of the Final EIR/EIS has been corrected to indicate that a total of 1,000,000 cubic yards of overburden are proposed for removal.

T&H-6: The reference on page 3-20 to the Aspen IV South property is referring to the location of the bypass channel not flood detention. The sentence has been revised to clarify this distinction. As shown on Figure 3-7 in the EIR/EIS, the proposed project includes one detention area at the western edge of the Vineyard I site. The other detention area included in the "Part A" drainage alternative is located on the upstream side of Jackson Highway and is part of the north project (that was analyzed in a prior EIR/EIS and approved by the Corps and County).

T&H-7: The EIR/EIS has been revised to clarify that no on-site flood detention is being proposed on the Aspen V South site (also see response to comment TA-6).

T&H-8: The EIR/EIS has been revised to clarify that right-of-way easements across private property not owned by an applicant would be necessary. Also see response to comment TA-7.

T&H-9: As stated in the referenced mitigation, the purpose of the berm will be to safely contain a 100-year peak flow and its location will be along the northerly boundary of Aspen V South to the inlet of Aspen IV South. The precise location of the berm within this general alignment will be defined by the Sacramento County Public Works Agency Water Resources Division in their review and approval of design drawings for the proposed flood control facilities.

T&H-10: The proposed wetland mitigation at Aspen V South would occur at-grade, in an unmined area (as shown on Figure 3-6c). The reference to "pit floor" has been removed as a point of clarification.

T&H-11: The referenced measure (MM2 on page 5-7) would be applicable for any wetland mitigation area that may require diversion from Morrison Creek. No "pit floor" reference was included in MM2, page 5-7 and therefore no change to the EIR/EIS has been made in this location. Please refer to response to comments TA-9 and T&H-10 above.

T&H-12: Please refer to response to comment TA-10 which addresses this same issue. The commentor requests that the Final EIR/EIS be amended to include a discussion of the Air Force's responsibilities for economic compensation for landowners effected by contamination at the former Mather Field. This is not an environmental issue requiring discussion in the EIR/EIS.

T&H-13: Please refer to response to comment TA-11 which addresses this same issue (air quality impacts, by proponent).

T&H-14: Please refer to response to comment TA-12 which addresses this same issue (Sacramento blackfish habitat).

T&H-15: Please refer to response to comment TA-13 which addresses this same issue (elderberry mitigation).

T&H-16: Please refer to response to comment TA-14 which addresses this same issue (assigning mitigation responsibility by applicant).

PG&E

Pacific Gas and Electric Company
Building and Land Services

343 Sacramento Street
Auburn, CA 95603

March 10, 1997

RECEIVED
MAR 1 1 1997
DEPT OF ENVIRONMENTAL
REVIEW & ASSESSMENT
SACRAMENTO COUNTY

Mr. Dennis E. Yeast
County of Sacramento DERA
827 7th Street, Room 220
Sacramento, CA 95814

Re: Draft EIR for Morrison Creek Mining Reach Downstream of Jackson Highway Control Nos. 94-UPB-0484, 91-CZB-UPB-0118, 90-CZB-UPB-1607 & 94-CZB-UPB-0671.

Dear Mr. Yeast:

Thank you for the opportunity to review the Draft Environmental Impact Report for the Morrison Creek Mining Reach Downstream of Jackson Highway Community Plan Amendment, Rezone, Use Permit, Amendment to Existing Use Permit, and Section 404 Permit Application for lands within the Vineyard planning area of Sacramento County.

PG&E has no facilities affected by this project and therefore we have nothing to add to the report.

PG&E-1

If you have any questions, please call me at (916) 889-3160.

Sincerely,

Lou A. Norton
Land Agent

PG&E, Letter from Pacific Gas & Electric dated 3/10/97

PG&E-1: Comment noted.

GDT

LAW OFFICES OF
GREGORY D. THATCH
1730 I Street, Suite 220
SACRAMENTO, CA 95814
Telephone (916) 443-6956
Facsimile (916) 443-4632

GREGORY D. THATCH
LARRY C. LARSEN
MICHAEL DEVEREAUX
G. MICHAEL MILLER

WASHINGTON, DC OFFICE
700 Thirteenth Street NW, Suite 400
WASHINGTON, DC 20005
Telephone (202) 347-7132

April 29, 1997

HAND DELIVERED

Mr. Dennis E. Yeast
County of Sacramento
Department of Environmental Review and Assessment
827 Seventh Street
Sacramento, CA 95814

Mr. Larry Vinzant
Regulatory Section
U.S. Army Corps of Engineers
Sacramento District
1325 J Street
Sacramento, CA 95814-2922

Re: Draft EIR/EIS for Morrison Creek Mining Reach/Downstream

Dear Mr. Yeast and Mr. Vinzant:

This office represents Granite Construction Company, a proponent of the Morrison Creek Mining Reach/Downstream Project. We have reviewed the February 1997 Draft EIR/EIS and request that you consider the within comments as they pertain to the Vineyard I project area owned by Granite Construction Company.

As noted in the EIR/EIS, there are four project areas, one of which is proposed for mining by Granite Construction Company and three areas proposed for mining by Teichert Aggregates (Aspen III South, Aspen IV South, and Aspen V South). The mitigation measures described in the EIR/EIS should be separated by applicant or project areas, since not all measures will apply to both applicants. For instance, there are no vernal pools in the project area proposed for mining by Granite Construction Company. We suggest adding a column to Table ES-1, the Summary of Impacts and Mitigation Measures, which indicates the project areas involved in each mitigation measure. GDT-1

No Project Alternative.

The discussion of the No Project Alternative on page 4-8 of the Draft EIR/EIS would benefit from further elaboration of its environmental impacts. While the No Project Alternative might avoid site specific impacts, it would result in a large number of adverse regional and cumulative environmental impacts. Traffic impacts would include increased heavy truck traffic on the region's GDT-2

highways to bring aggregate from out of county areas to the existing aggregate processing plants. The closest of these out of county areas is near Marysville in Yuba County, approximately 40 miles away. Such an increase in heavy vehicle traffic would not only lead to increased congestion, but also increased air pollution, increased wear on the public highway system, and increased public safety impacts due to the increased opportunities for automobile/heavy truck accidents. GDT-2

Proposed Project

Mitigation Measure No.1 and its attendant discussion (Page ES-2) would require the proposed project to be submitted to the Sacramento County Water Resources Department for a review of its consistency with the Drainage Mitigation Plan for the Morrison Creek Mining Reach. Granite Construction has designed its project in close conjunction with the Water Resources Department from the very beginning in order to insure that it was consistent with the Morrison Creek Mining Reach Drainage Plan. This Mitigation Measure is therefore somewhat redundant and unnecessary in this regard. GDT-3

The "Requirements/Recommendations of Public Agencies" discussion which accompanies Mitigation Measure No.1 indicates that the project must continue to accept any off-site runoff during all phases. Any requirement that the project areas accept off-site runoff must first include a qualitative and quantitative evaluation of the drainage source producing that runoff. The project cannot be expected to receive off-site pollution or excessive amounts of drainage produced by a new source. GDT-4 In addition, please clarify whether the section in Table ES-1 entitled "Requirements/Recommendations of Public Agencies" is intended to be an abbreviated discussion of the environmental impact or an additional mitigation measure. GDT-5

The armored weirs which Mitigation Measure No.1 would require for the Vineyard I project area are unnecessary. The water bypass channel, which has been designed for this project area in conjunction with the Water Resources Department, does not incorporate any armored weirs. Instead, weirs and other water control features have been incorporated as features of the upstream facilities to be constructed for the Morrison Creek Upstream Mining Reach. Those structures will obviate the need for any type of weir in the bypass channel. The upstream weir (north of the Jackson Highway) will preclude the water volumes in Morrison Creek from exceeding the 1650 cfs capacity of the bypass channel around the Vineyard I project area. Additionally, the recommendation of an analysis considering the possibility that upstream detention may not occur should not be necessary, as the Upstream Mining Project was approved by the County in 1996. The completion of these Upstream detention facilities will substantially reduce the flow in Morrison Creek, as well as the size of the 100 year floodplain within the Vineyard I project area, and concerns about water overflow will be greatly diminished. GDT-6

The EIR/EIS' evaluation of the proposed project's reclamation plans indicates that the re-use of the reclaimed lands for agricultural purposes would have potentially significant impacts to the surface and groundwater from the use of pesticides, herbicides and farm machinery which could lead GDT-7

to toxic contamination (See page 5-5). Such potential impacts are already present under the current agricultural uses of the project areas. In addition, such potential impacts also would be present with the No Project Alternative's agricultural uses. GDT-7

Floodplain Protection Alternative

One of the alternatives presented in the EIR/EIS is a prohibition on any mining within the existing 100 year floodplain of Morrison Creek. We believe that the EIR/EIS's discussion of the impacts of the Floodplain Protection Alternative (See page 5-32) does not fully explore the feasibility of this alternative. If the existing floodplain is left intact, there will be significant risks of hydrologic and morphologic changes when the surrounding land is mined. Problems will arise from natural creek channel migration, piping of water through the gravel strata in the floodplain, and the need for containment levees to maintain the physical integrity of the floodplain when surrounding areas are mined to a lower level. GDT-8

Biological Resources.

We are extremely concerned by the length of time proposed for the monitoring of riparian woodland, riparian scrub and Valley Oak savanna habitats that would be created as part of the reclamation efforts. The Mitigation Plans contained in the Appendices for the wetland habitats all required five (5) year monitoring efforts, subject to increase only if initial efforts do not satisfactorily progress. Consequently, we see no foundation for the EIR/EIS to propose an initial ten (10) year monitoring period for the riparian woodland, riparian scrub and Valley Oak savanna habitats. Such an extended monitoring period will be very costly and appears to have been arbitrarily selected. GDT-9

We also question the requirement of Biological Resources Mitigation Measure 3 (Page 5-61) which will require the incorporation of Sacramento blackfish habitat in the Morrison Creek bypass channel. The Draft EIR/EIS admits that the Sacramento blackfish has never been observed in this reach of Morrison Creek and that there are no records of it ever occurring in the vicinity of the Project site (See Page 5-45). Without any fisheries surveys or other evidence of native fish in Morrison Creek, the EIR/EIS' discussion of fisheries impacts is purely speculative (Page 5-54) and its conclusion of habitat loss unsupported by any scientific evidence. The EIR/EIS is only speculating on whether the Sacramento blackfish still exists in the downstream reaches of Morrison Creek and on whether it might possibly move up into the project site during wet years. Insofar as this species is not designated as a special status species and is not demonstrably known to occur in or near the vicinity of the project site, we see no premise upon which to require the recreation of its habitat in the bypass channel. GDT-10

The Biological Resources section of the EIR/EIS has also been reviewed by Zentner and Zentner. The EIR/EIS was generally found to confirm the accuracy of the Zentner and Zentner delineation (other than the possible deletion or reduction of two seasonal marshes) which described the wetlands on the Vineyard I site as seasonal marshes. The EIR/EIS also described these areas as GDT-11

seasonal wetlands (which generally connote a seasonally inundated/saturated habitat that contains a mix of wetland species) that may contain the listed invertebrate species. Zentner and Zentner determined that it was unlikely that these listed invertebrate species would occur on the Vineyard I site as the soils were unsuitable for the habitat required by these species. Moreover, the presence/absence of those species was reviewed in the field by Zentner and Zentner staff during surveys performed between March 16 and July 5, 1993, and none of the listed invertebrates were found. Finally, the listing petition for these invertebrate species lists their habitat as "vernal pools", not seasonal marshes. The EIR/EIS should explain why its description of that species' habitat is at variance with the listing petition's description of habitat. GDT-11

The EIR/EIS states that the Corps of Engineers should re-review the wetlands on the Vineyard I property as all or the major portion of the two largest areas of seasonal marsh may no longer be jurisdictional. Zentner and Zentner agreed with that conclusion and noted that they are completing additional field work to determine the status of the two seasonal marshes (Nos. 6 and 7 on the delineation map), and should have Corps of Engineers' verification prior to completion of the Final EIR/EIS. GDT-12

Zentner and Zentner also found that the plant list (Appendix B) fails to list the most important riparian trees: Fremont cottonwood (*Populus fremontii*), arroyo willow (*Salix lasiolepos*), and black willow (*Salix gooddingii*). Red willow is included, but with the wrong specific epithet. It is *S. Laevigata, not S. lasiandra.* The latter is the name of a completely different species, the shining willow, which may or may not occur at the Vineyard I site. GDT-13

On Page 5-35, 42 and 47 (and elsewhere), the EIR/EIS describes the project area as including seasonal "wetlands" but not seasonal "marshes" as described in the Zentner and Zentner delineation report. The "seasonal wetland" paragraph on p. 5-42 is particularly unclear and not descriptive of the site. For example, the term "swale" does not have a universally recognized scientific meaning and needs to be defined. As used in the EIR/EIS, "swales with shorter duration of flow" have a plant list typical of moist grasslands, while "swales with longer duration of flow" have a list typical of vernal pools, which are characterized by ponding rather than flow. The term "seasonal wetlands" also needs clarification, particularly with respect to distinguishing it from "vernal pools". The "seasonal wetlands in isolated depressions" category is even more problematic since it is associated with a plant list typical of artificially created basins with hydrology similar to natural vernal pools. The EIR/EIS should define these terms, and clarify whether it is relying on the classifications assigned by the project applicants' consultants. GDT-14

The EIR/EIS poorly describes the potential wildlife populations (Page 5-43) with highly qualitative statements such as "waterfowl such as mallards. . . may breed and raise brood in the creek. . . ." Although mallards almost certainly do breed along Morrison Creek since very little of such habitat remains unused by this ubiquitous species, this conclusion should be quantified with any observations. Similarly, in several places in the species discussion on Pages 5-44 through 5-51, the study area and areas upstream are treated as a homogenous unit with regards to wildlife use. GDT-15

However, this is not the case, and any inferences of wildlife use at the Vineyard I site based on the species' use of upstream habitats must particularly identify the compared habitats and state the basis for concluding that the species is or may be present at Vineyard I. GDT-15

Zentner and Zentner differ with the EIR/EIS on the importance of the creekbed of Morrison Creek to burrowing animals (Page 5-43). Because of the creekbed's seasonal inundation and limited food supply for these animals, it has little value for them. Additionally, western gray squirrels are unlikely on the Vineyard I project site because they inhabit open oak and pine forests (Page 5-43). GDT-16

On Page 5-44 of the EIR/EIS, it is unclear whether the discussion of invertebrates is referencing species observed in the study area or those generally found in similar habitats. Additionally, the invertebrates identified by Sugnet & Associates in monitoring vernal pools are unlikely to be found on the Vineyard I site due to the absence of vernal pools. GDT-17

Zentner and Zentner also found that Yellow-rumped warblers do not breed on the Vineyard I site, or anywhere else in Sacramento County. Page 5-44 of the EIR/EIS is incorrect on this point. GDT-18

Contrary to the statement in the EIR/EIS at Page 5-50, the results of Zentner and Zentner's special status species' surveys are included in appendix A to the Vineyard I mitigation plan. The reference to the Swainson's Hawks' 10-mile foraging radius on Page 5-51 should specifically state that this is the radius used by the California Department of Fish and Game ("DFG"), and that the EIR/EIS is adopting DFG's position in defining potential foraging habitat on the project site. On Pages 5-51 and 5-50 of the EIR/EIS, it should be clarified that the Valley Elderberry Longhorn Beetle ("VELB") was not actually observed anywhere on the project site; only exit holes were found. GDT-19

On Page 5-52, the EIR/EIS states that "vernal pools" on the site may host listed invertebrates, while on Page 5-56 the EIR/EIS states that the loss of "seasonal wetlands" would eliminate potential habitat for the listed invertebrates. This inconsistency needs to be resolved. There is no evidence that any special status species uses the "seasonal wetlands" referred to on Page 5-56. GDT-20

The "significance" determination for general wildlife used in the EIR/EIS (Page 5-53) needs to be better explained and substantiated. If Impact Nos. 5 and 6 on Page 5-54 (loss of 2 miles of existing natural stream channel and post-reclamation agricultural activities) are less than significant, please explain why Item 4 on Page 5-53 (disruption of habitat by the proposed project) is considered significant. The potential impact of construction of the Vineyard I processing plant on special status wildlife referenced on Page 5-57 also needs to be further explained. This is an upland area with no known special status species occurrences. GDT-21

Item No.5 on Page 5-59 of the EIR/EIS should be clarified since Section 7 consultations are the responsibility of federal agencies (such as the Corps of Engineers during Section 404 permitting). Although an applicant can initiate "informal" consultation, affected federal agencies, not the applicant, make decisions regarding the necessity for a Section 7 consultation. GDT-22

Mitigation Measure No.5 on Page 5-62 of the EIR/EIS describes the mitigation for the loss of trees on-site. The replacement of landmark size native trees on an inch-for-inch basis should be clearly defined, similar to the equivalents given for the replacement of oak trees. GDT-23

Special Status Species

Zentner and Zentner's review of the EIR/EIS also prompted them to suggest the following comments on Special Status Species:

1. The San Joaquin spearscale (*Atriplex joaquininana*) plant could not occur in the Morrison Creek mining reach because it is confined to alkaline grassland. Alkaline soils do not occur in the mining reach (Skinner & Pavilk 1994; USDA SCS 1991).

2. The Rose-mallow (*Hibiscus lasiocarpus*) could not occur in the Morrison Creek mining reach because it is confined to freshwater marsh and riparian habitat in basins along major rivers in California's central valley. It has never been found along small tributary streams like Morrison Creek (Pavilk & Skinner 1994).

3. The Delta green ground beetle (*Elaphrus viridis*) has virtually no potential to occur in the Morrison Creek mining reach since it has never been found outside the Jepson Prairie Preserve, which is in a different county distant from Morrison Creek and has distinct ecological features (alkaline soils) not occurring there (Biosystems 1994). GDT-24

4. At Page 5-50, the EIR/EIS states that the site may contain the giant garter snake while at Page 5-51, the EIR/EIS states that the snake is "not expected to use Morrison Creek in this area" and cites two individuals, especially John Brode, who had significant experience with this species. Giant garter snakes (*Thamnophis gigas*) would not occur in the Morrison Creek mining reach since the snake was formerly confined to large perennial freshwater marshes along major rivers in California's Central Valley. More recently the snake's primary habitat has become the rice fields that have replaced freshwater marshes in the riverine basins (Rossman et al. 1996, Biosystems 1994). Neither habitat occurs along the Morrison Creek mining reach.

5. The short-eared owl (*Asio flammeus*) nests in relatively extensive marshes and moist grasslands, habitat types which do not occur along Morrison Creek in the mining reach. Local bird nesting localities are particularly well-known because of the activities of the area's many birding enthusiasts and personnel of the California Department of Fish and Game. Neither source reports short-eared owl nesting near the Morrison Creek mining reach (Zeiner et al. 1990; Sac Audubon 1993).

6. The prairie falcon (*Falco mexicanus*) nests on cliffs and large rock outcrops, habitat types absent from the Morrison Creek mining reach. Prairie falcons do not, in fact, nest anywhere in Sacramento County (Zeiner et al. 1990; Sac Audubon 1993).

7. The yellow warblers (*Dendroica petechia*) formerly nested in the Central Valley in riparian habitat like that occurring along Morrison Creek, but it has been extirpated from the valley floor as a nester by cowbird parasitism (Zeiner et al. 1990).

8. The black-shouldered kite (*Elanus caeruleus*) and white-tailed kite (*Elanus leucurus*) although listed separately in Table 5-7, are synonyms for the same bird species. The current correct name is the latter (Small 1994).

Zentner and Zentner also found that a number of special status species do not occur at the Vineyard I project area because specific habitat types are lacking (but possibly occurring elsewhere in the mining reach): GDT-24

1. Species not occurring at Vineyard I because of its lack of vernal pools:

   a. Dwarf downingia (*Downingia pusilla*).
   b. Bogg's lake hedge hyssop (*Gratiola heterosepala*).
   c. Ahart's dwarf rush (*Juncus leiospermus var. ahartii*).
   d. Legenere (*Legenere limosa*).
   e. Pincushion navarretia (*Navarretia myersii*).
   f. Slender Orcutt grass (*Orcuttia tenuis*).
   g. Sacramento Orcutt grass (*Orcuttia viscida*).
   h. Conservancy fairy shrimp (*Branchinecta conservatio*).
   i. Vernal pool fairy shrimp (*Brachinecta lynchi*).
   j. Vernal pool tadpole shrimp (*Lepidurus packardi*).

2. Species not occurring at Vineyard I because of its lack of oak woodland habitat:
   a. Hoary navarretia (*Navarretia eriocephala*).

Traffic and Circulation

A typographical error appears to have been made with respect to the amount of overburden which will have to be removed from the project areas. Traffic and Circulation Mitigation Measure No.1 (Page ES-13) indicates that 403,000 cubic yards will initially have to be removed. Granite Construction's project description includes the removal of 1,000,000 cubic yards of overburden, while retaining the topsoil on site for use in the reclamation program. The overburden is simply dirt. This dirt is considered as a construction material, and one which is in short supply in the Sacramento Area inasmuch as large amounts of fill material are needed for such structures as levees and freeway GDT-25

ramps. The 1,000,000 cubic yards of overburden which Granite Construction must remove from its project area represents less than 10% of the overburden on site, which leaves over 9,000,000 cubic yards of overburden for reclamation and associated activities. GDT-25

The EIR/EIS (Pages ES-15 and 5-67) cited an average of 50 truck trips per hour for hauling aggregate from the Vineyard I Processing Facility. Granite estimates that this rate could be as high as 120 trips per hour between the hours of 6:00 am and 8:00 am. The transport of aggregate is essential to the operation of the project area facility as well as to the efficient completion of construction activities in the Sacramento region which need the aggregate. The suggestion in Mitigation Measure No.10 (Page ES-5) that truck trips will be curtailed between 7:00 am and 9:00 am in the Year 2005 is unacceptable, unless all other discretionary projects approved by Sacramento County will have similar restrictions on vehicle use. This restriction seems to be excessively stringent as it appears that a level of service D will be exceeded on Elder Creek Road in Year 2008 even under the No-Project alternative. GDT-26

Noise.

The EIR/EIS states that, with the recent closure of Mather AFB, noise levels have been substantially reduced (Page 5/87). While military use of Mather has been reduced, Sacramento County has converted it into a civilian airport aimed primarily at air cargo operations and has been successful in attracting some major air cargo users to the Mather Airport (Federal Express and United Parcel). Consequently, we do not concur that noise from the airport has been substantially reduced. It has been only temporarily reduced due to diminished military air operations. The proposed CLUP for Mather following the cessation of Air Force operation indicates that most of the project area will be within the 60 dbn noise contour. GDT-27

The noise mitigation measures the EIR/EIS proposes for the Vineyard I project area (Page ES-17) need further clarification. It should be clearly expressed that the intent of the mitigation measure is to provide thirty (30) vertical feet of visual/acoustic screening. This thirty (30) feet will be measured from the base elevation of the aggregate plant to the residential receptors located within twelve hundred (1200) feet of the aggregate plant. In some cases, an earthen berm situated along the property boundary line will not be feasible. In those instances, an earthen berm may be located closer to the aggregate plant in an interim location within the project area. With these modifications, temporary noise barriers and perimeter landscape buffers can still be installed to mitigate for the noise arising from mining activities. GDT-28

The minimum setbacks from adjoining lands mentioned in the EIR/EIS (Page 5-85) should be waived when the adjoining lands have also been approved for surface mining uses. GDT-29

Growth Inducing Impacts:

Encouragement of Economic Growth (Section 6.4.1).

We agree with the EIR/EIS that the proposed project would not encourage economic growth, but would itself be a response to economic growth elsewhere in the Sacramento region. Consequently, the proposed project may be seen as a project which facilitates growth which has arisen from outside, independent factors, such as the continuing and future increased needs for high quality aggregates this project could supply at an affordable cost. Consequently, the EIR/EIS is correct in its conclusion that the proposed project is not growth inducing. GDT-30

Thank you for the opportunity to comment upon the Draft EIR/EIS for the Morrison Creek Mining Reach/Downstream. We trust you will find the above comments helpful in fully and fairly evaluating the environmental impacts of mining the Vineyard I project area.

Very truly yours,

GREGORY D. THATCH

GDT/ca
T4516.ltr

cc: Scott D. Wolcott, Granite Construction Incorporated

GDT, Letter from the Law Office of Gregory D. Thatch dated 4/29/97

GDT-1: The EIR/EIS has been revised to indicate mitigation responsibility by property (i.e., Aspen V South).

GDT-2: A discussion of this issue is provided in Section 2.1 in the EIR/EIS.

GDT-3: The referenced mitigation measure establishes a standard to preventing pit capture and potential attendant erosion problems and infrastructure damage. Past consultation and cooperation by the project proponents in the development of the *Drainage Mitigation Plan for the Morrison Creek Mining Reach* have played in important role in the development of the comprehensive plan which exists today, as noted by the commentor. However, if the project is approved by the County and Corps, ongoing coordination with the Sacramento County Pubic Works Agency Water Resources Division related to the detailed design and implementation of flood control facilities, including coordination with activities in the northern reach will be essential to successful implementation. Thus, including such requirements as mitigation in the EIR/EIS is justified and necessary.

GDT-4: Mitigation measure #1 in Section 5.1.3 of the EIR/EIS requires approval by the Sacramento County Public Works Agency, Water Resources Division (WRD) for design flows and project design. The issue of runoff rates will be addressed by WRD during the design and drainage plan approval process.

GDT-5: The discussion presented in Table ES-1 under "Requirements/Recommendation of Public Agencies" summarizes existing regulatory requirements and/or recommended conditions of approval that the project would be subject to if approved. Such requirements are administered by regulatory agencies that have jurisdiction over the project or resources potentially effected by the project. These requirements would be implemented as a matter of process separate from the mitigation recommended in the EIR/EIS. These requirements were identified in the EIR/EIS to disclose and provide a more thorough understanding of the project approval process, and were considered in the impact analysis and development of mitigation measures.

GDT-6: The commentor is correct in stating that weirs or other water control facilities have been incorporated as features of the Morrison Creek Upstream Mining Reach Project, which was approved by the Count in 1996. Although these facilities have been proposed and the upstream project approved, these conditions do not mandate that these facilities will be constructed. Therefore, in order to ensure that flows in Morrison Creek will be precluded from exceeding the 1,650-cfs capacity of the bypass channel, appropriate mitigation was included in this FEIR/FEIS to reduce this impact to a less-than-significant level.

GDT-7: The proposed project will remove the low permeability "hardpan" layer that presently separates the surface soils (and present farming operations) from the regional aquifer. Therefore pollutants from any future farming operations have a greater potential to more readily percolate with recharge into groundwater. As a result, the conditions would not be the same as under the "No-Project" Alternative. The mitigation proposed in the EIR/EIS is focused on reducing that potential for increased contamination to a less-than-significant level.

GDT-8: Morrison Creek does not demonstrate a great deal of lateral erosion activity due to small floods and resistant hardpan soils. For similar reasons, it is not anticipated that the pits would be vulnerable to failure by "soil piping." The need for "containment levees" would be addressed by the Sacramento County Public Works Agency ,Water Resources Division, as part of the drainage plan for the grading permit process.

GDT-9: The expansion of the required monitoring program proposed by the applicants in their wetland mitigation plans from 5 to 10 years for the woody plant habitats of riparian woodland, riparian scrub, and Valley oak savanna, is based on the long period of time (well in excess of 10 years) that it will take for these plant communities to mature and thus fully replace the functions and values provided by the existing communities. The extended monitoring period will provide a measure of assurance that the woody plant communities will become established and self sustaining, and that replanting would be conducted after 5 years in the event that the 80% survival rate (specified in the mitigation plan for the Vineyard I parcel) or 15% cover criteria (specified in the mitigation plan for the Aspen IV South parcel) is not met.

GDT-10: The EIR/EIS identifies the loss of potential habitat for the native Sacramento blackfish and disruption of fish migration as significant impacts. The Sacramento blackfish is the only fish species that the California Department of Fish and Game expressed concern for during consultation efforts for the project. Since the only use of this reach of Morrison Creek may be occasional movement up into the project site reach during wet years, the mitigation would likely be to ensure the capability for migration into the bypass channel. Habitat requirements of the Sacramento blackfish are not described as being very complex and are characterized as warm, shallow, and usually turbid waters (Moyle, 1976) and as shallow water with dense vegetation (Johnson and Wang, 1986). It is also noted that identical mitigation was called for in the EIR/EIS for the Morrison Creek Mining Reach Upstream (North) of Jackson Highway (Upstream) project and so the approach here is consistent with that project . See also responses to comments UCC-1 and TA-12.

GDT-11: The EIR/EIS identifies vernal pools as the primary potential habitat for the federally listed fairy shrimp (*Branchinecta lynchi*) and tadpole shrimp (*Lepidurus packardi*), which is not at variance with the listing petition's habitat descriptions. The reference to seasonal wetlands on the project site also supporting suitable habitat for these species was not specific to the Vineyard I parcel but to the project site as a whole, including the Aspen IV South and Aspen V South parcels. The seasonal wetlands on the Aspen IV South and Aspen V South parcels are the most likely candidates to be considered potential habitat for the listed invertebrate species since they are in relatively close proximity to the vernal pools identified on the project site and have some similar hydrologic and vegetative characteristics as the vernal pools.

GDT-12: Comment noted.

GDT-13: The plant list (Appendix B) in the EIR/EIS has been modified to reflect the changes in scientific names and addition of species.

GDT-14: There is no universal terminology for wetland types and that is why the Draft EIR/EIS described the vegetation composition of various types of seasonal wetlands. The term "seasonal wetlands" as used in the Draft EIR/EIS include a broad range of wetlands that are wet for only a portion of the growing season. Terms such as seasonal marsh and wetland swales fit within the

seasonal wetland category. Gibson and Skordal field reviewed the delineations and determined that combining various types of seasonal wetlands into one category would simplify the discussion of wetlands while providing an accurate description of them. Vernal pools were specifically excluded in the discussion of seasonal wetlands, and were discussed separately. The term swale is commonly used to describe a linear drainageway that is vegetated and contains no discernible banks, but is more characteristic of a flowing system rather than a ponding condition.

GDT-15: The EIR/EIS analysis of existing wildlife resources and potential impacts relied on reconnaissance-level field inspections, information provided by previously prepared reports (submitted as part of the project application process), review of other existing literature and consultation with various resource agencies. The characteristics of the existing habitat were used to describe known and potential wildlife use on the project site. The EIR/EIS necessarily describes the project site as a whole and does not segregate existing conditions or project impacts into the individual parcels for general wildlife use (although this is done for mitigation purposes per the request of the applicants – see Table ES-1 in the EIR/EIS for additional information).

GDT-16: The EIR/EIS preparers agree that the creek would not be used by burrowing animals when it is inundated. However, the EIR/EIS states that it is when it is dry that the creek bed offers habitat for burrowing animals; therefore, the statement in the EIR/EIS is appropriate. However, the EIR/EIS has been revised to clarify that it is the creek bed and banks which could be used by burrowing animals and that the soils there are sandy loam (i.e., Columbia sandy loam and Hedge loam) and not just sandy soils. This clarification is made because sandy loam soils would be friable without collapsing on a burrowing animal. In regard to the comment about western gray squirrels, the commentor is referred to response to comment GDT-15 above.

GDT-17: The discussion of invertebrates on page 5-44 of the Draft EIR/EIS references species generally found in the types of habitats occurring on the project site, as well as some reference to species observed on the nearby Morrison Creek North project site. See also response to comment GDT-15.

GDT-18: Yellow-rumped warbler (*Dendroica coronata*) was observed on the project site on the Aspen IV South parcel (Sugnet & Associates, 1991a). The discussion referenced on page 5-44 of the Draft EIR/EIS mentions passerine birds (a classification of which the yellow-rumped warbler is a member) which use the project site for feeding, not just for breeding. See also response to comment GDT-15.

GDT-19: The EIR/EIS has been corrected to indicate that the results of the Zentner and Zentner surveys are provided in the Appendices of the document. The EIR/EIS has also been revised to specifically state that the use of the 10-mile radius in making the foraging habitat determination for Swainson's Hawk is based on the California Department of Fish and Game's criteria. In regards to the comment referencing valley elderberry longhorn beetle (*Desmocerus californicus dimorphous*), the EIR/EIS indicates that elderberry bushes were identified during field surveys and that exit holes of the valley elderberry longhorn beetle were present. Presence of exit holes is indicative of the beetles occurrence (Barr, 1991) and thus the EIR/EIS appropriately treats this as a significant impact of the project.

GDT-20: See response to comment GDT-11.

GDT-21: Impacts 5 and 6 on page 5-54 of the Draft EIR/EIS makes specific reference to disruption of the movement of wildlife and disturbance by human activity, while impact 4 on page 5-53 deals with the loss of habitat. Clearly, the loss of habitat is the significant impact.

GDT-22: Comment noted. Item # 5 under "Recommendations/Requirements of Various Agencies" in Section 5.7.3, states that Section 7 consultation will be done, if needed, through the US Army Corps of Engineers. As of the date of this report, Section 7 consultation has not been completed.

GDT-23: Mitigation Measure Number 5 on page 5-62 of the EIR/EIS requires replacement of all landmark size (19 dbh or greater) native trees (except cottonwoods and willows) removed as a result of the project on an in-kind and inch-for-inch basis. The following compensation ratio may be considered equivalent to inch-for-inch replacement: one 15-gallon tree equals 1-inch dbh; one 24-inch box tree equals 2 inches dbh; one 36-inch box tree equals 3 inches dbh.

GDT-24: The commentor notes that a number of the special status plant and animal species mentioned in the Draft EIR/EIS would not occur on the project site, particularly not on the Vineyard I parcel. The purpose of the information presented in the EIR/EIS was to disclose the potential impacts of the proposed project. To achieve this, a list of the special status plant and animal species potentially occurring on the project site was compiled from information provided by a variety of sources, reconnaissance-level field surveys, and information submitted by the proponents as part of the project application process. These species were identified as being reasonable to consider as potentially occurring on the project site, given the project site's regional setting and existing habitat. The EIR/EIS does not suggest that any of these species necessarily do occur on the project site. Based on the analysis contained in the EIR/EIS, it is concluded that the project would not significantly impact any special status plant species. Special-status wildlife species identified in the Draft EIR/EIS as not being significantly impacted by the project due to a low probability of their occurrence within the area, include yellow warbler (*Dendroica petichia*) and giant garter snake (*Thamnophis couchi gigas*). See also response to comment GDT-15.

GDT-25: Comment noted. Please refer to response to comments TA-4 and T&H-5 related to the rate of overburden removal.

GDT-26: The rate of aggregate hauling associated with the proposed Vineyard I processing plant presented in the Draft EIR/EIS was provided by the project applicant at the time the study was conducted. Since release of the Draft EIR/EIS, the applicants have reached an agreement that would allow conveyor access such that an on-site processing plant is no longer necessary and is not being proposed by the applicants. In addition, a new mitigation measure has been added to Section 5.8.3 that restricts overburden hauling to a maximum of 30 trips per hour during the peak periods. Mitigation measure #10 in the Draft EIR/EIS (Section 5.8.3) was developed to provide the County with some flexibility to regulate the amount of traffic on the roadways around the project site if some of the planned roadway improvements do not occur. An alternative mitigation measure would be for the applicant to provide funding for some or all of the roadway improvements identified in the General Plan (widening Jackson, Bradshaw and Watt Avenue to six lanes).

GDT-27: Figures 5-21 and 5-22 in the Draft EIR/EIS show the projected noise contours over the project site under both military and civilian use. As can be seen from these figures, the project site was located primarily within the 80 CNEL under military operations and would be primarily within the 60 and 65 CNEL contours under civilian use.

GDT-28: Following circulation of the Draft EIR/EIS, the proponents were able to successfully negotiate easements necessary to allow conveyor access to an existing processing plant, thereby removing the need to construct an on-site processing plant on Vineyard I. The proponents have withdrawn their application for the processing plant and have indicated that the "Proposed Project Without Vineyard I Processing Plant Alternative" is preferred. As a result, the referenced mitigation would no longer be required.

GDT-29: Comment noted.

GDT-30: Comment noted.

March 20, 1998

Honorable Don Nottoli, Fifth District Supervisor
County Board of Supervisors
700 H Street, Suite 2450
Sacramento, CA 95814

Honorable Patricia Shelby, Chairperson
Policy Planning Commission
700 H Street, Room 1450
Sacramento, CA 95814

Dennis Yeast, Director
Department of Environmental Review and Assesment
827 Seventh Street, Room 1450
Sacramento, CA 95814

Jeff Gamel, Associate Planner
Planning and Community Development
827 Seventh Street, Room 101
Sacramento, CA 95814

Re: Morrison Creek Mining Reach Downstream (South) of Jackson Highway, 94-UPB-0484 (Aspen III South); 91-CZB-UPB-0118 (Vineyard I); 90-CZB-UPB-1607 (Aspen IV South); 91--CZB-UPB-0671 (Aspen V South).

Dear Sirs:

We are writing on behalf of the residential community of the above project. We are concerned about the negative environmental impacts that this project would bring to our community. Because the County has permitted residential dwellings to be built within or close to the areas zoned Industrial Reserve/Surface Mining, we feel that

the County should work for the best interest of the community in its decission making. Should the County approve the mining application, we ask that our proposals be heard for the following mitigation measures:

1.	Processing Plant:	Absolutely not compatible with residential living, this is not acceptable as an alternative during any phase of any mining project in the area. If mining is approved, our recommendation is that conveyor belts be used. This item would have to be negotiated between Granite Construction and Teichert to move the aggregates to their present plants.	MCMPOC-1
2.	Overburden:	We request that the overburden from the projects in the entire area be stored on site until needed for reclamation. This would eliminate the truck traffic problem.	MCMPOC-2
3.	Traffic:	We request that ingress and egress to the aggreates project site for vehicles, should be limited to the east side of Vineyard I, north side of Aspen III, south and west side of Aspen IV South, as presently specified in the Draft EIR, and that all aggregate related traffic should flow north on Mayhew Road, and remain off of Elder Creek Road or Hedge Avenue. Furthermore, we do not agree with the County's standard that 2 cars equal one truck, we feel this should be changed to at least 4 cars to equal one truck.	MCMPOC-3

4. Air Quality and Dust Control:

We feel it is crucial that the air quality does not deteriorate because of air pollutants produced by aggregate mining. Our air quality and dust control must remain up to residential standards. MCMPOC-4

5. Noise:

We request that all necessary mitigation techniques be implemented to ensure that noise levels do not exceed those allowed for residential standards MCMPOC-5

6. Setbacks:

Our request is that setbacks of a minumum of 25 feet be established, except where present buildings on properties adjacent to mining areas are located 100 feet or less from the property line; then the setback should be a minimum of 50 feet. We feel that the current County zoning ordinances for aggregate mining is not sufficient for a mining project planned so close to an urban area or residential uses. MCMPOC-6

7. Screening:

We request that visual screening such as non-toxic shrubery and evergreens be planted inside a cyclone fence on the setback of undisturbed ground. Furthermore, all trees and shrubs are to be planted immediately upon approval of the use permit granted to the aggregate mining project proponents, so that these plants have several years growth before aggregate mining starts. MCMPOC-7

8. Slopes:

Slopes should be a minimum of 3:1 ration from the undisturbed setback after reclamation, conducted in such a manner to leave contoured slopes ranging fram 3:1 to 5:1 ratios. MCMPOC-8

9. Water Quality: We request that the quality of our water does not deteriorate due to pollutant sources related to aggregate mining. Furthermore, we request water testing quarterly by an expert independent company, this testing would have to be at the cost and expense of the aggregate companies. MCMPOC-9

10. Operating Hours: Because the County has permitted residential dwellings within or close to areas zoned for Industrial Reserve/Surface Mining use, we request that the hours of operation contemplated in the Draft EIR be limited to the following hours on any of the days given: MCMPOC-10

Days of Operation:	Times of Operation:
Monday -Friday	7:00 am to 9:00 pm
Saturday	8:00 am to 3:00 pm
Sunday	no mining or operation
Holidays	no mining or operation

11. Maintenance: If maintenance of machinery or equipment is necessary, we request that the noise level be such that it comforms to residential standards. MCMPOC-11

12, Drainage: The mining companies should provide and maintain for drainage to replace present natural drainage unto their property in such a manner that people adjacent to the mining properties are not flooded. MCMPOC-12

13.	Morrison Creek	We strongly feel that the aggregate companies should not destroy Morrison Creek. We are opposed to the mining and devastation of this creek.	MCMPOC-13
14.	Enforcing:	We request that the appointment of an Agent of Agents be established to enforce permits, rules and agreements. We need to have at all times, a single point of contact on any given day to bring concerns or complaints with the assurance that our phone calls will be returned in a timely manner. We feel that we need to have an Agency to oversee the proper operation of the pits and that they adhere to the use permit.	MCMPOC-14

Since the County's previous actions have permitted this adverse condition for our community, we would greatly appreciate your time in evaluating the health, welfare and quality of life issues that our residents are facing, not to mention the devastating effect on our property values.

We are requesting that this letter be posted in the Public Record and the EIR. Let it be posted in the Public Records as well, that we support all letters and requests submitted by our fellow residents, Mr. Kevin Smith and his wife, Mrs. Divi Smith.

Sincerely.

Morrison Creek Mining Project Opposition Commitee

cc: Roger Dickinson
Ila Collin
Muriel P. Johnson
Dave Cox
Don Nottoli

cc: U.S. Army Corp of Engineers
Granite Construction
Teichert Aggregates

Susan Brandt-Hawley
Attorney At Law

MCMPOC, Letter from Morrison Creek Mining Project Opposition Committee dated 3/2/98

MCMPOC-1: The Vineyard I processing plant alternative has been removed from further consideration by the project proponents. Please refer to response to comment T&RN-1 for additional information.

MCMPOC-2: The project proponents have indicated that partial removal of overburden is necessary to implement the proposed project. However, during the Policy Planning Commission Hearings several requests from the public, including the commentors, were made and responded to by the proponents in the form of new conditions of approval aimed at minimizing traffic impacts associated with the project. Specifically, the proponents have agreed to restrict truck traffic on Elder Creek Road and have also reached agreement to allow conveyor access to an existing off-site processing plant such that the "Proposed Project With a Vineyard I Processing Plant" has been removed as the preferred alternative. The "Proposed Project Without Vineyard I Processing Plant" is now the preferred alternative, and will eliminate the need for truck trips to and from the project site associated with plant operations. Please refer to Section 5.8.3 for additional information on traffic mitigation.

MCMPOC-3: Please refer to response to comment AP-1, below. For the purposes of capacity analysis the use of 2 passenger cars as equivalent to 1 heavy vehicle is supported by the Transportation Research Board's Highway Capacity Manual. The HCM uses 2 passenger car equivalents (PCEs) for heavy vehicles at signalized intersections (pages 9-14 through 9-17) and recommends use of 1.5 PCEs for roadways with grades less than 2 percent (pages 3-13 through 3-14).

MCMPOC-4: Implementation of the mitigation measures and requirements/recommendations of public agencies presented in Section 5.4.3 of the Draft EIR/EIS would reduce the potential air quality impacts of the project to a less-than-significant level.

MCMPOC-5: Comment noted. Please refer to Section 5.10.3 of the Final EIR/EIS.

MCMPOC-6: Comment noted.

MCMPOC-7: As shown in Section 5.12.3 of the Final EIR/EIS, the project proponent has agreed to the request of the commentor related to landscaping and it has been incorporated into the Final EIR/EIS.

MCMPOC-8: Please refer to Section 5.5.3 of the Final EIR/EIS (Geology and Slope Stability) which describes the requirements/recommendations of public agencies and the mitigation measures for the project. As described in this section, slopes will have a maximum ratio of 1.5:1.

MCMPOC-9: The commentor's request is noted. Mitigation measures have been incorporated into the EIR/EIS to reduce potential water quality impacts to a less-than-significant level.

MCMPOC-10: The commentor's request is noted. Mitigation measures have been incorporated into the EIR/EIS to reduce potential land use impacts to a less-than-significant level.

MCMPOC-11: Any future maintenance activities will be required to comply with the standards set forth in the zoning code, including those for adjacent residential uses if applicable.

MCMPOC-12: The intent of the Drainage Mitigation Plan for the Morrison Creek Mining Reach is to provide for the long-term safe conveyance of Morrison Creek flows through and around the proposed mining and reclamation area.

MCMPOC-13: The Committee's opposition to mining within Morrison Creek is noted. This is the applicant's proposal. Other alternatives, which may be the permitting action, avoid the creek. The application could also be denied.

MCMPOC-14: The County of Sacramento, in its role as Lead Agency under the California Environmental Quality Act, is required to adopt a mitigation monitoring or reporting program to ensure that the required mitigation measures are implemented. As described in Section 15097 of the State CEQA Guidelines, a Lead Agency may delegate this responsibility to another public agency or to a private entity; however, until the mitigation measures have been completed the County will remain responsible for ensuring that such measures are implemented.

SBH

Brandt-Hawley & Zola
An Association of Attorneys

Chanvet House
Post Office Box 1659
Glen Ellen, California 95442
(707) 938-3908 • 576-0198
Fax (707) 576-0175
econet: bhz@igc.apc.org

Susan Brandt-Hawley
Rose M. Zola

Legal Assistant
Sara Hews

June 10, 1998

By mail and fax: 916-874-7593

Chairperson Patricia Shelby and Commissioners
Policy Planning Commission
700 H Street
Room 1450
Sacramento, CA 95814

Re: *Morrison Creek Mining Reach Downstream (South) of Jackson Highway*
Draft EIR/EIS Comments

Dear Chairperson Shelby and Commissioners:

On behalf of the Morrison Creek Mining Project Opposition Committee, I am writing to comment on the inadequacy of the Draft EIR. Our firm has just been retained in this matter and has not yet fully reviewed the environmental document; we may submit additional comments in the future.

The EIR fails to consider numerous mitigation measures already pointed out to you in correspondence from the Committee and also from the Chua Dieu Quang Vietnamese Buddhist Community Temple. The EIR is also blatantly inadequate in its failure to analyze and mitigate numerous project impacts, which it has improperly deferred to future study. Among the areas of improperly deferred analysis are drainage plans, delineation of wetlands and wetland mitigation plans, design of flood control detention and water quality facilities, bypass channel design, plans for preservation and salvage of topsoil resources, noise investigation, and placement of sewage utility corridors.

SBH-1

SBH-2

A separate critical issue not adequately addressed in the EIR is the risk of flow capture from Morrison Creek into gravel extraction pits and disruption of downstream flows. The vague and generalized requirement of construction of berms, armored weirs and drop structures, inlet work, and erosion control and repair plans fail to assess the impacts of pit capture, the effectiveness of mitigation, or the impacts of the mitigation measures. Impacts on Jackson Highway Bridge and roadway must be fully assessed and mitigation measures designed and reviewed by state agencies, including Caltrans, as part of this EIR/EIS process. Deferral of this review until after completion of the

SBH-3

SBH

SBH-3

EIR process is improper under CEQA

SBH-4

The EIR analysis of alternatives is cursory and inadequate, and is also very difficult to understand since it is spread throughout the document. The EIR section on alternatives should more fully explain the logistics of alternatives, particularly the deletion of the processing plant.

I will look forward to providing further comments in the future, even if they are not in time for entitlement to written responses in the Final EIR. I would like to be placed on the mailing list for notices for this project.

Thank you.

Sincerely,

Susan Brandt-Hawley

SBH, Letter from Susan Brandt-Hawley Attorney At Law dated 6/10/98

SBH-1: Following the close of the review period on the Draft EIR/EIS, several Policy Planning Commission hearings were held to receive additional input on the project and EIR/EIS from the community and other agencies. Through that process a number of the mitigation measures referenced by the commentor, although not necessary to reduce the project's effect to a less-than-significant level, were agreed to by the project proponent and have been voluntarily included in the Final EIR/EIS as conditions of approval for the project. Please refer to response to comments MCMPOC-1 through 14 above for additional detail.

SBH-2: In accordance with the California Environmental Quality Act and the National Environmental Policy Act, the EIR/EIS provides full disclosure of the project's potential environmental effects for consideration of the Corps and County decision-makers and the public. The drainage facilities proposed by the project were identified as part of comprehensive drainage and hydrologic study of the Morrison Creek Mining Reach. The commentor is referred to the *Drainage Mitigation Plan for the Morrison Creek Mining Reach* (Montgomery Watson, August 1995) for additional detail, and to response to comment ECS-4 which provides a summary of the plan history and objectives. Wetland delineation and subsequent verification by the US Army Corps of Engineers was conducted for the project. The commentor is referred to Section 5.7 and Appendix B of the EIR/EIS for additional information on the wetland delineation and proposed wetland mitigation plans for the project. As required by the Surface Mining and Reclamation Act and mitigation established in the EIR/EIS, the proponents will be required to salvage, stockpile, and replace top soil resources as part of the project implementation (please refer to Section 5.9.3 of the EIR/EIS for a description of this requirement). Similarly, an analysis of the project's potential to generate noise and impact private and public infrastructure is included in the EIR/EIS (Sections 5.10 and 5.13, respectively) as well as identification of mitigation measures that would reduce these effects to a less-than-significant level.

SBH-3: The commentor is referred to the responses to comments presented in the Caltrans 2 letter that address these same issues.

SBH-4: The description of alternatives in the EIR/EIS is not spread throughout the document, it is presented in Chapter 4. The environmental analysis of the alternatives and the proposed project are presented in Chapter 5, specifically in Sections 5.X.2. Additional background on the formation and selection of alternatives can be found in the alternatives analysis submitted as part of the Section 404(b)(1) submittal (refer to pages B-91 through B-119). In regard to the processing plant, the EIR/EIS evaluates two scenarios for the proposed project: with on-site processing and without. The proponents' "preferred alternative" was originally the option that included an on-site processing plant (on the Vineyard I). Following release of the Draft EIR/EIS; however, this other option (without on-site processing) has been identified as the preferred alternative as described in response to comment T&RN-1 and responses to the Smith family letters (SHS, DKS, DKS-2, & DKS-3).

AP

ANTHONY J. PALIK
ATTORNEY AT LAW
400 CAPITOL MALL, SUITE 900, SACRAMENTO, CALIFORNIA 95814
E-MAIL: 74230.213@COMPUSERVE.COM
916-449-3928

March 9, 1998

Honorable Don Nottoli, Fifth District Supervisor
County Board of Supervisors
700 H Street, Suite 2450
Sacramento, CA 95814

Honorable Keith Bray, Chairperson
Policy Planning Commission
700 H Street, Room 1450
Sacramento, CA 95814

Mr. Dennis Yeast, Director
Department of Environmental Review and Assessment
827 Seventh Street, Room 220
Sacramento, CA 95814

Mr. Jeff Gamel, Associate Planner
Planning and Community Development
827 Seventh Street, Room 101
Sacramento, CA 95814

Re: Morrison Creek Mining Reach Downstream (South) of Jackson Highway, 94-UPB-0484 (Aspen III South); 91-CZB-UPB-0118 (Vineyard I); 90-CZB-UPB-1607 (Aspen IV South); 91-CZB-UPB-0671 (Aspen V South).

Dear Sirs:

On behalf of the the Chùa Diêu Quang Vietnamese Buddhist Community Temple, I am writing this letter to express our concerns over the proposed aggregate mining project referenced above. Established in 1984, the Temple serves a vital community interest, both to its laity and to the surrounding community. The small size of the member groups who may attend services at any one time should not mislead the casual observer to underestimate the Temple's importance to the larger community. In addition to the individual visitors who may stop by at the Temple from time to time, many small groups may meet in a consecutive fashion throughout the day. Although the size of these groups at any given time may be relatively small, the Temple's total membership exceeds 2300

families, most of whom live in the greater Sacramento metropolitan area, and the services it performs are absolutely vital to the health and well-being of the community it serves. Among the many services it performs are weddings, funerals, dedications, business blessings, counseling and mediation, assistance to the economically disadvantaged (limited to small and sporadic disbursements of food and clothing - no monetary gifts are permitted), medical and social advocacy, holiday celebrations, dinners, graduation and other rite-of-passage ceremonies, etc. Because our youth are the promise of the future, the one function most valued by the Temple is the role it plays in shaping the values and character of our youth, so they may become upright and moral citizens who make a valuable contribution to the community. In short, the Temple is a living, vital community and cultural center.

Furthermore, the Temple's membership is not exclusively limited to the Vietnamese-American population of the greater Sacramento area. The Temple is interested in serving any persons who are respectful of its role and might inquire about its functions and desire to be included. Among the many other nationalities from which its membership descend include persons of Thai, Chinese, Laotian, Hmong, Japanese, British, Mexican, Spanish, and Italian descent. The Temple's function is essentially inclusive of the larger community and it welcomes anyone who might wish to respectfully participate in its religious services, youth groups, relief societies, study groups, clubs, merchant organizations, or simply associate among friends. The artwork, sculptures, and gardens at the Temple are a source of pride and reverence for its membership. Anyone desiring to visit their grounds is welcome to contact the Temple and schedule a tour.

The Temple is also home to ten professed nuns and one professed monk, as well as four members of the laity who assist the clergy with their religious observances. As the Governing Abbess of all Vietnamese Buddhist nuns throughout the world, the Temple's Abbess Superior, the Reverend Master Ni Su Thich Nu Diêu Tu, is internationally known and a highly respected member of the world religious community. As such, the Temple acts as an embassy of goodwill, not only to visitors from the surrounding community, but also to travelers and dignitaries from all around the world - sometimes arriving in Sacramento for the sole purpose of visiting the Reverend Master and her members' Temple.

It should also be mentioned that the Temple is located where it is because it seeks to provide its membership and visitors with a peaceful oasis of solitude, away from the noise and distractions of urban living. This peacefulness and solitude are also critical to the clergy in the observance of their spiritual and religious programs. The clean air and pure water of country living are also important to the Temple, not only for health reasons, but because cleanliness and the purity of air and water are very important to the observance of Temple religious functions. Buddhist canonical law, a set of more than 300 laws which strictly govern and regiment nearly every detail of monastic life, require that the Temple facilities be kept extremely clean from dust and debris and that all foods must be washed three times with the purest water available before they may be eaten.

Although the Temple is mindful of the value of an aggregate mine to the entire community, both as a material resource and as a potential employer, the Temple is very concerned about the

negative environmental impacts it might experience as the result of being surrounded on two sides by the aggregate mining project proposed for our area. In addition, although the Temple is not the representative of its neighbors in this matter, it shares their concerns in regard to these potential negative environmental impacts. Although the Temple would prefer that no aggregate mining operation be approved, if the County should determine that such an operation is in the best interests of the community, the Temple asks that the County hear its proposals in regard to the following requested mitigation measures:

1. **Truck Traffic:** Because of the potential presence of traffic to and from the Temple by members of its clergy and laity, the Temple requests that ingress and egress to the aggregate project site for trucks hauling overburden, sand, and/or gravel should be limited to the east side of Vineyard I, north side of Aspen III South, and west side of Aspen IV South, as presently specified in the Draft EIR, and that all aggregate-related traffic should flow north on Mayhew Road and remain off of Elder Creek Road or Hedge Avenue. **AP-1**

2. **Noise:** Because serenity and peacefulness are extremely valuable qualities offered by the Temple to its members and for the religious practices of its clergy, and because they are among the primary motivating factors for locating the Temple in the countryside, not too far from its membership, the Temple requests that all necessary mitigation techniques be implemented to ensure that noise levels do not exceed the following levels, as measured at any point located fifty feet outside the boundary of any property owned or used by an aggregate mining proponent, where said property is located adjacent to the Temple property: **AP-2**

Duration of Noise	7 a.m. - 9 p.m.	9 p.m. - 7 a.m.
≤ 30 Min/Hr	58 dBA	50 dBA
≤ 15 Min/Hr	63 dBA	55 dBA
≤ 5 Min/Hr	68 dBA	60 dBA
≤ 1 Min/Hr	70 dBA	65 dBA

Furthermore, the Temple is requesting that noise levels not exceed 80 dBA, as measured at any time and at any point located fifty feet outside the boundary of any property owned or used by an aggregate mining proponent, where said property is located adjacent to the Temple property. The Temple requests that it be provided with a properly calibrated

and functioning, portable, noise measuring device, capable of graphically recording ambient noise levels for later reference, and capable of a specified frequency response not less than 5 hertz to 20 kilohertz, and that said noise measuring device be provided to and maintained for the Temple at the sole cost and expense of the aggregate mining project proponents. AP-2

The Temple believes that the above-given noise level specifications are reasonable considering the fact that the county has permitted residential dwellings and places of worship to be built and used within or close to areas zoned for industrial reserve-surface mining uses, and that the noise levels requested by the Temple exceed noise levels already permitted by the county for residential areas.

3. **Light:**

The Temple requests that any artificial light used for mining operations, whether by floodlight, vehicle headlights, or from any other man-made source, should never shine directly upon the Temple or over or upon the property upon which it is located, with reasonable allowance given for inadvertently reflected light, and any use of artificial lighting should cease after 10:00 p.m. AP-3

4. **Operating Hours:**

Because the county has permitted residential dwellings and places of worship to be built and/or used within or close to areas zoned for industrial reserve-surface mining uses, the Temple requests that the hours of operation for any aggregate mining operations contemplated in the Draft EIR be limited to the following hours on any of the days given: AP-4

Days of Operation	Times of Operation
Monday through Friday:	7:00 a.m. until 9:00 p.m.
Saturday:	8:00 a.m. until 3:00 p.m.
Sunday and union holidays:	no mining or processing

5. **Air Quality:**

The temple requests that air quality at the Temple does not deteriorate such that levels of air pollutants produced by artificial or man-made sources related to aggregate mining, including, but not limited to reactive organic gases, nitrogen oxides, ozone, sulfur oxides, lead, mercury, selenium, silica, AP-5

hydrocarbons, airborne particulate matter classified as PM-10 or smaller, or any other airborne gases, particles, or other debris produced from artificial or man-made sources related to aggregate mining that pose a serious risk of health to human beings, exceed five percent above a baseline level, adjusted for average levels of air pollutants already present in the air of the greater Sacramento metropolitan area for that month of the year, and where said baseline is to be established by the monitoring of air quality at four equidistant points located fifty feet within the boundaries of the Temple property, by an air quality monitoring expert chosen by written agreement of the Temple and the Granite Construction Company, and where any monitoring of air quality required by this paragraph is to be paid for and performed at least monthly at the sole cost and expense of the aggregate mining project proponents. AP-5

6. **Water Quality:** The Temple requests that the quality of water drawn from the Temple's wells does not deteriorate due to pollution produced by artificial or man-made sources related to aggregate mining, where said deterioration exceeds five percent above a baseline level to be established by the monitoring of water quality at any or all of the Temple's wells by a water quality testing expert, chosen by written agreement of the Temple and the Granite Construction Company, and where any testing of water quality required by this paragraph is to be paid for and performed at least monthly at the sole cost and expense of the aggregate mining project proponents. AP-6

7. **Mining Techniques:** The Temple requests that all mining of aggregate by the project proponents be conducted using the method of strip mining, without the use of explosives, and without mining underneath the Temple property or so close to the Temple property that it should create a subsidence of the Temple property or a loss of any lateral or subjacent support already existing for any improvements located on the Temple property or for any improvements that could be constructed on the Temple property in the future. AP-7

8. **Slope Stability and Erosion Control:** The Temple requests that all mining of aggregate be conducted in such a manner as to leave gently graded slopes at no more than a 5:1 ratio (horizontal:vertical) after mining AP-8

and that no mining be conducted in a manner so as to create a subsidence of the Temple property or a loss of any lateral or subjacent support already existing for any improvements located on the Temple property or for any improvements that could be constructed on the Temple property in the future. AP-8

9. **Security and Maintenance of Fences and Gates:**

The Temple requests that all areas of the proposed mining operation adjacent to the Temple property and located along Elder Creek Road and Hedge Avenue shall be adequately fenced with chain-link fencing, at least ten feet in height, and secured with locked gates, and that all fences and gates shal be installed, secured, and maintained at the aggregate mining proponents' sole cost and expense and in such a manner sc that no breach is ever present whereby access may be gainec by small children who might be traveling or playing nearby Furthermore, the Temple requests, for aesthetic reasons, tha a barbed wire fence approximately two and one-half feet i height, consisting of two strands of barbed wire strung alon redwood posts, be set up approximately five feet outside th perimeter established by the chain-link fence, and only alon the project's boundary where it faces Elder Creek Road an Hedge Avenue, in order to preserve the rural flavor of th area. The Temple does not desire that such a barbed wir fence be placed along the interior border of the Templ property where it adjoins the property to be used for th aggregate mine. AP-9

10. **Setbacks:**

The Temple requests that no mining be conducted by the project proponents anywhere within fifty feet of the Temple property. The Temple believes that such a request is reasonable because the county has permitted residential dwellings and places of worship to be built and/or used within or close to areas zoned for industrial reserve-surface mining uses. Furthermore, and because of said uses, the Temple believes that a five foot setback, as currently provided by county zoning ordinances for aggregate mining, is not sufficient for an aggregate mining project planned so close to an urban area or residential uses. AP-10

11. Visual Aesthetics: Because the visual aesthetics of a rural setting are so important to the role and functions of the Temple in the service of its community, the Temple requests that hardy, drought-resistant, evergreen trees and shrubs be planted outside the chain-link fencing to be provided by the project proponents along the boundaries of the Temple property adjacent to the project site, and pursuant to the terms of this letter, with trees and shrubs to be chosen by written agreement of the Temple and the Granite Construction Company, where the installation and maintenance of any or all landscaping is to be paid for at the sole cost and expense of the aggregate mining project proponents, and where said trees are to be planted at a distance of no more than ten feet apart, and bushes are to be planted at such distances that they completely cover the fence, with no visibility of the project site from outside it, within five years of planting. Furthermore, all trees and shrubs are to be planted immediately upon approval of the use permit granted to the aggregate mining project proponents so that they have ten to fifteen years of growth before the aggregate mining project reaches the boundaries of the temple property. **AP-11**

12. Meditation/Hiking Trail: Because the Temple desires to develop the use of its property to the fullest extent permitted by law for use by the Temple in religious observances and outdoor educational activities, the Temple requests that a hiking trail, approximately twenty five feet in width within the required setback area of the property used by the aggregate mining project proponents and with some minimal landscaping, be constructed along the perimeter of the Temple property where it adjoins the property used for the aggregate mining project. The Temple recognizes that any such use of the proponents' land would be by permission of the proponents and would not constitute an adverse possession of or the procurement of a prescriptive easement upon the proponents' land by the Temple, its members or visitors. **AP-12**

13. Pest Control: The Temple requests that the aggregate mining project proponents be responsible for any necessary pest control, including, but not limited to, any mosquito control that might be necessary as a consequence of the work done in the aggregate mining project. **AP-13**

14. Drainage: The Temple requests that any or all aggregate mining project work be conducted in such a manner as not to interfere with any existing drainage systems used for the drainage of surface waters from the Temple property, including, but not limited to, the drainage ditch located parallel to the western boundary of the Temple property, running approximately from north to south. **AP-14**

15. Reclamation Plan: The Temple requests that the use of any land reclaimed from the property used for aggregate mining be reclaimed to either agricultural or recreational uses, and that the reclaimed land be utilized in a manner consistent with the terms of this letter. The Temple prefers a recreational use over an agricultural use because there is a smaller chance of the contamination of its wells due to the use of herbicides, pesticides, or fertilizers. **AP-15**

16. Order of Mining Locations: The Temple requests that the order in which different portions of the area designated for aggregate mining are mined remain in the same sequence specified in the Draft EIR, and that this ordering should not delay the planting of trees and shrubs used as mitigation as soon as the use permit for the project is granted to the aggregate mining proponents. In this way, the Temple and its neighbors are best assured that the trees and shrubs will have approximately ten to fifteen years of growth and thereby further mitigate any negative visual impact caused by the aggregate mining operation. **AP-16**

17. Appointment of an Agent to Enforce Permits: The Temple requests that the County create a position, independent of any particular person who might fill it, with specific authority and responsibility for overseeing the enforcement of all laws, regulations, and permits relating to the above-referenced aggregate mining projects and that the County authorize this person to receive service of process for all matters in this regard. **AP-17**

The Temple is taking the Draft Environmental Impact Report (EIR) filed for these projects at face value and assumes that all environmental impacts of the project have been identified and accurately characterized with respect to their nature and magnitude. Should unidentified

environmental impacts be experienced once the project is under way, or should identified environmental impacts be greater than forecasted (following implementation of mitigation), the Temple reserves the right to challenge the adequacy of the EIR and/or any permit authorizing the project proponents to continue their work in spite of any unmitigated impacts to our community.

We hope this letter has proved helpful in your evaluation of the project's potential impact upon the Temple. We appreciate your attention to this matter and request that you recommend the mitigation measures suggested by us in this letter. If you have any further questions or concerns, please do not hesitate contacting me.

Sincerely,

Anthony J. Palik, Esq.

AJP/ajpBuddhist Temple - Letter re Concerns Over the Aggregate Mining Project - 3-9-98.wpd

Cc: Scott Wolcott - Granite Construction
Rob Wainwright - Teichert Aggregates.

AP, Letter from Anthony J. Palik Attorney At Law dated 3/9/98

AP-1: The County has added a condition of approval that states in part that all overburden removed from the site by trucks shall be routed onto Mayhew Road north to Jackson Road via an on site crossing of Morrison Creek. Please refer to Section 5.8.3 in the Final EIR/EIS for additional information.

AP-2: Comment noted. Please refer to Sections 5.9.3 and 5.10.3 for additional discussion. Mitigation measures have been incorporated into the EIR/EIS to reduce potential noise and land use impacts to a less-than-significant level.

AP-3: Please refer to mitigation measure #3 in Section 5.12.3 of the EIR/EIS.

AP-4: Please refer to Response to Comment AP-2.

AP-5: Please refer to response to comment MCMPOC-4 which addresses this same issue (proposed air quality monitoring).

AP-6: The Planning Commission, as part of their Conditions of Approval (refer to Appendix E), recommends that a water quality monitoring program, which monitors all water wells on adjacent properties, should be implemented. The wells should be tested on a quarterly basis during mining and reclamation. The operator shall continue to test the wells for constituents that may result from the proposed agricultural reclaimed use and which may adversely affect groundwater. The constituents to be tested for will be determined by the Environmental Management Department. Testing will be conducted on an annual basis for 5 years after reclamation. An analysis of the test results shall be provided to the owner of the above parcel and the County Environmental Management Department within one month of tests. Testing at the wells shall begin before mining to establish existing water quality standards.

AP-7: No explosives would be used in the mining operations proposed for the project site. Please refer to Section 5.5 of the FEIR/FEIS.

AP-8: Please refer to response to comment MCMPOC-8 which addresses the same issue (slope ratio).

AP-9: Please refer to the mitigation and "requirements/recommendations of public agencies" discussion in Sections 5.11.3 and 5.12.3 which address this issue.

AP-10: Please refer to Response to Comment AP-2 and Section 5.9.3 of the EIR/EIS.

AP-11: Refer to mitigation measures in Section 5.12.3 of the Final EIR/EIS.

AP-12: Please refer to response to comment UCC-3 which addresses this same issue (provision of a public trail/easement through the project site).

AP-13: Guidelines from the Sacramento-Yolo Mosquito & Vector Control District were used in the development of the proposed wetland mitigation plans. The District's guidelines are specific to wetland restoration projects and have been adopted as part of the wetland mitigation plans

proposed by the project. Refer to pages B-48 and B-49 in Appendix B of the EIR/EIS for additional information on this subject.

AP-14: The proposed drainage facilities were identified as part of a comprehensive drainage study for the area and have been designed to safely provide for long-term drainage needs. Refer to the Drainage Mitigation Plan for the Morrison Creek Mining Reach (Montgomery Watson, August 1995) for additional information. A copy of the plan is available for review at the Sacramento County Department of Environmental Review and Assessment.

AP-15: The commentors' suggestions for potential post-reclamation uses are noted. These are consistent with those proposed as part of the project.

AP-16: No changes in the proposed phasing of the project are being proposed.

AP-17: Please refer to response to comment MCMPOC-14.

AP2

ANTHONY J. PALIK
ATTORNEY AT LAW
400 CAPITOL MALL, SUITE 900, SACRAMENTO, CALIFORNIA 95814
E-MAIL: apalik@lps.net
916-449-3928
FAX: 916-447-4019

June 3, 1998

Honorable Don Nottoli, Fifth District Supervisor
County Board of Supervisors
700 H Street, Suite 2450
Sacramento. CA 95814

Honorable Keith Bray, Chairperson
Policy Planning Commission
700 H Street, Room 1450
Sacramento, CA 95814

Mr. Dennis Yeast, Director
Department of Environmental Review and Assessment
827 Seventh Street, Room 220
Sacramento, CA 95814

Mr. Jeff Gamel, Associate Planner
Planning and Community Development
827 Seventh Street, Room 101
Sacramento, CA 95814

Re: Morrison Creek Mining Reach Downstream (South) of Jackson Highway, 94-UPB-0484 (Aspen III South); 91-CZB-UPB-0118 (Vineyard I); 90-CZB-UPB-1607 (Aspen IV South); 91-CZB-UPB-0671 (Aspen V South).

Dear Sirs:

At the request of Teichert Aggregates, I am submitting this letter on behalf of my client, the Chua Dieu Quang Vietnamese Buddhist Community Temple, to clarify our position in regard to the above-referenced project. Although most of the concerns stated in our letter to you dated March 9, 1998, specifically identify Granite Construction Incorporated as the interested party, it has been brought to our attention that some portions of the letter refer more generally to the "project proponents" and do not specifically identify one proponent or the other. In consideration of the fact that my client's property does not directly adjoin, and is not located very near to, the Teichert Aggregates project site, we are asking you to take this fact into consideration when evaluating those concerns addressed by the Temple in the aforementioned correspondence. AP2-1

AP2

Although we maintain our position that Teichert Aggregates should continue to take responsibility for any environmental impacts that are proximately caused by it, we want to emphasize with this letter that we are looking primarily to Granite Construction Incorporated as the project proponent who will most directly affect the environmental conditions at the Buddhist Temple. In this regard, we ask the policy decision-makers in this matter to take all the facts of this situation into consideration before making a decision as to which project proponent should take responsibility for mitigating particular environmental impacts at the Temple site. AP2-1

Thank you very much for your attention to this matter. Should you have any questions in this regard, please do not hesitate contacting me at your earliest convenience.

Sincerely,

Anthony J. Palik, Esq.

AJP/ajp Buddhist Temple - Letter to Sacramento County - 6-3-98.wpd

Cc: Sister Tinh Quang, Sacramento Vietnamese Buddhist Temple
Mr. Scott Wolcott, Granite Construction Inc.
Mr. Rob Wainwright, Teichert Aggregates

AP2, Letter from Anthony J. Palik Attorney At Law dated 6/3/98

AP2-1: Comment noted.

SBH2

Brandt-Hawley & Zolin
An Association of Attorneys

Chauvet House
Post Office Box 1659
Glen Ellen, California 95442
(707) 938-3908 • 576-0198
Fax (707) 576-0175
econet: bhz@igc.apc.org

Susan Brandt-Hawley
Rose M. Zoia

Legal Assistant
Sara Hews

August 12, 1998

HAND-DELIVERED
The Honorable Patricia Shelby, Chairperson, and Commissioners
Sacramento County Planning Commission
700 H Street, Room 1450
Sacramento, CA 95814

Re: *Morrison Creek Mining Reach Downstream (South) of Jackson Highway*
Draft EIR/EIS Comments

Dear Chairperson Shelby and Commissioners:

Our client, the Morrison Creek Mining Project Opposition Committee, respectfully submits these comments on the inadequacy of the Draft EIR in the above-referenced project. Please also refer to the Committee's letter to county officials, including you, dated March 20, 1998. SBH2-1

Inadequacies of the EIR with Respect to Mitigation Measures

The EIR fails to consider numerous mitigation measures suggested by the Committee. *See* letter dated March 20, 1998. The California Environmental Quality Act (CEQA) requires a discussion of each potential mitigation measure and the reasons for choosing one over the others.[1]

The EIR also is inadequate in its failure to analyze and mitigate numerous project impacts, which it has improperly deferred to future study. In *Sundstrom v. Mendocino County* (1988) 202 Cal.App.3d 296, the court held that, since the success of the proposed mitigations was uncertain, it could not have been determined that significant effects would not occur. The court held that the deferral of environmental assessment until *after* project approval violated CEQA's policy that impacts must be identified before project momentum reduces or eliminates the agency's flexibility to subsequently change its course of action.[2] Although *Sundstrom* involved a negative declaration, the legal principles apply here. SBH2-2

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[1] CEQA Guidelines, § 15126(c).

[2] *See id.* at 306-308; *see also Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 727-728.

Among the areas of improperly deferred analysis are drainage plans, delineation of wetlands and wetland mitigation plans, design of flood control detention and water quality facilities, bypass channel design, plans for preservation and salvage of topsoil resources, noise investigation, and placement of sewage utility corridors. For example, mitigation number 6 for drainage impacts, EIR page 5-6, defers the preparation of a drainage master plan and approval of flood control detention until after environmental review. SBH2-2

Inadequate Discussion of Impacts Related to Risk of Flow Capture from Morrison Creek into Gravel Extraction Pits

A separate critical issue not adequately addressed in the EIR is the risk of flow capture from Morrison Creek into gravel extraction pits and disruption of downstream flows. This is a very real and serious issue related to pit mining and has occurred, and created serious problems, in Sonoma County. The vague and generalized requirement of construction of berms, armored weirs and drop structures, inlet work, and erosion control and repair plans fail to assess the impacts of pit capture as well as the effectiveness of these mitigations or the impacts of the mitigation measures themselves. SBH2-3

Impacts on Jackson Highway Bridge and roadway must be fully assessed and mitigation measures designed and reviewed by state agencies, including Caltrans, as part of this EIR/EIS process. The EIR improperly deferred this review until after completion of environmental review. This is a clear violation of CEQA. *See* Sundstrom, *supra*. SBH2-4

Thank you for your attention to the Committee's concerns and for your consideration of these issues.

Sincerely,

Rose M. Zoia

cc: Morrison Creek Mining Project Opposition Committee

e:\granite\plancman.ltr

SBH2, Letter from Rose M. Zola Attorney At Law dated 8/12/97

SBH2-1: Please refer to response to comment SBH1-1, which addresses this same issue.

SBH2-2: The commentor presents several issues that are claimed to be "improperly deferred" to future analysis. Each of the issues raised by the commentor were similarly raised in comment SHB-2. Therefore, the commentor is referred to the response to comment SHB-2. In addition, the commentor specifically references a "mitigation" on page 5-6 of the Draft EIR/EIS that requires preparation of a "drainage master plan." This requirement falls under the heading "Recommendations/Requirements of Public Agencies" and was referring to a standard requirement of the Sacramento County Public Works Agency, Water Resources Division and is not a "mitigation measure" identified to reduce the effect of a significant impact. As explained in the response to comment SBH-2, a drainage mitigation plan has already been prepared for the project (and is the basis for the proposed flood control facilities). In addition, please note that the referenced agency requirement/recommendation has been removed from the Final EIR/EIS at the request of the County based on changes in the SCWA code (refer to comment WRD-2).

SBH2-3: The risk of pit capture is evaluated in Section 5.1 of the EIR/EIS. As previously explained, the flood control facilities being proposed as part of the project were developed through years of study and assessment. Hydrologic and hydraulic modeling was conducted for the entire Morrison Creek Mining Reach, including assumptions for current and future land use conditions. This analysis considered the probable maximum flood event within the reach and correspondingly recommended a series of drainage alternatives that were designed to safely convey flood events through reach. Included in the analysis were plans specifying the location and design of the facilities proposed. For additional information on this subject, please refer directly to the *Drainage Mitigation Plan for the Morrison Creek Mining Reach* (Montgomery Watson, August 1995).

SBH2-4: State agencies including Caltrans have provided review comments on the EIR/EISDEIR/DEIS for the proposed project. The Jackson Highway Bridge was designed to accommodate truck traffic.

Individuals

DB

April 28, 1997

SUBJECT: DRAFT ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL IMPACT STATEMENT FOR THE MORRISON CREEK MINING REACH DOWNSTREAM (SOUTH) OF JACKSON HIGHWAY

Dennis E. Yeast
County of Sacramento
Department of Environmental Review
and Assessment
827 Seventh Street, Room 220
Sacramento, CA 98814

I would respectfully offer several comments concerning the Draft EIR/EIS for the Morrison Creek Mining Reach Downstream of Jackson Highway.

1. By relocating the Morrison Creek drainage into a drainage channel a riparian zone will never be possible along this stretch of Morrison Creek. Mitigation by the planting of trees in the quarry would seem to be a very poor substitute. The trees will require irrigation into perpetuity. The natural interaction of a meandering and moving stream with a wooded periphery of valley oaks and willows will not be equated with a stagnant pond and some plantings. DB-1

2. The concept of perching a stream on what is essentially a levee section appears to be a bold step in new-age engineering for Sacramento.

Surface water in Sacramento is contaminated with volatile-organic contaminants. The USGS has prepared a fact sheet NATIONAL WATER-QUALITY ASSESSMENT PROGRAM-THE SACRAMENTO RIVER BASIN:

"Urban runoff and volatile-organic-chemical contamination__Urban runoff from the metropolitan area of Sacramento is a potential source of contaminants that enter the lower Sacramento River. Contamination by volatile organic compounds, especially contamination of groundwater, can occur in any large urban setting." DB-2a

Sacramento County and aggregate miners intend to divert flood flows into the confined quarry which lies directly above the groundwater aquifer. How do you assure the safety and integrity of such a groundwater supply? Is this not the same aquifer that much of Southern Sacramento County depends on?

Upon completion of the aggregate extraction the Sacramento community is left with a channel narrowly squeezed between gaping pits. If we later decide that groundwater contamination is a problem who is going to maintain the channel into perpetuity? Is the applicant willing to post a performance bond for the next 100 years? 1000 years? DB-2b

3. What are the present aggregate resources or inventory in the Greater Sacramento Region? Do the applicant's competitors have adequate supplies to meet Sacramento's needs? Mining operations appear to be widespread in the Jackson Road vicinity. Are we actually addressing the specific economic needs of one particular applicant? DB-3

4. Recognizing aggregate mining as a necessity in the Sacramento region how can we best meet the needs of the community in an environmental, economical and civic manner? It would appear that avoiding the riparian and floodplain corridor along Morrison Creek would be part of this mix. Future generations of people deserve better than concrete channels and strip mines on what were once streams with all their attendent beauty. DB-4

Sincerely,

David Breinke

David Breinke
3000 Crestholm Drive
Sacramento CA 95821

DB-1, Letter from David Breinke dated 4/28/97

DB-1: The commentor's opinion regarding the success of the proposed wetland mitigation plan is noted. Please refer to Appendix B of the EIR/EIS for additional detail on the proposed plans, including performance standards, monitoring requirements and design criteria for the proposed wetland mitigation areas.

DB-2: Groundwater contamination has occurred in the subject aquifer as a result of land uses at the former Mather AFB and is in the process of a 15-year cleanup effort. Potential contamination sources associated with the proposed operations will subject to safety and preventative measures and existing regulatory requirements for the use of hazardous materials as described in Sections 5.1.3 and 5.2.3 of the EIR/EIS. Among the mitigation presented in the aforementioned sections, are restrictions for the use and storage of hazardous materials on the pit floor and requirements to implement a management plan for post-reclamation uses that shall be approved by the County Environmental Management Department. Note that the Sacramento Metropolitan Area is primarily west (down the groundwater gradient) of the project site and the Morrison Creek watershed.

DB-3: The commentor is referred to Section 4.6.2 for an overview of the available aggregate resources within the Region, as determined by the California Department of Conservation, Division of Mines and Geology, in their report entitled *Mineral Land Classification: Portland Cement Concrete-Grade Aggregate in the Sacramento-Fairfield Production-Consumption Region (Special Report 156).* Additional detail may also be found in Appendix B of the EIR/EIS (beginning with page B-96).

DB-4: As part of the EIR/EIS process, both the County and the Corps of Engineers have required the applicants to consider and evaluate alternatives. The Final EIR/EIS evaluates several alternatives, including two that are specifically focused on avoiding the riparian and floodplain corridor: 100-Year Floodplain Protection Alternative and a modification of that alternative, the Creek Buffer Alternative, which was added to the EIR/EIS per the request of commentors (see comment letters from the United States Environmental Protection Agency and the Urban Creeks Council). The analysis of these alternatives, along with the other project and the "No Project Alternative" provide the decision-makers with a comparative analysis of the environmental effects of the project. The decision-makers will use the EIR/EIS during their consideration and review of the project.

April 20, 1997

DEPARTMENT OF ENVIRONMENTAL REVIEW AND ASSESSMENT
County of Sacramento
827 Seventh Street, Room 220
Sacramento, California 95814
ATTENTION: MR. DENNIS E. YEAST

Dear Mr. Yeast:

We are writing this letter in response to the latest plan dated February 1997 by the Aaggregates, Granite and Teichart, to destroy Morrison Creek, the attendant habitat and wildlife that live in this last virgin environment. Additionally, we strongly object to the intrusion into our piece of Eden of an obscene industrial plant at Elder Creek and Mayhew by Granite. Third, we strongly object to Strip Mining in the 100 year flood plain.

Instead of implementing ways of getting people out of their cars and into public transit, van pools, bicycles, work places closer to home and so on . . .Government at all levels in California are hell-bent on digging up our wilderness and optimum living areas with the resultant loss of habitat of our wildlife, and we humans, in the pursuit of "Holy Gravel."

The deck has been stacked against the few of us who have been trying to stop the destruction of this lovely part of Sacramento with its native plants and animals and pleasant and convenient places to live. SHS-1

The Aggregates have been leap-frogging over this agricultural and bedroom community from Mather to South Watt, presenting their various proposals piece-meal, thereby by-passing the citizens involved, whenever possible.

In the fall of 1996, when the residents along Elder Creek and Hedge discovered the plan to stick this industrial plant with all its attendant noise, horrendous traffic of gravel trucks into their midst, they responded with a clamor that received immediate attention. It goes without saying that the intrusion of the industrial complex that produces 1,000 tons per hour with an annual production of 2 million tons, **does not belong in a residential neighborhood.**

This operation cannot help but affect the full use and enjoyment of these heavily invested homes, as well as rendering a negative impact on the property values of the homes on Elder Creek and Hedge. In fact, it was because of the vociferous reaction of these

SHS

homeowners, and the 1000 members of the local temple, that produced the previous proposal, which varies little from the present one, and resulted in the 1996 proposal being taken off the table in order to avoid a negative vote. Of course, the homeowners thought they had won. Little do they know. The Strip Miners simply came up with a new 127 Page tome dated February 1997, and I doubt that the homeowners even have a copy. The Strip Miners and the Board of Supervisors do not want to deal with an aroused citizenry. Who knows, someone might decide to sue.

Let us be very clear, if this latest proposal is approved the people responsible will be those that have allowed and have permited it to happen, the people who permit, and allow are the Board of Supervisors, our County Government.

In our case, at 9400 Fruitridge, we were never informed, before, during or after of the County action that changed our zoning from A-2 to Industrial Reserve.

SHS-1

At this time, we most vigorously oppose the proposal in this latest Coummunity plan to **REZONE OUR PROPERTY FROM INDUSTRIAL RESERVE TO SURFACE MINING.** The only reason we are still enjoying our property is that our daughter-in-law, Divi, has spent hundreds of hours diligently researching the mass of paperwork generaged by the gravel people and has communicated with persons at all levels of County Government and the Aggregates throughout these many years.

When Mr. Freitas, an enlightened man, was the point man for the environment, we thought we had finally won, that the Creek was saved, as he recommended that the Strip Miners stay out of the 100 year Flood Plain. See: **Morrison Creek Mining Reach, Identification of Environmentally Superiior Alternative, p.6-8, Section 6.7.** Unfortunately, Mr. Freitas is no longer in that very key position.

Responding to the question as to which proprosal is acceptable:

BY ALL MEANS WE VOTE FOR NO PROJECT ALTERNATIVE!

SUGGESTION #1: The Aggregates move to Marysville and build their plant, thus no need to fill our roadways with gravel trucks and accompanying negatives.

DEPARTMENT OF ENVIRONMENTAL REVIEW AND ASSESSMENT
April 20, 1997
ATTENTION: MR. DENNIS E. YEAST
Page -3-

SUGGESTION #2: Sacramento proposes to send trash to Nevada - great idea - trucks with trash to Nevada and trucks with gravel back to California. As I have indicated before, Nevada has miles of ugly terrain, fit for gravel cratering, unfit for housing, man or beast.

The idea of destroying this Creek which is a sanctuary for all of the creatures listed in the Special Status Animal Species in your own report as well as the pheasants, quail, and valley oaks, in order to apply more asphalt to this lovely valley boggles the mind!

I first moved to the Sacramento area as a toddler in 1927 when this was a mecca for agriculture, wildlife, miles of poppies, and a 7 cent streetcar line. Then, our City fathers bought the bill of goods from the automobile industry ...eliminating the street cars, ripping up the tracks, and bringing in polluting noisey and inconvenient buses, increasing smog, crowding, traffic, noise, pollution, and ugliness with the resulting loss of habitat, open spaces, pleasant, convenient and comfortable home sites. This proposal is surely in the same vein. SHS-1

These modern day Strip Miners are the direct descendants of the hydralic miners who washed away whole mountainsides in pursuit of gold. Those early strip miners were finally stopped at the turn of the century when the famers along the Yuba and the Feather had "enough" of ruined waterways and landscrapes. The town of Sheldon at the corner of Grant Line & Wilton Roads is named for the man who was murdered by the miners for his efforts at stopping the depradations of these people and before laws were passed to out-law hydraulic mining. Unfortunately, in these modern times, the strip miners have powerful allies in their corner - Government, at every level, in the name of the New Golden ore -- **GRAVEL**.

We will repeat again out strong objections to the industrial crushing plant proposed for the property abutting our property to the south. The continuous noise, dirt, ugliness, the terrible impact of those trucks on our inadequate road will spoil forever the full use of our country home and quality of life. Will there be sufficient set back from our roadway so that it will not cave into the pit in the event that this current proposal is approved.

DEPARTMENT OF ENVIRONMENTAL REVIEW AND ASSESSMENT
April 20, 1997
ATTENTION: MR. DENNIS E. YEAST
Page -4-

In closing, two points are brought to your attention:

(1) Note figure 3-5b Reclamation Plan - Vineyard I Proposed Project. The Re-aligned Morrison Creek Corridor wipes out our entire section of creek including all of the habitat and creek bed. It even impinges on the adjoining property.

(2) In these Aggregate proposals over the years we have gone from: NO RECOGNITION OF OUR PROPERTY; TO WELL AND SEPTIC IN INCORRECT LOCATIONS; TO FINALLY, THE COMPLETE PICTURE WITH OUR ACCESS ROAD BEING ACKNOWLEDGED. SHS-1

This observation was re-enforced when we attended the March 1997 Vineyard Community Council meeting where we asked how they could have recommended the Strip Mining of our home place? We learned that the Council had been told that the area where our family has lived since 1961 was "open space." Touche!

Sincerely,

Stan and Hazel Smith

STAN AND HAZEL SMITH
9400 Fruitridge Road
Sacramento, California 95826
(916) 387 1876

cc: Larry Vinzant
Members of the Board of Supervisors

Divi and Kevin Smith
9400 Fruitridge Road
Sacramento, California, 95826

Dennis E. Yeast
County of Sacramento
Department of Environmental Review and Assesment
827 Seventh Street Rm. 220
Sacramento, California

Sir:

Concerning the Draft Environmental Impact Statement for Morrison Creek Mining Reach Downstream (South) of Jackson Highway, (control numbers: 94-UPB-0484 [Aspen III South], 91-CZB-UPB-0118 [Vineyard I], 90-CZB-UPB-1607[Aspen IV south] and 94-CZB-UPB-0671[Aspen V South]) we submit the following: Since no relocation of satisfactory equivalence has been extended by involved company(ies), the location of our home and property at the approximate center of Vineyard I and Aspen III sites(see figure 3-2,enclosed), which includes our portion of the creek on our eastern border and a long driveway thru the sites, will require more thorough mitigation measures and conditions. These will need to ensure the protection, implementation and enforcement of RESIDENTIAL standards for noise levels, air quality, water purity aesthetics, all-weather erosion controls, riparian rights (including habitat and foliage preservation on our portion of the creek) and compensation for the effects these projects have had and will have on ours and our neighbors property values and quality of life.

We advocate, above all, the "No Project Alternative" due to our respect for the environment. Considering the facts that the County rezones have changed the areas outside the creek corridor from rural/residential to industrial-reserve/strip- mining (without the knowledge or consent of the residents in the area), that the systematic purchasing over the years have put the bulk of the land in this quadrant in the hands of the aggragate companies and that the county has already granted, without compunction, permits for the massive cratering and destruction of the creek in the quadrant directly upstream from us, we hold little hope for a "No Project" decision. DKS-1

It is our sincere desire that a small glimmer of enlightenment and wisdom will prevail and the aggragates' application to rezone the creek and creek corridor from industrial reserve to strip mining will not be granted, allowing the "100-Year Flood Plain Alternative" to stand, thus sparing the destruction of the creek here.

The stretch of creek that flows through these sites is one of the very last parts of Morrison Creek that has not been vandalized by cementing and denuded by carelessness. (See photo set view A-1), It is a beautiful place, teeming with wildlife that has, does and should continue to exist now and for the generations to come. Proposing to destroy it for gravel and replace it with a landscaped ditch at the bottom of a crater will stand as yet another

example of the short-sighted attitude that nature, our habitat, is there to be abused and exploited to the contrived needs of the moment. Continued tar and graveling of our planet should not be the focus. Instead, such things as rethinking the lay-outs of communities, improved alternate methods of transport, employer sponsored shuttles, etc., should be.

By happenstance of ownership or position, we are vested with authority over areas of this planet. Remembering that we are only tenants here, not owners, (with an average lease of 80 or so years), will help to keep perspective about what we should and shouldn't do, for the time when we, individually, settle accounts with the actual Landlord. For all records we wish to register our adamant and absolute opposition to the destruction of the creek. The many massive, unsightly craterings in this area are already an outrage.

Aggragate processing plants are completely incompatible with residential properties. The "Proposed Project Without The Vineyard Processing Plant" in conjuntion with the "100-year Floodplain Protection Alternative" is the lesser of the proposed evils. It is also the only possibly livable one for the residences in and around the sites. This is assuming that the present unacceptable and inadequate standards for: noise barriers-(4x8 plywood leaned against cylclone fences), dust controls-(4x8 plywood boards with sporadic,partial smatterings of a water truck), visual screening-(slats in cyclone fences, plywood boards, knee-high oleander lines or permanent earthen berms), erosion controls, and insuring of well safety and water purity are all upgraded. (see photo sets A-2 thru A-4 of examples of present conditions we are being subjected to and pages 4 & 5 for proposed measures to reduce impacts.)

DKS-1

In figure 3-5b (enclosed) does section "D-D" continue on all four sides of our property? If so, how is our portion of the creek going to hold water? Where will the water come from? (Please see, enclosed, highlighted portion of November 15, 1995 letter that, to date, is still unanswered). How does this plan come to trespass on our property and alter our part of the creek without our consent and without compensation? Why does section c-c show 5 feet of "undisturbed soil" inside their fence and only about 3 feet or less is being left now?

Please, also note, in figure 3-6a, we seem to have become part of Granites' proposed Vineyard I Wetland Mitigation Plan. Again, this is without our consent and without compensation. We have not consented to the de-watering, de-foliaging or removal of our portion of the creek. If this plan moves forward, it will have to do so without the infringment on, or alteration of our property. This will, among other things, require a perpetual, natural water source to keep it watered, now and for generations to come. This creek is, and has been , one of the most beloved and special features of our property for four generations, three of which live here.

Years ago, we answered Granite Construction Company's interest in our property with a proposal to allow them to uproot our four-generation homestead. We suggested their Hedge and Osage property on the creek at edge of their dig site. This would have gotten us, our residence, our creek portion and our access road out of their way, thus preventing most of the problems that now present themselves. They refused this concession and did not extend an offer that would enable us to replicate what we have here. (3.6 acres, a creek, house, well, septic, utilities, fencing, extensive mature landscaping, privacy, rural open-space setting, central location close to schools, medical facilities, freeway accesses,

2

shopping, theaters, recreation, libraries, museums, post offices, etc, etc). Equitable compensation for what is taken does not seem to be their goal. Subsequently, if these projects move forward, we, here, place on the involved government agencies, the responsibility of considering our interests and properites since they will be the ones giving the authorization.

Please find enclosed:

1) Letters (I-VII) we have written on these same projects, submitted under different varied and numbers and dates. They involve the same issues, are to the same involved agencies in the same area-ours. None, except for II, have been answered or addressed, to date.
2) List of "Proposed Measures to Reduce Impacts." (pages 4 & 5)
3) Copies of referenced EIR's-Figures " 3-2, 3-5a, and 3-6a"
4) Photographs sets views A-1 thru A-4

DKS-1

We feel the proponents proposals in this EIR are submitted on the general premise that we don't actually exist, we will disappear, or are just incidental. We hope this letter and enclosures corrects this. Pursuant to provisions in CEQA we request this correspondence, in it's entirety, be included in the final EIR/EIS for the public record. Thank You.

Sincerely,

DIVI N. SMITH
KEVIN F. SMITH

cc: Policy Planning Commision - Mr. Hutchins
US Army Corps of Engineers - Mr. Vinzant
Sacramento County Board of Supervisors - Mr. Nottoli

3

PROPOSED MEASURES TO REDUCE IMPACTS

NOISE BARRIERS: Effective 10'-12', actual sound barrier walls. Light weight, all-weather, aesthetically acceptable, modular units with easy set-up and take-down features are available (details of examples currently on the market can be provided). The initial financial out-lay incurred by the proponents for these re-usable units is more than a reasonable expectation considering the very disruptive, destructive and offensive nature of their business. This is particulary true near and around peoples homes. (the option of adding TEMPORARY earthen berms should be provided to the prospective victim by the proponents-to be set up and removed at their request). Dig sequences should be scheduled so a residence is not completely surrounded or all closed in.

DUST CONTROL: Same as for noise barriers with the addition of EFFECTIVE water truck usage. Currently the pit at the begining of our driveway does not run the water trucks on all perimeters, (especially needed on sides where no barriers of any kind are provided), nor, at all, after dark. This creates dirt and dust problems that are already manifesting themselves in respiratory problems among us. We now contend with a persistent dust haze in our home , gardens, and cars. These conditions will surely worsen if digging continues to move more closer to us.

VISUAL SCREENING: Planting nontoxic trees and foliage well in advanced of actual digging, of a size to provide actual screening. Properly watered and maintained landscape designs providing variety and staggered in undulation patterns to provide a more natural effect. DKS-1

EROSION CONTROLS: Any digging that is permitted by the County of Sacramento and/ or The Army Corps of Engineers, and subsequent slopings done on the sides of our property and access road will need to include all weather erosion prevention measures, including levee standard ones to withstand standing waters of flood retention basin. (i.e. re-inforcements at base of slope; erosion control grasses and foliage; softening angle of slopes; replacing our access road's surface, crown and drainage ditches; re-enforcing road edges, etc). Worst case scenario, our property will be left a singular butte about 30 to 40 feet in the air, with the road the only access. We will need mitigation to provide absolute assurance from the County and State Agencies, who will be the ones granting permits to allow these alterations, that they never compomise or prevent our driving in and out of our proptery. The dire consequences failure of this road could manifest by preventing an emergency vehicle from reaching us, getting to and from work etc. points to the need for proponents to provide on alternate emergency route including, possibly, in the case of a flood retension basin lake, an over water one (power boat?) These responsibilities will need to be assigned, accepted and maintained on a "perpetual" basis. Companies come and go, but the impacts these projects have had and are going to have on us will not. To assure that our property will be maintained intact for our sons and their posterity will require a bond or trust fund from proponents or a government agency's guarantee that they will assume burden of maintenance and repairs.

4

WELL SAFETY AND WATER PURITY: Figure 5-18: note our well is on the western edge of our property line. Set backs, to protect it and the purity of our drinking water are needed. By-annual routine testing paid by proponents need to be scheduled to ensure continued safe water supply. Contamination factors caused by their operations and or their removal of the filtration strata to be remedied by them, assuring a CONSTANT, safe water supply for our residential and agricultural needs. Currently, we know of at least one well on their property that has been left open and exposed near us. This presents serious health threats. DKS-1

PROPERTY VALUE LOSSES: Compensation

QUALITY OF LIFE DECLINES: Compensation

5

Kevin and Divi Smith
9400 Fruitridge Road
Sacramento, Ca.95826
14 June 1996

County of Sacramento
Board of Supervisors
700 H Street, Suite 1450
Sacramento, Calif. 95814

Dear Mr. Nottoli

Concerning Granite Construction Company's Surface Mining Use Permits for Vineyard II Project (Control # 94-UPB-0772) and Vineyard I project (Control # 91-UPB-0118) we wish to submit the following:

The Sacramento County department of Public Works-Water Resources Division's Morrison Creek Mining Reach Drainage Master Plan, and Teichert Aggregate's and Granite Construction Company's use permit applications, that have been prepared and submitted over the past years in fragmented, scattered sections within the total dig site (see enclosed map) have, are and will effect us and our property then, now and in the near and distant future. We have attempted to voice our concerns by spoken and written word to the many agencies and people involved during the varied Notices of preparation, Planning Hearings, U.S. Army Corps of Engineers Public Notices etc., without seeming to strike a central or overseeing person or agency that would apply our concerns to the whole matter in an effective and timely manner.

A brief overview begins with the approach by Granite to purchase our property for well below what it would cost to come near to replicating what we have, i.e., 3.6 acres, extensive mature landscaping; utilities; well; privacy; storage; schools close by; fencing; 3 bedroom house; creek; location near all amenities; freeways; etc., etc.

We submitted a hand written proposal to relocate us at the edge of their dig site. The suggested site was located on Hedge Avenue and Osage with Morrison's Creek small fork-off stream running through it. We felt this would keep us near the original four generation homestead and would be freeing up the Creek ownership rights, access road maintenance, the need for a bridge over the water re-conveyance structure and the added requirements that would arise because our property and access road would be inside their pit. The proposal was declined on the premise that they needed to extract the resources from the Osage-Hedge site. The logic in that eluded us because it would have been compensated by the trade-off anyway.

Next came the permitting of Teichert's Aspen III South (Control # 90-UPB-CZB-1084) which borders our access road on two sides. This brought large equipment scraping the top and crown off our road, which has never been replaced. This has subjected us to conditions that

threatened to make it inpassable due to eroding and flooding. They also put their fence on the road side of the drainage ditch blocking drainage on that side. Repeated communications have brought only incomplete and temporary gestures leaving the problems uncorrected.

Recently the Morrison Creek Mining Reach Upstream North of Jackson Highway Plan was approved by you. This set a precedent for massive cratering around us, creek destruction, threat to riparian, and property rights, and proposed water releases of overflows into the pit floor, bringing stability problems for our road and property.

Now pending is Granite's Vineyard II project(Control # 94-UPB-0772) which, if approved, with on-site plant(which we adamantly oppose), puts us a stone's throw from some of the most annoying facets of their operations ,i.e. noise, dust, truck emissions, unsightliness, and threat to our water purity, etc. It also impacts the other side of our access road and judging from our past experience with the aggregrate companies and our road, indignation looms. DKS-1

At the heels of all this comes Granite's Vineyard I Project (Control # 91-UPB-0118) which if permitted in the fashion it is presented, will have us in the middle of a crater, with as-yet-unknown road conditions and the destruction of one of the most beautiful and dearest features of our area-*the creek*. The mitigation offered of a landscaped ditch, dead ending into a stagnant puddle that could easily become fetid and malarious is hardly compensation for a living, viable, and natural creek, teeming with a marvelous array of plant and animal life.

This does not address all the concerns and impacts these projects have and will cause us. Enclosed are copies of letters that collectively present some of them. It is our hope that by submitting them to you, the others on the Board and lead agencies that our concerns will be addressed, considered and protected.

Sincerely,

Divi N. Smith

Kevin F. Smith

cc.. Mr. Roger Dickinson
Mr. Illa Collin
Ms. Muriel Johnson
Mr. Dave Cox
Mr. Dennis E. Yeast
Mr. Jeff Gamel
Ms. Kate Gonzales
Mr. Larry Vinzant
and Sacramento County Planning Commission

Morrison Creek between – Smith [illegible] and Hooker [illegible]

4

A-2

Looking south (Acoa III site)

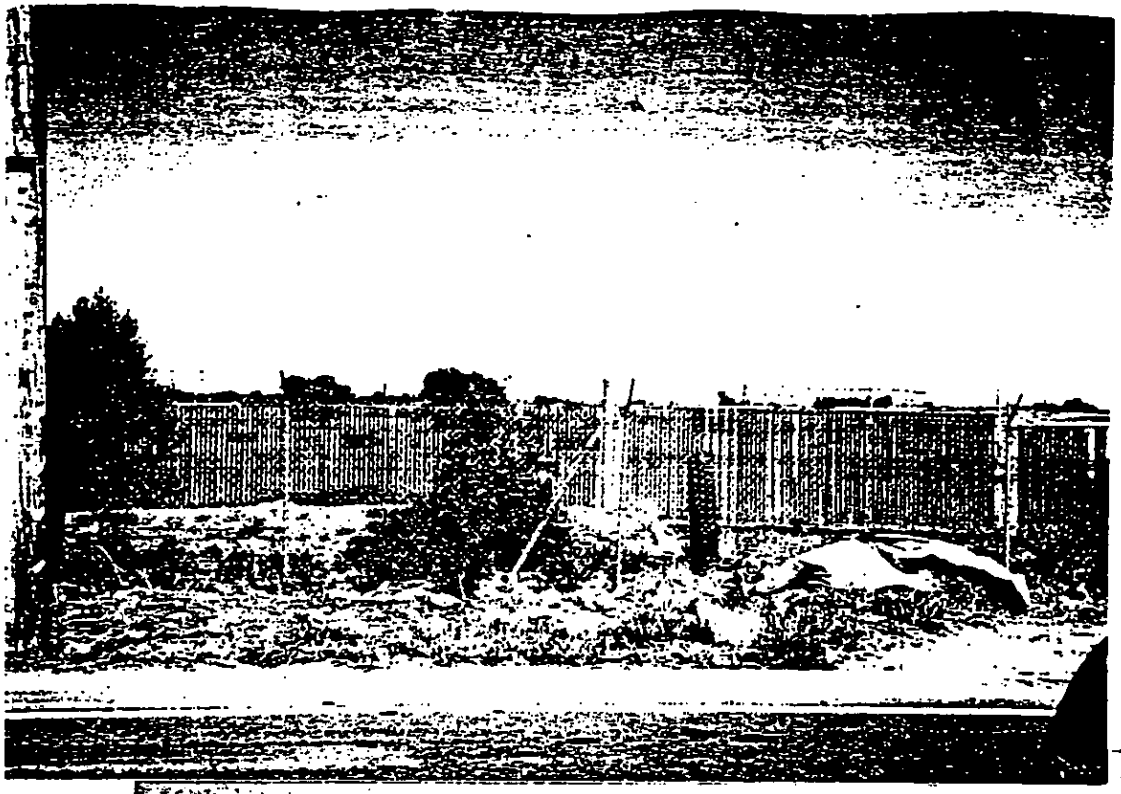
63

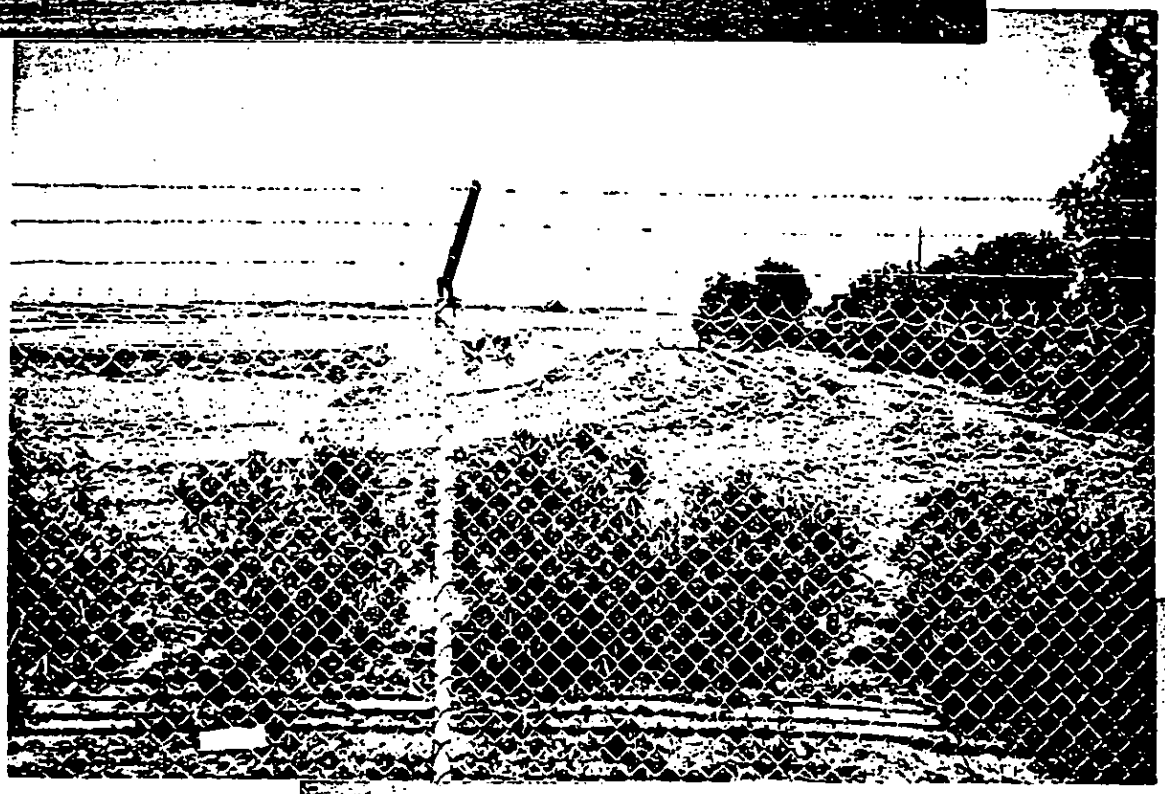
RC-178

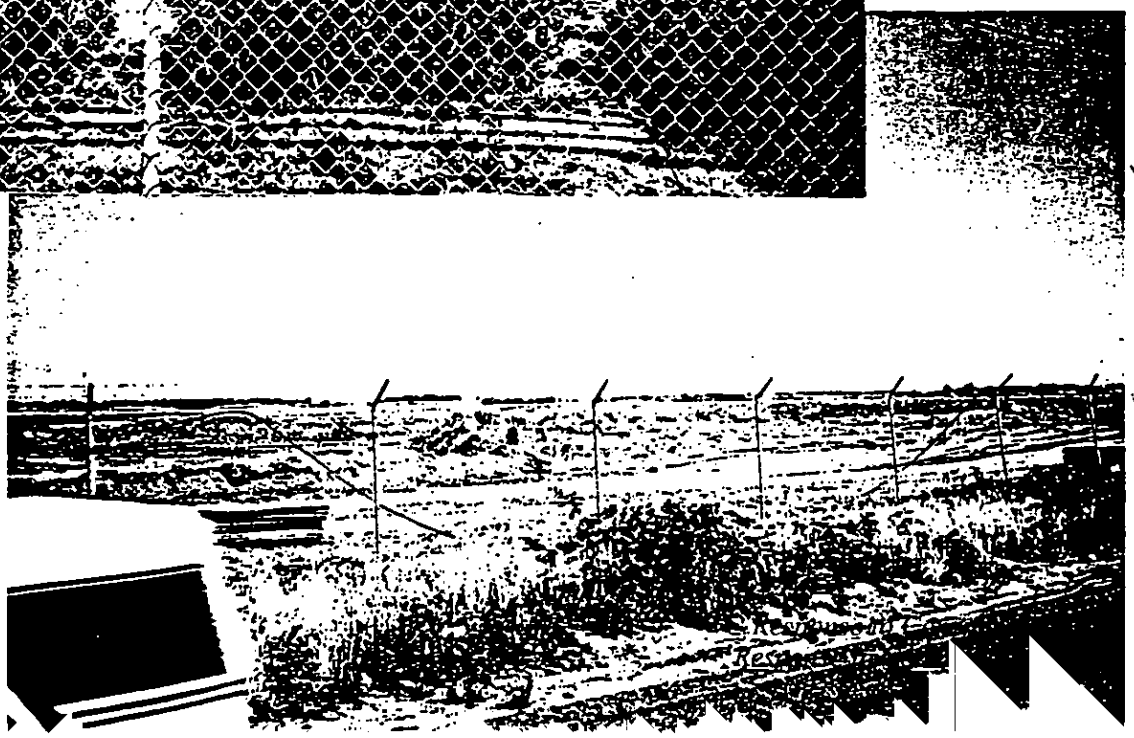
A-3

"Circuit Crack and Dust Barrier")

A-4

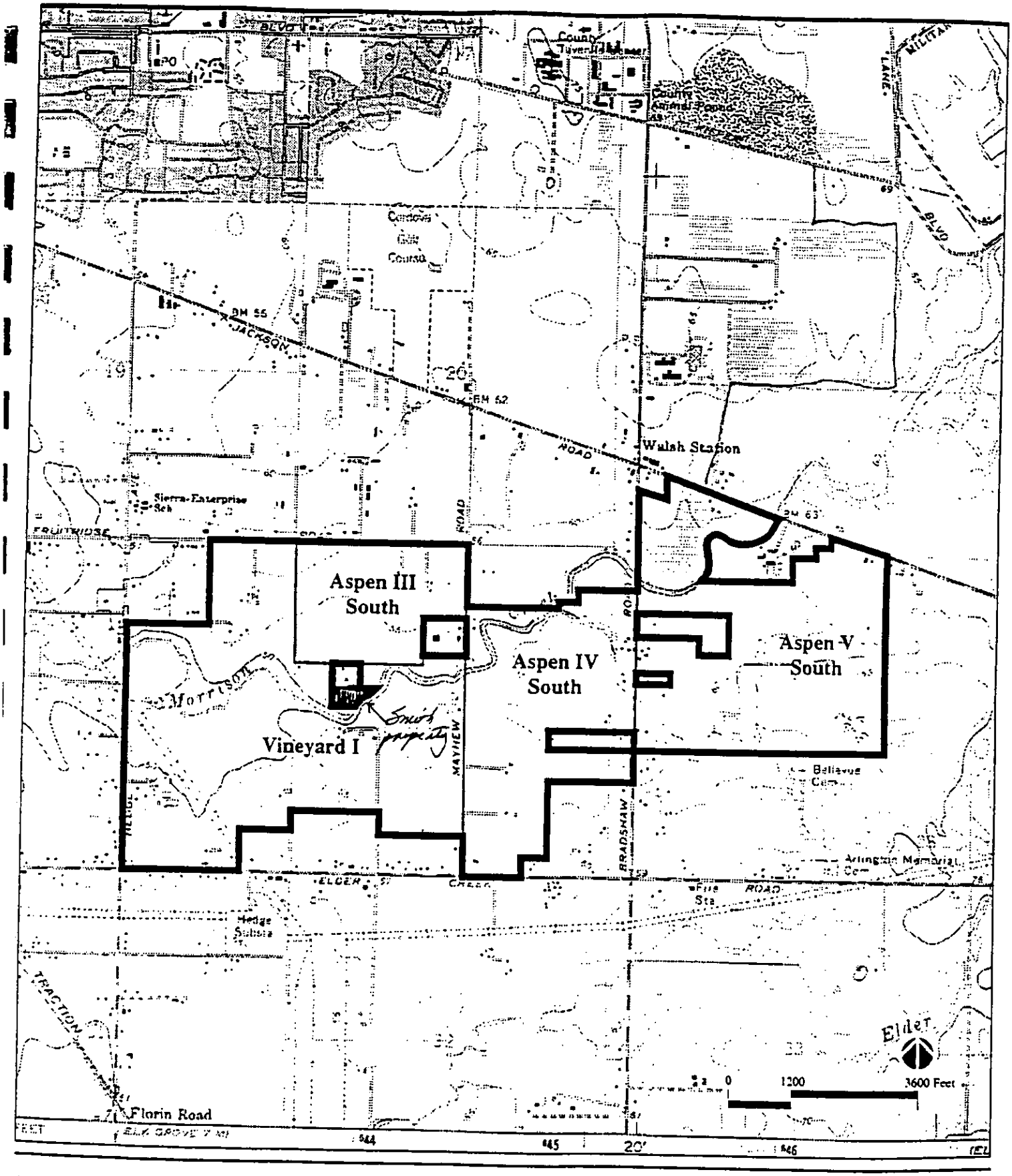






RC-180

65



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Project Boundary

Figure 3-2
Project Site Location
RC-181

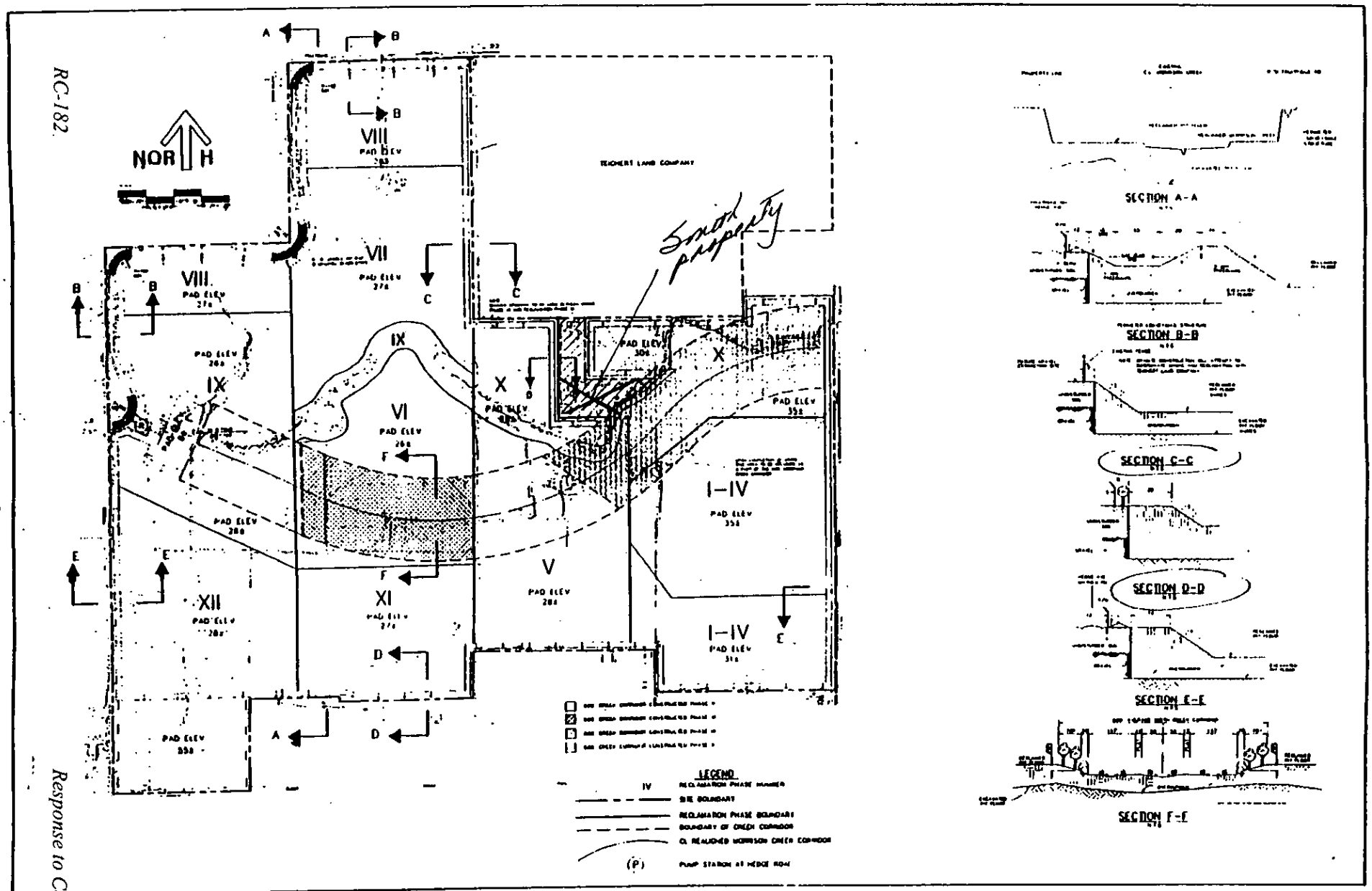
Source: USGS, 1980

Response to Comments

EDAW Inc.

N:5a052:001

66



RC-182.

Response to Comment

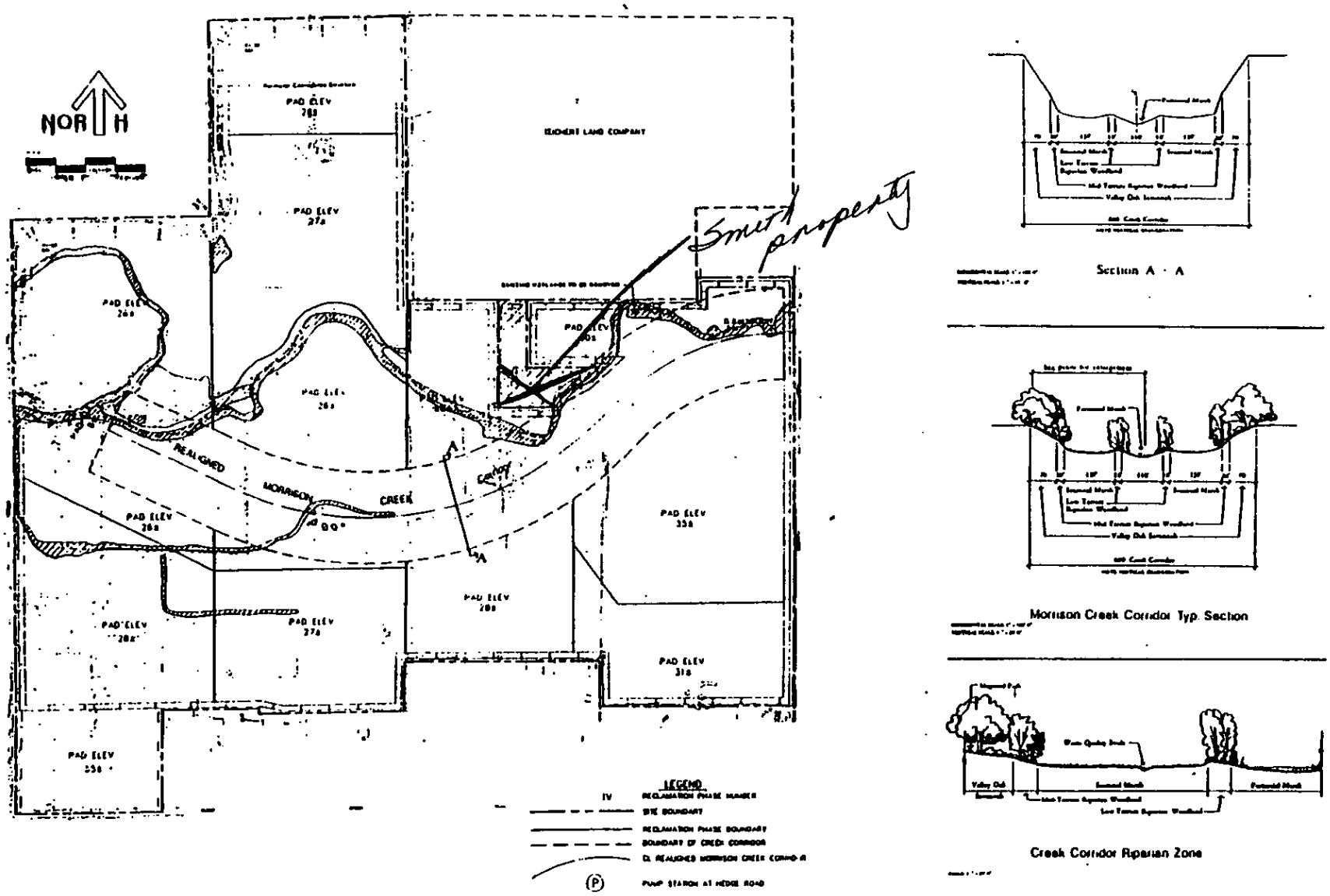
Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 3-5b
Reclamation Plan—Vineyard I
Proposed Project

Source: Robert B. Young Engineers, 1994

BRAW Inc.

N:3x053:011



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 3-6a
Wetland Mitigation Plan-Vineyard I
Proposed Project

Source: Robert B. Young Engineers, 1994

FRAW Inc.

H:\a052:01\3

DKS

D. N. & K. Smith
9400 Fruitridge Rd.
Sacramento, CA 95826
August 10, 1991

COUNTY OF SACRAMENTO
12 1991
DEPARTMENT OF
ENVIRONMENTAL REVIEW & ASSESSMENT

Dept. of Environmental Review and Assessment
827 7th St. Rm. 220
Sacramento, CA 95814

Subject: Draft Environmental Impact Report for Aspen III South Use Permit, Community Plan Amendment and Rezone (Control Number: 90-UPB-CZB-1084)

Dear Sir or Madam:

Pursuant to my August 9, 1991 conversation with Mr. Dennis Yeast, I am submitting my comments in writing concerning Aspen III South Use Permit Project, Control Number: 90-UPZ-CZB-1084.

Please be advised that the site includes an approximately 3/4 mile deeded access easement through it leading to private residential properties with household traffic of three families, including children walking to their school bus stop on Fruitridge Road. See Plate 5, Pg. 17E (map copies enclosed).

Zoning Code Standards for public safety, visual impacts, well water quality, noise levels, air quality, etc. for family residences and their driveways have not been addressed. Please note enclosed map copy of Plate 9, Pg 44A showing driveway which traverses directly through the full length of the proposed dig site for which these zoning standards are requested and need to be met. DKS-1

Please note that Ballantine Street as shown in the map on Pg. 44A (copy enclosed) does not presently extend southerly across Fruitridge Rd, and that Cook Lane, which is our driveway, on site map Pg. D8 (copy enclosed) is across Fruitridge Rd on the south side, not on the north side, and it is east of Ballantine Street, not on west side of Ballantine as shown on this map.

Please advise and inform us of date, time, and place of the Public Hearing. Thank you.

Sincerely,

K. E. Smith
D. N. Smith
Property Parcel #063-0090-009

Enclosures

DKS

III-a

Kevin and Divi Smith
9400 Fruitridge Road
Sacramento, Ca. 95826
15 November 1995

County of Sacramento
Department of Environmental Review and Assessment
827 Seventh Street, Room 220
Sacramento, Ca. 95814

Dear Mr. Yeast:

In response to ~~notice #1995100102~~ of preparation for a draft eir/eis for the Morrison Creek Mining Reach South (Downstream) of Jackson Highway we submit the folowing:

We are a fourth generation homestead located near the center of the proposed Teichert/Granite dig sites west of Bradshaw Road(see enclosed project site location map). As such, residential standards for noise levels, air quality, and ground water quality and safety, private property boundaries, fencing, buffers, visual screenings, set backs, sloping, errosion protections, riparian rights, property value losses and general quality of life issues need to be considered, addressed and protection measures assured and enforced. According to the " Initial Study Checklist", numbers 2,4,5,6,8,20,21,22,24,27, and 30 are **NOT** "maybes". They are definite affirmatives for us and our neighbors in and around these proposed sites. DKS-1

Of the proposed processing facility, the proximity (see exhibit "E", mining Option 1 On-site processing plant-mining plan) to our property would most definitely (not "maybe" as Initial Study Checklist states) be disruptive, aesthetically objectionable, create noise, dust (i.e. increased particulate and diesel emissions) and ground water contamination from settling ponds and plant operations by-products that would seriously effect health and general well-being. Therefore, option 1 (on-site plant) is totally unacceptable to residents here. Option 2 (extraction only) with transport to their already existing processing plant in the area(i.e., Granite Construction Company's facility located on the North side of Kiefer Bvld, East of Bradshaw Road) would at least, not add insult to injury.

The statement in " Initial Study Checklist" numbers 27/28 reads: "Potential for nuisance effects(i.e. noise,dust) on nearby uses. Mining operators would provide fiscal compensation for affected/displaced

DKS

III b

residents. Only properties under the direct control and ownership of the mining operators are included in the project. "If only properties under mining operators ownership are to be included in the project, then why are our ownership, property boundries and riparian rights infringed and overlooked without regard, consent or compensation? (See Exhibit F and I). Please note our property, which includes Morrison Creek to the far bank on East side, seems to have become part of these mining operators aspirations, to which they have no right. We have not been approached nor have we consented to being fenced off from our portion of the creek, or to the dewatering of it, nor the diverting of our portion of it, or the excavation of it, or the defoliation or alterations of any kind on our property. We need clarification as to how these matters are to be resolved, particularly on the creek side of our property (Incidentally, on exhibit 'F' section 'B-B' on the Fruitridge Road side goes to the edge of the entrance to our 1/2 mile long driveway thru the dig sites. Will it continue thru our driveway? And if so, how, without obstructing or impeding access? And if the new 600' creek corridor is going to be on the pit floor, how will water be conducted in and out?) Please include these matters in your considerations and notify us of any public hearings or any further developments regarding these proposals. DKS-1

Thank you,

Divi N. Smith

(Kevin F. Smith)

c/t US Army Corps of Engineers- Mr. L. Vinzant
Mr. J. N. Reese

DKS

IV-a

Kevin and Divi Smith
9400 Fruitridge Road
Sacramento, Ca. 95826
21 November 1995

U.S. Army Corps of Engineers
Sacramento District
1325 J Street
Sacramento, Ca. 95814-2922

Dear Mr. Reese:

We are submitting our comments and concerns regarding the application(s) to mine aggregate in the Morrison Creek Watershed (Public Notice #199400102), that you are considering in conjunction with Sacramento County's EIR/EIS as proposed by Granite Construction Company and Teichert Aggregates Company.

In reading the enclosed letters we wrote to the Department of Environmental Review and Assessment, you will note, among many other things, that we are a 3.6+/- acre family residence located near the center of their proposed dig site in the Mayhew-Fruitridge-Hedge-Elder Creek Quadrant. (map enclosed).

Because of our location and the nature of this project- destruction of the existing creek, displacement and/or destruction of wildlife, huge open pits, reduction of filtering earth on water table, potential nuisance factors associated with operations of large equipment and mining activities, etc., all the factors stated in your Puplic Notice #199400102, page 2, paragraph 7, are relevant to us and our neighbors in and around the dig site(s). DKS-1

This project endangers our general quality of life (i.e. air quality, water levels and purity, noise levels, aesthetic values, wildlife, plant life, public safety, etc.) and threatens to violate property rights, (i.e., riparian rights, water rights, ownership rights, property values,

rights of way, boundaries, etc.). This is particularly so on our parcel (#063-0090-009) which has creek rights in the middle of theirs, which we have not surrendered nor have consented to having fanced off, excavated, dewatered or altered in any way. DKS-1

If satisfactory solutions cannot be devised and implemented on our behalf, regarding these issues, we request a Public Hearing to help to do so. To present a more complete picture of the many aspects for concern this combined project(s) presents to us, please find enclosed copies of letters to the varied notices we have had to reply to during the different phases of this proposed project(s). We regret burdening you with extra reading, but the peacemeal way this project(s) has been presented leaves little alternative.

We would appreciate any clarifications you could provide and please advise us of your comments and determinations and the time and place of the Public Hearing regarding these matters. Thank you,

Sincerely,

Divi N. Smith

Kevin F. Smith

Enclosures: map, 4 letters

cc State Water Resources Control Board
Division of Water Rights

DKS

Kevin and Divi Smith
9400 Fruitridge Road
Sacramento, Ca. 95826
21 November 1995

U.S. Army Corps of Engineers
Sacramento District
1325 J Street
Sacramento, Ca. 95814-2922

Dear Mr. Vinzant:

Thank-you for the map and detail sheet you sent. In reviewing the detail sheet, I am still unclear about the projects exact boundaries on the Morrison Creek side of our property. (Map enclosed). Could you tell me how the proposed realignment of the Morrison Creek Corridor could be implemented without infringing and ignoring our property rights? As we stated in our letter (copy enclosed) to Mr. Yeast of the Department of Environmental Review and Assessment concerning this proposal, we have **NOT** consented being fenced off from our portion of the creek, or the dewatering of it, nor the diverting of our portion of it, nor the excavation of it, nor alterations of any kind on it. The detail sheet does not show how our portion of the creek will be preserved and maintained and what the ends and outside bank will be like in the context of the aggregate companies' plans. Do you know? These matters, as well as many others (detailed in enclosed letter) need to be considered, addressed and resolved as stated on page two, paragraph 7 of your Public Notice #199400102. DKS-1

We are appreciative and grateful for your time and effort in providing answers, advise and clarifications regarding our questions and concerns. Also, would you please have us notified when the Public Hearing regarding this application(s) will be considered? Thank-you very much.

Sincerely,

Divi N. Smith

Enclosures: map and letter

cc Mr. Reese - Army Corps of Engineers, Sacramento District
and
State Water Resources Control Board - Division of Water Rights

DKS

Kevin and Divi Smith
9400 Fruitridge Road
Sacramento, Ca. 95826
23 December 1995

County of Sacramento
Department of Environmental Review and Assessment
827 Seventh Street, Room 220
Sacramento, Ca. 95814

Dear Mr. Yeast:

Concerning notice of preparation for a draft EIR/EIS for the Morrison Creek Mining Reach North of Jackson Highway we wish to register that decisions made by you and other agencies will have an effect on us, our residence and our property which is downstream, on the creek, in the Mayhew-Fruitridge Road-Hedge-Elder Creek quadrant. (Map enclosed-see highlighted area.)

Most of the same concerns addressed in our November 15, 1995 letter to you regarding the draft EIR/EIS for the Morrison Creek Mining Reach South (downstream) of Jackson Highway apply. Particulary the last paragraph.(copy enclosed)

DKS-1

What is decided and permitted in this quadrant (generally bounded by Jackson Highway to the south, Kiefer Bvld. to the north, Excelsior Road to the east and Bradshaw Road to the west) will effect our property (i.e. water supplies to our part of the creek, possible defoliation of it, impact on the wildlife here, aesthetics, etc.) and set a precedent for what might be allowed next in the quadrant we are in. Therefore, the fact that the next quadrant is not wholly owned by the mining companies, the property, environmental and riparian rights of the other owners (ourselves and our neighbors) need to be taken into consideration, addressed and protected. Thank-you

Sincerely,

Divi N. Smith

Kevin F. Smith

Enclosures

c.c. Sacramento County Department of Public Works
Water Resources Division
and
Ms. Terry Wagner
State Water Resources Control Board
Division of Water Rights

DKS

Kevin and Divi Smith
9400 Fruitridge Road
Sacramento, Ca. 95826
23 December 1995

U.S. Army Corps of Engineers
Sacramento District
1325 J Street
Sacramento, Ca. 95814-2922

Dear Mr. Reese:

In response to Public Notice #198900074 and permit of application #198900076 concerning notice of preparation for a draft EIR/EIS for the Morrison Creek Mining Reach North of Jackson Highway we wish to register that decisions made by you and other agencies will have an effect on us, our residence and our property, which lies downstream on the creek, in the Mayhew-Fruitridge Road-Hedge-Elder Creek quadrant. (Map enclosed, see highlighted area.)

Most of the same concerns addressed in our November 21, 1995 letter to you regarding the draft EIR/EIS for the Morrison Creek Mining Reach South (downstream) of Jackson Highway apply. (copy enclosed)

DKS-1

What is decided and permitted in this quadrant (generally bounded by Jackson Highway to the south, Kiefer Bvld. to the north, Excelsior Road to the east and Bradshaw Road to the west) will effect our property (i.e. water supplies to our part of the creek, possible defoliation of it, impact on the wildlife here,aesthetics, etc.) and set a precedent for what might be allowed next in the quadrant we are in. Therefore, the fact that the next quadrant is not wholly owned by the mining companies, the property, environmental and riparian rights of the other owners (ourselves and our neighbors) need to be taken into consideration, addressed and protected.

We request a public hearing if one has not already been set, to help settle our concerns on these matters. Please notify us of place, date and time when they will be held. Thank-you.

Sincerely,

Divi N. Smith

(Kevin F. Smith)

Enclosures

c.c. Sacramento County Department of Public Works
Water Resources Division
and
Ms. Terry Wagner
State Water Resources Control Board
Division of Water Rights

Divi & Kevin Smith
9400 Fruitridge Road
Sacramento, California 95826

3 March 1998

County of Sacramento
Department of Environmental Review and Assessment
827 Seventh Street, Room 220
Sacramento, Ca. 95814

Dear Ms. Hack,

Regarding staff recommendations for the Vineyard.I project (control number 91-CZB-UPB-0118), page 36, item "K', paragraph 1, lines 12-15, titled "Residential Interface-Smith Property" (APN-063-0090-009) states that the water / riparian rights that will be lost if mining is approved as proposed should be compensated as a civil matter between us and the mining operators. This will not be a civil matter because it is the County of Sacramento who will be granting permits to allow destruction or alterations to the creek, in as such, these permits must include mitigation and conditions to prevent, minimize and reduce impacts to the portion that runs through our property. As stated in previous letters (enclosed), we do not consent to the dewatering, the defoliation, or the altering of our portions of the creek. For the proponents proposals to go forward as presented, mitigation needs to be in place that will provide a natural and adequate amount of circulating water to our remaining portion of the creek (possibly by setting up windmill pumps and water wheels). DKS2-1

Also stated on page 36, (item "K", lines 10-12) is that our "access will be via the pit floor and may be somewhat steep as it traverses the side slopes of the pit." It has been dramatically proven this year that these pits can suddenly turn into lakes, therefore, our road cannot be on the pit floor. It must also be all-weather construction and under the "retention pond" scenario, it will also have to meet levee standards. It is essential that any gradient be modified to safely convey and accommodate family traffic.

Pursuant to provisions in CEQA we request this correspondence be addressed and included in the final EIR/EIS for the public record. Thank you.

Sincerely,

Divi Smith

Kevin Smith

Cc: Mr. Gammel-Sacramento County Planning Department
Mr. Nottoli-Board of Supervisors
Mr. Brae-Policy Planning Commission

Kevin and Divi Smith
9400 Fruitridge Road
Sacramento, CA 95826

County of Sacramento
Board of Supervisors
Policy Planning Comission
700 H Street, Room 2450
Sacramento, CA 95814-1298

Re: Granite Construction Company
Vineyard 1 (91-CZB-UPB-0118)
Alternative Mitigation Proposal

Dear Commissioners:

Proponent's proposal to replace the natural water sources of the creek on our property with a completely artificially generated one, on their property, under their control, is unacceptable. Leaving an assault victim's life support system in the hands of the assailant would be a reprehensible dereliction. At least 80% of water should be provided by a more naturally-generated energy source - i.e. windmill pump or solar-powered system with back-ups and storage tanks or leaving the creek undisturbed upstream, without waterflow interruptions, to insure that the portion on our property remains intact. DKS3-1

Water source structures need to be at grade on the Preserved Reach of Morrison Creek, (figure 1); not under exclusive jurisdiction of proponents, preferably on the Smith property; if not, then, on undisturbed ground on the border, with mutual access.

All structural & mechanical placements need to have a 99-year warranty bond or other provision assuring perpetuity. It must remain intact for generations to come.

Additonal points that need to be addressed or clarified:

1. Page 1, paragraph 2, lines 4-5:
Our portion has water thru July into August.

2. Page 1, paragraph 2, lines 6-7:
Our portion overflows it's banks in the rainy season, adding alluvial enrichment to our soil.

3. Page 2, paragraph 3, lines 2-5:
During their various stages of upstream disruptions, our portion's water level needs to be maintained. How does proponent plan to accomplish this? Where is the perpetuity factor for all their sumping and pumping and structures? This creek was here before these companies, this county and this generation and should remain so.

4. Page 2, paragraph 3, line 6:
We need clarification on how 1 cubic per second equals 30 gallons per minute and a correction on water flows here - they go well into late summer here.

5. Page 2, paragraph 3, line 7:
The average annual water depths here range from 3' to 7'. Will a two-foot weir allow for this? DKS3-1

6. Page 2, paragraph 3, line 3:
This portion has water in it through August and needs to continue to do so.

7. Page 2, paragraph 5, line 4:
Inventory needs to include edges of the creek for the plants and trees it now supports.

8. Page 2, paragraph 5, line 5:
Monitoring also needs to be done during construction when the greatest disruptions will occur. Daily penalties need to be imposed and collected from proponents for the property owner by an agency that is available on a daily basis.

9. Page 3, paragraph 1, line 2:
If it is not maintained accordingly, how & when will we be compensated? The perpetuity factors are not in place here. There are no maintenance bonds to ensure water flows and maintenance. Five years is not sufficient (and five years from when? First phase? Last phase?).

10. Page 2, paragraph 3, line A & B:
What is the compensation to us for the 20% loss?

11. Page 3, paragraph 3, line C:
What is their version of "sufficient depth & duration?"

The disruptive and destructive impacts these projects will have on our lives and properties will be massive.

The county must insure that residents are protected and that all necessary mitigation is in place to assure liveability, health, well-being and compensation for losses before any permits are granted. DKS3-1

12. Plan view; figure 1:

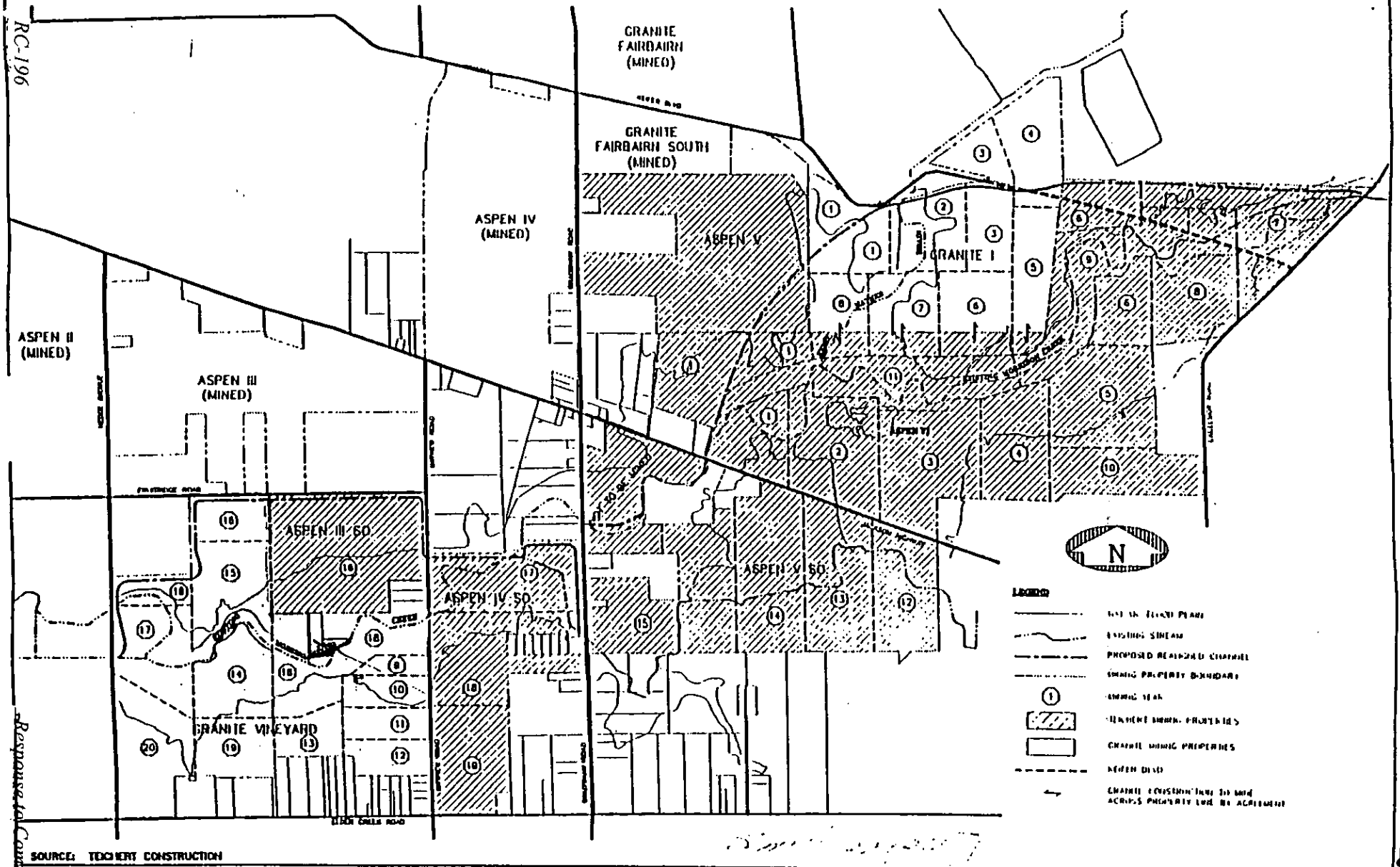
Our deeded access road on the north side (easterly edge) has not been figured in. It needs to be at grade to meet the part through Teichert's project site and it needs to be bonded.

Pursuant to provisions in CEQA, we request this correspondence be addressed, considered and included in the final EIR/EIS for the public record. Thank you.

Sincerely,

Bill and Kevin Smith

cc: Board of Supervisors
Planning Department
Department of Environmental Review and Assessment
Ms. Susan Brandt-Hawley



County of Sacramento Water Resources Division	Morrison Creek Mining Reach Drainage Mitigation Plan	Figure 1–3 Mining Phasing Map

RC-196

Response to Comments

SHS, Letter from Stan and Hazel Smith dated 4/20/97; DKS, Letter from Divi and Kevin Smith dated 4/26/97; DKS2, Letter from Divi and Kevin Smith dated 3/3/98; and DKS3, Letter from Divi and Kevin Smith dated 8/98

The comments presented in the above 4 letters are addressed in a comprehensive response provided below. The commentors owned and lived on a piece of land that is surrounded by the project site. Many of the concerns raised in the letters are directly related to the commentors' close proximity to the proposed mining and reclamation activities. Following the release of the Draft EIR/EIS, the commentors agreed to sell their property to the project proponents. Although many of the concerns raised by the commentors would no longer be applicable as they would no longer reside in such close proximity to the proposed project site, some of the issues raised could be relevant to other residences/land uses in the area. Such environmental issues have been listed and addressed below. As with all comments on the EIR/EIS, a response to issues related to personal preferences for the project or other opinions that are not related to environmental issues do not require a written response. Rather, such comments are included in the record for review and consideration by the decision-makers in their review of the project and EIR/EIS.

- **Processing Plant & Associated Impacts:** The commentors requested that a processing plant not be approved for the project site based on potential environmental impacts and nuisances, including dust generation, noise, and traffic, that would affect surrounding uses. Following the close of the comment period on the Draft EIR/EIS, the project proponents were able to successfully negotiate the easements needed to eliminate the need for an on-site processing facility (formerly part of the proposed project). As a result, the proponents have indicated that their new preferred alternative is the "Proposed Project Without Vineyard I Processing Plant" as evaluated in the Draft EIR/EIS. Under this alternative, aggregate would be transferred from the project via conveyor systems to existing (off-site) processing plants. As discussed throughout the EIR/EIS, this alternative would reduce the amount of truck trips, reduce noise, air quality and other potential effects associated with the construction and operation of a processing plant.

- **Noise Impacts:** If approved, the proposed project would be subject to the Sacramento County Zoning Code Sections 235-60 and 235-53 which set forth noise standards and operating hours for sand and gravel mining operations. More stringent controls would be required by the Exterior Noise Standard of the Sacramento County Noise Ordinance (SCC 6.68.070) in those areas where adjacent land is zoned for residential uses. The Noise Ordinance is intended to limit noise by establishing specific noise standards that the proponents would be required to meet for adjacent residential properties. In general, levels are limited to 55 dBA [7 a.m.-10 p.m.] and 50 dBA (10 p.m.-7 a.m.), with violations occurring if standards are exceeded in any one hour, as specified in the Ordinance. In addition, the EIR/EIS identifies a series of mitigation measures focused on reducing noise generation at the project site. Included in these measures is the construction of sound barriers along the project site edge and movement of proposed operations such that noise is not concentrated in one location. Refer to Sections 5.9 and 5.10 of the Final EIR/EIS.

- **Air Quality & Dust Generation:** The project would be subject to the Sacramento Metropolitan Air Quality Management District Rules and Regulations, including Rules 402 and 403 which require avoidance of nuisance and control of fugitive dust related to mining

operations. In addition, Section 5.4.3 of the EIR/EIS identifies mitigation for potential air quality and dust generation resulting from the proposed mining and reclamation activities. Included in these measures, are requirements to minimize carry-out of mud and dirt onto public roads, watering of unpaved roadways, and techniques for maintaining stockpiles to reduce erosion and for dust suppression. For additional information on this subject, refer to Section 5.4 of the Final EIR/EIS and response to comments

- **Visual Screening:** The proponents would be required to implement visual screening along the project site periphery by establishing a 25-foot minimum landscaped setback from adjoining rural residential uses, with the first 10-feet consisting of undisturbed land The proponents will be required to maintain landscaping, including provision of irrigation, throughout the life of the project. Refer to Sections 5.9 and 5.11 of the Final EIR/EIS for additional information on this subject.

- **Erosion Controls:** If approved, the project and proposed slopes and post-reclamation design would be subject to a series of existing regulatory requirements for slope stability and erosion control, as well as the mitigation measures identified in the Final EIR/EIS. As discussed in Section 5.5 of the EIR/EIS, these controls and mitigation measures would reduce potential geologic impacts to a less than significant level. Included in these controls and mitigation are restrictions on post-reclamation slopes, requirements for planting side slopes to reduce erosion, and preparation and implementation (at the direction of the County) of an Erosion Control Plan for the project. For additional information on this subject also see Section 5.7.3 of the Final EIR/EIS.

- **Water Quality:** If approved, the project proposes to implement several mitigation measures that would effectively reduce all potential water quality impacts to a less-than-significant level. Please refer to Sections 5.1.3, 5.2.3, and 5.7.3 of the EIR/EIS.

April 23,1997

Dennis E. Yeast
County of Sacramento
Department of Environmental Review
and Assessment
827 Seventh Street, Room 220
Sacramento, CA. 95814

RE: DRAFT ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL IMPACT STATEMENT FOR THE MORRISON CREEK MINING REACH DOWNSTREAM (SOUTH) OF JACKSON HIGHWAY : Control Numbers: 94-UPB-0484 (Aspen III South), 91 CZB-UPB-0118 (Vineyard I), 90-CZB-UPB-1607 (Aspen IV South) and 94-CZB-UPB0671 (Aspen South)

We are property owners in the immediate area of the proposed project captioned above.

We are writing to you to let you know of our interest and concerns with the Draft EIR/EIS report. We must be included in all phases of any planning committee meetings and outcomes. We also seek the right to attend these meetings and be heard.

This project will be a very significant impact on our property and our human rights as well as health & safety.

We will be continuing to study the reports available and hope to have the opportunity to get involved in working through some of the mitigation sections proposed.

Cordially,

TSM-1

NEIGHBORHOOD COMMUNITY

Signatures attached

TONY & SHAY MELVOLD
9307 Elder Creek Road
Sacramento, CA. 95829

cc: Larry Vinzant
U.S. Army Corps of Engineers
Sacramento District

TSM, Letter from Tony & Shay Melvold dated 4/23/97

TSM-1: The commentors' request to be included and heard at future hearings and their interest in the project is noted.

George Waegell
7700 Eagles Nest Road
Sacramento, CA 95830
(916) 423-1771

April 28 1997

Dennis E. Yeast, Environmental Coordinator
County of Sacramento
DERA
827 7th Street, Room 220
Sacramento, CA 95814

Re: Morrison Creek Mining Reach downstream south of Jackson Highway.

Control No.	94-UPB 0484	Aspen 3 South
	91-CZB-UPB-0118	Vineyard 1
	90-CZB-UPB-1607	Aspen 4 South
	94-CZB-UPB-0671	Aspen 5 South

Dear Mr. Yeast,

Sacramento County just celebrated "Creek Week." Given the proposed destruction of 4 miles of Morrison Creek a funeral would have been more in order. This proposed channelization will be an eye sore forever. Future generations will look at this project and wonder about our sanity. We are not a third world country and yet our county is laced with these dead, open concrete sewers where living streams once meandered.

Having explored miles of creek, wet and dry, I see them as wonderful living oases for all the life in an area. There are trees, plants, animals, birds, reptiles, fish and insects all interacting together in a fascinating, meandering slice of geology. It should be the birthright of every child to enjoy this. Morrison Creek preserved and treasured will add much to the enrichment of our community. Laguna Creek at Bond and Elk Grove-Florin Roads offers a quiet retreat from the bustle of urban development. Compare this to the gunite lined, chain linked, open ditch that was once Florin Creek at Kara Drive and Florin Road. GW-1

The politics of the gold/aggregate industry has been one of false promises and real consequences to the detriment of our community. Pit reclamation is non-existent. One has only to look at the moonscapes the gold/aggregate industry leaves behind. Straight, steep sided, treeless cliffs festooned with chain link, oleander and rip rap. These

hideous gold/aggregate pits cry out for serious reclamation. If we cared for our environment they could become contoured, tree lined valleys instead of the devastation visited on Perkins and Walsh Station which constantly bombards our sensibilities.

Concrete is a permanent soil sterilant that given a gold subsidy has been liberally slathered over our 5 county area. Like lava it has covered the irreplaceable soils of the Pocket, River Park and Natomas. These lands will never absorb water, grow a crop or nurture a tree and all of it in a flood plain.

We are told that our supply of PC grade rock must be protected at all costs. We are told that the 27 square miles of dredger tailings are only fill quality rock and yet when the county approved a leapfrog, 272 acre pit at Jackson and Sunrise there was no concern that the million year old rock might not meet PC grade. At that point a rational person would ask, "Why do we not use the dredger tailings as American River Aggregates is doing. Why dig one hole to fill another?". GW-1

Instead of being ashamed at the way we have channelized Morrison Creek down stream we arrogantly propose to do the same to all of it.

Please preserve the last pristine 4 miles of Morrison Creek from Excelsior to Hedge from becoming a concrete lined ditch.

Sincerely,

George Waegell

George Waegell

cc Sacramento County Board of Supervisors
Larry Vinzant, US Army Corp of Engineers
Tom Hutchings, Planning Director, Sacramento County
Cay Goude, U.S.Fish & Wildlife Service

GW, Letter from George Waegell dated 4/28/97

GW-1: The commentors' opinions regarding the project are noted and will remain part of the administrative record for consideration by the decision-makers during their review of the proposed project.

George Waegell
7700 Eagles Nest Road
Sacramento, CA 95830
916 423-1771

June 9, 1998

Policy Planning Commission,
Sacramento County,
700 H Street, Rm. 2450
Sacramento, CA, 95814 - 1298

Dear Commissioners,

Re: Morrison Creek Mining Reach Downstream of Hwy. 16.

The late County Supervisor Henry Kloss once mused that newly married couples should file an EIR. Given the effects we see of exponential population growth on the environment he was ahead of his time. There is hope! I picked up a flyer in the Board of Supervisors chambers showing Tony Lopes, the boxer, dukeing it out with an un-spayed dog. Mr. Lopes needs to realize that creatures lower on the food chain are not the cause of our environmental problems. We are! Exponential population growth plus unsustainable consumerism equal environmental disaster. You can't eat concrete! GW2-1

Why is it that the County and the gold aggregate industry are the only ones permitted to dig in Morrison Creek? Are we to trust them in the flood plain given their uncanny knack for turning creeks into concrete ditches? Creeks are a cultural and environmental resource in our community, not a commodity. Please save the last two miles of Morrison Creek from the callous destruction going on north of Jackson Road.

Why has it been impossible to get independent water quality tests of the aquifer under these sixty-five foot deep gold/aggregate pits? What are the effects of pit agriculture and mining activity on water quality? What effect do nitrates, produced in the gravel washing process, have on the quality of water in our aquifer? Why was this problem not addressed in the EIR? Letting the gold aggregate industry test the community water supply is like letting the fox tend the chickens. GW2-2

In using these pits as retention basins to prevent flooding of housing built on prime agricultural land in the flood plane will we not contaminate our aquifer with surface runoff from urban and industrial uses? i.e. Mather Field? The EIR should give specific examples of where pits have been used as retention basins and what the effects were on the aquifer?

Traffic impacts in Sacramento County for its gold/aggregate strip mines are assessed using a model which equates one gravel truck to two passenger cars. This is ludicrous! It's like saying an elephant is the same as a mouse because they both have four legs! If we continue to use this inadequate model in the EIR we will certainly not accurately assess the impact of heavy trucks on urban roadway traffic. DERA lamely states that this is a national standard. No wonder we have GW2-3

George Waegell
7700 Eagles Nest Road
Sacramento, CA 95830
916 423-1771

June 9, 1998

such bad traffic problems! The hideous mining facility at Sunrise and Jackson would not exist today if the EIR had used an accurate traffic model. We have asked the county to address this serious issue and to date no corrective action has been taken. Please tell us why?

We are told that trucking aggregate forty miles from Yuba City is too expensive, yet with a gold subsidy aggregates from our community flow into a five county area. No one seems to know how much gold these pits produce. Do none of us know our assay from a hole in the ground? This unknown gold subsidy makes us very competitive with those who would use dredger tailings or hard rock as an aggregate source. In light of this could it be that we are tearing up our community for gold rather than for rock? Please think about this! GW2-3

When Sacramento County permitted the leapfrog 272 acre "Los Angeles" Aggregate plant at Sunrise and Jackson to dig million year old rock there was no independent test done on rock quality. What was the percentage of waste? Would it meet Portland Cement grade? Why wasn't this in the EIR? If this is only fill quality rock why not use dredger tailings? Was gold a deciding factor in this? GW2-4

The gold/aggregate industry has a very destructive long term economic and social effect on any community in which it operates. When these private concerns move into our community property values are reduced and there is no restitution. The environment is drastically altered. Reclamation is nonexistent. Oleanders, chain link fencing, and berms are rapidly replacing the beautiful open space values in the area. Look at the hideous fencing blighting our roadways. Out of sight and out of mind is not reclamation. To hide the ugly moonscapes they are creating in the middle of our community they put oleander blinders on us and have the gall to call it landscaping. Bradshaw, Hedge, Florin Perkins, Jackson and Fruitridge are of a litany of unreclaimed pits within twenty minutes of Capitol Park. GW2-5

We must care for our community. These pits must be reclaimed with contoured tree lined slopes to reflect the beautiful hills in the Sloughouse area. Chain link fences, berms and oleanders belong in the dust bin of bad dreams. We should reclaim and preserve these lands as open space, agriculture and recreation. From their blighted past they can become islands of sanity in a sea of urbanization the land was destroyed to create. Please care for the environment?

Sincerely,

George Waegell

George Waegell

2

GW, Letter from George Waegell dated 4/28/97

GW-1: The commentors' opinions regarding the project are noted and will remain part of the administrative record for consideration by the decision-makers during their review of the proposed project.

GW2, Letter from George & Judith Waegell dated 6/9/98

GW2-1: Comments noted.

GW2-2: Comments noted. Please refer to response to comment SW3-3 that addresses the request for water quality monitoring.

GW2-3: Please refer to response to comment MCMPOC-3 which addresses the basis for developing the truck trip assumption used in the EIR/EIS. No other specific references to aspects of the model that are not "accurate" are provided. With regard to the cost of aggregate transportation, please refer to response to comment EPA-14. Additional information on alternative sources of supply is provided in Section 4.6 of the EIR/EIS and in Appendix B (beginning with page B-91).

GW2-4: The commentor's opinion regarding other mining projects is noted. With regard to the quality of aggregate on the proposed project site, the California Department of Conservation, Division of Mines and Geology has identified the project site as an area containing Portland Cement Concrete-Grade quality aggregate. For additional information refer directly to the CDMG's report entitled *Mineral Land Classification: Portland Cement Concrete-Grade Aggregate in the Sacramento-Fairfield Production-Consumption Region* (Special Report 156) and Section 4.6 in the EIR/EIS.

GW2-5: The commentor's opinions and requests are noted and will be provided to the County decision-makers for their consideration during review of the Final EIR/EIS and project.

GW3

George & Judith Waegell
7700 Eagles Nest Road
Sacramento, CA 95830
(916) 423-1771
judith_waegell@bbs.macnexus.org

September 3,1998

Sacramento Co., Board of Supervisors.
700 H Street,
Sacramento Calif. 95814

Re: Planning Commission and Other Government Agencies Failure to Address Community Concerns With Gold/Aggregate Operation and Reclamation.

Dear Board:

On Feb. 23, 1998. Keri Butler of the Planning Department chaired a public meeting at Wilton Firehouse to gather data on the impacts that gold/aggregate mining operations have on our community. Present were members of the Planning Department, Supervisor Don Nottoli, representatives of Granite and Teichert, the Vietnamese Buddhist Temple, our Coalition and other concerned citizens.

There was considerable discussion and our inputs were written down by Planning. We felt that the meeting was productive and were told that there would be more meetings in the immediate future.

We feel that open honest communication is needed if serious conflicts between the area's citizens and the gold/ aggregate industry are to be resolved. With rapid growth in the County we cannot ignore the gold/aggregate industry's impacts on traffic, water and air quality, noise and rapidly diminishing open space values.

Contrary to planning staff's statements there were no subsequent public meetings held. GW3-1

On the other hand we understand that a committee representing the gold/ aggregate industry and chaired by Mr. Wainright of Teichert meets regularly with the county.

On June 10, 1998, the Vineyard South proposal came before the Planning Commission. Lawyers and spokesmen for Teichert and Granite presented their project. The public was given no opportunity to comment but was told that the next Planning Commission meeting would be devoted entirely to hearing community concerns.

On August 12, 1998, the Vineyard South proposal again came before the Planning Commission. At this meeting representatives of Granite and their attorney were given the first half of the meeting to present their project. At no time were they limited by the three minute rule.

When people in the community got up to speak they were routinely limited to three minutes and herded through like a band of sheep at shearing time. This treatment of citizens by county government was doubly egregious given County failure to hold promised public hearings to initiate much needed mining changes.

This meeting ended with Granite telling the community what they would get and the planning commission acceding to it. We have the right to voice our opinion but if we do not have a lawyer speaking for us our time is cut short and our contribution is discounted. Is this democracy to have our concerns ignored while our very community is being sold to the highest bidder?

Following are some questions we kindly beg answers to:

1. Why were our written concerns about an inadequate truck traffic model not discussed? Please explain how 2 cars equal 1 truck given speed, weight, size, maneuverability, noise and emission differences? GW3-2

George & Judith Waegell

2. Why have our repeated requests for INDEPENDENT water quality tests of the aquifer under the gold aggregate pits been ignored? Is agricultural, industrial and urban runoff 65 feet closer to the aquifer not a matter of concern? With the aquifer falling an average of a foot and a half every year why has the effect of gold/aggregate water use on residential and agricultural wells not been addressed? How much do they use? This information is available and we desire to have it. GW3-3

3. Does the County ever consider the environmental damage concrete does to farmland? One square mile of aggregate pit will cover 40 square miles of Pocket and Natomas soil with a foot of rock. To compensate for this loss the pit floor will be returned to agriculture. Why has the county not required a four foot minimum of rock- free top soil if they are serious about reclaiming this land? GW3-4

4. Why did Planning not discuss our written request for 3 to 1 and 5 to 1 contoured pit slopes as an option to the hideous chainlink and oleander bomb craters that line our roads? Why has this environmentally superior option of gentle oak lined valleys with cattle fences not been considered? Why have government agencies persisted on inflicting oleander berms and chainlink on their citizens when they have the responsibility to drag the gold/aggregate industry into the reality of twentieth century environmentalism? Why are contoured slopes not dug first so native trees can be planted early in the mining process? What are the reclamation standards in other strip mining states? May we have some examples. GW3-5

5. Chainlink fence is very destructive of community and open space values and yet the County allows miles of it around these unsightly gold/aggregate pits, adding insult to injury. Please give reasons why so much is needed. Why is it not removed or replaced with lighter cattle fencing as sections are completed? GW3-6

Why aren't lower fences with larger mesh and no concertina wire ever considered? What security concerns does the gold/aggregate industry have that other businesses do not?

6. Why isn't government protecting the last of Morrison Creek from becoming a concrete channel? Haven't they seen the gunited chainlink ditches that have so ravaged this precious heritage? Please explain how the County permitted destruction of Morrison Creek north of Jackson Road will be an improvement to the Hedge Avenue area? What recourse do citizens have to violations of noise, setback, dust or drainage regulations when government agencies seem so toothless in their oversight of this industry? Why is it so difficult to get help and information from the very agencies charged with their regulation? GW3-7

In a democracy informed citizens are good citizens!

The gold/aggregate industry comes into our community and destroys our quality of life, devalues our property and leaves us with unreclaimed pits. And all of this is done with the permission or acquiescence of government agencies. This is wrong! Government agencies should be responsible for the long term health and well being of our environment and not act as procurers for the gold aggregate industry. It is long past time to think valleys not bomb craters and oaks not oleanders!

Sincerely,

George Waegell Judith Waegell

George & Judith Waegell

cc: Jeff Gamel
Dennis Yeast
Peter Rooney
Susan Brandt-Hawley

cc: Kit Gonzalez
Catherine Hack
Anthony Palik
Keri Butler

GW3, Letter from George & Judith Waegell dated 9/3/98

GW3-1: The County of Sacramento Board of Supervisors adopted Resolution 90-0279, which initiates proceedings to amend the Sacramento County Code and the Sacramento County Zoning Code to include development standards and guidelines for mining contiguous to residential lots and lots with residences.

GW3-2: Please refer to response to comment MCMP.OC-3, which addresses the same issue raised by the commentor.

GW3-3: Comment noted. With regard to general impacts to ground and surface water quality, the EIR/EIS does assess these potential effects in Sections 5.1 and 5.2. Mitigation measures and other regulatory requirements that would be implemented if the project is approved include: restrictions on the use of on-site hazardous materials during mining, reclamation, and post-reclamation (including the preparation of an agricultural management for post-reclamation uses); and erosion control plans. Water usage at the site with implementation of the proposed project would be minimal.

GW3-4: Section 5.9.2 in the Draft EIR/EIS identifies the disturbance of "...31 acres of Prime Farmland, 435 acres of Farmland of Statewide Importance, and 419 acres of Farmland of Local Importance..." as a significant impact of the proposed project. Existing requirements of the State Mining and Geology Board as well as mitigation proposed in the EIR/EIS will require the applicants to salvage, maintain and replace the topsoil resources on the project site following its reclamation. Agriculture is one of the primary post-reclamation uses proposed for the site. Refer to Section 5.9 for additional detail (and 5.9.3 for information on the requirements and mitigation for topsoil preservation).

GW3-5: Comments and recommendations for the treatment of exterior berms and required landscaping are noted. The commentor is referred to Section 5.12.3 for additional information.

GW3-6: The purpose of the fencing requirements at the project site is to foster public safety. These requirements are established in the Sacramento County Zoning Code Sections 235-54 and 235-55. Please refer to Section 5.11 of the EIR/EIS for additional information.

GW3-7: The commentor's opinion and request for consideration by the County decision-makers of such comments is noted.

To: Dennis E. Yeast
County of Sacramento
Dept. of Environmental Review and Assessment
827 Seventh Street, Room 220
Sacramento, CA. 95814

April 28, 1997

From: The Niles Family
9298 Elder Creek Rd
Sacramento, CA. 95829

Dear Mr. Yeast,

I'm writting you because of my great concern regarding the Morrison Creek Mining Reach Downstream (South) of Jackson Highway(Control Numbers: 94-UPB-0484 [Aspen III South], 91-CZB-UPB-0118 [Vineyard I], 90-CZB-UPB-1607[Aspen IV South] and 94-CZB-UPB-0671[Aspen V South]). My family own a home and live on Elder Creek between Hedge and Mayhew.

I am not an expert on all of the details of the proposed project, however, after reading through the draft EIR I believe my family as well as all of the other families in the area will be adversely affected from economic, health and moral standpoints. I believe we will be affected by the following:

1. NOISE - We will be severely affected by the noise from:
   a) The mining operation
   b) The proposed gravel crusher
   c) Concrete plant
   d) The increased truck traffic in front of our home

T&RN-1

In the proposal, sound barriers are mentioned and granted I have seen some asthetic and effective barriers, but I have also seen where in the interest of expedience the sound barriers were sheets of plywood fastened to cyclone fence.(See Bradshaw just North of Jackson Hwy.) I am also concerned because sometimes the noise berm is also used as an access road which increases dust.

2. DUST - All aspects of this operation will create more dust.(Again see Bradshaw North of Jackson Hwy. to see the dirt brought out onto the road) T&RN-2

3. INCREASED TRAFFIC - Depending on the number of hours of operation there could be approximately one truck going up our road every minute. This will cause several problems:
   a) Our road is already conjested and this will increase the potential for accidents. Please note the traffic figures in the EIR are grossly outdated.
   b) This increased traffic could facilitate the requirement for a wider road ie. taking part of my front yard and increasing my taxes.
   c) The proposal lists the routes the truck will take(maybe), I believe the trucks will take the most expeditious route.

T&RN-3

4. SMELL - An asphalt plant emits a noxious odor! T&RN-4

5. VIBRATION - The mining process and the gravel crusher litterally shake the surrounding neighborhood. T&RN-5

6. ENFORCEMENT - If you look at other similar projects you will see that the prescribed proceedures are not always followed. The county is short handed; therefore, these requirements go unenforced. Those items which will likely be abused are as follows:
   a) Trucks not using prescribed routes
   b) Sound berms less than prescribed
   c) Hours of operation extended
   d) Noise and Dust level outside of established parameters

T&RN-6

7. I am also concerned how this operation may affect the quality, purity, and flow of the local domestic water wells. T&RN-7

8. FIGURE 6-1 Cumulative projects include private property not owned by Granite or Teichert Companies. T&RN-8

9. My family and all of my neighbors are totally against ANY processing plant on proposed Morrison Creek Mining Reach Downstream(South) of Jackson Highway Project. T&RN-9

Thank you for your attention to this matter.

Cordially yours,

Ted Niles and Robin Niles
916-386-2665

T&RN, Letter from Ted and Robin Niles dated 4/28/97

T&RN-1: The commentors concerns regarding noise, dust and traffic are noted. With regard to on-site noise sources, since release and review of the Draft EIR/EIS the applicants have successfully negotiated the easements necessary to allow conveyor access from the Vineyard I site to an existing processing plant north of Jackson Highway. As a result, the applicants have removed the on-site processing plant as the preferred option and the associated environmental impacts would not occur if the project is approved. In addition, several other conditions have been added to the project as a result of ongoing consultation with the surrounding community and the applicants. Included in such conditions, is the restriction of traffic from Elder Creek and requirement that all project-generated truck traffic exit and enter the site via Mayhew north to Jackson Highway. These modifications in the project design and related conditions, as well as the existing mitigation measures proposed in the EIR/EIS for air quality, noise and traffic, are intended to reduce the impacts noted by the commentor to a less-than-significant level.

T&RN-2: Mitigation measures specifically aimed at reducing dust and other particulate matter during operation would be required if the proposed project were approved. For detailed information on these measures, refer to Section 5.4.3 of the EIR/EIS.

T&RN-3: Please refer to response to comment AP-1 which addresses this same issue.

T&RN-4: Please refer to response to comment T&RN-1 which explains that the proposed Vineyard I processing plant option has been removed from further consideration by the project proponents.

T&RN-5: See response to comment T&RN-4 above.

T&RN-6: Comment noted. The proposed project, if implemented, will be actively monitored and regulated by the Public Works Department and the Department Environmental Review and Assessment in order to assure that all agency requirements and mitigation measures are adhered to during project development.

T&RN-7: Please refer to response to comment DB-2b which addresses this same issue.

T&RN-8: Comment noted. The list of cumulative projects is not restricted by property ownership. Please refer to Section 6.1 of the EIR/EIS for an explanation of cumulative impacts.

T&RN-9: The commentor's objection to an on-site processing plant is noted. Please refer to response to comment T&RN-1.

To: Dennis E. Yeast
County of Sacramento
Dept. of Environmental Review and Assessment
827 Seventh Street, Room 220
Sacramento, CA. 95814

April 28, 1997

From: The Scott Family
9427 Elder Creek Rd
Sacramento, CA. 95829

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   a) The mining operation
   b) The proposed gravel crusher
   c) Concrete plant
   d) The increased truck traffic in front of our home

In the proposal, sound barriers are mentioned and granted I have seen some asthetic and effective barriers, but I have also seen where in the interest of expedience the sound barriers were sheets of plywood fastened to cyclone fence.(See Bradshaw just North of Jackson Hwy.) I am also concerned because sometimes the noise berm is also used as an access road which increases dust. G&SS-1

2. DUST - All aspects of this operation will create more dust.(Again see Bradshaw North of Jackson Hwy. to see the dirt brought out onto the road). Those of us that have swimming pools would end up having mud pools. G&SS-2

3. INCREASED TRAFFIC - Depending on the number of hours of operation there could be approximately one truck going up our road every minute. This will cause several problems:
   a) Our road is already conjested and this will increase the potential for accidents. Please note the traffic figures in the EIR are grossly outdated. There was a lady just killed at Bradshaw road and Elder Creek a couple weeks ago.
   b) This increased traffic could facilitate the requirement for a wider road ie. taking part of my front yard and increasing my taxes.
   c) The proposal lists the routes the truck will take(maybe), I believe the trucks will take the most expeditious route.
   d) Traffic Studies Are Out Dated - No physical count on Elder Creek Road between Hedge and Bradshaw road in the past 2 years.

G&SS-3

4. SMELL - An asphalt plant emits a noxious odor! G&SS-4

5. VIBRATION - The mining process and the gravel crusher litterally shake the surrounding neighborhood. G&SS-5

6. ENFORCEMENT - If you look at other similar projects you will see that the prescribed proceedures are not always followed. The county is short handed; therefore, THESE REQUIREMENTS GO UNENFORCED. Those items which will likely be abused are as follows:
   a) Trucks not using prescribed routes
   b) Sound berms less than prescribed
   c) Hours of operation extended
   d) Noise and Dust level outside of established parameters

G&SS-6

7. I am also concerned how this operation may affect the quality, purity, and flow of the local domestic water wells. G&SS-7

8. FIGURE 6-1 Cumulative projects include private property not owned by Granite or Teichert Companies. G&SS-8

9. My family and all of my neighbors are totally against ANY processing plant on proposed Morrison Creek Mining Reach Downstream(South) of Jackson Highway Project. G&SS-9

Dennis E. Yeast, Thank you for your attention to this matter.

Sincerely,

Gary B. Scott

Gary B. Scott
916-383-8326

Susana Scott

Susana Scott

G&SS, Letter from Gary and Susana Scott dated 4/28/97

G&SS-1 through G&SS-9: The comments raised in this letter are addressed in responses to comments T&RN-1 through T&RN-9.

October 26, 1997

COUNTY OF SACRAMENTO
BOARD OF SUPERVISORS
PLANNING COMMISSION
701 H Street Room 2450
Sacramento, CA 95814-1298

RE: Control Nos. 94-UPB-0484; 90-CZB-UPB-1607; 94-CZB-UPB-0671 (JG)

Dear Supervisors & Planners,

For sometime now my family and myself have been laboring under the pressures of a rather uncertain future regarding your future plans to allow large scale (gold mining) aggregate operation to spread out in the area of Mayhew Road and Elder Creek Road.

My property is located at 6350 Mayhew Road, directly in the path of Granite's march down Mayhew Road to Elder Creek Road. Recently, Granite leapfrogged over our property, purchased the adjacent parcel directly to the South and leveled the house. There only remains one more property between Granite's acquisition and Elder Creek Road.

Directly across the street (Mayhew Road) Teichert, until recently, had owned everything except the 31 acre corner parcel which fronts Mayhew and Elder Creek Road. I understand that the hearing that is scheduled to take place on October 30, 1997 had the blessings of the planners and Teichert and Granite will now own all the adjacent parcels except mine and one other on this side of the road.

If you were to look at the acquisitions of Granite and Teichert as a real estate chess board or a monopoly game, it appears that Loretta Johnson and her family have been check mated. LJ-1

Are we to now wait until someone decides that it is time to make an offer of some paltry sum to get the Johnson family "out of the way of progress?"

We are very concerned that two large entrepreneurial enterprises who have never voted in this district are now is the process, with the help of our local supervisors and planners, of quietly boxing in and quieting any possible opposition.

The rural nature of this area which contains by state definition "prime agricultural land" is about to be turned into a gold mining

operation to the benefit of who knows what other entities (limited partnerships, perhaps). Due to the scant population, it appears that our supervisor isn't really concerned that there is a family in his district who would either like to stay here or move on and can do neither.

My family and I have an investment here in more than just money. Several years ago, there was a court action to clean up the boundary between my neighbors and myself. I'm speaking of the parcel next door to us that Granite just recently acquired and leveled.

The court decreed that the adjustment would increase the size of our parcel and reduce the size of their parcel. The neighbors became angry. They began to harass us. One of them even came onto the property wearing a gun and tried to get my son to confront them. We didn't fight them back. They eventually broke into my home while I was gone, removed everything, including my jewelry, china and other valuables. The sheriff eventually caught up with at least one of them and he went to jail for several years.

While it may not seem like much to some of you, to us it was a fight. We have a lot of memories here. Our roots are here and we are confused as to just what it is you are doing to us.

All of you took an oath of office to uphold our constitution which guarantees all of us the right to "life, liberty, and the pursuit of happiness. From where we sit right now it looks like any equity we may have had in those rights have been erased by big government and big corporate friends of government. LJ-1

We're not trying to be unreasonable but don't you think someone should take the responsibility to explain what it is we are supposed to do. We can't sell our property to some one who is seeking a small parcel of prime agricultural land to enjoy the peace and quiet of a rock crushing plant and hundreds of trucks rumbling past from next door every day.

We challenge the adequacy, legality and validity of every action taken, hearing, proceeding, document, report and recommendation pertaining to this project, as well as Granite's project (we understand Teichert and Granite are partners in this project), as well as the endorsements of every so called "Community Planning Advisory Council's Recommendation" as being not in the public interest and destructive to the environment, water resources, and related eco-systems.

We believe in the old axiom "gold brings out the worst in people" and there may be more here in the way of partnerships than meets the eye.

If this project were to get underway in any neighboring county such as Nevada, Placer, El Dorado, or Sierra, I believe there would have to be a disclosure that this was a gold mining operation not

operation to the benefit of who knows what other entities (limited partnerships, perhaps). Due to the scant population, it appears that our supervisor isn't really concerned that there is a family in his district who would either like to stay here or move on and can do neither.

My family and I have an investment here in more than just money. Several years ago, there was a court action to clean up the boundary between my neighbors and myself. I'm speaking of the parcel next door to us that Granite just recently acquired and leveled.

The court decreed that the adjustment would increase the size of our parcel and reduce the size of their parcel. The neighbors became angry. They began to harass us. One of them even came onto the property wearing a gun and tried to get my son to confront them. We didn't fight them back. They eventually broke into my home while I was gone, removed everything, including my jewelry, china and other valuables. The sheriff eventually caught up with at least one of them and he went to jail for several years.

While it may not seem like much to some of you, to us it was a fight. We have a lot of memories here. Our roots are here and we are confused as to just what it is you are doing to us.

All of you took an oath of office to uphold our constitution which guarantees all of us the right to "life, liberty, and the pursuit of happiness. From where we sit right now it looks like any equity we may have had in those rights have been erased by big government and big corporate friends of government. LJ-1

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We challenge the adequacy, legality and validity of every action taken, hearing, proceeding, document, report and recommendation pertaining to this project, as well as Granite's project (we understand Teichert and Granite are partners in this project), as well as the endorsements of every so called "Community Planning Advisory Council's Recommendation" as being not in the public interest and destructive to the environment, water resources, and related eco-systems.

We believe in the old axiom "gold brings out the worst in people" and there may be more here in the way of partnerships than meets the eye.

If this project were to get underway in any neighboring county such as Nevada, Placer, El Dorado, or Sierra, I believe there would have to be a disclosure that this was a gold mining operation not

an aggregate operation. Correct me if I am wrong but it appears the rules are considerably different in Sacramento County for gold mining than any other county.

We would like for this letter to be entered as a matter of public record in the regular proceedings of the policy planning commission at the evidencuiary hearing scheduled for Thursday, October 30, 1997 at 6:00 pm and the regular meeting of the County Board of Supervisors and all subsequent hearings should either or both of the above hearings related to this matter be continued, postponed or both. LJ-1

Sincerely,

Loretta Johnson
P.O. Box 293133
Sacramento, CA 95829
(916) 731-2252

LJ, Letter from Loretta Johnson dated 10/26/97

LJ-1: The commentor's opinions and requests are noted and will be provided to the County decision-makers for their consideration during review of the Final EIR/EIS and project.

Policy Planning Commission Hearings

PUBLIC COMMENT:

SACRAMENTO COUNTY PLANNING COMMISSION HEARINGS ON THE MORRISON CREEK MINING REACH DOWNSTREAM (SOUTH) OF JACKSON HIGHWAY PROJECTS

PREFACE

Public testimony on the Morrison Creek Mining Reach Downstream of Jackson Highway Community Plan Amendment, Rezone, Use Permit, Amendment to Existing Use Permit and Section 404 (Wetlands) Permit DEIR/EIS was heard before the Sacramento County Policy Planning Commission on three dates: October 30, 1997, June 10, 1998, and August 12, 1998. The following lists all members of the general public that offered testimony on the project. The EIR/EIS preparers have summarized comments submitted by those members of the general public. This summary focuses on only those issues of substance to the adequacy of the EIR/EIS, although some statements of opinion concerning the projects are presented. The summaries of comments from each public member are followed by responses to those comments. In most cases, the comments made by the speakers are substantially the same as written comments submitted on the DEIR/EIS. Where this occurs, the reader is referred to responses prepared for those written comments.

October 30, 1997 Planning Commission Hearing

Stuart Helfand, Vineyard Area Community Planning Advisory Council Chair

Comments on the DEIR/EIS:

The following is a summary of the speaker's comments:

- The processing plant should remain at its existing location. To ensure that this occurs, the two mining companies should be required to work together to resolve conveyor easement issues. **SH-1**
- Truck traffic from overburden removal on the Vineyard site should be routed north, rather than south, on Mayhew Road. **SH-2**

Responses:

SH-1: As discussed in the Final EIR/EIS, the project proponents were able to successfully negotiate easements necessary to allow conveyor access to an existing processing plant thereby removing the need to construct an on-site processing plant on Vineyard I. As a result, the proponents have indicated that the "Proposed Project Without Vineyard I Processing Plant Alternative" already evaluated in the Draft EIR/EIS (see Section 4.2) is now the preferred project.

SH-2: Please refer to revised mitigation measures in Section 5.8.3 of the Final EIR/EIS.

Divi Smith

Comments on the DEIR/EIS:

The following is a summary of the speaker's comments:

- Truck traffic from overburden removal on the Vineyard site should be routed north, rather than south, on Mayhew Road. **DS-1**
- Dust control measures are not effective during the windy period after mining has occurred but before hydroseeding. **DS-2**
- The use of plywood barriers for noise and dust control is not effective and is aesthetically displeasing. **DS-3**
- The project will result in the destruction of Morrison Creek in the project vicinity. **DS-4**
- Additional mitigation is needed to address impacts on neighboring properties. **DS-5**
- The speaker is concerned that access will not continue to be provided to the Smith property across the Aspen III South project site. **DS-6**
- Water at the bottom of the mining pit could create erosion problems, potentially undermining the Smith property and the access road. **DS-7**

Responses:

DS-1: Please refer to revised mitigation measures in Section 5.8.3 of the Final EIR/EIS.

DS-2: Please refer to revised mitigation measures in Section 5.4.3 of the Final EIR/EIS.

DS-3: As indicated in the EIR/EIS (Section 5.10.3) 3/4-inch plywood noise barriers, as currently practiced, are subject to weather damage, and lack of maintenance severely limits their effectiveness and aesthetic appeal. Therefore, the EIR/EIS recommended that alternatives which provide durability and improved aesthetics for nearby residents and passerby should be explored prior to implementation.

DS-4: The EIR/EIS identified significant impacts to hydrology and water quality (Section 5.1.2) and biological resources (Section 5.7.2) associated with the proposed alteration of Morrison Creek. Mitigation measures were incorporated within the EIR/EIS in order to reduce potential impacts to a less-than-significant level.

DS-5: Comment noted. The Planning Commission voted unanimously to recommend approval of the proposed project with Conditions of Approval set form in the Planning Staff Report. Please refer to Appendix E.

DS-6: As a result of the Smith property buy-out, as described in the Executive Summary, access to the Smith property via the Aspen III site is no longer an issue.

DS-7: Ponded water at the bottom of the mining pit would not move with sufficient velocity to result in erosion of mining pit walls. As a result, the Smith Property and associated access road would not be compromised during mining operations.

Hazel Smith

Comments on the DEIR/EIS:

- There is a safety problem associated with large gravel trucks. The speaker referenced 3 people killed by gravel trucks within 1 mile of the Smith property in the past several years. **HS-1**
- The speaker suggested that a weir could be used to feed the Smith's section of Morrison Creek from the bypass channel. **HS-2**

Responses:

HS-1: Section 5.8.2 of the EIR/EIS identifies significant traffic safety impacts associated with the proposed project. Mitigation measures are recommended (see Section 5.8.3) to reduce traffic safety impacts to a level of less than significant.

HS-2: The commentor's recommendation is noted.

Ray Smith

Comments on the DEIR/EIS:

- The speaker disagrees with the evaluation that the creek is "degraded". **RS-1**
- The speaker is concerned regarding possible loss of water rights.

Responses:

RS-1: The commentor's disagreement with the evaluation that the creek is "degraded" is noted. Also, water rights are a jurisdictional matter rather than an environmental issue, so the EIR/EIS does not include resolution of water rights concerns.

Kevin Smith

Comments on the DEIR/EIS:

The speaker expressed opposition to the project. **KS-1**

Responses:

KS-1: The commentor's opposition to the proposed project is noted.

Kevin Faeth

Comments on the DEIR/EIS:

The speaker expressed opposition to the project. **KF-1**

Responses:

KF-1: The commentor's opposition to the proposed project is noted.

Carol Ring

Comments on the DEIR/EIS:

The speaker expressed opposition to the project, in particular to the proposed on-site processing facility. **CR-1**

Responses:

CR-1: The commentor's opposition to the proposed project is noted. Please refer to response to comment SH-1.

Scott French

Comments on the DEIR/EIS:

The speaker expressed concern that dust from the proposed project would affect his nearby business, which includes engine assembly, etc. **SF-1**

Responses:

SF-1: Please refer to the mitigation measures in Section 5.4.3 of the EIR/EIS.

Darrel Finch

Comments on the DEIR/EIS:

The speaker has water rights on the old channel of Morrison Creek, near the northwest corner of the site, and expressed concern that the project could cut off water to that portion of the creek. **DF-1**

Responses:

DF-1: In order to re-direct flows from the old channel of Morrison Creek, a pipe outlet sized to accommodate historical flows will divert existing water flows to the main channel of Morrison Creek. As a result, water supplies would continue to be provided to that portion of the creek. Final design and implementation would be subject to approval by WRD.

<u>Kristina Russell</u>, on behalf of the American Buddhist members of the Chua Dieu Quang Vietnamese Buddhist Community Temple

Comments on the DEIR/EIS:

The following is a summary of the speaker's comments:

- The Buddhist temple is a valuable part of the community, especially to the Vietnamese population.
- The project would affect the temple's abilities to hold services, which occur any day of the week and at all times throughout the day. **KR-1**
- The speaker expressed concern regarding economic injustice (Executive Order 15828).

Responses:

KR-1: The EIR/EIS indicates that, as a result of the proposed project, significant and unavoidable land use conflicts will occur with onsite and surrounding land uses. The EIR/EIS recommends that the proponents be required to fully comply with mitigation measures identified in the Noise, Traffic and Circulation, Air Quality, and Visual Resources sections of this EIR/EIS. These mitigation measures employ state of the art techniques for erosion control, reclamation, nuisance prevention and environmental impact mitigation relative to surface mining operations. However, even with mitigation, impacts remain significant and unavoidable.

<u>Sister Tinh Quang</u>, representing the Chua Dieu Quang Vietnamese Buddhist Community Temple

Comments on the DEIR/EIS:

The speaker provided pictures of various temple functions, most of which are held outdoors, and expressed concern that the proposed project would adversely affect the temple. **STQ-1**

Responses:

STQ-1: Comment noted. Please refer to Response to Comment KR-1.

<u>George Waegell</u>

Comments on the DEIR/EIS:

The speaker read the contents of his April 28, 1997 letter (Comment GW-1), and provided the following additional comment:

- The traffic analysis assumed no difference between a 4,000 pound car and a 40 ton truck. **GW-1**

Responses:

GW1-1: The commentor is correct to state that the project traffic analysis assumed no difference between a 4,000-pound car and a 40-ton truck in the determination of level of service. Automobile weight is not a factor in the analysis used to determine the Level of Service (See Section 5.8.1 for a full description) for roadways. Instead, roadway traffic volumes were and are counted for the morning and evening peak commute hours with two passenger cars equaling one truck. However, heavy truck traffic would be increased as a result of the proposed project and may contribute to additional deterioration of the pavement on roadways. Mitigation was included in the EIR/EIS that requires the proponents to repair damages to structural paving material along sections of project site roadway segments upon which loaded trucks are routed, to the extent such damage is caused by traffic which occurs during the period of hauling operations (Please refer to Section 5.8.3, Mitigation Measure No.8).

Ted Niles

Comments on the DEIR/EIS:

The speaker stated that there is an existing traffic safety problem in the area, with an accident occurring at least once a week, and that an additional truck per minute would exacerbate the existing problem. **TN-1**

Responses:

TN-1: Please refer to response to comment HS-1..

Gary Scott

Comments on the DEIR/EIS:

The following is a summary of the speaker's comments:

- The speaker expressed concern that dust from the mining operation would adversely affect use of his swimming pool. **GS-1**
- Traffic in the area is already excessive. **GS-2**
- The speaker asks whether the mining companies have tested the quality of aggregate material at the site. **GS-3**
- The speaker opposes the proposed processing plant, and recommends that the project be put on "hold" until conveyor access issues can be worked out. **GS-4**

Responses:

GS-1: As discussed in Section 5.4.3, mitigation measures would require that all unpaved haul roads be regularly sprayed with water or treated with non-toxic chemical dust suppressants either mixed into the road surface or added to the water being applied to the road surface. The frequency of application can vary according to the weather and moisture level of the soils on the site, but shall be frequent enough to avoid visible dust plumes.

GS-2: Comment noted.

GS-3: In 1988, the California Department of Conservation, Division of Mines and Geology published the report entitled *Mineral Land Classification: Portland Cement Concrete Grade Aggregate in the Sacramento-Fairfield Production-Consumption Region (Special Report 156).* This report identifies known high-grade aggregate resources. The project site was identified to be located within Sector F-6 which is an area that contains the second highest amount of high grade (Portland Cement Concrete-Grade) aggregate resources in the Sacramento-Fairfield Region (1988).

GS-4: The commentor's opposition to the proposed processing plant is noted. Please refer to response to comment SH-1.

David Hueseman

Comments on the DEIR/EIS:

The following is a summary of the speaker's comments:

- The speaker indicated agreement with the recommendations expressed by the Vineyard Area Community Planning Advisory Council chair (above) | **DH-1**
- Vibration from the processing facility should be considered. | **DH-2**
- Truck traffic should exit the site via Jackson Road. | **DH-3**

Responses:

DH-1: Comment noted.

DH-2: Comment noted. Please refer to response to comment SH-1.

DH-3: Please refer to the revised mitigation measures in Section 5.8.3 of the Final EIR/EIS.

Carolyn Stark

Comments on the DEIR/EIS:

The following is a summary of the speaker's comments:

- The speaker expressed concern regarding the health effects of dust from the mining operation. **CS-1**

Responses:

CS-1: In order to eliminate potential adverse health effects due to fugitive dust emissions from material handling, loading and conveying, mitigation measures have been incorporated into the EIR/EIS which would reduce adverse health impacts to a less-than-significant level. Please refer to Section 5.4.3 of the EIR/EIS for a full description.

Roger Moyher

Comments on the DEIR/EIS:

The following is a summary of the speaker's comments:

- The speaker expressed concern regarding the health effects of dust from the mining operation. **RM-1**
- The mining operation would constitute an attractive nuisance for children living in the vicinity. **RM-2**
- The speaker recommended a number of measures to reduce impacts to his residence (located between the mined and not-mined portions of Aspen V South, adjacent to Bradshaw Road). These include: **RM-3**
  1. The access point on Aspen V South should be located at the southernmost corner of the pit and/or access should be allowed only off of Jackson Highway.
  2. No mining should occur between 5 p.m. and 8 a.m.
  3. Assurances should be provided that fences and sound barriers will be properly maintained.
  4. Watering of exposed surfaces should be done on all windy days.
  5. Landscaping should be installed along the entire perimeter of his property.

Responses:

RM-1: The commentor's concerns are noted. Please refer to response to comment CS-1.

RM-2: The proponents will be required to install fences and provide warning/trespass signs, which will deter/prevent locals from trespassing onto project property, to comply with Sections 235-54 and 235-55 of the Zoning Code.

RM-3: Please refer to mitigation measures provided in Sections 5.4.3, 5.8.3, 5.9.3, and 5.10.3. With implementation of the proposed project all potential air quality, land use, and noise impacts would be reduced to a less-than-significant level.

June 10, 1998 Planning Commission Hearing

Roger Moyher

Comments on the DEIR/EIS:

The speaker indicated that his previous concerns regarding the Teichert project (see above) have been resolved. **RM1-1**

Responses:

RM1-1: Comment noted.

Gary Scott

Comments on the DEIR/EIS:

The following is a summary of the speaker's comments:

- The speaker requested clarification between the "Aggregate" designation on the project site and the AR zoning on his property on Elder Creek Road. **GS1-1**
- The speaker questioned Teichert's ability to go north on Mayhew Road across Morrison Creek. **GS1-2**

Responses:

GS1-1: As defined in the County of Sacramento General Plan (1993), AR represents an Agricultural-Residential land use designation. This designation provides for rural residential uses, such as animal husbandry, small-scale agriculture, and other limited agriculture activities. "Aggregate Resource Area" is a combining Land Use designation, which identifies areas with valuable mineral resources and protects those resources as open space until the area is mined. Specific policies apply to these areas that encourage the conservation and efficient use of mineral resources, while ensuring the maximum feasible protection of the environment. This land use designation is combined with designations such as Industrial Extensive, Agricultural-Urban Reserve, Agricultural Cropland, and General Agriculture (20 and 80 acres). These areas may be ultimately reclaimed for residential, industrial, or other uses.

GS1-2 Please refer to the mitigation measures in Section 5.8.3 in the EIR/EIS.

August 12, 1998 Planning Commission Hearing

Alta Tura, president, Urban Creeks Council

Comments on the DEIR/EIS:

The following is a summary of the speaker's comments:

- Written comments already submitted. **AT-1**
- The 150-foot stream corridor should be considered a viable option, with a plan for that alternative designed to succeed, not set up to fail. The alternatives analysis should include ideas to help it succeed. **AT-2**
- General Plan Policy CO-49, regarding the recycling of aggregate, was passed over in the EIR as not feasible. It should be looked at more seriously. **AT-3**

Responses:

AT-1: Comment noted.

AT-2: As a result of response to comments on the Draft EIR/EIS and based on public input received during the review period and during the Policy Planning Commission's hearings on the project, the Final EIR/EIS has incorporated a modified flood-plain protection alternative referred to as the "Creek Buffer Alternative", which requires a 150-foot buffer area on either size of Morrison Creek. Please refer to Chapter 5 for the complete evaluation of the alternative.

AT-3: Although the Recycling Alternative was rejected for its inability to materially satisfy current and future project demand for aggregates in the Draft EIR/EIS, the County is proactively pursuing several recycling programs which would meet the Conservation Element objective in the the *Sacramento County General Plan*. These programs include using recycled aggregate materials as aggregate base, aggregate subbase, and shoulders, in gravel roads as surfacing, as base for building foundations, and as fill for utility trenches.

Dorothy Hrepich

Comments on the DEIR/EIS:

The speaker expressed opposition to the project. **DH1-1**

Response:

DH1-1: The commentor's opposition to the project is noted.

Ray Smith

Comments on the DEIR/EIS:

The following is a summary of the speaker's comments:

- The speaker doesn't find Granite's proposal to pump water up from the pit floor to the creek channel on the Smith property acceptable due to the fact that it would create an artificial system and destroy valley oaks and other habitat. **RS1-1**
- Granite's proposal also has many technical problems, including the potential for mosquito problems if the pump breaks down. **RS1-2**

Responses:

RS1-1: As a result of the Smith property buy-out, as described in the Executive Summary, Granite's proposal to pump water up from the pit floor to the creek channel would no longer apply to the proposed project. Water supply to the property is no longer an issue.

RS1-2: Please refer to response to comment RS1-1.

Divi Smith

Comments on the DEIR/EIS:

The following is a summary of the speaker's comments:

- A letter summarizing the speakers concerns was submitted. **DS1-1**
- County standards for dust control are grossly inadequate. With a 50-foot setback and pluming dust, neighbors will be eating dust unless there is regular use of a watering truck. **DS1-2**
- Granite's proposal to mitigate the loss of the creek with 2 feet of water is unacceptable and would result in the loss of numerous fish and crawdads. **DS1-3**
- If the County chooses to let project go forward, the water level needs to be higher, year round, with a windmill or other natural source of energy for the pump.
- The issue of the access road to the Smith property was not addressed. **DS1-4**

Responses:

DS1-1: Comment noted. Please refer to Response to Comments DKS-1, DKS-2, and DKS-3.

DS1-2: Please refer to response to comment GS-1.

DS1-3: Please refer to response to comment RS1-1.

DS1-4: As explained in the Executive Summary, the Smith property has been purchased by the proponents and no longer presents access issues.

Ted Niles

Comments on the DEIR/EIS:

The following is a summary of the speaker's comments:

- The speaker expressed opposition to the project, based on concerns relating to traffic, dust, noise, setbacks and water quality. **TN1-1**
- A letter (from Brandt-Hawley & Zola) summarizing the speaker's concerns was submitted. **TN1-2**

Responses:

TN1-1: The commentor's opposition to the proposed project is noted.

TN1-2: Comment noted. Please refer to Response to Comments SBH-1 and SBH-2.

Susana Scott

Comments on the DEIR/EIS:

The speaker expressed opposition to the project, based on concerns relating to truck traffic, dust and noise.

Responses:

SS-1: The commentor's opposition to the proposed project is noted. **SS-1**

Gary Scott

Comments on the DEIR/EIS:

The following is a summary of the speaker's comments:

- The speaker indicated that he and other neighbors were primarily opposed to the processing facility. **GS2-1**
- The speaker expressed concern regarding the length of time the mining will occur adjacent to residential properties. **GS2-2**
- The County is supposed to be considering new standards relative to surface mining, but the meeting that was to be scheduled for this summer never happened. **GS2-3**
- The rezone to M-2 should be dropped from the project. **GS2-4**
- There is a drainage problem that Granite had agreed to fix, but the speaker's property was almost flooded before the work was done. **GS2-5**
- There should be an off-hours contact person for violations. **GS2-6**

Responses:

GS2-1: Please refer to Response to comment SH-1.

GS2-2: Please refer to Response to Comment DS-5.

GS2-3: Please refer to Response to Comment GW3-1

GS2-4: Comment noted.

GS2-5: Comment noted. This drainage problem does not relate to the current project.

GS2-6: Comment noted.

George Waegell

Comments on the DEIR/EIS:

The following is a summary of the speaker's comments:

- The speaker expressed opposition to the project. **GW1-1**
- The state's mining regulations are 20+ years old and should be updated. **GW1-2**

Responses:

GW1-1: The commentor's opposition to the proposed project is noted.

GW1-2: Please refer to response to comment GW3-1.

Carol Ring

Comments on the DEIR/EIS:

The following is a summary of the speaker's comments:

- The speaker expressed concern relating to drainage, noise, setbacks and loss of the Morrison Creek resource. **CR1-1**
- The speaker currently has a use permit to operate a business on nearby agricultural-residential property and would like to have the land rezoned to industrial (M-1) to allow the business to continue to run at minimal cost. **CR1-2**

Responses:

CR1-1: The commentor's concerns are noted.

CR1-2: The commentor's request is noted. However, issues of rezoning other properties are not part of the scope of this project and should be directed to the County.

<u>Anthony Palik</u>, attorney-at-law, representing the Chua Dieu Quang Vietnamese Buddhist Community Temple

Comments on the DEIR/EIS:

The following is a summary of the speaker's comments:

- The County of Sacramento has the responsibility to restrict the residential uses in the vicinity of aggregate mining. **AP-1**
- A 50-foot setback required along the 10,000 foot length of the Granite property would result in a reduction in mineable area of only about 50 acres, less than 1% of the overall property. **AP-2**
- Screening plantings should occur within 1 year. These plantings should also occur along Hedge Avenue, which is where the entrance to the temple is located. **AP-3**
- The temple has international significance.
- Mining should be restricted on the temple's holy days, which are mostly on Sundays except Chinese New Year. **AP-4**
- The mining operation presents a danger of silicosis. Silica in the air should be measured on an on-going basis and mitigation should be required as necessary. Watering exposed surfaces may be appropriate mitigation. **AP-5**
- The temple is one of, if not the, lowest properties in the neighborhood and could be adversely affected by changes in drainage. **AP-6**
- No storage of hazardous substances should be allowed on the mining site in order to protect water quality. **AP-7**

Responses:

AP-1: Comment noted.

AP-2: Comment noted.

AP-3: Please refer to response to comment RM-3.

AP-4: Comment noted.

AP-5: As discussed in the DEIR, the inhalation of airborne particulates (including silica) may aggravate or contribute to the development of chronic lung disease. The lung disease "Silicosis", as mentioned by the commentor, is caused by the inhalation of airborne silica dust which in turn damages the air sacs of the lungs and results in the development of scar tissue. This scar tissue limits the ability of the lungs to stretch, thereby reducing lung capacity. Silicosis typically develops only after long term exposure (typically 10 or more years) to high levels of airborne silica dust. Exposure to airborne silica is typically controlled by limiting the generation of inhalable airborne particulate matter (NJSDH 1989).

In compliance with Sacramento Metropolitan Air Quality Management District (SMAQMD) rules and regulations, several mitigation measures have been included in the DEIR to reduce airborne particulate matter to a less than significant level. These control measures include the use of water or chemical dust suppressants for controlling fugitive dust emissions generated during excavation and material handling, as well as fugitive dust emissions generated from exposed surfaces and storage piles. The incorporation of these mitigation measures would reduce airborne fugitive dust emission by as much as 75 percent (SMAQMD 1994). Additional dust control measures, such as filtering and water spraying devices, for stationary equipment will also be incorporated, in accordance with SMAQMD permitting requirements. Stationary source dust control measures are effective in reducing airborne particulate emissions by approximately 80 to 99 percent (US EPA 1995).

In addition to the control measures discussed above, an air quality monitoring program has been recommended as a condition of approval by the Planning Commission. The air quality monitoring program would include monitoring of airborne particulate levels for the purpose of evaluating the effectiveness of the control measures implemented and to ensure that human exposure to airborne particulates, including silicates, remain at a less than significant level.

Sources:

New Jersey State Department of Health (NJSDH). Division of Occupational and Environmental Health. June 1989. *Silicosis and Your Health.* Information Bulletin.

Sacramento Metropolitan Air Quality Management District (SMAQMD). December 1994. *Air Quality Thresholds of Significance. First Edition.*

United States Environmental Protection Agency (USEPA). January 1995. *Compilation of Air Pollutant Emission Factors. Volume I: Stationary Point and Area Sources. Fifth Edition.*

AP-6: The *Morrison Creek Mining Reach Drainage Mitigation Plan* was submitted to the County. The intent of the drainage mitigation plan is to mitigate the drainage impacts of mining on the Morrison Creek 100-year floodplain, as required by the county floodplain management policies. As a result, the temple would not be adversely impacted by changes in local drainage.

AP-7: Mitigation measure 4 (Section 5.1.3) requires that an aggressive policy be implemented to restrict use of toxic contaminants within the project site to those absolutely necessary to conduct operations. Storage of toxic materials will only be allowed in restricted upland areas where the opportunity for containment over less permeable ground exists.

Hoang Nguyen

Comments on the DEIR/EIS:

The speaker stressed the importance of the Chua Dieu Quang Vietnamese Buddhist Community Temple to the Vietnamese community and expressed concern that the proposed project would adversely affect the temple. **HN-1**

Response:

HN-1: Comment noted.

Minh Thompkins

The speaker stressed the importance of the Chua Dieu Quang Vietnamese Buddhist Community Temple in many family's lives and expressed concern that the negative environmental impacts associated with the proposed project would significantly affect the temple. **MT-1**

Responses:

MT-1: Comment noted.

Cuong Truong

Comments on the DEIR/EIS:

The speaker stressed the importance of the Chua Dieu Quang Vietnamese Buddhist Community Temple in providing youth activities and expressed concern that the proposed project would adversely affect the health of young people engaged in outdoor activities at the temple. **CT-1**

Responses:

CT-1: Comment noted.

Cao Nguyen

Comments on the DEIR/EIS:

The speaker stated that large quantities of food are sun-dried at the Chua Dieu Quang Vietnamese Buddhist Community Temple in preparation for festival activities and expressed concern that dust from the proposed mining operation would affect the temple's ability to preserve food in this manner. **CN-1**

Responses:

CN-1: Comment noted.

Margaret Lam

Comments on the DEIR/EIS:

The speaker indicated that many people travel a long way to experience the calm atmosphere of the Chua Dieu Quang Vietnamese Buddhist Community Temple and expressed concern that the proposed mining operation would eliminate the existing tranquility. The speaker recommended that mining setbacks of at least 50 feet be required adjacent to habitable areas in order to protect the temple. **ML-1**

Responses:

ML-1: Comment noted.

Kristina Russell

Comments on the DEIR/EIS:

The following is a summary of the speaker's comments:

- The speaker expressed concern that the proposed 5-foot mining setbacks would adversely affect the nuns' sleeping and meditation at the Chua Dieu Quang Vietnamese Buddhist Community Temple and recommended a 50-foot minimum setback along the temple's perimeter. **KR1-1**
- The speaker noted that the temple should not have to work around the proposed mining operation's hours of operation, but that the reverse should be the case. **KR1-2**

Responses:

KR1-1: In accordance with the commentor's request, the Planning Commission's Conditions of Approval (Appendix E) requires a 25-foot minimum landscaped setback from adjoining rural residential land uses, the first 10 feet of which shall consist of undisturbed land, no mining may occur within 50 feet of an habitable structures in existence on the adjacent properties at the time of mining, and no mining may occur within 50 feet of the west property line of the Buddhist Temple (APN: 063-0110-008).

KR1-2: Comment noted.

Sister Tinh Quang

Comments on the DEIR/EIS:

The following is a summary of the speaker's comments:

- The speaker stated that the Chua Dieu Quang Vietnamese Buddhist Community Temple tries to teach good moral conduct and productivity. In considering the proposed project, the hearing body should remember that everything is impermanent and that profit is not the only thing to be considered. **STQ1-1**
- A 50-foot mining setback should be required on the west side of the temple and a 25 foot setback should be required on the north side. **STQ1-2**
- Air quality monitoring should be required. **STQ1-3**

Responses:

STQ1-1: Comment noted.

STQ1-2: Please refer to response to comment KR1-1.

STQ1-3: Please refer to the Planning Commission's Recommended Conditions of approval, included in Appendix E of this FEIR/FEIS.

Stuart Helfand

Comments on the DEIR/EIS:

The following is a summary of the speaker's comments:

- The speaker expressed concern regarding water quality.
- The speaker recommended that, as was done in the past, the mining operators should include in their project request the rezoning of any interested nearby properties to help mitigate for the effects of the mining operation on those properties. **SH1-1**

Responses:

SH1-1: Comment noted.

APPENDIX A

CULTURAL RESOURCES - BACKGROUND INFORMATION

CULTURAL RESOURCES REPORT

MORRISON CREEK MINING REACH
DOWNSTREAM (SOUTH) OF JACKSON HIGHWAY

Prepared for
EDAW, Inc
753 Davis Street
San Francisco, California
94111

Prepared by
GARCIA AND ASSOCIATES
3152 Paradise Drive
Tiburon, California
94920

JANUARY, 1995

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Table 1. Locations and types of resources identified during the cultural resources survey of the Morrison Creek South project area, Sacramento County, California. 8

1.0 INTRODUCTION AND SUMMARY

An intensive cultural resources survey of the Morrison Creek Mining Reach Downstream (South) project area was conducted by Garcia and Associates (GANDA). The survey area consisted of: the Granite Construction Company Vineyard I/Vineyard II parcel, and the Teichert Aggregates Aspen III South, Aspen IV South, and Aspen V South parcels in Sacramento County, California. The survey was conducted to identify any prehistoric, ethnographic, or historic cultural resources present, to recommend any further historical or cultural surveys needed, and to provide recommendations for protection of cultural resources within the project area. It was conducted in accordance with the California Environmental Quality Act (CEQA) Statutes and Guidelines (1970, Rev. 1992:Section 21083.2, Appendix K, Supplementary Document J), Section 106 of the National Historic Preservation Act of 1966 as amended (16 U.S.C. 470 *et seq.*), and procedures of the Advisory Council on Historic Preservation (36 CFR 800).

The current survey, involving a literature review and an intensive pedestrian survey of the project area, resulted in: 1) identification and recording of eight historic resources, consisting of eight complexes of standing structures; 2) identification and recording of thirteen historic archaeological sites, consisting of one deposit of historic domestic debris and the remains of twelve destroyed farmsteads; and 3) identification of a modern trash. Details of the survey, along with recommendations for the management of cultural resources are presented below. A separate survey and recording of the eight historic resources was conducted for GANDA by JRP Historical Consulting Services. JRP's study and results are presented under separate cover and are summarized briefly here.

The historic resources, historic archaeological sites, and modern trash deposit do not appear to be important as defined by CEQA, nor do they qualify for listing in the California Register of Historical Resources. They do not appear to be significant or eligible for listing on the National Register of Historic Places under Section 106 of the National Historic Preservation Act. Although the twelve historic archaeological sites consisting of the twelve destroyed farmsteads do not appear to be important or significant, they should be evaluated through additional archival research.

2.0 LITERATURE REVIEW

The survey included a review of archaeological, ethnographic and historical documents (see Section 5.0). Our literature review included maps and records on file at the North Central Information Center of the California Historical Resources Information System, Sacramento State University; the California History Room at the California State Library, Sacramento; and the map room at the University of California library at Davis. These reviews were done to identify: (1) recorded or otherwise known cultural resources within the project area; (2) previous surveys of the project area; and (3) archaeologically sensitive portions of the project area as determined by the locations of nearby recorded cultural resources and their relationship to environmental factors.

2.1 Ethnographic Background

The project area lies near a boundary separating the Valley Nisenan and Plains Miwok. The Nisenan represent the southern linguistic group of Maidu, a subgroup of the Penutian linguistic family, and Kroeber (1925:393) recognized three distinct dialects among the Nisenan, including the Valley Nisenan. The Plains Miwok are one of five separate linguistic and cultural groups of the Eastern Miwok, which is one of the two major divisions of the Miwokan subgroup of the Utian language family (Levy 1978).

Despite linguistic differences, the Valley Nisenan and Plains Miwok had many similarities with respect to their social organization and subsistence practices. The tribelet, composed of a main village surrounded by satellite settlements, was the primary sociopolitical unit. Each independent tribelet had a defined territory and people referred themselves as members of a particular tribelet rather than a larger entity. Subsistence practices consisted of a mix of hunting, fishing, and gathering. These activities were conducted year round, although the resources exploited and intensity of activities varied seasonally. The late summer and fall was an especially busy time when large harvests, particularly of acorns, could be gathered and stored.

The Nisenan occupied the Yuba and American River drainages from the Sierra crest to the Sacramento River, while the Plains Miwok occupied the lower reaches of the Cosumnes and Mokelumne Rivers and a stretch along the western side of the Sacramento River (Levy 1978:398). A consensus on the boundary between the Valley Nisenan and Plains Miwok does not exist in the ethnographic literature, although the boundary probably fluctuated through time. According to Wilson and Towne (1978:387), the southern boundary of the Nisenan extended a few miles south of the American River, while another study used a combination of ethnographic and archaeological data to place the boundary just north of Morrison Creek (Bennyhoff 1977:126). Most villages of the Valley Nisenan and Plains Miwok were located along major drainages. Few settlements were within the valley plain, an area primarily used for hunting and gathering, and no known village location exist within the project area.

2.2 Historic Background

Historic land holding and use patterns based on small farms has predominated within the project area since the land was first settled in the 1850s. The local farms ranged in size from about 160 to 500 acres and most of the land within the project area continued to be held in over 100 acre parcels well into the nineteenth century. Local agriculture was based around individual farm units that utilized most of their acreage to produce grains, hay, forage crops, some vineyard and orchard crops, and to graze livestock. Transportation in the area has been dominated historically by traffic along the Jackson Road (now State Route 16). Connecting Sacramento with the booming southern gold mines in the late 1840s and 1850s, the road stayed in use after the gold rush as the major transportation corridor for eastern Consumnes River are farms. Other roads in the area developed along farm property lines, which resulted in a grided network of tertiary roads along sections and half section lines.

The project area is within Brighton Township which was founded in 1851 and named after the

town of Brighton. Brighton, originally along the south bank of the American River one mile north of the current town, was founded by speculators in 1849 (Thompson and West 1880). The eastern portion of the project area, including the Aspen V parcel and the edge of the Aspen IV parcel, lies within the Rancho de los Americanos land grant. The grant consists of 35,521 acres presented to William A. Leidesdorf by the governor of California, Manuel Micheltorena, in 1844. The grant was purchased by Captain Joseph L. Folsom following Leidesdorf's death in 1948. Folsom co-founded the town of Folsom at the northern edge of the land grant in 1855. Folsom died in 1855 and executors of his estate subdivided the land grant into parcels which were sold to settlers in the following years.

The 1862 General Land Office plat of the rancho, based on an 1857 survey, shows a "Pioneer House" in the vicinity of Walsh Station, north of Morrison Creek, and a road that passes by the house. The road, oriented northwest-southeast, crosses through the southern end of the land grant and includes land that is currently the Aspen V south parcel. The 1866 Land Office Plat of Township 6 North, Range 8 East (based on surveys completed from 1855 to 1865) shows four houses within or adjacent to the project area. "Schofield House" and "A.D. [?] Miller's House" are within the Vineyard parcel in Section 30, "Isacc Lea's House" is south of the creek within the Vineyard parcel in Section 29, and "Samual Dodge's [?] House" is north of the creek within the Aspen III South parcel in Section 29. A portion of Morrison Creek is marked on the map as "Dry Creek". The map shows a north-south road, labeled as "road from Consumnes to American River", that later became the modern Bradshaw Road. Historic roads are also shown extending between Schofield's house and other houses in the project area.

Walsh Station, at the intersection of Jackson and Bradshaw Roads, was established in 1873 as a post office to serve local farms and ranches, and was named for the first postmaster, J. Walsh. A store, blacksmith shop and Enterprise Grange Hall were built around the post office. John D. Morrison was one of the charter members of the grange (Thompson and West 1880). Morrison was born in Kentucky and, like many other local settlers, came to California in 1849 during the Gold Rush. He eventually established a 805-acre ranch along the creek, which bears his name, in 1859. The 1885 Official Sacramento County Map indicates a cosmopolitan nature of landowners within the project area; Peter M. Arntz was from Germany, John Hermga was from Holland, and Isaac Lea was from England (Thompson and West 1880). The ranch of Peter M. Arnty, established in 1872, was probably typical of homesteads in the area and included a residence, barns, outbuildings, and windmills.

A succession of official county maps from 1903 to 1923 show a continuation of many surnames of original settlers as their heirs retained holdings which gradually were subdivided into smaller lots. The 1923 official county map shows two adjacent lots within the project area south of both Walsh Station and Morrison Creek with the names, M. T. Takeoka and K. Hiroshima, that may reflect early Japanese emigrants to the area.

2.3 Archaeological Background

As described above, an archaeological records search was conducted on August 17, 1995 at the North Central Information Center of the California Historical Resources Information System, Sacramento State University. Records examined consisted of base maps and historic-period maps on file at the Center. Literature reviewed included the National Register of Historic Places (1995), the California Inventory of Historic Resources (1976), California Points of Historical Interest (1987), California Historical Landmarks (1982), California Place Names (Gudde 1969), and Historic Spots in California (Hoover et al. 1966). This review revealed that no previously recorded prehistoric or historic archaeological sites exist within the project area. The closest prehistoric sites are along the American River approximately 2.5 miles north of the project area.

Two previous cultural resources studies were completed within portions of the project area and a 1061-acre survey was conducted of land immediately north of the project area. Previous studies also include a survey, conducted by the California Department of Transportation, of bridges along county and state roads. Two bridges cross Morrison Creek along roads adjacent to the project area: one is along Hedge Road (BR# 24Co222), while the other is along Bradshaw Road (BR# 24 CO341). Both bridges were determined to be ineligible for listing on the National Register of Historic Places.

The entire length of Morrison Creek and adjoining tributaries was surveyed in 1974 in conjunction with an environmental assessment of a proposed reservoir project entailing levees, channel work, and a flood basin (Johnson 1974). The maps and methods section of the resulting report indicate a 50 meter corridor along both sides Morrison Creek was subject to a non-intensive survey consisting of a surveyor walking a single transect up the creek. No cultural resources were identified along Morrison Creek within the project area.

Peak and Associates (1980) completed a pedestrian survey along the then proposed corridor of the transmission line that crosses the southeast quarter of Section 30 and, thus, includes an area within the southeast portion of the Vineyard I/II parcel. This surveyed area consists of a narrow corridor approximately 40 meters wide and 1000 meters long. No cultural resources were encountered during the survey.

In 1990, an intensive pedestrian survey was conducted on the Teichert Aspen VI and Granite I parcels (BioSystems Analysis, 1991). That 1061-acre study area is immediately north of the Mining Reach Downstream (South) project area and it abuts Jackson Road on the opposite side of the Aspen V South parcel. It includes the upper reaches of Morrison Creek and a portion of Mather Drain. The survey resulted in identification of a trash pit with both modern and older refuse and a potentially historic barn.

2.4 Results of Literature Review

Results of the literature review indicated that no known prehistoric, ethnographic, or historic cultural resources were known to exist within the project area. Historic-period maps, however, revealed the possible presence of historic cultural resources, such as historic buildings and

archaeological deposits–related to early settlement and farming, within the project area. The records search also suggested that areas along Morrison Creek surveyed in 1974 should be resurveyed. This need stems from the non-intensive coverage and prevailing survey standards at the time of the original survey when potentially historic architectural or archaeological sites were not routinely recording and evaluated.

3.0 SURVEY METHODS

A systematic, intensive pedestrian survey of the project area was conducted on September 5-8, 1995 which followed a reconnaissance site visit made on August 22, 1995. An intensive survey, as defined in the *Secretary of the Interior's Standards and Guidelines for Identification*, "determines the number, location and condition of properties [in an area]...and records the physical extent of specific properties (U.S. Department of the Interior 1983)." The survey crew, supervised by Jeff Haney (M.A.), included Lisa Shapiro (M.A.), Will Shapiro (M.A.), and Allika Ruby (B.A.). Inspection of the ground surface throughout the project area was completed through a series of transects walked by crew members who were spaced apart at designated intervals. Ground surface visibility, the primary constraint affecting the survey, required the intervals between crew members to vary from 10 to 50 meters. A thick growth of annual grasses and forbs, covering a large portion of the project area, afforded no visibility of the ground surface. The interval between crew members was widened to 30 meters and, in some areas, to 50 meters to compensate for this lack of visibility. The wider interval allowed crew members to locate and focus efforts on the limited areas with improved visibility, which included rodent holes, fire breaks, dirt roads, cut banks, and other areas. Trowels were periodically used in areas of impaired ground surface visibility to clear small areas of vegetation and observe the surface.

Based on the literature review, areas adjacent to Morrison Creek were considered more sensitive archaeologically than areas away from the creek. The entire length of Morrison Creek was surveyed with crew members spaced apart at 10 meter intervals in the creek channel and along a 30 meter-wide stretch on either side of the creek. Cut banks within the creek channel generally had good visibility, while the top of creek banks had fair to no ground surface visibility. Most of the creek east of Mayhew Road contained standing water and the channel could not be surveyed. Similarly, standing water was present in a seasonal creek (originating in the land grant) between its confluence with Morrison Creek and Bradshaw Road. Areas surrounding the banks of this seasonal creek and land surrounding the confluence had poor to good ground surface visibility and were surveyed using intervals of 5 to 10 meters between crew members, except where blackberry vines prohibited coverage.

Survey areas with almost no ground surface visibility include parts of Section 30 north and south of Morrison Creek that are covered with dense fields of star thistle, and transect intervals were expanded to 30-35 meters. Thick grasslands east of Mayhew Road in Section 29 had no ground surface visibility and were surveyed with 35 to 50 meter intervals between transects. Those portions of the project area away from the creek within the land grant boundary east of Bradshaw Road are completely covered with a thick growth of grasses and forbs or irrigated pastures which

afford no surface visibility. These areas were surveyed using 35 to 50 meter transect intervals. Some fields west of Mayhew Road in Section 29 are plowed or contain stumps of a recently harvested grain crop. These areas have fair to good ground surface visibility and an interval of 30 meters was used between transects, however, much of this land was part of an area managed as a sod farm and the existing surface is a few feet lower than the original ground surface.

On January 20, 1996, a follow-up site visit was conducted by Jeff Haney, Will Shapiro, and John Scott (B.A.) to record twelve destroyed building remains identified within the project area. One deposit of historic domestic debris had been previously recorded during the September, 1995 survey. These thirteen historic archaeological sites were recorded on the appropriate State recording forms (DPR 422 forms), which included preparation of site maps. The DPR forms are being submitted under separate cover to the Sacramento County Department of Environmental Review and Assessment and to the North Central Information Center of the California Historical Resources Information System, Sacramento State University. Eight standing structures within the project area were independently surveyed and recorded by JRP Historical Consulting Services (JRP's report is also being submitted under separate cover).

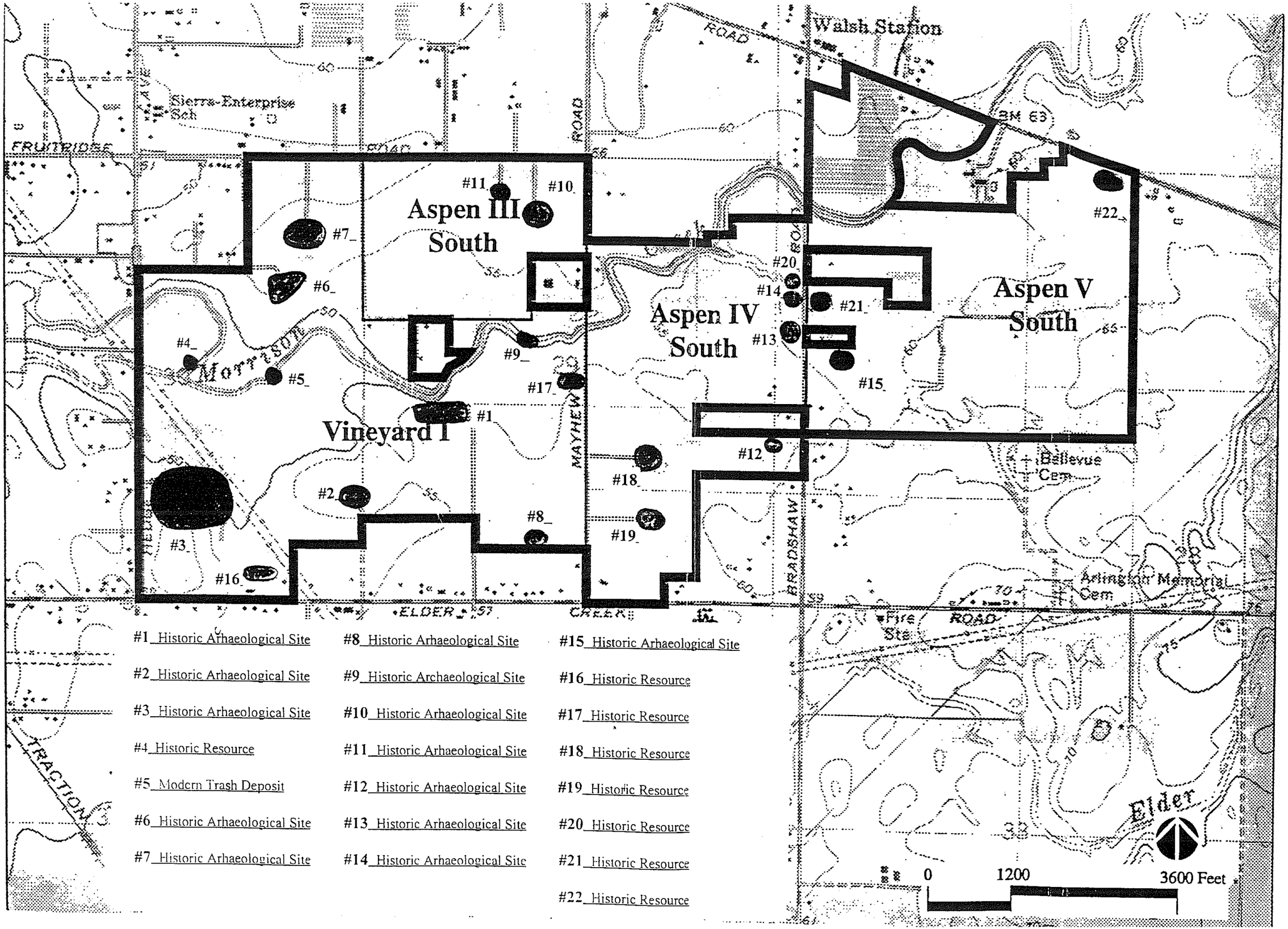
4.0 RESULTS AND RECOMMENDATIONS

The literature review and field survey resulted in the identification of 22 cultural resources within the project area (Figure 1, Table 1). All resources relate to Euroamerican occupation of the landscape and no prehistoric or ethnographic sites were identified within the project area. All lands within the project area were subject to continuous agricultural use since the mid- to late 1800s. Land use practices over the past 100 years entailed ground-disturbing activities, such as building structures and plowing fields, that probably removed the earliest traces of Euroamerican settlement, such as the roads and houses marked on General Land Office maps from the 1860s.

Descriptions of all identified resources and recommendations for the mitigation of impacts, along with recommended action should buried deposits be encountered during ground disturbing activities, are presented below. While preservation of all resources is preferable (California Environmental Quality Act, 1970, Rev. 1986: Appendix K), it is recognized that adverse impacts may be unavoidable.

4.1 Historic Resources (n = 8)

One historic structure and seven complexes of standing historic buildings occur within the project area. These standing structures were noted and photographed during the cultural resources survey conducted by GANDA. A more detailed study of these structures was performed for GANDA by JRP Historical Consulting Services, during which JRP recorded them. JRP's study and results are presented under separate cover and are summarized here.



#1 Historic Arhaeological Site
#2 Historic Arhaeological Site
#3 Historic Arhaeological Site
#4 Historic Resource
#5 Modern Trash Deposit
#6 Historic Arhaeological Site
#7 Historic Arhaeological Site
#8 Historic Arhaeological Site
#9 Historic Archaeological Site
#10 Historic Arhaeological Site
#11 Historic Arhaeological Site
#12 Historic Arhaeological Site
#13 Historic Arhaeological Site
#14 Historic Arhaeological Site
#15 Historic Arhaeological Site
#16 Historic Resource
#17 Historic Resource
#18 Historic Resource
#19 Historic Resource
#20 Historic Resource
#21 Historic Resource
#22 Historic Resource

Figure 1: Cultural Resources Within the Morrison Creek Mining Reach Downstream (South) Project Area, Sacramento County, Ca. Garcia and Associates, Jan., 1996.

Table 1. Locations and types of resources identified during the cultural resources survey of the Morrison Creek South project area, Sacramento County, California.

Resource #	Resource Type	Parcel
1	Historic Archaeological Site	Granite Vineyard
2	Historic Archaeological Site	Granite Vineyard
3	Historic Archaeological Site	Granite Vineyard
4	Historic Resource	Granite Vineyard
5	Modern Trash Deposit	Granite Vineyard
6	Historic Archaeological Site	Granite Vineyard
7	Historic Archaeological Site	Granite Vineyard
8	Historic Archaeological Site	Granite Vineyard
9	Historic Archaeological Site	Granite Vineyard
10	Historic Archaeological Site	Aspen III south
11	Historic Archaeological Site	Aspen III south
12	Historic Archaeological Site	Aspen IV south
13	Historic Archaeological Site	Aspen IV south
14	Historic Archaeological Site	Aspen IV south
15	Historic Archaeological Site	Aspen V south
16	Historic Resource	Granite Vineyard
17	Historic Resource	Granite Vineyard
18	Historic Resource	Aspen IV south
19	Historic Resource	Aspen IV south
20	Historic Resource	Aspen IV south
21	Historic Resource	Aspen V south
22	Historic Resource	Aspen V south

Note: The historic archaeological sites consist of a domestic debris deposit and twelve destroyed farmsteads; the historic resources consist of standing structures.

These eight historic resources are complexes of homesteads and farm buildings of various ages. One of the resources, designated in the field as resource #4, is a water tank on a wood platform with an associated wood pumphouse. It is in Section 30, on the north side of Morrison Creek, on the upland interior of the oxbow channel. The complexes of historic homesteads, designated in the field as resources #16-22, consist of residences and (in most cases) barns at the following street addresses: #16) 9197 Elder Creek Road; #17) 6210 Mayhew Road; #18) 6211 Mayhew Road; #19) 6155 Mayhew Road; #20) 5746 Bradshaw Road; #21) 5831 and 5841 Bradshaw Road; and #22) 10004 Jackson Road. The buildings at resources #17 and #21 were built in 1947, 1950, and 1948, respectively, and are therefore less that fifty years old. Although the remaining buildings were built more than fifty years ago, none of them appear to be historically significant. They all appear to be ineligible for the National Register of Historic Places because of various levels of structural modification, impairing their historic integrity, and because they do not appear to represent distinguished examples of their type, period or method of construction. None of these resources are associated with events or persons important to our history.

Recommendations: The eight historic resources, consisting of complexes of rural homesteads and farm buildings, do not appear to meet the criteria for significance under Section 106 of the National Historic Preservation Act of 1966 as amended (16 U.S.C. 470 *et seq*), nor do they qualify for listing in the California Register of Historical Resources. The resources have been recorded and photographed for State DPR 523 forms. No further historical surveys are recommended for these eight resources and the current level of documentation is sufficient to mitigate any adverse impacts.

4.2 Historic Archaeological Sites (n = 13)

Domestic Debris Deposit

One site, situated in the channel of Morrison Creek within the northwest 1/4 of Section 29, consists of a deposit of historic domestic debris. The site was designated in the field as resource #9. The debris is dominated by Asian ceramics (including rice bowls, cups, and small plates) exhibiting Japanese patterns and maker's marks. The deposits also contains glass soda bottles, canning jars, and square bottles with attributes or maker's marks indicating that materials within deposit are more than 50 years old. The location of the site, confined to a 330 ft stretch along the sandy bottom of the channel, and the absence of related debris in the creek bank suggest the site represents a secondary deposit. The materials possibly originated upstream and were redeposited during a flooding event. Two fragments of Asian ceramics that are probably related to the deposit were noted in the creek channel more than 1000 meters downstream from the site. The deposit is subject to ongoing disturbance by a local bottle collector who has amassed an assortment of items from various places along the creek channel.

Recommendations: The site, consisting of redeposited material, is subject to ongoing looting and lacks integrity. Disturbance of the deposit has compromised any data potential and the site does not appear to be important or significant per the CEQA Appendix K guidelines and regulations

of the Advisory Council on Historic Preservation (36 CFR Part 60.4: Criteria for Evaluation). While site preservation is preferred, the current level of documentation is sufficient to mitigate any adverse impacts.

Destroyed Farmsteads

These twelve historic archaeological sites are destroyed farmsteads consisting of the remains of former homesteads and farm buildings. They were identified through a combination of archival research, field verification, and site recording. These remains of destroyed buildings encountered during our survey correspond with locations of buildings marked on the 1950 Carmichael 7.5 minute USGS quadrangle, which was prepared based on 1947 aerial photography. All of these resources are also marked on the most recent photo revised quadrangle (1980). In general, the sparse remains existing at most locations suggest that each building was emptied of domestic items before it was razed and most structural debris was hauled away afterwards. The buildings were apparently demolished after 1980 and even as recently as within the past two years (D. Self, pers. comm., 1995). The non-structural materials remaining at each location appears to consist of modern debris less than 45 years in age. Some resource locations contain fruit or nut trees, and pumphouses and in various states of deterioration. No evidence of subsurface deposits was observed at these locations. Each destroyed building is described below using field numbers assigned during the survey.

Resource #1: This resource, consisting of scattered structural and domestic debris, is along the south side of Morrison Creek in the west-central portion of Section 29. The 1950 Carmichael 7.5 minute USGS map shows one building in this location, although photo revised copies of the map in 1967 and 1985 show three additional buildings in the area. The field survey found no evidence of a building foundation. The sparse structural remains consist of milled wood, broken pieces of concrete, brick fragments and asphalt. Domestic debris, scattered among the structural remains, are more abundant than at other razed building sites in the project area. All materials, however, are modern and include a bundle of 1980s newspapers, plastic Flintstones children's toys, round nails, and clear glass. A standing garage/workshop, less than 45 years old, has a sign stating "River City Tuff Farm" and is immediately east of the razed building.

Resource #2: This resource, approximately 3000 ft south of Morrison Creek between Sections 29 and 30, consists of a concrete pumphouse foundation and scattered debris. The 1950 Carmichael 7.5 minute USGS map shows one building in this location, although a barn or garage is present on later maps. The pumphouse contains a small section of a modern PVC pipe. The extremely sparse surface debris includes two propane tanks, asphalt, broken pieces of concrete, plywood, and glass from a soda bottle.

Resource #3: This resource, approximately 3000 ft south of Morrison Creek in the south-central part of Section 30, consists of one concrete pad and 5-6 bulldozed mounds of earth, concrete, and trees. The 1950 Carmichael 7.5 minute USGS map shows one small building and two larger buildings in the location of this resource. Later maps indicate that six additional buildings were

constructed in the area after 1954. The larger buildings were probably barns and their locations correspond with the concrete pads, while the exact location of the smaller building cannot be determined from existing remains. Non-structural debris consists of a hand-full of scattered glass and ceramic shards. No domestic debris older than 45 years was identified in this resource area.

Resource #6: This resource, 1000 ft north of Morrison Creek in the northeast quarter of Section 30, consists of sparse domestic and structural debris. The 1950 Carmichael 7.5 minute USGS quadrangle shows one building in the location of this resource, while the 1967 quadrangle shows an additional building in the area and the 1980 revised map shows three additional buildings. The ground surface was bull-dozed and plowed to the extent that none of these building locations are evident from existing debris. Structural remains consist of a few pieces of concrete, plaster, bathroom tile, and scattered milled wood. Domestic debris scattered over the area consists of a sink, toothbrush, tea cup, and ketchup bottle.

Resource #7: This resource, approximately 2000 ft north of Morrison Creek in the northeast quarter of Section 30, consists of a standing pumphouse and a sparse scatter of structural and modern domestic remains. The 1950 Carmichael 7.5 minute USGS map shows one small building in the location of this resource, while the 1967 quadrangle has four buildings in the area and the 1980 quadrangle shows two more small buildings. Debris within the area consist of milled wood, concrete, asphalt, culvert fragments, styrofoam, a tin can, a tire, and a few glass shards. The wood pumphouse has a concrete foundation, a concrete trough, and some modern PVC piping.

Resource #8: This resource, approximately 4500 ft south of Morrison Creek in the south half of Section 29 west of Mayhew Road, consists of a concrete pumphouse foundation, a bull-dozed mound of earth, non-native trees, and scattered debris. The 1950 Carmichael 7.5 minute USGS map shows three small buildings in the area of this resource, while the 1967 quadrangle shows only two buildings and the 1980 map shows only one remaining building in the area. The exact location for any of these buildings cannot be determined from existing remains. The pumphouse foundation, unlike the ones at other resources, is a rectangular trough sunk into the ground, although (similar to most pumphouses) a electric box on a pole is next to the foundation. Trees in the vicinity consist of a sycamore, pomegranate, walnut, and olive trees. A few brick fragments, concrete chunks, glass and ceramic shards, and pieces of plastic are present on the ground surface. No temporally diagnostic materials were identified within the area.

Resource #10: Unlike other demolished buildings in the project area, this resource contains abundant structural and domestic remains, including a concrete foundation with a basement. Burned materials within the resource area suggest fire destroyed the main building. The resource is 2500 ft north of Morrison Creek in the northwest quarter of Section 29. The 1950 and 1954 Carmichael 7.5 minute USGS map reveals one building in the area, while the 1967 quadrangle shows four buildings and the 1980 map has only two buildings in the area. Extant structural remains consist of the foundation surrounded by concrete sidewalks, a pumphouse foundation (inscribed with a 1970s date), a foundation for a garage or shed, and a fuel tank on a wood platform. Material remains surrounding the foundations include a stove pipe, metal-frame kitchen

chairs, a refrigerator, garden hose, battery, tires, paint cans, milled wood, nails, and brick fragments.

Resource #11: This resource, approximately 2500 ft north of Morrison Creek in the northwest quarter of Section 29, consists of a partially buried concrete foundation. The 1950 Carmichael 7.5 minute USGS quadrangle and revisions through 1985 consistently show a single building in this location. Adjacent to the extant foundation are an old fig tree and, further away, rusted farm equipment. The farm equipment includes a field harrow and a Merrill rake. No domestic or structural debris are present on the ground surface within the area surrounding this resource.

Resource #12: This resource contains of concrete foundations for a pumphouse and two building pads surrounded by spruce, sycamore, palm, olive, and pomegranate trees. The only debris present consist of tar paper, linoleum, aluminum nails, and window glass. West of these remains are old fig, walnut, and pomegranate trees, and a concrete trough. The resource, approximately 1000 ft south of Elder Creek, is along the west-central edge of Section 28 west of Bradshaw Road. The Carmichael 7.5 minute USGS quadrangles from 1950 through 1967 consistently show a single building in this location, although the 1985 revision shows another building immediately to the north on land that is outside the project area.

Resource #13: This is along the north side of the seasonal creek west of Bradshaw Road, within the west-central edge of the land grant. It consists of a gravel drive leading from the road, past concrete foundations of a pumphouse, an outbuilding, and a residence. West of the residence, in an area that was probably the backyard, is a standing wood fence adjacent to a small rock-lined pond (currently dry) and a stand of bamboo. A few shards of Asian ceramics are present on the ground surface along with linoleum, brick fragments, and clear window glass. The Carmichael USGS quadrangles 1950 through 1967 consistently show a single building in the location of the residence, while a second building north of the original building is shown on the 1985 quadrangle.

Resource #14: This resource, immediately south of a residence at 5746 Bradshaw Road, is 500 ft east of the seasonal creek along the western edge of the land grant. The resource consists of a concrete foundation, a working pumphouse, and two large palm trees along Bradshaw Road. The 1950 Carmichael 7.5 minute USGS quadrangle shows two buildings in the vicinity of this resource and both are still marked on the 1980 revised quadrangle. Beside the concrete foundation, no structural or domestic debris are present at the site. The wood pumphouse may be related to the older buildings that once stood within the property.

Resource #15: This resource is on the east side of Bradshaw Road 800 meters northeast of the seasonal creek within the land grant boundaries. The 1950 Carmichael 7.5 minute USGS quadrangle shows two buildings in the vicinity of this resource and the 1967 quadrangle reveals two additional buildings. The survey found no standing buildings within the area and extant remains possibly related to pre-1950 buildings consist of a concrete foundation and a concrete foundation of a pumphouse. Materials scattered in the vicinity, consisting of modern wire, farm equipment and car parts, appear to be modern.

Recommendations: The twelve sites, consisting of destroyed farmsteads, do not appear to be important or significant per the CEQA Appendix K guidelines and regulations of the Advisory Council on Historic Preservation (36 CFR Part 60.4: Criteria for Evaluation). Prior to their destruction, these twelve sites generally appear to have been of a similar period and type as the historic resources in the project area (see Section 4.1). Although these twelve sites do not appear to be important or significant, they should be evaluated. This evaluation should consist of additional archival research and oral historical research. The additional archival research should document the age, function, and persons associated with the resources. Oral historical research should determine the extent to which oral historical sources specific to the site exist and whether these sources would be useful in assessing local and regional significance. If oral historical sources are found to exist, researching these sources should be carried out.

4.3 Modern Trash Deposit (n = 1)

This site, situated along the channel of Morrison Creek within the east-central portion of Section 30, consists of a deposit of domestic debris and farm equipment less than 30 years old. The materials are eroding into the creek channel from a trash pit along the creek bank. The site was designated in the field as resource #5. A rice bowl fragment, probably related to resource #9, was found a short distance upstream of this deposit.

Recommendations: Given its age, this find does not represent a historic resource and no treatment is recommended.

4.4 Recommendations for Potential Buried Resources

It is possible that unidentified subsurface archaeological remains may be present within the project area and could be encountered during ground-disturbing activities. Prehistoric archaeological materials include, but are not limited to, chert and obsidian flakes or artifacts; milling equipment, such as mortars or pestles; locally darkened soils (midden), often containing shell and bone dietary debris; and human burials. If human remains are encountered, the County Coroner must be contacted. There is also a possibility of encountering unidentified subsurface historic-period materials, such as stone or adobe foundation s or walls, structural remains with square nails, and backfilled wells or privies, and other refuse deposits. If prehistoric or historic materials are encountered during ground disturbing activities within the project area, it is recommended that work in the immediate vicinity of the find halt until a qualified archaeologist has evaluated the situation.

The California Health and Safety Code (Section 7050.5 or 7051) prohibits disintering, disturbing, or removing human remains. The Public Resources Code (Chapter 1.75--Native American Historical, Cultural, and Sacred Sites--Section 5097.9 to 5097.99) prohibits obtaining or possessing Native American artifacts or human remains taken from a Native American grave or cairn. Appendix K and Supplementary Document J of the California Environmental Quality Act Statutes and Guidelines (1970, Rev. 1992) set forth procedures to be carried out in the event of

discovery or recognition of any human remains. If the remains are of Native American in origin, the Native American Heritage Commission has a role in the treatment and disposition of human remains and any associated grave goods.

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1. **County:** Sacramento.

2. **USGS Quad:** Carmichael, Calif., 7.5' (1967; Photorevised 1980).

3. **UTM Coordinates:**Zone 10; 643,890 m Easting; 4,264,190 m Northing.

4. **Township:**8N **Range:** 6E SW 1/4 of NE 1/4 of NW 1/4 of SW 1/4 of Section 29 Base Mer.: MDM

5. **Map Coordinates:**498 mmS, 91 mmE (from NW corner of map 6. **Elevation:** 55 feet.

7. **Location:** From the intersection of Mayhew Road and Elder Creek Road, follow Mayhew north approximately 2200 feet. The site is located approximately 1800 feet to the west along the south side of Morrison Creek.

8. **Prehistoric** [ ] **Historic** [X] **Protohistoric** [ ]

9. **Site Description:** This resource consists of scattered structural and domestic debris The field survey found no evidence of a building foundation. The sparse structural remains consist of milled wood, broken pieces of concrete, brick fragments and asphalt. Domestic debris, scattered among the structural remains, are more abundant than at other razed building sites in the project area. All materials, however, are modern and include a bundle of 1980s newspapers, plastic Flintstones children's toys, round nails, and clear glass. A standing garage/workshop, less than 45 years old, has a sign stating "River City Turf Farm" and is immediately east of the razed building.

10. **Area:** 302 feet (E-W) x 248 feet (N-S); 58,825 ft^2

    Method of Determination: Bearings measured with hand held compass and distances taped.

11. **Depth:** Unknown **Method of Determination:**

12. **Features:** Feature 1 appears to be a collapsed well with milled wood and metal pipe fragments.

13. **Artifacts:** See site description above

14. **Non-Artifactual Constituents and Faunal Remains:** None observed.

15. **Date Recorded:** 1/20/96 16. **Recorded by:** J. Haney, W. Shapiro, J. Scott

17. **Affiliation and Address:** Garcia and Associates, 3152 Paradise Drive, Tiburon, CA 94920.

18. **Human Remains:** None observed.

19. **Site Disturbances:** Structure razed and removed; site area has been recently planted.

20. **Nearest Water:** Morrison Creek.

21. **Vegetation Community (site vicinity):** Ruderal (disturbed)

22. **Vegetation (on site):** Star thistle, blackberry, various weeds and grasses; black walnut tree near site.

23. **Site Soil:** Orange-brown loam

24. **Surrounding Soil:** Orange-brown loam.

25. **Geology:** Alluvial

26. **Landform:** Valley floor.

27. **Slope:** 0-10 degrees. 28. **Exposure:** Open

29. **Landowner and Address:** Granite Construction Company, P.O. Box 15287, Sacramento, CA 95851

30. **Remarks:** The project maps and USGS map show three structures in the site area, for which there is no longer any evidence except for the widely scattered debris. A large holding pond is located adjacent and southwest of the site area. The site may be related to the standing structure 250' east of the site which is the "River City Turf Farm."

31. **References:**

32. **Name of Project:** Morrison Creek Mining Reach Downstream (South) of Jackson Highway (EIR/EIS)

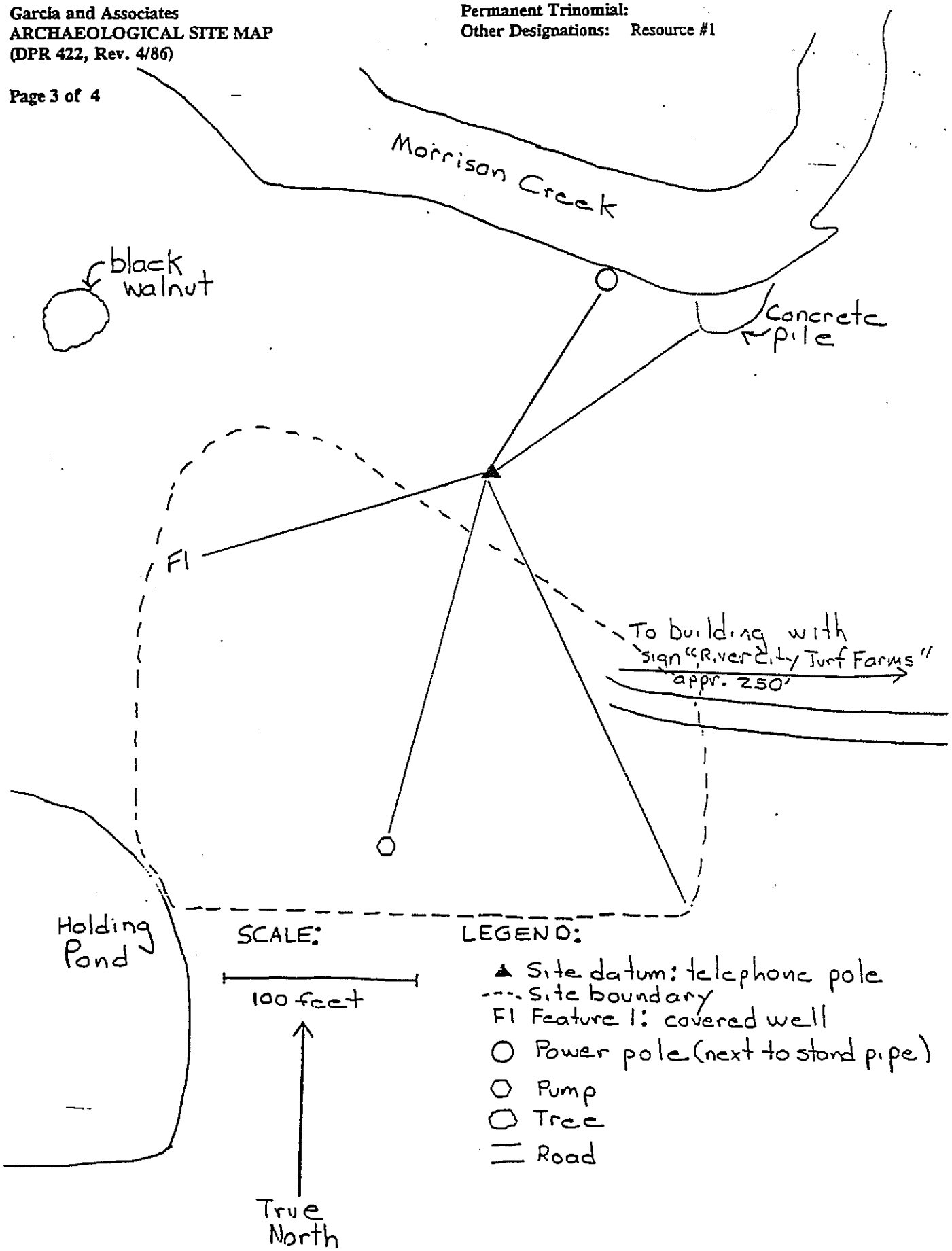
33. **Type of Investigation:** Intensive survey.

34. **Site Accession Number:** No collections. Curated At: N/A

35. **Photos:** None taken.

Garcia and Associates
ARCHAEOLOGICAL SITE MAP
(DPR 422, Rev. 4/86)

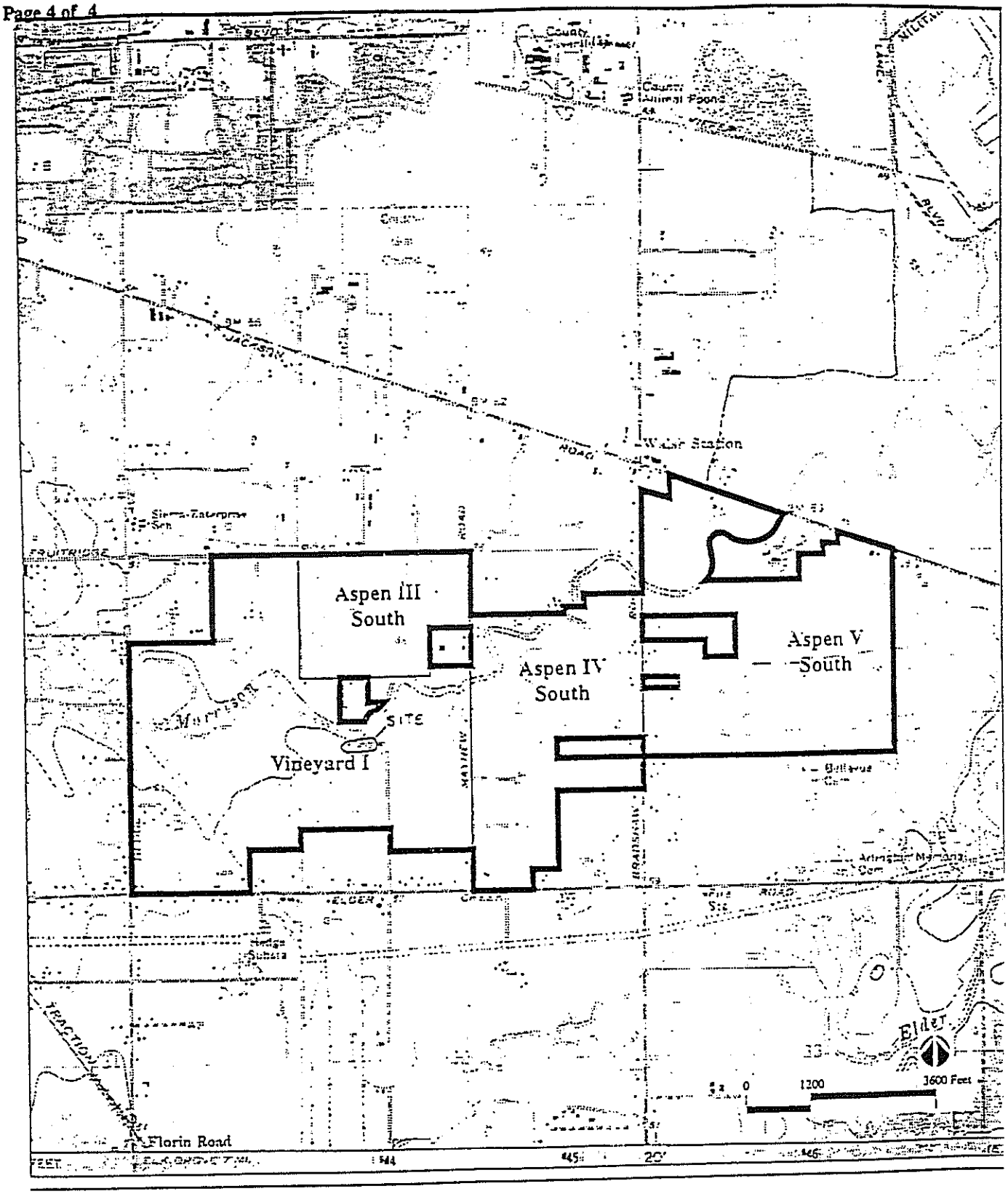
Permanent Trinomial:
Other Designations: Resource #1



Garcia and Associates
ARCHAEOLOGICAL SITE
LOCATION MAP
(DPR 422, Rev. 4/86)

Permanent Trinomial:
Other Designations: Resource #1

January 1996



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Project Boundary

Project Site Locatio

1. **County:** Sacramento.

2. **USGS Quad:** Carmichael, Calif., 7.5' (1967; Photorevised 1980).

3. **UTM Coordinates:** Zone 10; 643,620 m Easting; 4,263,900 m Northing

4. **Township:**8N **Range:** 6E NE 1/4 of NE 1/4 of SE 1/4 of SE 1/4 of Section 30 **Base Mer.:** MDM

5. **Map Coordinates:** 510 mmS, 79 mmE (from NW corner of map) 6. **Elevation:** 55 feet.

7. **Location:** From the intersection of Elder Creek Road and Hedge Avenue, follow Elder Creek Road east approximately 260 feet. The site is located approximately 1000 feet to the north at the end of an asphalt driveway.

8. **Prehistoric** [ ] **Historic** [X] **Protohistoric** [ ]

9. **Site Description:** This resource consists of a concrete pumphouse foundation and scattered debris. The 1950 Carmichael 7.5 minute USGS map shows one building in this location, although a barn or garage is present on later maps. The pumphouse contains a small section of a modern PCV pipe. The extremely sparse surface debris includes a hot water heater, asphalt, broken pieces of concrete, plywood, and glass from a soda bottle.

10. **Area:** 210 feet (N-S) by 180 feet (E-W); 29,689 feet^2

Method of Determination:

11. **Depth:** Unknown **Method of Determination:**

12. **Features:**
Feature 1 is a concrete pumphouse foundation with a pump and metal pipe.

Feature 2 is an asphalt driveway.

13. **Artifacts:** Artifacts associated with this site include milled wood, a few pieces of concrete, PVC piping, two propane tanks, modern tires, 2" metal pipe, 10" asbestos pipe, two sheet metal fragments, and a car battery.

14. **Non-Artifactual Constituents and Faunal Remains:** None observed.

15. **Date Recorded:** 1/20/96 16. **Recorded by:** J. Haney, W. Shapiro, J. Scott

17. **Affiliation and Address:** Garcia and Associates, 3152 Paradise Drive, Tiburon, CA 94920.

18. **Human Remains:** None observed

19. **Site Disturbances:** The site is heavily disturbed: the building has been demolished and removed from the area.

20. **Nearest Water:** Morrison Creek.

21. **Vegetation Community (site vicinity):** Ruderal (disturbed)

22. **Vegetation (on site):** Annual grasses and forbs; blackberry vines.

23. **Site Soil:** Brown loam

24. **Surrounding Soil:** Brown loam

25. **Geology:** Sedimentary

26. **Landform:** Featureless plain

27. **Slope:** 0° 28. **Exposure:** Open

29. **Landowner and Address:** Granite Construction Company, P.O. Box 15287, Sacramento, CA 95851

30. **Remarks:**

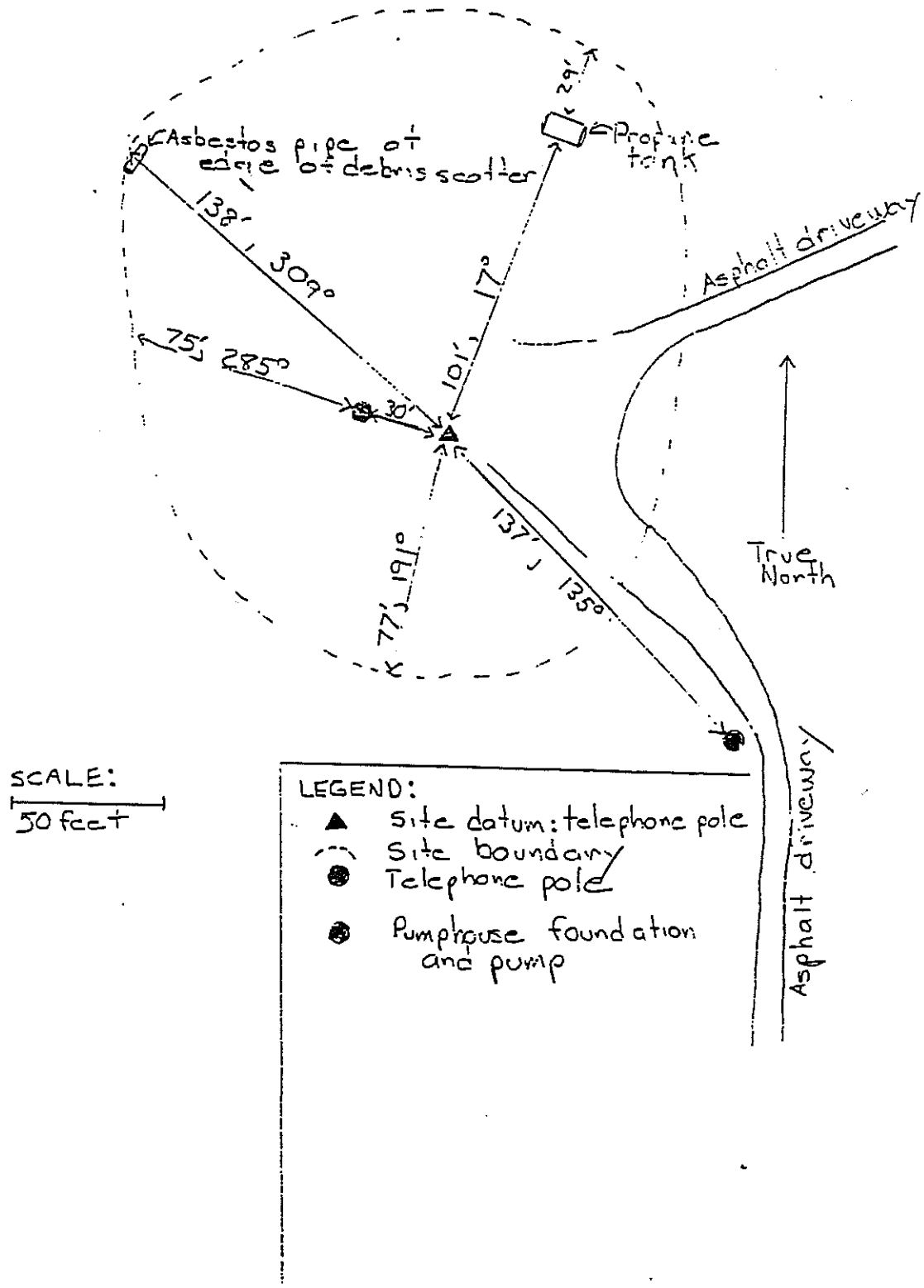
31. **References:**

32. **Name of Project:** Morrison Creek Mining Reach Downstream (South) of Jackson Highway (EIR/EIS)

33. **Type of Investigation:** Intensive survey.

34. **Site Accession Number:** No collections **Curated At:** N/A

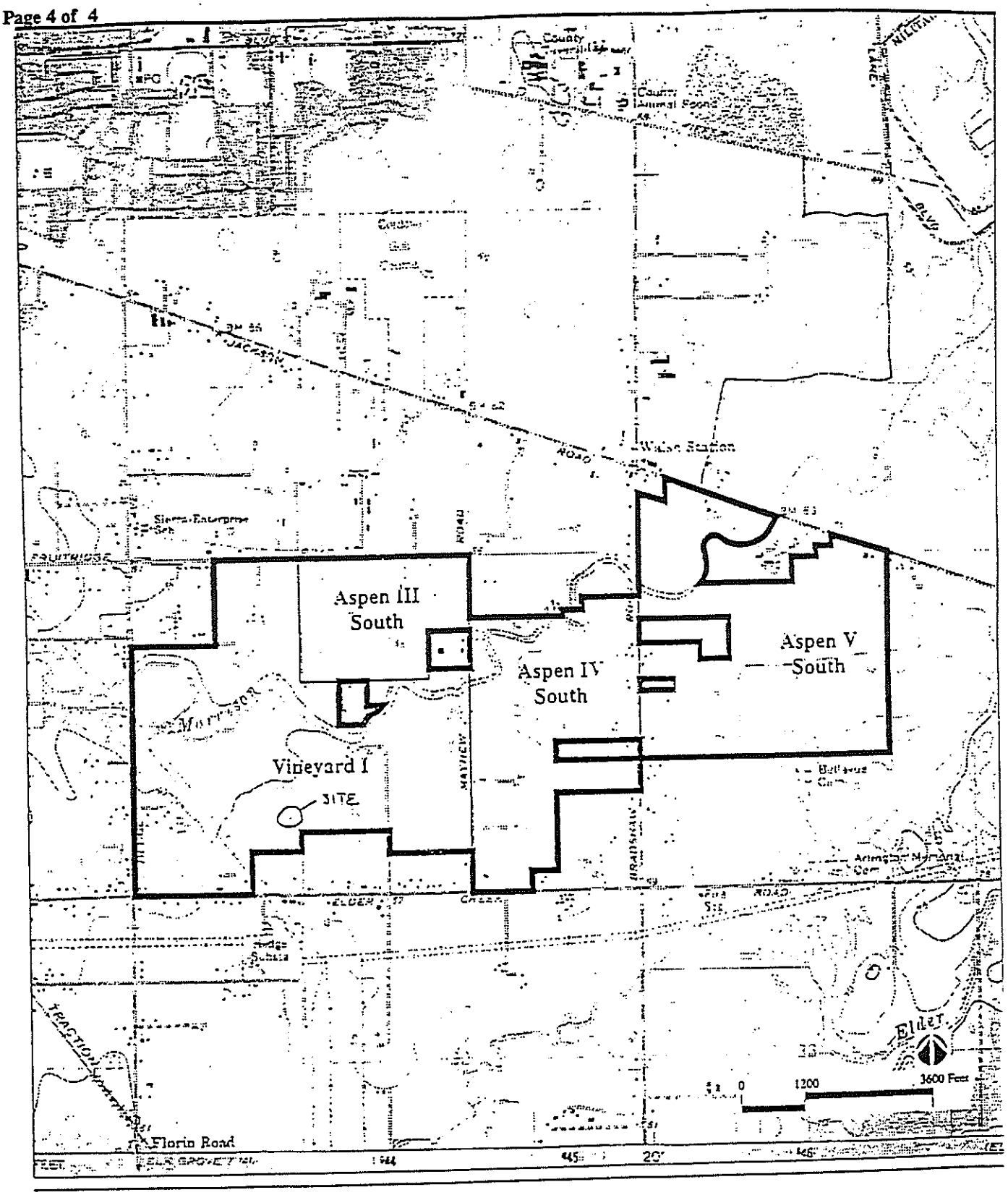
35. **Photos:** None taken.


Asbestos pipe at edge of debris scatter
Propane tank
29'
138' 309°
17°
101'
75' 285°
30'
137' 135°
77' 191°
Asphalt driveway
True North
Asphalt driveway
SCALE:
50 feet
LEGEND:
Site datum: telephone pole
Site boundary
Telephone pole
Pumphouse foundation and pump

Garcia and Associates
ARCHAEOLOGICAL SITE
LOCATION MAP
(DPR 422, Rev. 4/86)

Permanent Trinomial:
Other Designations: Resource #2

January 1996



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Project Boundary

Project Site Location

1. **County:** Sacramento.

2. **USGS Quad:** Carmichael, Calif., 7.5' (1967; Photorevised 1980).

3. **UTM Coordinates:** Zone 10; 643,000 m Easting; 4,263,880 m Northing

4. **Township:** 8N **Range:** 6E NW 1/4 of NE 1/4 of SW 1/4 of SE 1/4 of **Section** 30 **Base Mer.:** MDM

5. **Map Coordinates:** 512 mmS, 54mmE (from NW corner of map. 6. **Elevation:** 55 feet.

7. **Location:** From the intersection of Elder Creek Road and Hedge Avenue, follow Hedge north approximately 1300 feet. The site is located on the east side of Hedge at the end of an asphalt driveway.

8. **Prehistoric** [ ] **Historic** [X] **Protohistoric** [ ]

9. **Site Description:** This resource consists of two concrete pads and 5-6 bulldozed mounds of earth, concrete, and trees. The 1950 Carmichael 7.5 minute USGS map shows one small building and two larger buildings in the location of this resource. Later maps indicate that six additional buildings were constructed in the area after 1954. The larger buildings were probably barns and their locations correspond with the concrete pads, while the exact location of the smaller building cannot be determined from existing remains. Non-structural debris consists of a hand-full of scattered glass and ceramic shards. No domestic debris older than 45 years was identified within the resource area.

10. **Area:** 700 ft. (E-W) x 420 feet (N-S); 230,915 $ft.^2$

    Method of Determination: Bearings measured with hand-held compass and distances taped.

11. **Depth:** Unknown **Method of Determination:**

12. **Features:**
    Feature 1 is a large concrete slab, 38' x 96'.

    Feature 2 is a pile of concrete chunks that includes three formed, rectangular concrete troughs (?) or other structural remains.

    Feature 3 is a debris pile of concrete chunks with a few shards of white-wear ceramics and palm leaves.

13. **Artifacts:** A few scattered glass and ceramic shards next to feature 3; corrugated metal roofing; four old tires; milled wood.

14. **Non-Artifactual Constituents and Faunal Remains:** None observed

15. **Date Recorded:** 1/20/96 16. **Recorded by:** J. Haney, W. Shapiro, J. Scott

17. **Affiliation and Address:** Garcia and Associates, 3152 Paradise Drive, Tiburon, CA 94920.

18. **Human Remains:** None observed.

19. **Site Disturbances:** Site heavily disturbed: except for one concrete slab, all remains graded and pushed into debris piles.

20. **Nearest Water:** Morrison Creek.

21. Vegetation Community (site vicinity): Ruderal (disturbed)

22. Vegetation (on site): Annual grasses and forbs, bamboo, bull-dozed pile of tree stumps including palm trees.

23. Site Soil: Brown loam.

24. Surrounding Soil: Brown loam.

25. Geology: Sedimentary.

26. Landform: Featureless plain.

27. Slope: 0° 28. Exposure: Open.

29. Landowner and Address: Granite Construction Company, P.O. Box 15287, Sacramento, CA 95851

30. Remarks: Unable to determine whether any debris piles represent remains of a structure fifty years old; most are probably more recent buildings.

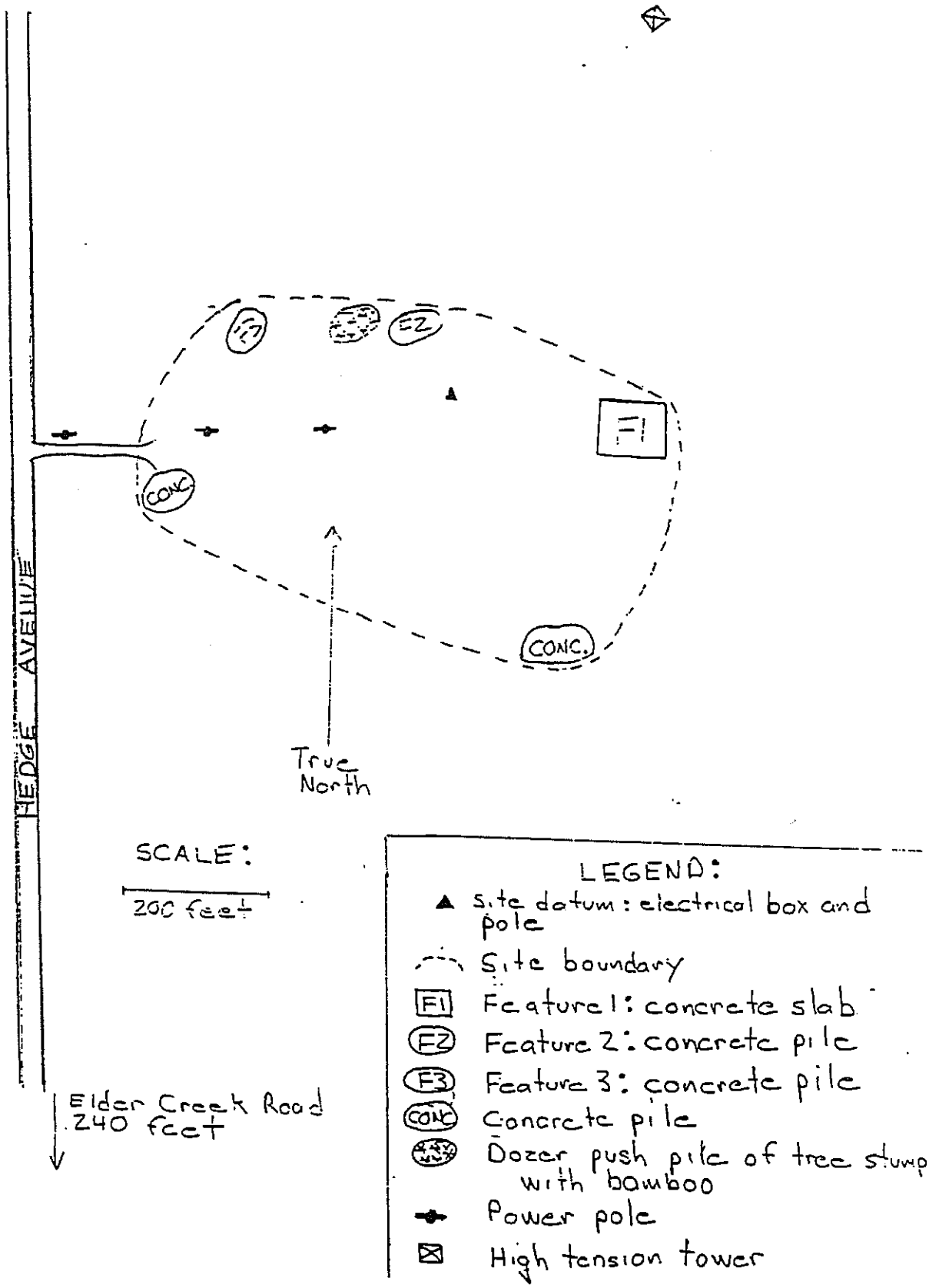
31. References:

32. Name of Project: Morrison Creek Mining Reach Downstream (South) of Jackson Highway (EIR/EIS)

33. Type of Investigation: Intensive survey.

34. Site Accession Number: No collections Curated At: N/A

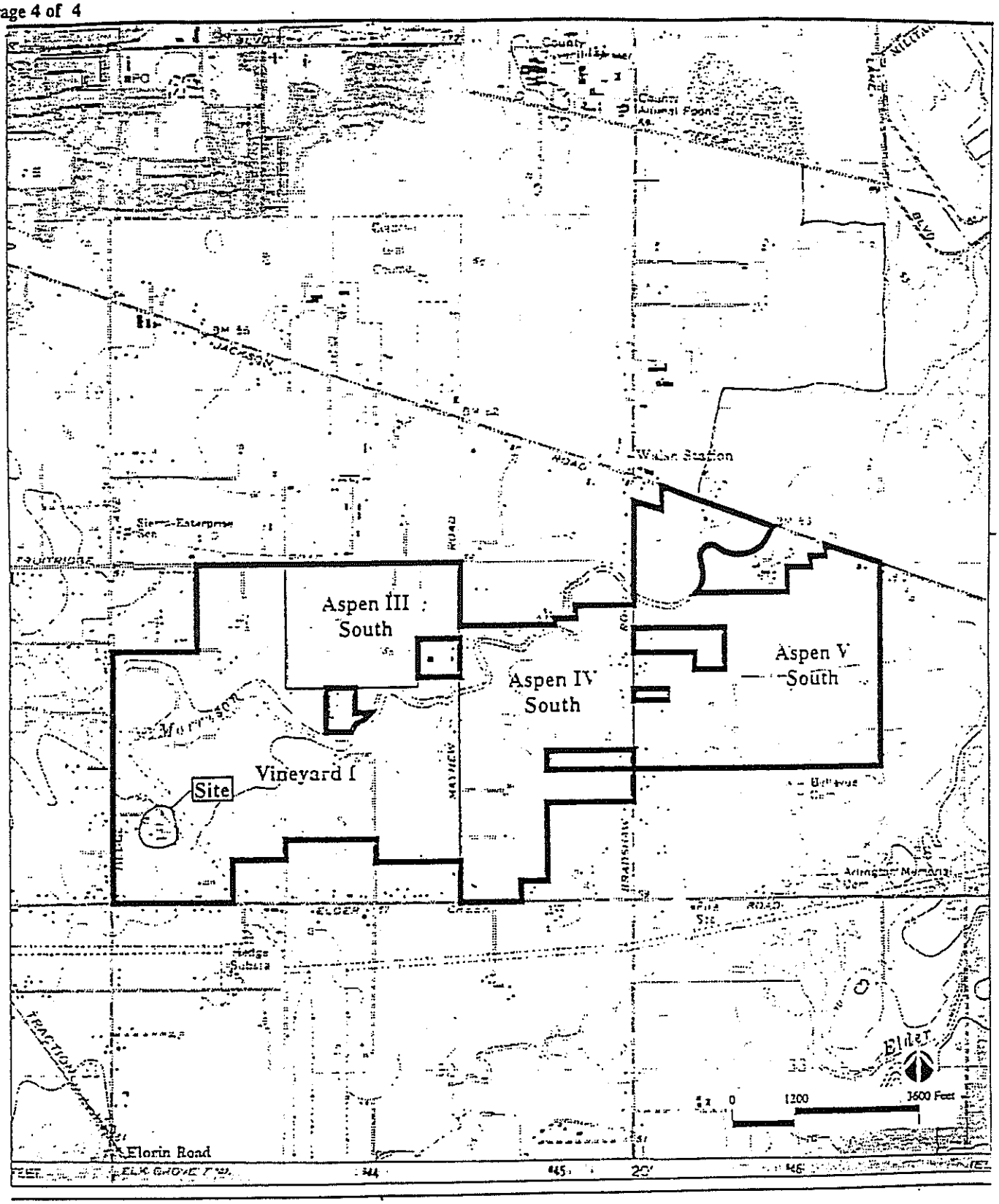
35. Photos: None taken.


F3
F2
F1
CONC
CONC.
HEDGE AVENUE
True North
SCALE:
200 feet
Elder Creek Road
240 feet
LEGEND:
Site datum: electrical box and pole
Site boundary
F1 Feature 1: concrete slab
F2 Feature 2: concrete pile
F3 Feature 3: concrete pile
CONC Concrete pile
Dozer push pile of tree stumps with bamboo
Power pole
High tension tower

Garcia and Associates
ARCHAEOLOGICAL SITE
LOCATION MAP
(DPR 422, Rev. 4/86)

Permanent Trinomial:
Other Designations: Resource #3

January 1996



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Project Boundary

Project Site Location

1. **County:** Sacramento.

2. **USGS Quad:** Carmichael, Calif., 7.5' (1967; Photorevised 1980).

3. **UTM Coordinates:** Zone 10; 643,360 m Easting; 4,264,240 m Northing.

4. **Township:** 8N **Range:** 6E NW 1/4 of NW 1/4 of SE 1/4 of NE 1/4 of Section 30 **Base Mer.:** MDM

5. **Map Coordinates:** 475 mmS, 70 mmE (from NW corner of map. 6. **Elevation:** 55 feet

7. **Location:** From the intersection of Fruitridge Road and Hedge Avenue, follow Hedge south approximately 1400 feet. The site is located approximately 1600 feet to the east.

8. **Prehistoric** [ ] **Historic** [X] **Protohistoric** [ ]

9. **Site Description:**This resource consists of sparse domestic and structural debris. The 1950 Carmichael 7.5 minute USGS quadrangle shows one building in the location of this resource, while the 1967 quadrangle shows an additional building in the area and the 1980 revised map shows three additional buildings. The ground surface was bull-dozed and plowed to the extent that none of these building locations are evident from existing debris. A 1 ft. diameter well hole is located 185 feet south of the damm. A scatter of debris is located around the well hole. The scatter consists of concrete chunks, ceramic tiles, ceramic pipe fragments, milled wood fragments, cut animal bone, aluminum beer cans, a rubber ball, clear window pane glass, a sink, toothbrush, tea cup, and ketchup bottle.

10. **Area:** 450 ft (E-W) x 300 ft (N-S); 90,000 ft^2.

    Method of Determination: Bearings measured with hand-held compass and distances taped

11. **Depth:** Unknown **Method of Determination:** N/A

12. **Features:** None

13. **Artifacts:** See site description above

14. **Non-Artifactual Constituents and Faunal Remains:** See site description above

15. **Date Recorded:** 1/20/96 16. **Recorded by:** J. Haney, W. Shapiro, J. Scott

17. **Affiliation and Address:** Garcia and Associates, 3152 Paradise Drive, Tiburon, CA 94920.

18. **Human Remains:** None observed

19. **Site Disturbances:** The site area has recently been graded and planted.

20. **Nearest Water:** Morrison Creek.

21. **Vegetation Community (site vicinity):** Ruderal (disturbed)

22. **Vegetation (on site):** Planted alfalfa (?); weeds and grass.

23. **Site Soil:** Red brown loam

24. **Surrounding Soil:** Red brown loam

25. **Geology:** Alluvium

26. **Landform:** Valley Floor

27. **Slope:** 0-2°

28. **Exposure:** Open

29. **Landowner and Address:** Granite Construction Company, P.O. Box 15287, Sacramento, CA 95851

30. **Remarks:**

31. **References:**

32. **Name of Project:** Morrison Creek Mining Reach Downstream (South) of Jackson Highway (EIR/EIS)

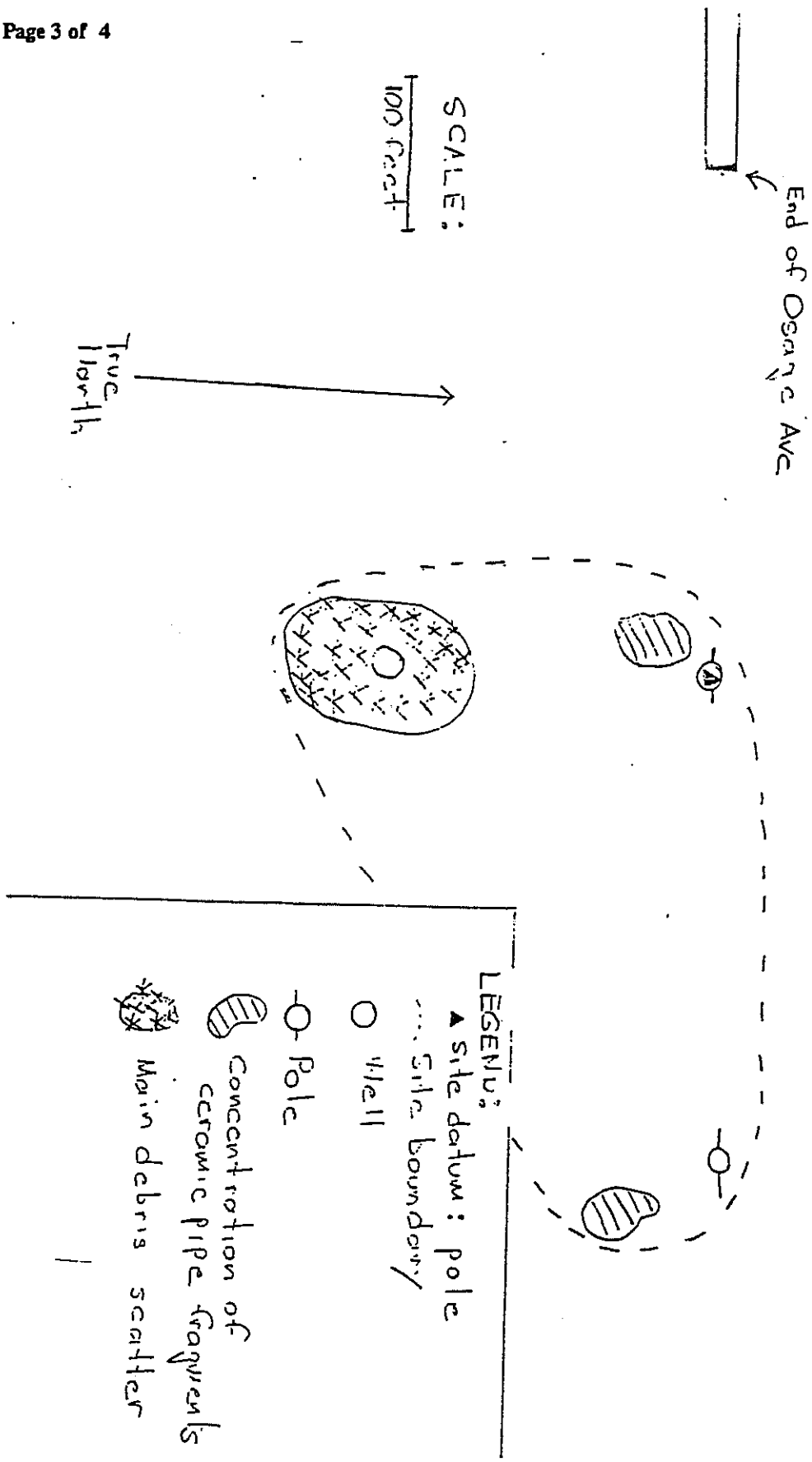
33. **Type of Investigation:** Intensive survey

34. **Site Accession Number:** No collections **Curated At:** N/A

35. **Photos:** None taken

Permanent Trinomial:
Other Designations: Resource #6

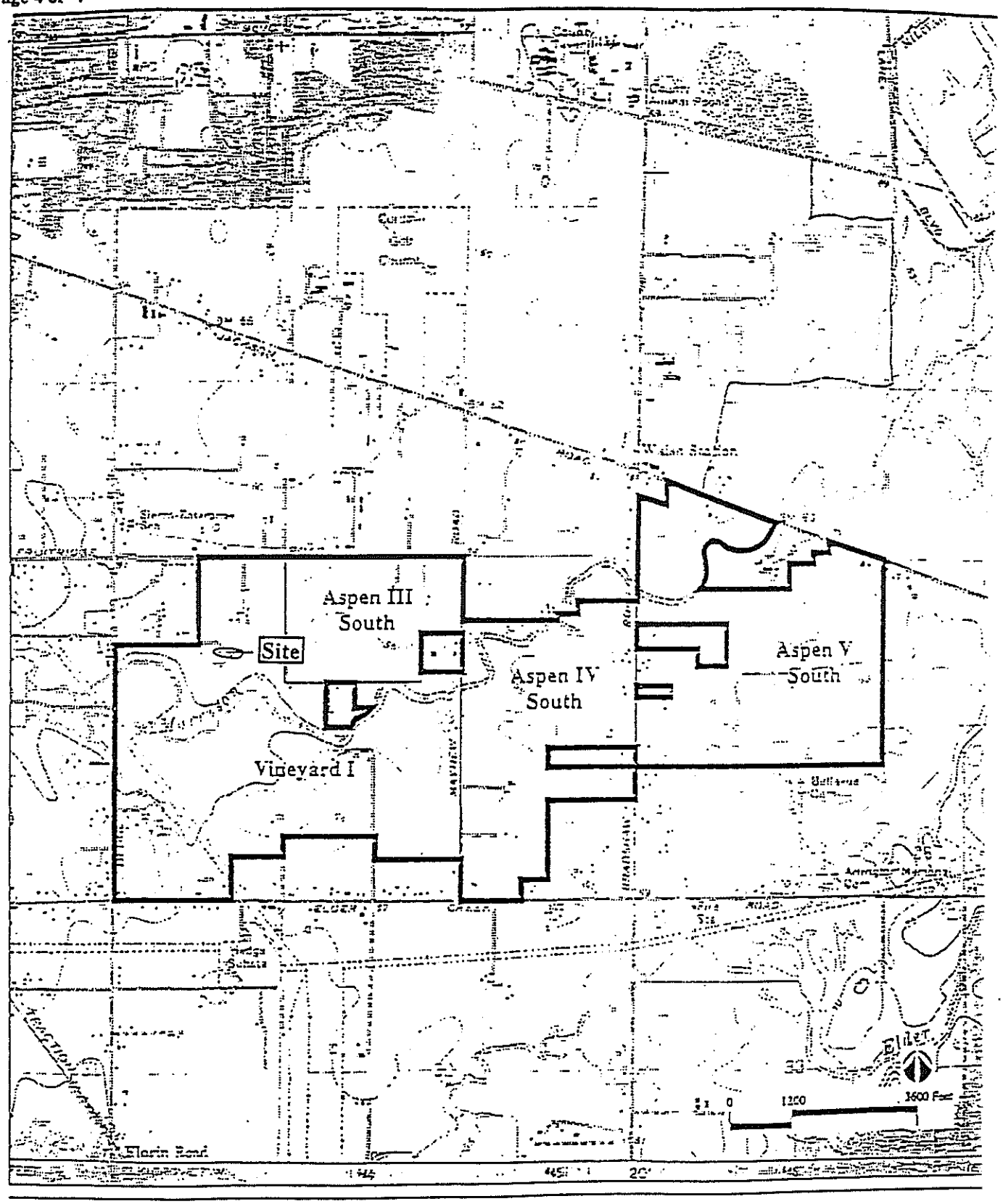
January 1996



Garcia and Associates
ARCHAEOLOGICAL SITE
LOCATION MAP
(DPR 422, Rev. 4/86)

Permanent Trinomial:
Other Designations: Resource #6

January 1996



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Project Boundary

Project Site Locatio

1. **County:** Sacramento.

2. **USGS Quad:** Carmichael, Calif., 7.5' (1967; Photorevised 1980).

3. **UTM Coordinates:** Zone 10; 643,500 m Easting; 4,264,860 m Northing

4. **Township:** 8N **Range:** 6E NW 1/4 of SE 1/4 of NE 1/4 of NE 1/4 of Section 30 **Base Mer.:** MDM

5. **Map Coordinates:** 472 mmS, 74 mm E (from NW corner of map 6. **Elevation:**

7. **Location:** From the intersection of Fruitridge Road and Hedge Avenue, follow Fruitridge approximately 2000 feet to the east. The site lies aproximately 1000 feet to the south.

8. **Prehistoric** [ ] **Historic** [X] **Protohistoric** [ ]

9. **Site Description:** This resource consists of a standing pumphouse and a sparse scatter of structural and modern domestic remains. The 1950 Carmichael 7.5 minute USGS map shows one small building in the location of this resource, while the 1967 quadrangle has four buildings in the area and the 1980 quadrangle shows two more small buildings. Debris within the area consist of milled wood, concrete, asphalt, culvert fragments, styrofoam, a tin can, a tire, and a few glass shards. The wood pumphouse has a concrete foundation, a concrete trough, and some modern PCV piping.

10. **Area:** 269 feet (E-W) by 208 feet (N-S); 60,283 feet^2.

    Method of Determination: Bearings measured by hand-held compass and distances taped.

11. **Depth:** Unknown **Method of Determination:**

12. **Features:**
    Feature 1 is a standing pump house, 7'3" (N-S) by 6'10" (E-W), with a 9' high gabled shack roof. A concrete basin, measuring 8' (N-S) by 5' (E-W), is on the south side of the pump house. Pipes, 6" in diameter, extend from the pump house to the basin. 12" concrete pipes extend out of the basin on the east and west sides.

13. **Artifacts:** Scattered domestic trash including one blue on white Asian porcelain fragment, concrete chunks, miscellaneous metal fragments, and plastic electric fencing holders.

14. **Non-Artifactual Constituents and Faunal Remains:** None observed.

15. **Date Recorded:** 1/20/96 16. **Recorded by:** J. Haney, W. Shapiro, J. Scott

17. **Affiliation and Address:** Garcia and Associates, 3152 Paradise Drive, Tiburon, CA 94920.

18. **Human Remains:** None observed.

19. **Site Disturbances:** Site area has been dozed and graded.

20. **Nearest Water:** Morrison Creek.

21. **Vegetation Community (site vicinity):** Ruderal (disturbed)

22. **Vegetation (on site):** Various weeds and grasses.

23. **Site Soil:** Red brown loam

24. **Surrounding Soil:** Red brown loam

25. **Geology:** Alluvial.

26. **Landform:** Flat valley floor

27. **Slope:** 0-2°

28. **Exposure:** Open

29. **Landowner and Address:** Granite Construction Company, P.O. Box 15287, Sacramento, CA 95851

30. **Remarks:** A filled in depression on the east edge of the site scatter corresponds to the location of a "pool" on the project maps. No evidence of the foundations of the buildings appearing on the project maps was observed.

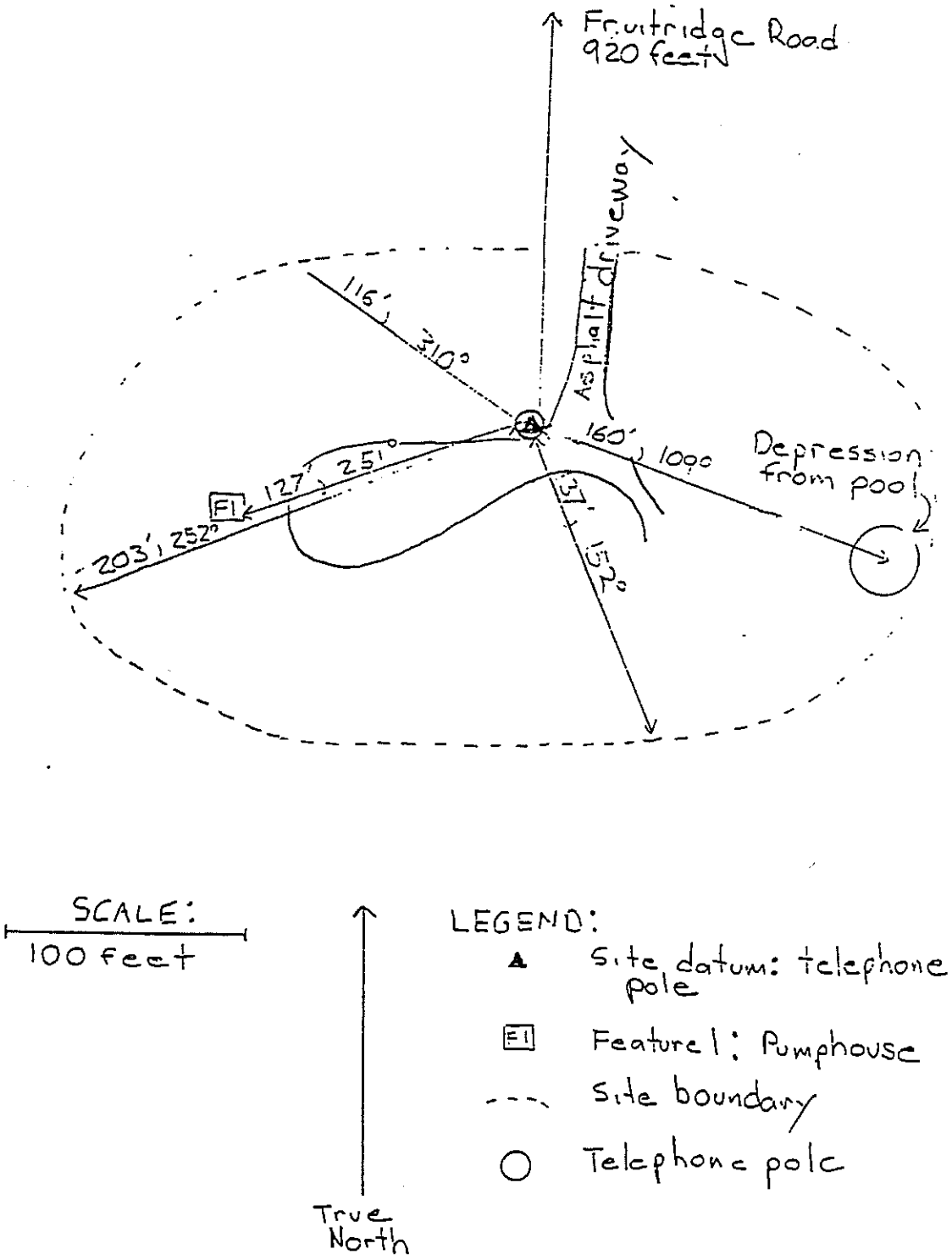
31. **References:**

32. **Name of Project:** Morrison Creek Mining Reach Downstream (South) of Jackson Highway (EIR/EIS)

33. **Type of Investigation:** Intensive survey.

34. **Site Accession Number:** No collections. **Curated At:** N/A

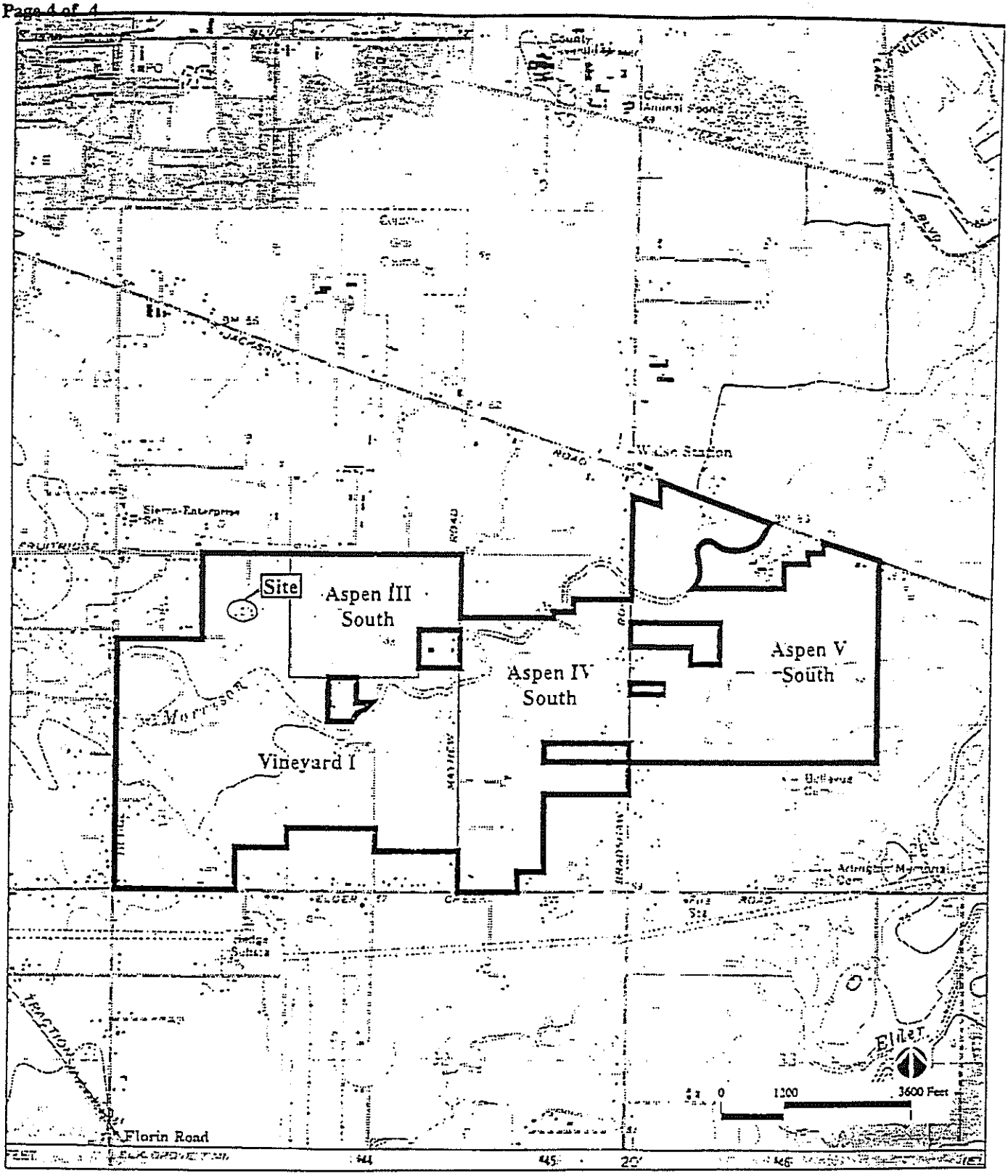
35. **Photos:** None taken.


Fruitridge Road
920 feet
Asphalt driveway
116'
310°
160'
100°
Depression from pool
127'
251°
F1
203'
252°
137'
152°
SCALE:
100 feet
True North
LEGEND:
Site datum: telephone pole
Feature 1: Pumphouse
Site boundary
Telephone pole

Garcia and Associates
ARCHAEOLOGICAL SITE
LOCATION MAP
(DPR 422, Rev. 4/86)

Permanent Trinomial:
Other Designations: Resource #7

January 1996



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Project Boundary

Project Site Location

A-

1. **County:** Sacramento.

2. **USGS Quad:** Carmichael, Calif., 7.5' (1967; Photorevised 1980).

3. **UTM Coordinates:** Zone 10; 644,430 m Easting; 4,263,760 m Northing

4. **Township:** 8N **Range:** 6E SW 1/4 of NE 1/4 of SE 1/4 of SE 1/4 of Section 29 **Base Mer.:** MDM

5. **Map Coordinates:** 512 mmS, 112mmE (from NW corner of map) 6. **Elevation:** 55 feet

7. **Location:** From the intersection of Mayhew Road and Elder Creek Road, follow Mayhew north approximately 700 feet. The site is located approximately 600 feet to the west of Mayhew.

8. **Prehistoric** [ ] **Historic** [X] **Protohistoric** [ ]

9. **Site Description:** This resource consists of a concrete pumphouse foundation, a bull-dozed mound of earth, non-native trees, and scattered debris. The 1950 Carmichael 7.5 minute USGS map shows three small buildings in the area of this resource, while the 1967 quadrangle shows only two buildings and the 1980 map shows only one remaining building in the area. The exact location for any of these buildings cannot be determined from existing remains. The pumphouse foundation, unlike the ones at other resources, is a rectangular trough sunk into the ground, although (similar to most pumphouses) a electric box on a pole is next to the foundation. Trees in the vicinity consist of a sycamore, pomegranite, walnut, and olive trees. A few brick fragments, concrete chunks, glass and ceramic shards, and pieces of plastic are present on the ground surface. No temporally diagnostic materials were identified within the area.

10. **Area:**288 feet (E-W) by 201 feet (N-S); 45,467 feet^2

    Method of Determination: Bearings measured by hand-held compass and distances taped.

11. **Depth:** Unknown **Method of Determination:**

12. **Features:**
    Feature 1 is the concrete foundation of a pumphouse, 9' by 9' in size, with a 4'8" by 7'9" sunken trough 3' deep next to an electrical pole.

13. **Artifacts:** Scattered brick fragments, concrete pieces, clear and green bottle glass.

14. **Non-Artifactual Constituents and Faunal Remains:** Oyster shell fragments

15. **Date Recorded:** 1/20/96 16. **Recorded by:** J. Haney, W. Shapiro, J. Scott

17. **Affiliation and Address:** Garcia and Associates, 3152 Paradise Drive, Tiburon, CA 94920.

18. **Human Remains:** None observed.

19. **Site Disturbances:** Site heavily disturbed by demolition of buildings and dozer push.

20. **Nearest Water:** Morrison Creek.

21. **Vegetation Community (site vicinity):** Ruderal (disturbed)

22. **Vegetation (on site):** Annual grasses and forbs, pomegranite trees, olive trees, sycamore trees.

23. **Site Soil:** Brown loam.

24. **Surrounding Soil:** Brown loam.

25. **Geology:** Sedimentary

26. **Landform:** Featureless plain

27. **Slope:** 0° 28. **Exposure:** Open

29. **Landowner and Address:** Granite Construction Company, P.O. Box 15287, Sacramento, CA 95851

30. **Remarks:**

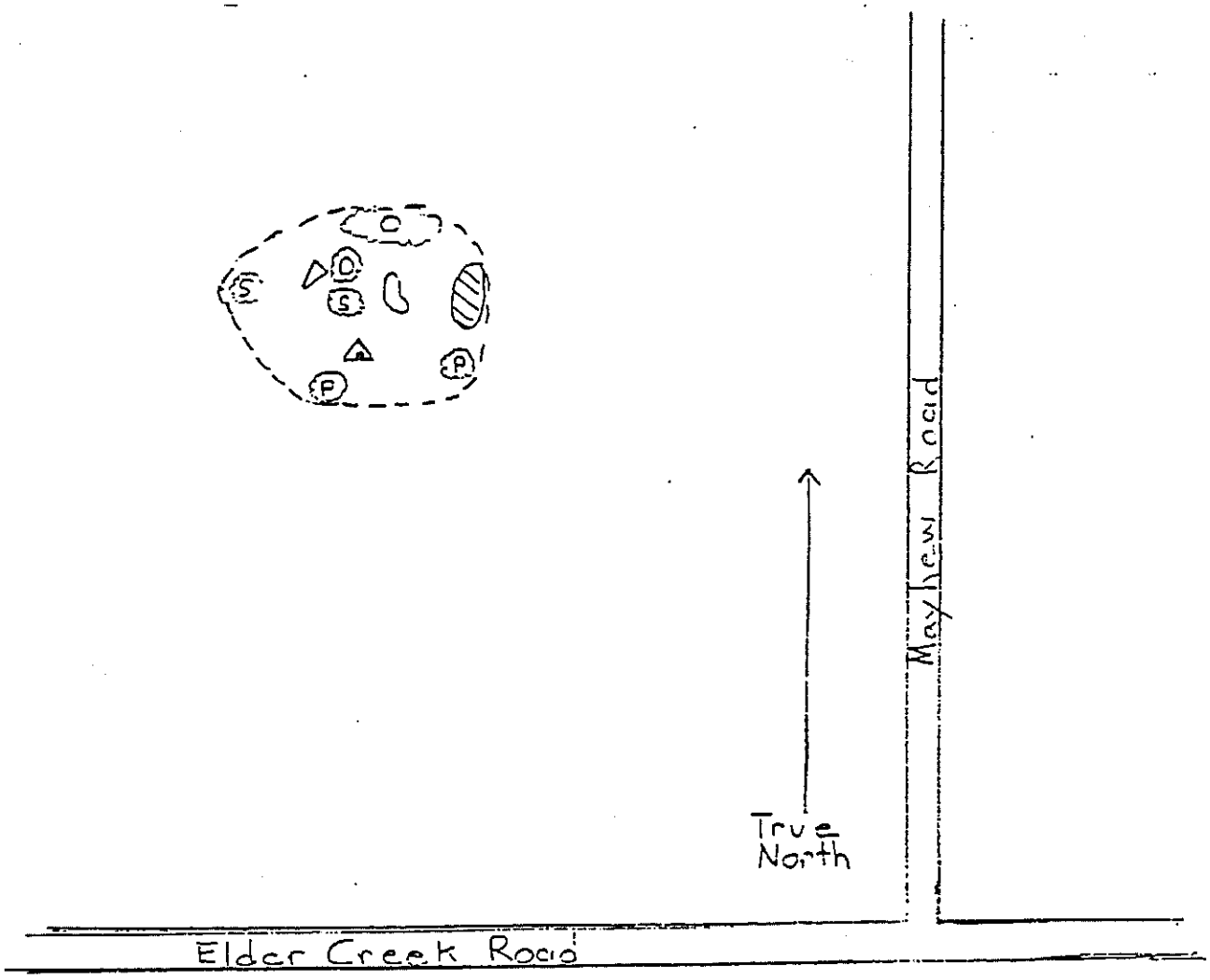
31. **References:**

32. **Name of Project:** Morrison Creek Mining Reach Downstream (South) of Jackson Highway (EIR/EIS)

33. **Type of Investigation:** Intensive survey.

34. **Site Accession Number:** No collections **Curated At:** N/A

35. **Photos:** None taken



SCALE:

200 feet

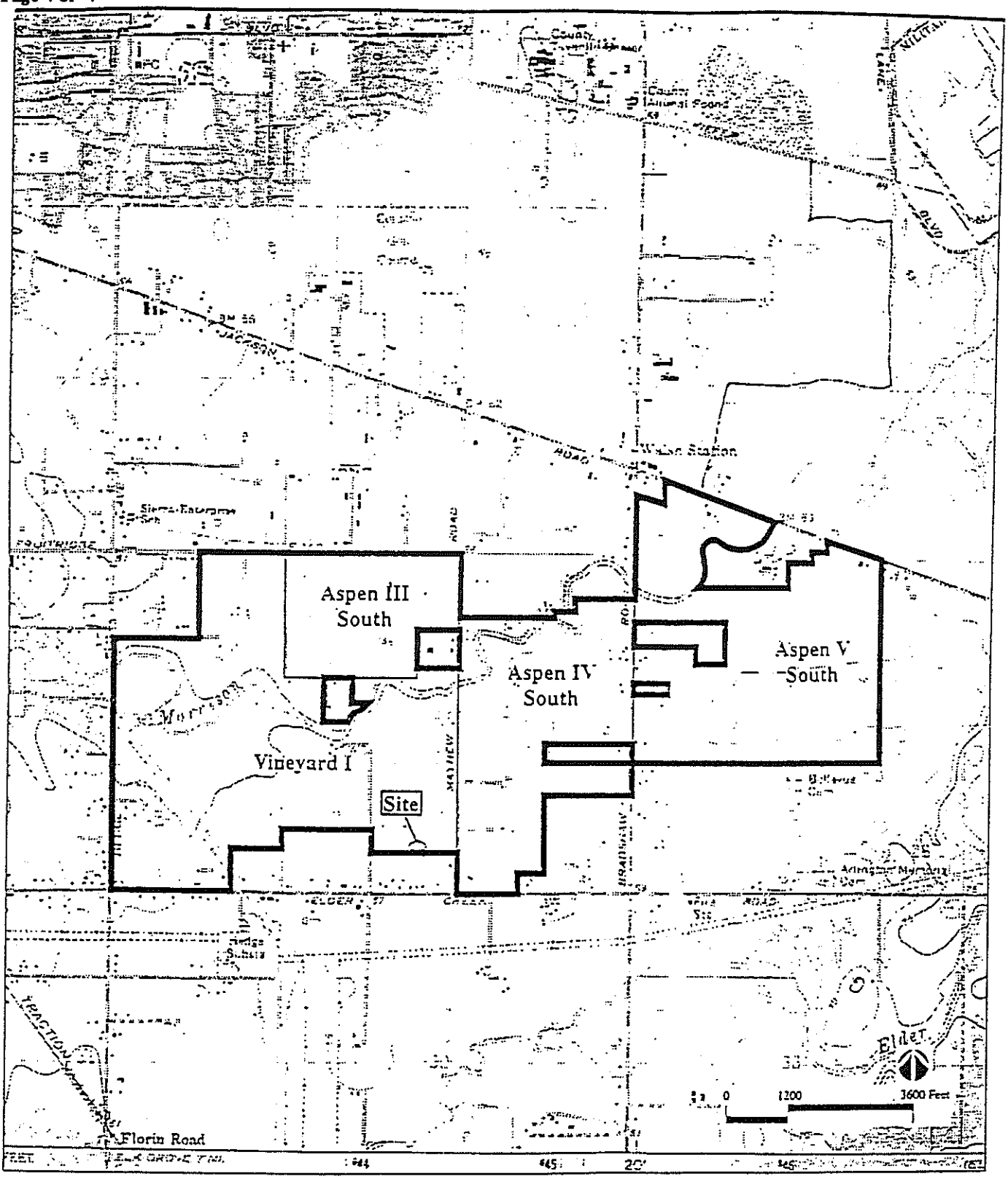
LEGEND:

- Site datum: post
- Site boundary
- Olive tree
- Sycamore
- Pomegranite
- Concrete fragment
- Dozer push pile
- Tree stumps

Garcia and Associates
ARCHAEOLOGICAL SITE
LOCATION MAP
(DPR 422, Rev. 4/86)

Permanent Trinomial:
Other Designations: Resource #8

January 1996



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Project Boundary

Project Site Location

A

1. **County:** Sacramento.

2. **USGS Quad:** Carmichael, Calif., 7.5' (1967; Photorevised 1980).

3. **UTM Coordinates:** Zone 10; 644,340 m Easting; 4,264,950 m Northing

4. **Township:** 8N **Range:** 6E SW 1/4 of NE 1/4 of NE 1/4 of NW 1/4 of Section 29 **Base Mer.:** MDM

5. **Map Coordinates:** 163 mmS, 109 mmE (from NW corner of map). 6. **Elevation:** 55 feet.

7. **Location:** From the instersection of Fruitridge and Mayhew Road, follow Fruitridge west approximately 600 feet. The site is located approximately 800 feet to the south of Fruitridge Road.

8. **Prehistoric** [ ] **Historic** [X] **Protohistoric** [ ]

9. **Site Description:** Unlike other demolished buildings in the project area, this resource contains abundant structural and domestic remains, including a concrete foundation with a basement. Burned materials within the resource area suggest fire destroyed the main building. The 1950 and 1954 Carmichael 7.5 minute USGS map reveals one building in the area, while the 1967 quadrangle shows four buildings and the 1980 map has only two buildings in the area. Extant structural remains consist of the foundation surrounded by concrete sidewalks, a pumphouse foundation (inscribed with a 1970s date), a foundation for a garage or shed, and a fuel tank on a wood platform. Material remains surrounding the foundations include a stove pipe, metal-frame kitchen chairs, a refrigerator, garden hose, battery, tires, paint cans, milled wood, nails, and brick fragments.

10. **Area:** 180 ft (N-S) by 80 ft (E-W); 11,310 ft^2.

    Method of Determination: Bearings measured by hand-held compass and distances taped.

11. **Depth:** Unknown **Method of Determination:**

12. **Features:**
    Feature 1 is the primary building foundation measuring 47' (N-S) by 30' E-W. It is surrounded by a concrete walkway with ornamental plants and two large juniper trees at the main entrance on the west side of the foundation.

    Additional features include a foundation of a shed located to the south of the main foundation, measuring 26' (N-S) by 32' (E-W); the burned foundation of a shed on the south side of the the main structure foundation measuring 24' (N-S) by 21' (E-W); and two sections of a pumphouse foundation measuring 8' by 10'and 10' by 4'.

13. **Artifacts:** Additional artifacts include blue on white Asian ceramics, a shell button, and an abalone shell.

14. **Non-Artifactual Constituents and Faunal Remains:** None observed.

15. **Date Recorded:** 1/20/96 16. **Recorded by:** J. Haney, W. Shapiro, J. Scott

17. **Affiliation and Address:** Garcia and Associates, 3152 Paradise Drive, Tiburon, CA 94920.

18. **Human Remains:** None observed.

19. **Site Disturbances:** Buildings demolished and removed, but site has not been dozed and graded like most of the resources in the project area.

20. **Nearest Water:** Morrison Creek.

21. **Vegetation Community (site vicinity):** Ruderal (disturbed)

22. **Vegetation (on site):** Juniper, bamboo, olive, pine, valley oak, citrus tree, ornamentals, flowering bulbs, weeds and grasses.

23. **Site Soil:** Red-brown loam

24. **Surrounding Soil:** Red-brown loam

25. **Geology:**

26. **Landform:** Elevated flat.

27. **Slope:** 0°

28. **Exposure:** Open

29. **Landowner and Address:** Teichert Aggregates, P.O. Box 15002, Sacramento CA 95851

30. **Remarks:** Remnants of the old driveway are noticeable in the field and in aerial photographs. Driveway extends north from the northwest corner of site to Fruitridge Road.

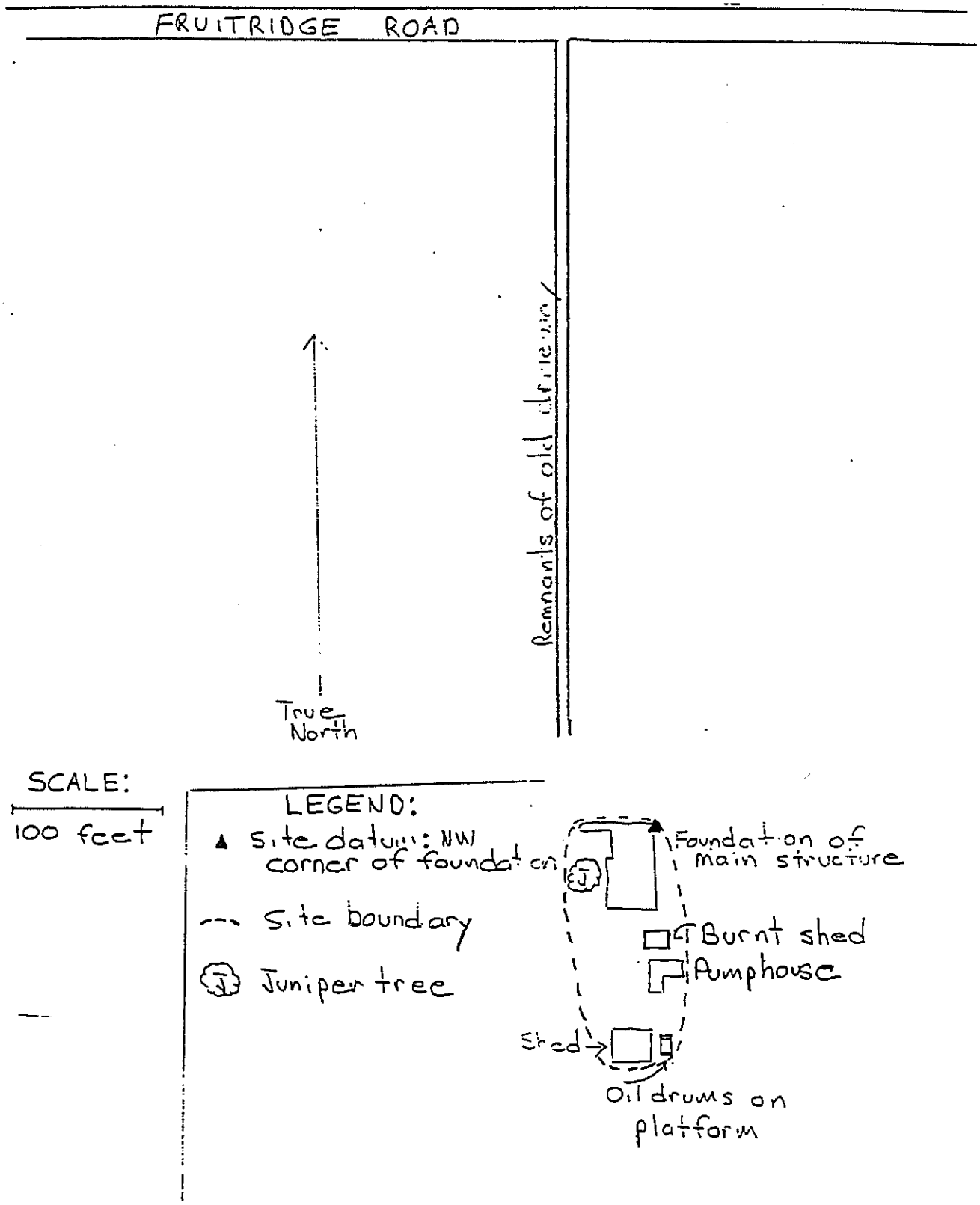
31. **References:**

32. **Name of Project:** Morrison Creek Mining Reach Downstream (South) of Jackson Highway (EIR/EIS)

33. **Type of Investigation:** Intensive survey.

34. **Site Accession Number:** No collections. **Curated At:** N/A

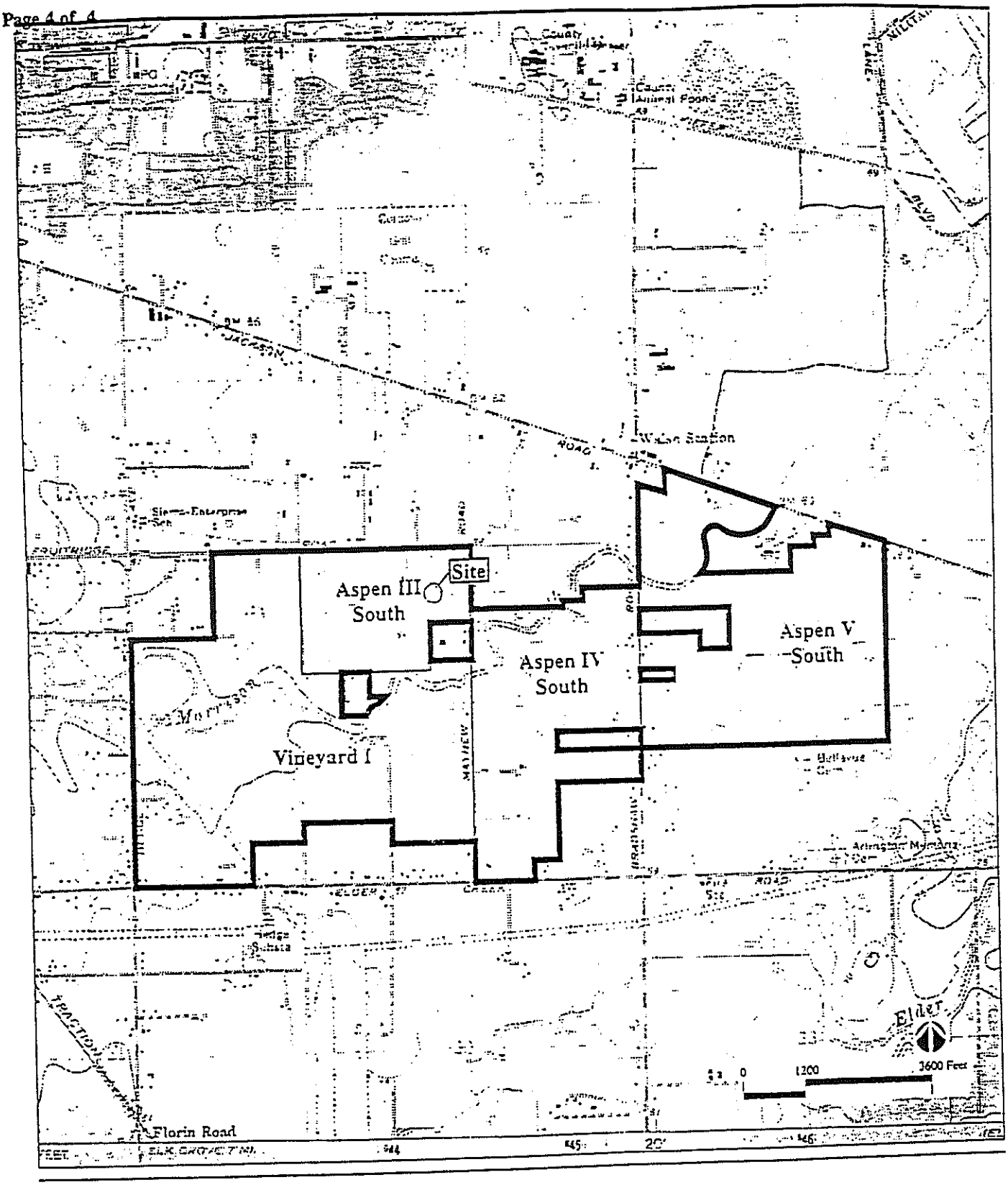
35. **Photos:** None taken.


FRUITRIDGE ROAD
Remnants of old driveway
True North
SCALE:
100 feet
LEGEND:
Site datum: NW corner of foundation
Site boundary
Juniper tree
Foundation of main structure
Burnt shed
Pumphouse
Shed
Oil drums on platform

Garcia and Associates
ARCHAEOLOGICAL SITE
LOCATION MAP
(DPR 422, Rev. 4/86)

Permanent Trinomial:
Other Designations: Resource #10

January 1996



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Project Boundary

Project Site Location

1. County: Sacramento.

2. USGS Quad: Carmichael, Calif., 7.5' (1967; Photorevised 1980).

3. UTM Coordinates: Zone 10; 644,140 m Easting; 4,265,050 m Northing

4. Township: 8N Range: 6E SW 1/4 of NW 1/4 of NE 1/4 of NW 1/4 of Section 29 Base Mer.: MDM

5. Map Coordinates: 463 mmS, 102 mmE (from NW corner of map. 6. Elevation: 55

7. Location: From the intersection of Fruitridge Road and Mayhew Road, follow Mayhew west approximately 1000 feet. The site is located 500 feet to the south.

8. Prehistoric [ ] Historic [X] Protohistoric [ ]

9. Site Description: This resource consists of a partially buried concrete foundation. The 1950 Carmichael 7.5 minute USGS quadrangle and revisions through 1985 consistently show a single building in this location. Adjacent to the extant foundation are an old fig tree and, further away, rusted farm equipment. The farm equipment includes a field harrow and a Merrill rake. No domestic or structural debris are present on the ground surface within the area surrounding this resource.

10. Area: 330 ft (E-W) by 50 ft (N-S); 12,960 ft^2.

Method of Determination: Bearings measured with hand-held compass and distances taped

11. Depth: Unknown Method of Determination:

12. Features:
Remnants of a concrete foundation with a 12" vertical metal pipe; a separate concrete foundation measuring 12' x 12' located east of the main area of the site next to an olive tree.

13. Artifacts: One blue glazed earthenware ceramic fragment; red brick fragments; clear window pane glass fragments; white porcelain fragment; shovel head.

14. Non-Artifactual Constituents and Faunal Remains: None observed.

15. Date Recorded: 1/20/96 16. Recorded by: J. Haney, W. Shapiro, J. Scott

17. Affiliation and Address: Garcia and Associates, 3152 Paradise Drive, Tiburon, CA 94920.

18. Human Remains: None observed.

19. Site Disturbances: Area has been dozed and surrounding area has been graded and planted.

20. Nearest Water: Morrison Creek.

21. Vegetation Community (site vicinity): Ruderal (disturbed)

22. Vegetation (on site): Fig tree, sycamore, olive tree, rose bush, flowering bulbs.

23. Site Soil: Red-brown loam.

24. Surrounding Soil: Red-brown loam.

25. Geology: Sedimentary

26. Landform: Valley floor

27. Slope: 0-2°

28. Exposure: Open

29. Landowner and Address: Teichert Aggregates, P.O. Box 15002, Sacramento CA 95851

30. Remarks: No evidence of materials earlier than 50 years of age.

31. References:

32. Name of Project: Morrison Creek Mining Reach Downstream (South) of Jackson Highway (EIR/EIS)

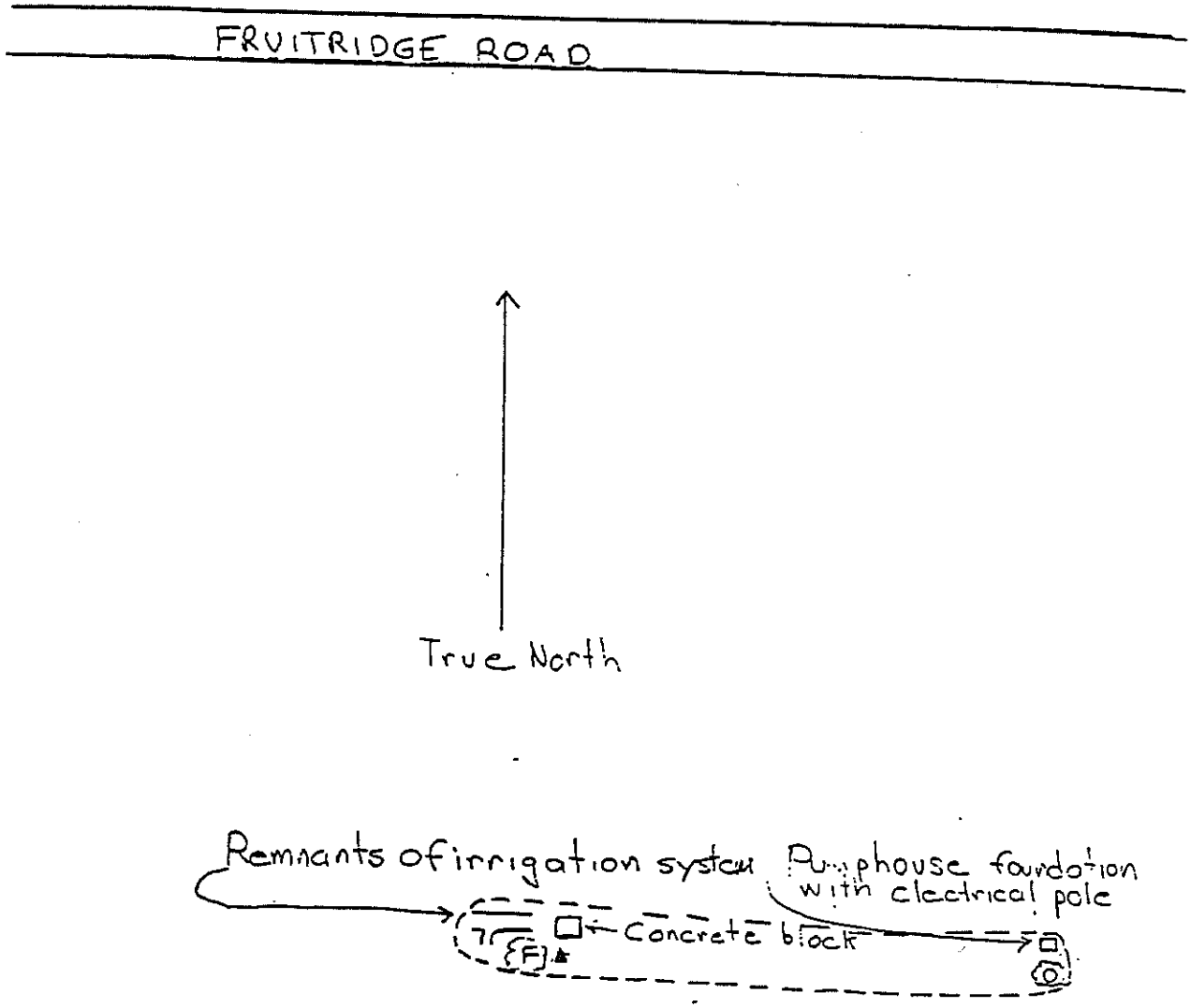
33. Type of Investigation: Intensive survey

34. Site Accession Number: No collections

Curated At: N/A

35. Photos: None taken

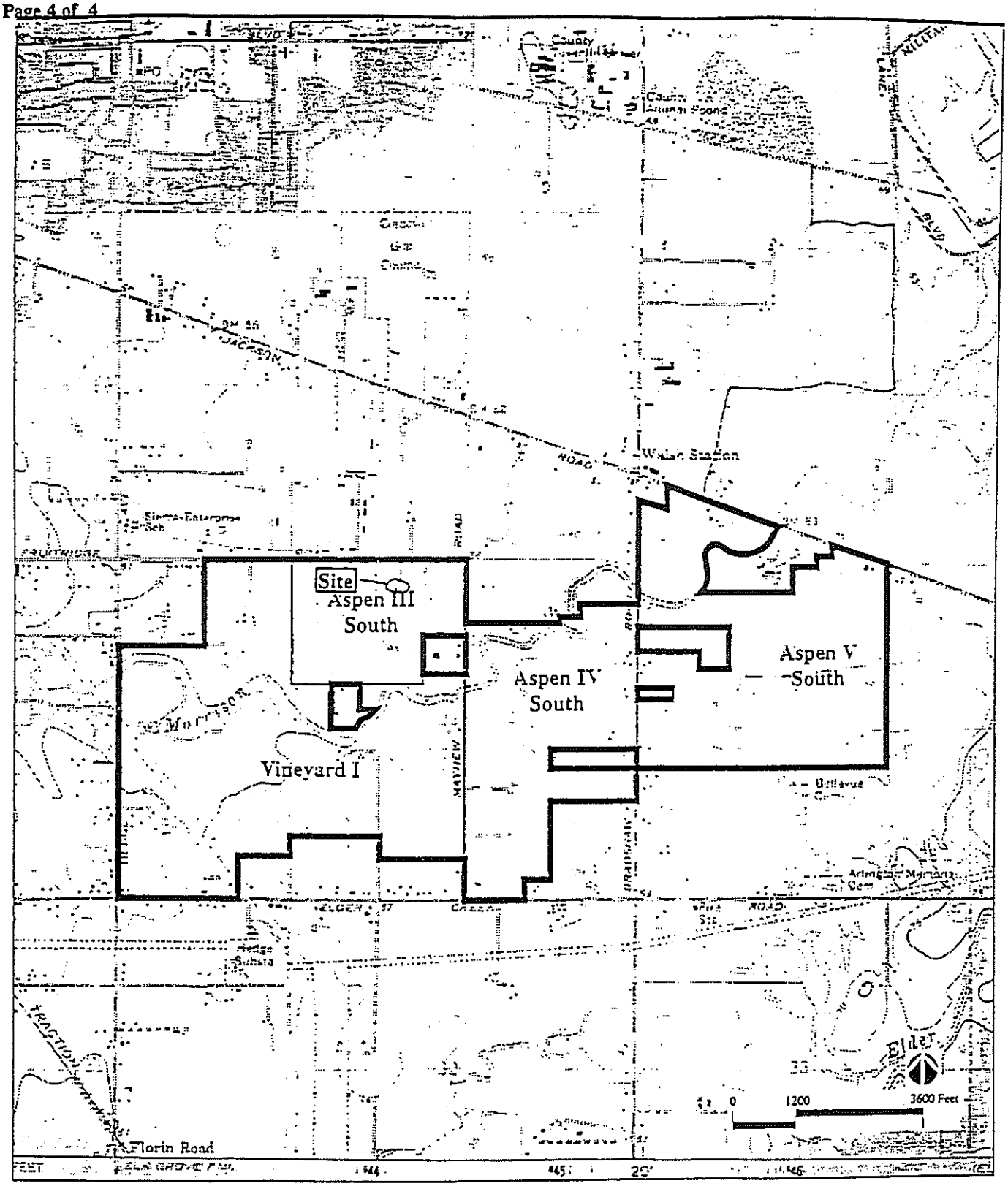
Permanent Trinomial: January 1996
Other Designations: Resource #11



Garcia and Associates
ARCHAEOLOGICAL SITE
LOCATION MAP
(DPR 422, Rev. 4/86)

Permanent Trinomial:
Other Designations: Resource #11

January 1996



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Project Boundary

Project Site Location

A

1. **County:** Sacramento.

2. **USGS Quad:** Carmichael, Calif., 7.5' (1967; Photorevised 1980).

3. **UTM Coordinates:** Zone 10; 645,240 m Easting; 4,264,000 m Northing

4. **Township:** 8N **Range:** 6E SE 1/4 of SE 1/4 of NE 1/4 of SE 1/4 of Section 29 **Base Mer.:** MDM

5. **Map Coordinates:** 507 mmS, 147 mmE (from NW corner of map). 6. **Elevation:** 60 feet

7. **Location:** From the intersection of Elder Creek Road and Bradshaw Road, follow Bradshaw north 1200 feet. The site is located 300 feet to the west.

8. **Prehistoric** [ ] **Historic** [X] **Protohistoric** [ ]

9. **Site Description:** This resource consists of concrete foundations for a pumphouse and two building pads surrounded by spruce, sycamore, palm, olive, and pomegranate trees. The only debris present consist of tar paper, linoleum, aluminum nails, and window glass. West of these remains are old fig, walnut, and pomegranate trees, and a concrete trough. The Carmichael 7.5 minute USGS quadrangles from 1950 through 1967 consistently show a single building in this location, although the 1985 revision shows another building immediately to the north on land that is outside the project area.

   The main foundation is 20' (E-W) by 26' (N-S) and is surrounded by a concrete walkway on the north and east edges. Northwest of the main foundation is a smaller elevated concrete slab with peeling linoleum measuring 6'1" (E-W) by 10'1" (N-S). The smaller foundation is between the main foundation and the olive tree. West of the smaller foundation (approximately 22') is an old palm tree and west of the palm tree (24') is a well. Another small elevated concrete pad is adjacent and north of the palm and measures 9.5 ' (N-S) by 6.5' (E-W). The well has a concrete slab measuring 4' by 4'.

10. **Area:** 880 ft (E-W) by 300 ft (N-S); 207,352 ft^2.

    Method of Determination: Bearings measured by hand-held compass and distances taped.

11. **Depth:** Unknown **Method of Determination:**

12. **Features:** None noted.

13. **Artifacts:** Tar paper, linoleum, aluminum nails, and window glass.

14. **Non-Artifactual Constituents and Faunal Remains:** None observed.

15. **Date Recorded:** 1/20/96 16. **Recorded by:** J. Haney, W. Shapiro, J. Scott

17. **Affiliation and Address:** Garcia and Associates, 3152 Paradise Drive, Tiburon, CA 94920.

18. **Human Remains:** None observed.

19. **Site Disturbances:** Buildings razed and removed.

20. **Nearest Water:** Morrison Creek.

21. **Vegetation Community (site vicinity):** Ruderal (disturbed)

22. **Vegetation (on site):** Palm tree, olive tree, sycamore, juniper, and flowering bulbs.

23. **Site Soil:** Loam

24. **Surrounding Soil:** Loam

25. **Geology:** Sedimentary

26. **Landform:** Valley floor

27. **Slope:** 0-2° 28. **Exposure:** Open

29. **Landowner and Address:** Teichert Aggregates, P.O. Box 15002, Sacramento CA 95851

30. **Remarks:**

31. **References:**

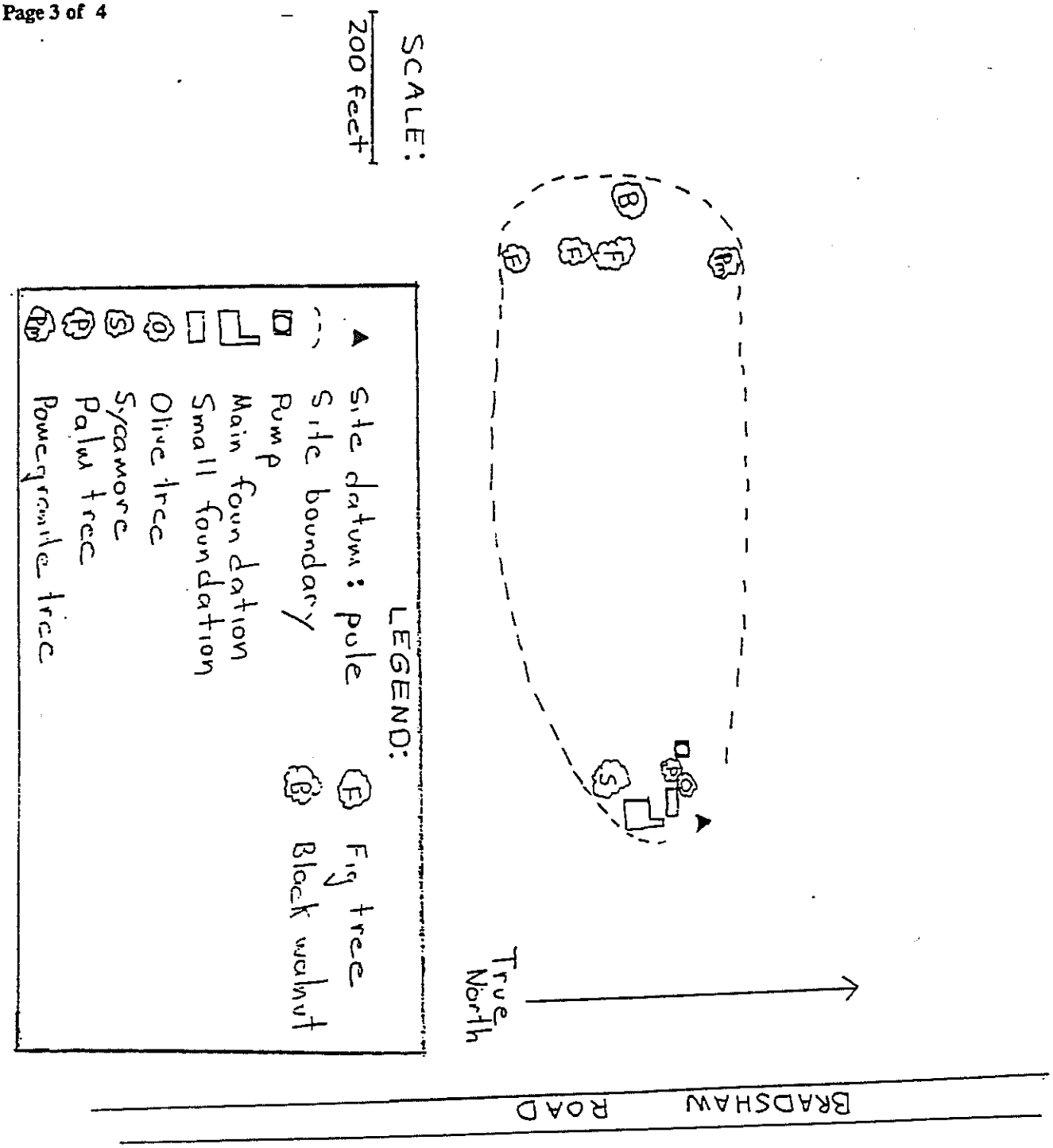
32. **Name of Project:** Morrison Creek Mining Reach Downstream (South) of Jackson Highway (EIR/EIS)

33. **Type of Investigation:** Intensive survey

34. **Site Accession Number:** No collections. **Curated At:** N/A

35. **Photos:** None taken.

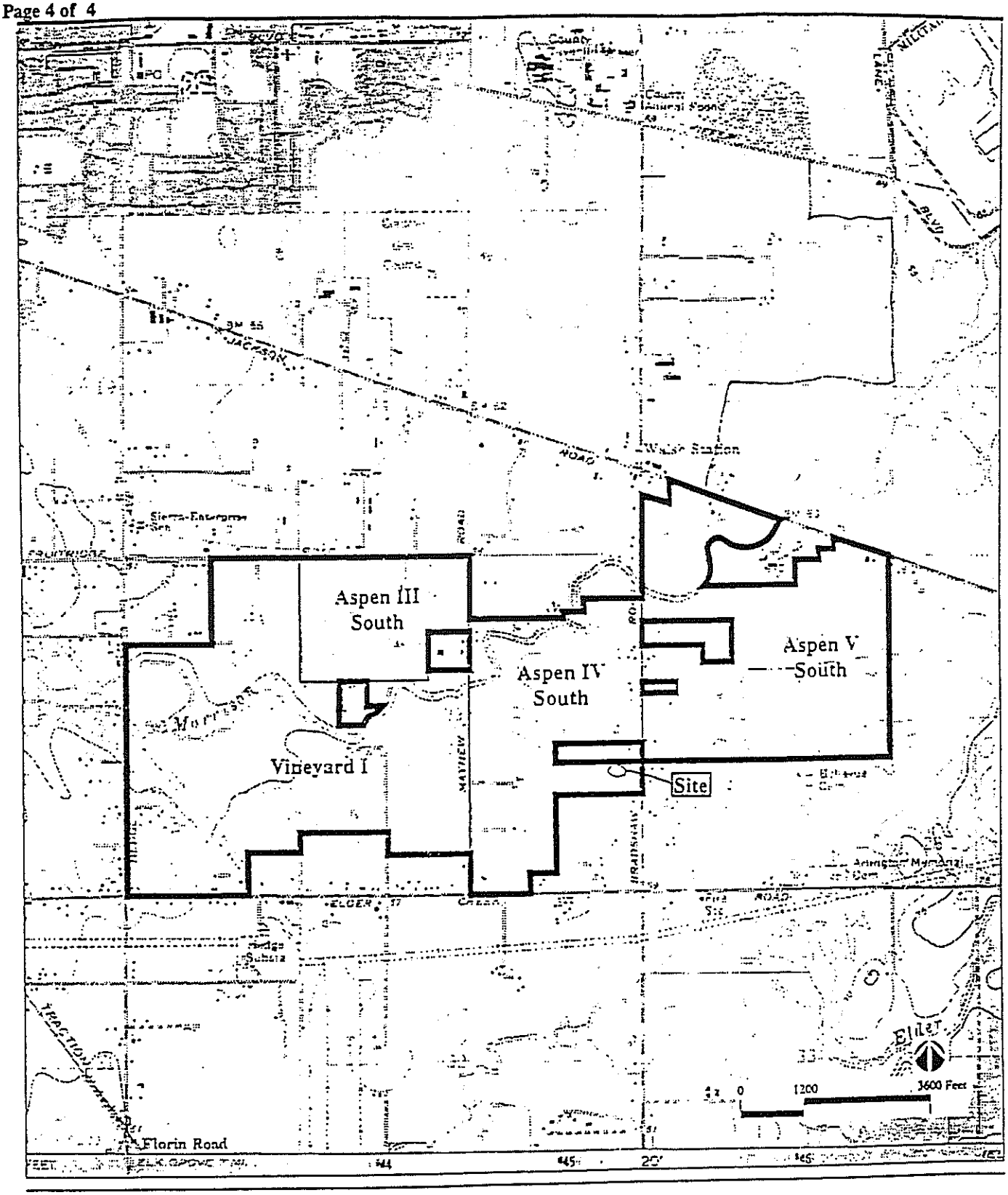
Permanent Trinomial: January 1996
Other Designations: Resource #12



Garcia and Associates
ARCHAEOLOGICAL SITE
LOCATION MAP
(DPR 422, Rev. 4/86)

Permanent Trinomial:
Other Designations: Resource #12

January 1996



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Project Boundary

Project Site Location

1. **County:** Sacramento.

2. **USGS Quad:** Carmichael, Calif., 7.5' (1967; Photorevised 1980).

3. **UTM Coordinates:** Zone 10; 645,240 m Easting; 4,264,550 m Northing.

4. **Township:** 8N **Range:** 6E NE 1/4 of SE 1/4 of SE 1/4 of NE 1/4 of Section 29 **Base Mer.:** MDM

5. **Map Coordinates:** 484 mmS, 147 mmE (from NW corner of map). 6. **Elevation:** 55 feet.

7. **Location:** From the intersection of Elder Creek Road and Bradshaw Road, follow Bradshaw north 3100 feet. The site is located along the north side of the seasonal creek west of Bradshaw.

8. **Prehistoric** [ ] **Historic** [X] **Protohistoric** [ ]

9. **Site Description:** This resource consists of a gravel drive leading from the road, past concrete foundations of a pumphouse, an outbuilding, and a residence. West of the residence, in an area that was probably the backyard, is a standing wood fence adjacent to a small rock-lined pond (currently dry) and a stand of bamboo. A few shards of Asian ceramics are present on the ground surface along with linoleum, brick fragments, and clear window glass. The Carmichael USGS quadrangles 1950 through 1967 consistently show a single building in the location of the residence, while a second building north of the original building is shown on the 1985 quadrangle.

   Approximately 65 feet to the west of the Foundation is a north-south fence line along the east edge of the creek channel; the southern half of the fence has bamboo along it, while the northern half is covered by blackberry bushes. At the north end of the bamboo section is a rock-lined depression which apparently was an ornamental pond fed by the creek. The pond area is approximately 15 feet (N-S) by 12 feet (E-W) and 2.5 feet deep. Around the pond are sections of 5" diameter ceramic pipe, blue on white Asian ceramic fragments, window pane glass, brick fragment, a marble and a wooden framed structure remnant measuring 4' by 3' by 5.5' high with chicken wire attached.

10. **Area:** 320 ft (N-S) by 240 ft (E-W); 60,320 ft^2

    Method of Determination: Bearings measured by hand-held compass and distances taped.

11. **Depth:** Unknown **Method of Determination:**

12. **Features:**

    Feature 1 is the concrete slab foundation of the demolished residence measuring 37' (E-W) by 35' (N-S).

    Feature 2 is a rock-lined depression which apparently was an ornamental pond fed by the creek. The pond area is approximately 15 feet (N-S) by 12 feet (E-W) and 2.5 feet deep.

13. **Artifacts:** Sections of 5" diameter ceramic pipe, blue on white Asian ceramic fragments, window pane glass, brick fragment, and a marble

14. **Non-Artifactual Constituents and Faunal Remains:** None observed.

15. **Date Recorded:** 1/20/96 16. **Recorded by:** J. Haney, W. Shapiro, J. Scott

17. **Affiliation and Address:** Garcia and Associates, 3152 Paradise Drive, Tiburon, CA 94920.

18. **Human Remains:** None observed.

19. **Site Disturbances:** Structure razed and removed; area has been dozed; cattle currently grazing on site.

20. **Nearest Water:** Morrison Creek.

21. **Vegetation Community (site vicinity):** Ruderal (disturbed)

22. **Vegetation (on site):** Ornamental trees/shrubs (black walnut ?), bamboo, various weeds and grasses.

23. **Site Soil:** Loam

24. **Surrounding Soil:** Loam.

25. **Geology:** Sedimentary.

26. **Landform:** Valley floor.

27. **Slope:** 0-10° 28. **Exposure:** Open

29. **Landowner and Address:** Teichert Aggregates, P.O. Box 15002, Sacramento CA 95851

30. **Remarks:**

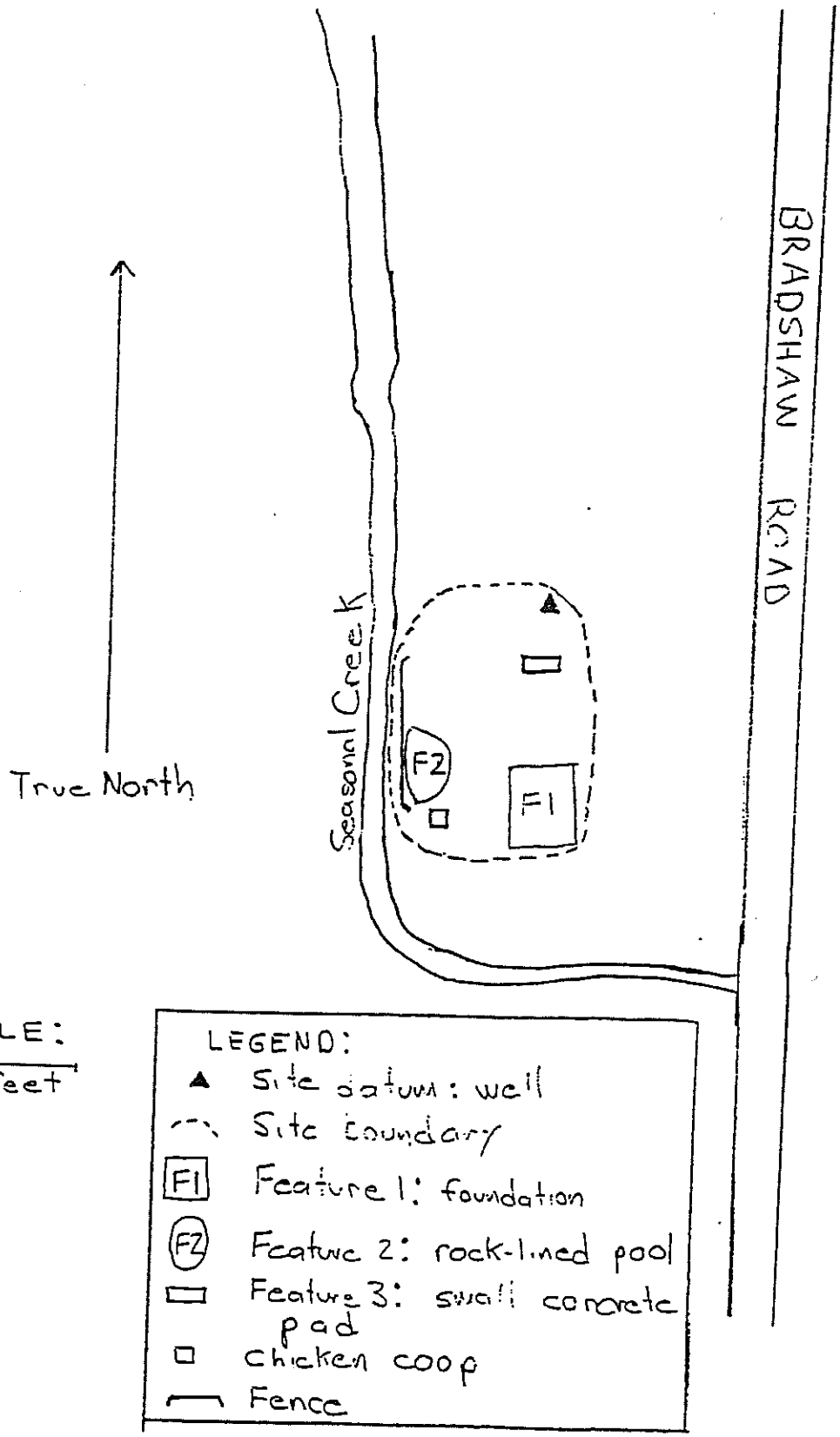
31. **References:**

32. **Name of Project:** Morrison Creek Mining Reach Downstream (South) of Jackson Highway (EIR/EIS)

33. **Type of Investigation:** Intensive survey.

34. **Site Accession Number:** No collections **Curated At:** N/A

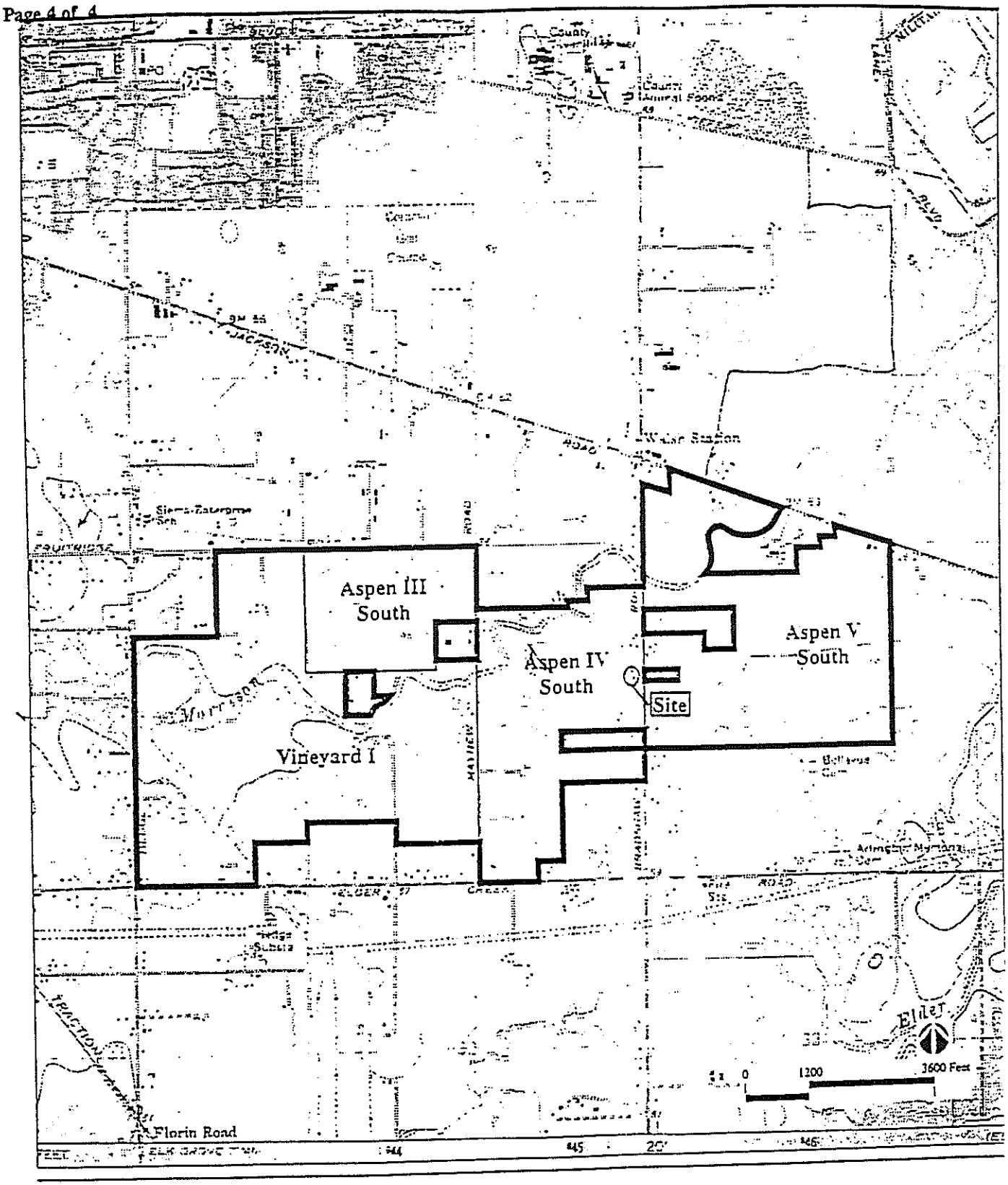
35. **Photos:** None taken


BRADSHAW ROAD
Seasonal Creek
F1
F2
True North
SCALE:
100 feet
LEGEND:
Site datum: well
Site boundary
Feature 1: foundation
Feature 2: rock-lined pool
Feature 3: small concrete pad
Chicken coop
Fence

Garcia and Associates
ARCHAEOLOGICAL SITE
LOCATION MAP
(DPR 422, Rev. 4/86)

Permanent Trinomial:
Other Designations: Resource #13

January 1996



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Project Boundary

Project Site Locatior

1. **County:** Sacramento.

2. **USGS Quad:** Carmichael, Calif., 7.5' (1967; Photorevised 1980).

3. **UTM Coordinates:** Zone 10; 645,240 m Easting; 4,264,710 m Northing.

4. **Township:** 8N **Range:** 6E SE 1/4 of NE 1/4 of SE 1/4 of NE 1/4 of **Section** 29 **Base Mer.:** MDM

5. **Map Coordinates:** 477 mmS, 157 mmE (from NW corner of map) 6. **Elevation:** 55 feet.

7. **Location:** From the intersection of Bradshaw Road and Elder Creek Road, follow Bradshaw north approximately 3600 feet. The site is located immediately south of a residence at 5746 Bradshaw Road, 500 ft east of the seasonal creek on the west side of Bradshaw.

8. **Prehistoric** [ ] **Historic** [X] **Protohistoric** [ ]

9. **Site Description:** This resource consists of a concrete foundation, a working pumphouse, and two large palm trees along Bradshaw Road. The 1950 Carmichael 7.5 minute USGS quadrangle shows two buildings in the vicinity of this resource and both are still marked on the 1980 revised quadrangle. Beside the concrete foundation, no structural or domestic debris are present at the site. The wood pumphouse may be related to the older buildings that once stood within the property.

   The concrete slab on the western part of the site does not appear to be a building foundation (it is more likely related to the pumphouse and standpipe), although it appears on the USGS maps. The concrete slabs are linear and separated by a 1' wide groove. The maximum east-west dimension of the concrete is 89 feet; the north-south dimension is 45 feet.

10. **Area:** 300 ft (E-W) by 100 ft (N-S); 23563 ft^2.

    Method of Determination: Bearings measured with hand-held compass and distances taped.

11. **Depth:** Unknown **Method of Determination:**

12. **Features:**

    Feature 1 is a standing pumphouse measuring 7 feet north-south by 7.5 feet east-west by 10 feet high. Inside the pumphouse is a concrete standpipe.

13. **Artifacts:** None observed.

14. **Non-Artifactual Constituents and Faunal Remains:** None observed

15. **Date Recorded:** 1/20/96 16. **Recorded by:** J. Haney, W. Shapiro, J. Scott

17. **Affiliation and Address:** Garcia and Associates, 3152 Paradise Drive, Tiburon, CA 94920.

18. **Human Remains:** None observed.

19. **Site Disturbances:** Structures shown on USGS maps no longer exist but site does not appear heavily disturbed.

20. **Nearest Water:** Morrison Creek.

21. **Vegetation Community (site vicinity):** Ruderal (disturbed)

22. **Vegetation (on site):** Two old palm trees at entrance to site, a large eucalyptus, olive tree, unknown ornamentals, grasses and weeds, sycamore, and cedar near pumphouse

23. **Site Soil:** Loam

24. **Surrounding Soil:** Loam

25. **Geology:** Sedimentary

26. **Landform:** Valley floor

27. **Slope:** 0-4°

28. **Exposure:** Open

29. **Landowner and Address:** Teichert Aggregates, P.O. Box 15002, Sacramento CA 95851

30. **Remarks:**

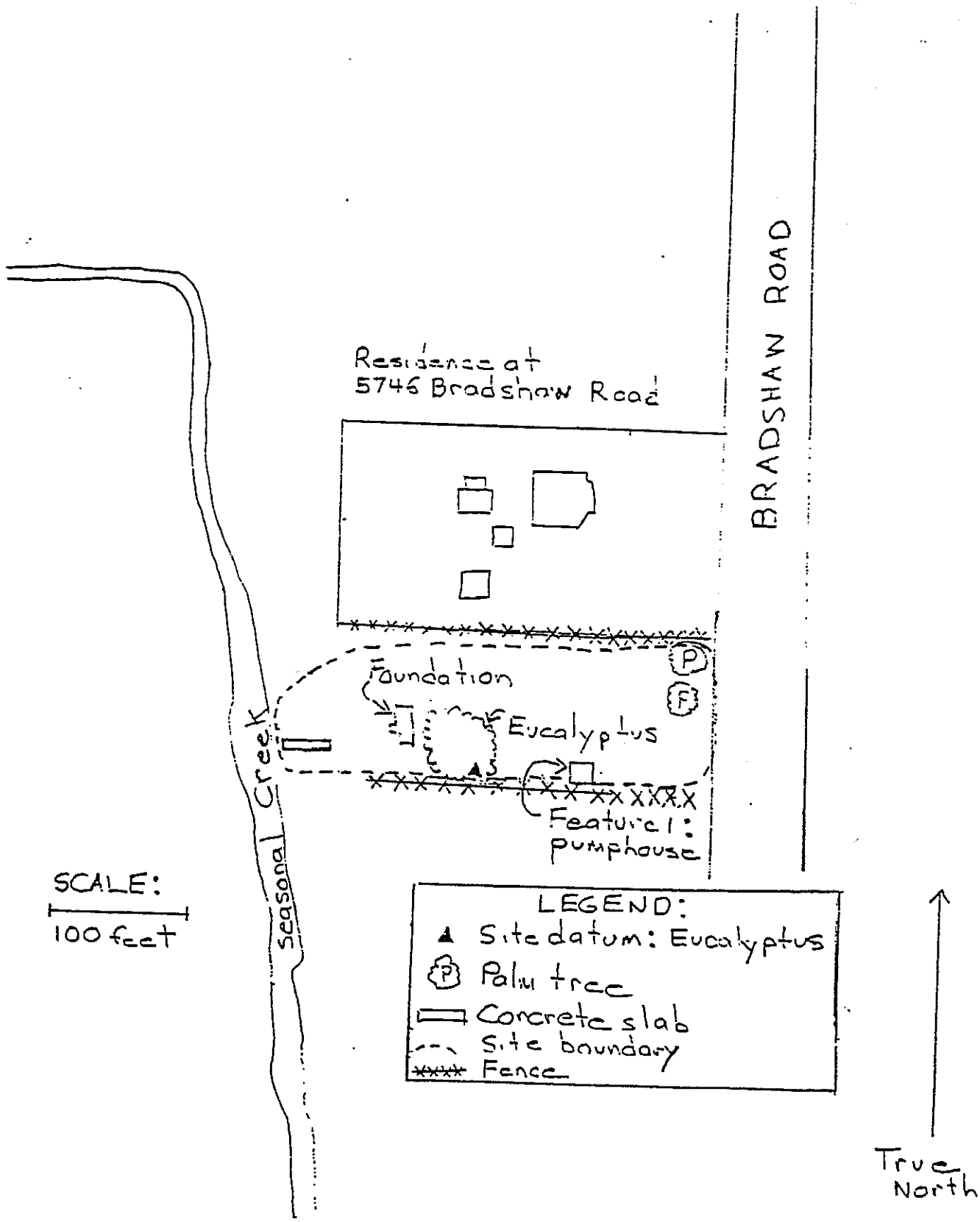
31. **References:**

32. **Name of Project:** Morrison Creek Mining Reach Downstream (South) of Jackson Highway (EIR/EIS)

33. **Type of Investigation:** Intensive survey.

34. **Site Accession Number:** No collections **Curated At:** N/A

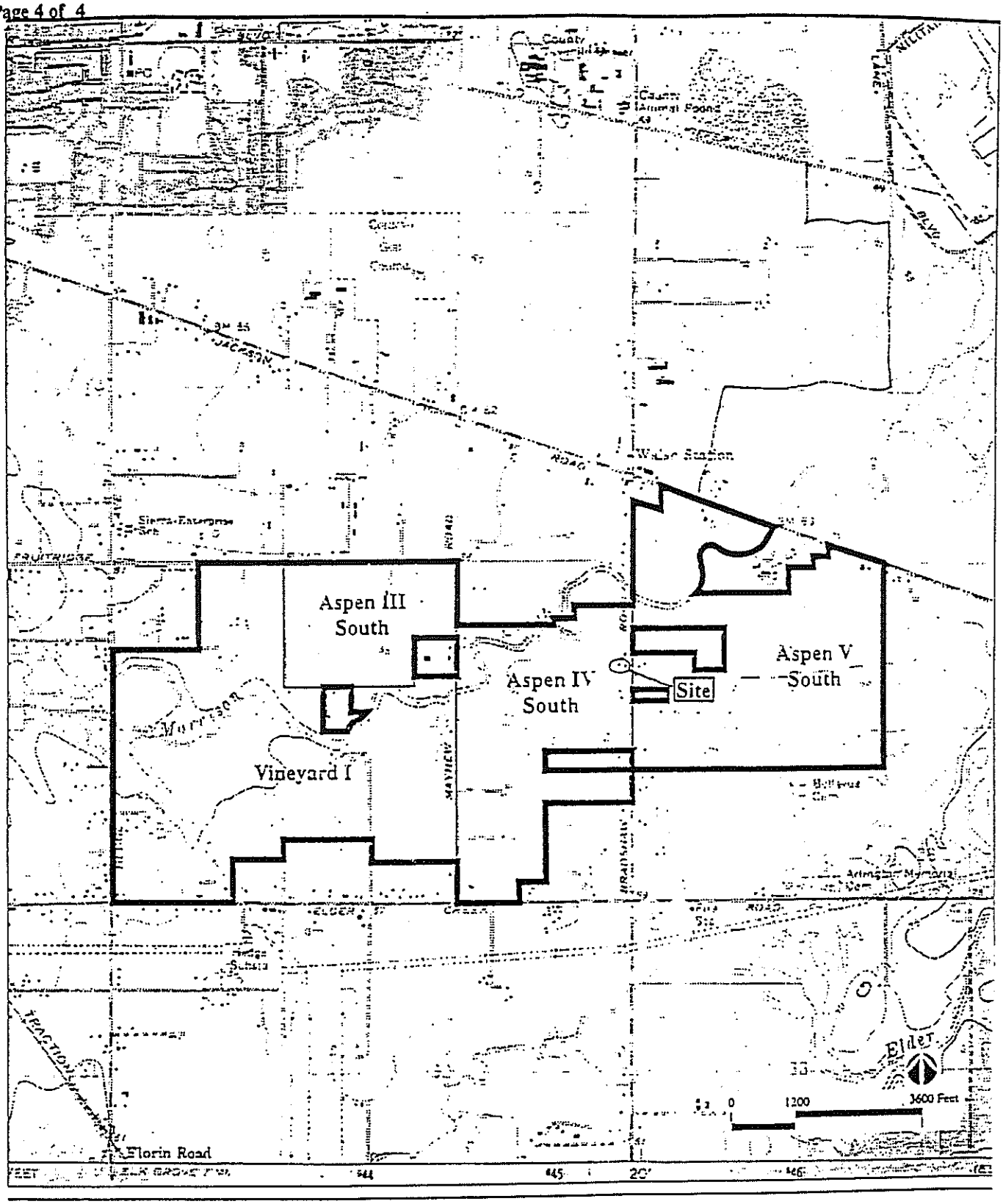
35. **Photos:** None taken.


BRADSHAW ROAD
Residence at
5746 Bradshaw Road
Foundation
Eucalyptus
Feature 1:
pumphouse
Seasonal Creek
SCALE:
100 feet
LEGEND:
Site datum: Eucalyptus
Palm tree
Concrete slab
Site boundary
Fence
True North

Garcia and Associates
ARCHAEOLOGICAL SITE
LOCATION MAP
(DPR 422, Rev. 4/86)

Permanent Trinomial:
Other Designations: Resource #14

January 1996



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Project Boundary

Project Site Location

1. **County:** Sacramento.

2. **USGS Quad:** Carmichael, Calif., 7.5' (1967; Photorevised 1980).

3. **UTM Coordinates:** Zone 10; 645,430 m Easting; 4,265,460 m Northing

4. **Township:** 8N **Range:** 6E SE 1/4 of SW 1/4 of SW 1/4 of NW 1/4 of Section 28 **Base Mer.:** MDM

5. **Map Coordinates:** 488 mmS, 145 mmE (from NW corner of map). 6. **Elevation:** 60 feet.

7. **Location:** From the intersection of Bradshaw Road and Elder Creek Road, follow Bradshaw north 2800 feet. The site is located on the east side of Bradshaw Road.

8. **Prehistoric** [ ] **Historic** [X] **Protohistoric** [ ] ttt

9. **Site Description:**. The 1950 Carmichael 7.5 minute USGS quadrangle shows two buildings in the vicinity of this resource and the 1967 quadrangle reveals two additional buildings. The survey found no standing buildings within the area and extant remains possibly related to pre-1950 buildings consist of a main concrete foundation and a smaller concrete foundation with a trough. Materials scattered in the vicinity, consisting of modern wire, farm equipment and car parts, appear to be modern. The concrete foundation system does not appear to be residential but rather the remains of a farm building or equipment shop. The smaller foundation and associated debris scatter is located west of the larger one and measures approximately 25' (E-W) by 40' (N-S).

10. **Area:** 410 ft (E-W) by 140 ft (N-S); 57,400 ft^2.

    Method of Determination: Bearings measured with hand-held compass and distances taped.

11. **Depth:** Unknown **Method of Determination:**

12. **Features:** None noted.

13. **Artifacts:** Wood beams (burnt), hot water heater, car seats, heater, porcelain toilet, metal pipes and miscellaneous metal fittings, concrete sink basin, electric conduit, farming equipment.

14. **Non-Artifactual Constituents and Faunal Remains:**. None observed.

15. **Date Recorded:** 1/20/96 16. **Recorded by:** J. Haney, W. Shapiro, J. Scott

17. **Affiliation and Address:** Garcia and Associates, 3152 Paradise Drive, Tiburon, CA 94920.

18. **Human Remains:** None observed.

19. **Site Disturbances:** Original structures razed and removed; area now used as equipment storage and dump.

20. **Nearest Water:** Morrison Creek.

21. **Vegetation Community (site vicinity):** Ruderal (disturbed)

22. **Vegetation (on site):** Blackberry bushes, valley oak, ornamental juniper, flowering bulbs.

23. **Site Soil:** Loam

24. Surrounding Soil: Loam

25. Geology:

26. Landform: Flat

27. Slope: 0-2° 28. Exposure: Open

29. Landowner and Address: Teichert Aggregates, P.O. Box 15002, Sacramento CA 95851

30. Remarks:

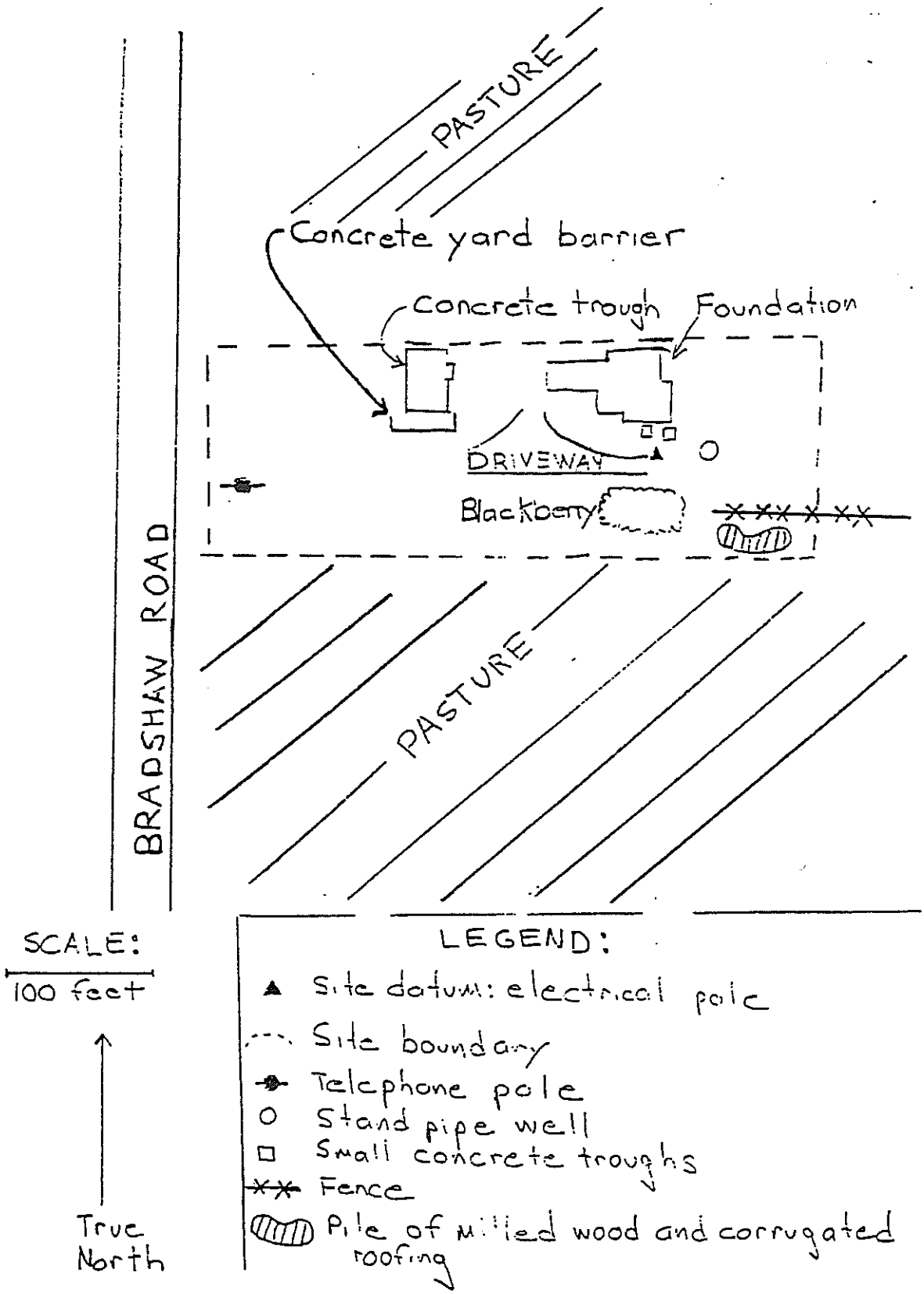
31. References:

32. Name of Project: Morrison Creek Mining Reach Downstream (South) of Jackson Highway (EIR/EIS)

33. Type of Investigation: Intensive survey.

34. Site Accession Number: No collections Curated At: N/A

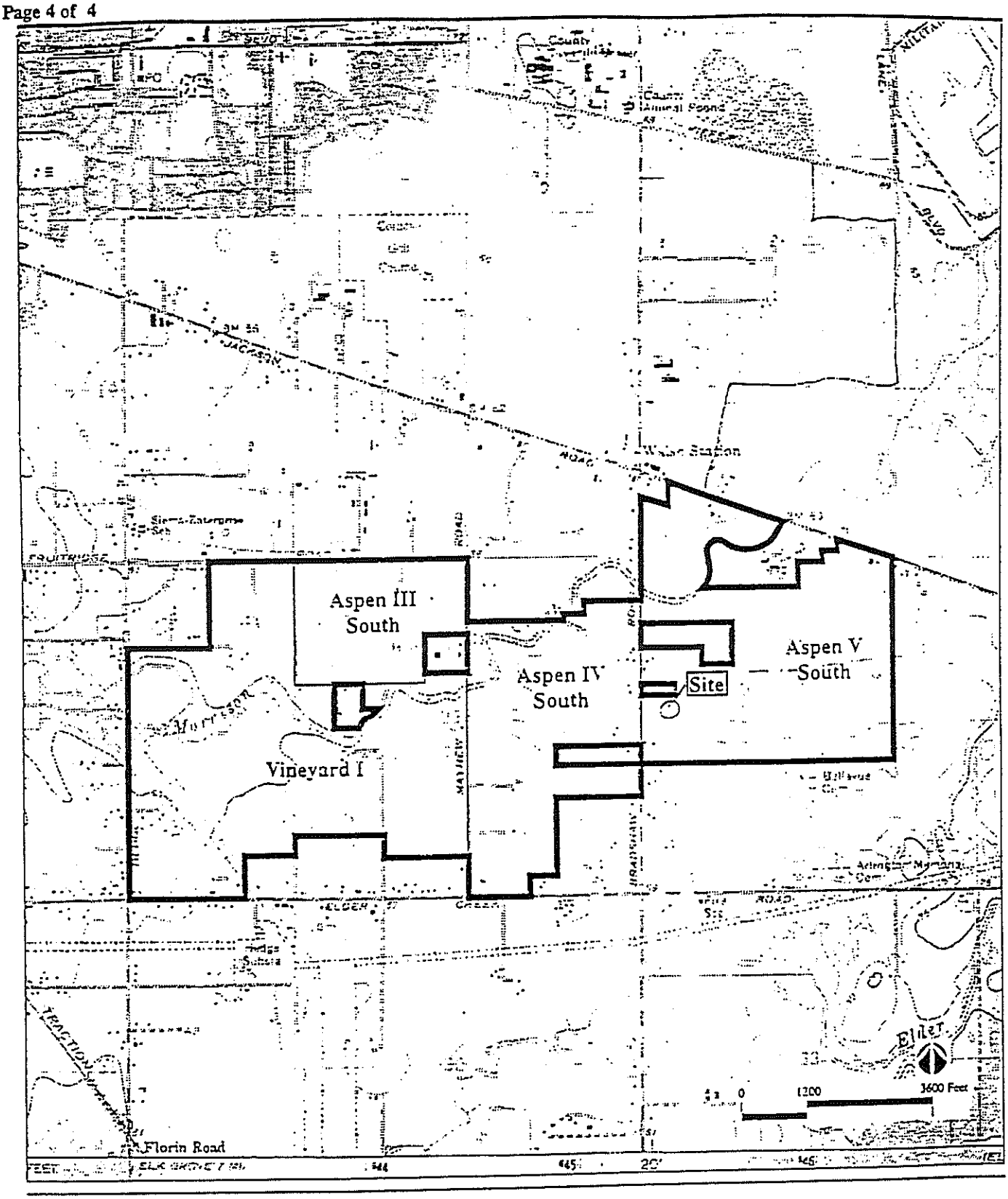
35. Photos: None taken.


PASTURE
Concrete yard barrier
Concrete trough
Foundation
DRIVEWAY
Blackberry
BRADSHAW ROAD
PASTURE
SCALE:
100 feet
True North
LEGEND:
Site datum: electrical pole
Site boundary
Telephone pole
Stand pipe well
Small concrete troughs
Fence
Pile of milled wood and corrugated roofing

Garcia and Associates
ARCHAEOLOGICAL SITE
LOCATION MAP
(DPR 422, Rev. 4/86)

Permanent Trinomial:
Other Designations: Resource #15

January 1996



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Project Boundary

Project Site Location

JRP Historical Consulting Services

Historic Architectural Survey Report

EIGHT GROUPS OF BUILDINGS AND STRUCTURES LOCATED WITHIN THE PROJECT AREA FOR MORRISON CREEK MINING REACH, DOWNSTREAM (SOUTH) OF JACKSON HIGHWAY

Sacramento County, California

Prepared by:

JRP Historical Consulting Services
712 5th Street
Davis, CA 95616

Prepared for:

Gregory Andrew
Garcia and Associates
3152 Paradise Drive
Tiburon, CA 94920

January 1996

A.

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EXECUTIVE SUMMARY

This Historic Architectural Survey Report (HASR) concerns eight groups of buildings and structures, located within the project area for the Morrison Creek Mining Reach project. It was prepared by JRP Historical Consulting Services at the request of Garcia and Associates. This HASR is a follow-up to a November 1995 "Cultural Resource Report" prepared by Garcia and Associates, which reported the results of an intensive reconnaissance of the project area.[1] The November 1995 report identified the eight groups of potentially historic buildings and structures within the project area. The objective of this HASR is to inventory those buildings and groups of buildings and to evaluate whether any or all meet the criteria for listing in the National Register of Historic Places. The eight properties are identified below by "Address" and "Resource Number." The "Resource Number" refers to the identifier applied to the property in the November 1995 report by Garcia and Associates.

This report concludes that none of the resources meet the criteria for listing in the National Register of Historic Places and that no further investigation or survey is required for any of the properties. The historic background of the project area is described below and the specific details of each property's historic integrity and significance is described in individual DPR 523 forms attached to this report.

Resource Number	Address	National Register Status	Further Study Required
#4	near Hedge Avenue	Not Eligible	None
#16	9197 Elder Creek Road	Not Eligible	None
#17	6210 Mayhew Road	Not Eligible	None
#18	6155 Mayhew Road	Not Eligible	None
#19	6211 Mayhew Road	Not Eligible	None
#20	5746 Bradshaw Road	Not Eligible	None
#21	5831 and 5841 Bradshaw Road	Not Eligible	None
#22	10004 Jackson Road	Not Eligible	None

[1]Garcia and Associates, "Appendix A: Cultural Resources Report, Morrison Creek Mining Reach Downstream (South) of Jackson Highway," November, 1995.

METHODOLOGY

To prepare this HASR, JRP Historical Consulting Services conducted both field inventory work and archival research. Field recordation proceeded according to standard professional practices for this work, including photographing the resources, measuring exterior dimensions of the buildings and structures and their relation to one another, and taking detailed notes on the physical attributes of the buildings and structures, including any notable modifications to them. Archival research was conducted in various repositories in the Sacramento area, including general literature at the California State Library and Shields Library at the University of California, Davis, as well as manuscript and archival collections at the California State Library, the Sacramento Archives and Museum Collection Center, and the California State Archives. Intensive research involved basic land use records, including county assessment rolls, property ownership information, manuscript census data, and historic maps and atlases.

HISTORICAL BACKGROUND

To establish a historic context for evaluating these properties, research was conducted on the land use, land ownership, agricultural practices, and transportation improvements in and near the project area. Intensive research concentrated on an area slightly larger than the project area, including all of Sections 28-30 and a portion of Section 21, T8N R6E, MDM. All of the area in question lies south of Jackson Road (State Route 16) and north of Elder Creek Road. It is bounded by Hedge Road on the West and extends into the E1/2 of Section 28 on the east. Morrison Creek winds through the project area from northeast to southwest, entering in the SW1/4 of Section 21 and leaving at about the center of Section 30. The eight specific properties surveyed for this report all fall within these boundaries, but, as noted, the research area is slightly larger than the project area (see Figure 1).

Land Ownership

The pattern of historic land ownership within the project area reveals a fairly long period of land holdings is private farms, mostly in the 160-500 acre range. The first documented land holding in the area, however, was much larger. The Mexican government granted the Rancho Rio de Los Americanos, over 35,500 acres, to William A. Leidesdorff in 1844. Four years later, Captain Joseph L. Folsom acquired the rancho when Leidesdorff died. Folsom soon began selling portions of the grant and by 1870 all of the rancho lands within the project area were held by various private property owners. Public lands in the project area, to the east and west of the rancho, became officially available after General Land Office surveys were completed in the

1850s and 1860s. By the 1870s various individuals held the former public lands in parcels of 160 acres or larger[2].

Through the turn of the century, land holdings within the project area remained largely unchanged in size, with one notable exception. In 1886, Edwin K. Alsip and J. H. Miller subdivided the east half of Section 29 into 35 lots of roughly 10 acres each. Although official county maps and assessor's parcel maps note this change, no individual property owner names appear on any of the lots through 1939. After 1900, the number of owners in the west half of Section 29 also increased as portions of parcels were sold, but the property was divided more arbitrarily and was not officially subdivided.[3]

By the late 1920s, the pattern of land holdings withing the project area changed again. Parcels of 20 to 30 acres were common, and the long-held larger portions of land in Sections 28 and 30 began to be distributed in smaller holdings as well. Another change also occurred in the 1920s as individuals with Japanese surnames began to appear as land owners in county records and the 1920 census returns demonstrate a general increase in the number of Japanese households in Brighton Township. Prior to this time, the surnames of recorded property owners were Anglo-European, but in 1923 M. T. Takeoka and K. Hiroshima appear as the owners of the south ½ of the northwest 1/4 of Section 28. A few years later there were two more Japanese names on land in the project area, by 1933 there were eight, and by 1939 11 Japanese surnames appear on the county assessor's parcel map of the area. Despite the passage of the Alien Land Law of 1913 (Cal. Stats., Ch. 113), and Alien Land Law of 1920 (Cal. Stats. 1921, Initiative Act of 1920), which attempted to preclude the Japanese from purchasing farm property, Japanese farm ownership rose in the project area during the 1920s and 1930s. Japanese farmers circumvented the legal limitations through loopholes in the legislation, the use of "dummy" land filings, and "unwritten

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[2]Sacramento County Assessor, Parcel Maps, various years 1870-1939, SAMCC;"Map of the Rancho Rio de Los Americanos Granted to W. A. Leidesdorff and Confirmed by the U. S. Land Commission," filed, January 14, 1856, microfiche, CSL; General Land Office, Historic Plat Map of Township 8 North, Range 6 East, 1865, microfiche, USDI, BLM, Sacramento; Mildred Hoover et al., *Historic Spots in California*, 3rd ed., (Stanford: Stanford University, 1966): 299-300.

[3]Sacramento County Assessor, Parcel Maps, various years 1870-1939, SAMCC; Fred Shepard, *Official Map of Sacramento County, California* (San Francisco: Britton & Rey, 1885), microfiche, CSL.;J. C. Boyd, *Official Map of Sacramento County* (1903) microfiche, CSL; Phinney, et al., *Official Map of the County of Sacramento, California* (1913); Drury Butler, *Map of the County of Sacramento* (1923) microfiche, CSL; Sacramento County Recorder, "Map of the Anderson Tract," Map Book 2, page 1, 1886.

arrangements whereby the alien leased a farm *de facto* while acting only as a salaried manager *de jure*."[4]

Land Use and Agricultural Practices

The land south of the American River, outside of the river bottom land, was not permanently occupied by Anglo-European settlers until after the beginning of the Gold Rush. The Rancho Rio de Los Americanos was used for grazing large herds of cattle and homesteads throughout the region were few and far between. As the local population increased with the influx of goldseekers, farmers began to acquire holdings where they raised grains and stock and put in some experimental fruit crops. Especially during the period between 1870 and 1900, farmers devoted large acreages to raising grain crops such as wheat, barley, and hay. None of the cattle or hog raising operations reached the scale of stock raising practiced on the ranchos. Examples of the type of agricultural operations found in the area in about 1880 are shown in **Figures 2** and **3**, although neither of these two farms sites are included in the survey population of this report. As these illustrations demonstrate, it was common practice for farmers in the project area to put in a few acres of orchards or vineyards, but this practice did not enjoy the long-term success of other areas of Sacramento County which were better suited to raising fruit. The federal agricultural census returns for the decades 1860-1880 also report small acreages of fruit trees and vines, and show that the area's major production was wheat and barley. Declining wheat prices at the end of the nineteenth century probably inspired local farmers to try orchard and vine crops again, but the most common agricultural pursuit remained cattle and forage raising.[5]

Brighton Township farmers in the Morrison Creek area continued to focus primarily on stock and forage raising for the next several decades. They also cultivated small acreages of vineyard during this period. While not participating in California's irrigation district boom of the 1910s and 1920s, several Morrison Creek area farmers did install individual systems for watering pastures, and possibly alfalfa fields.[6] By the 1960s

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[4]Sacramento County Assessor, Parcel Maps, various years 1870-1939, SAMCC; Phinney, et al., *Official Map of the County of Sacramento, California* (1913); Drury Butler, *Map of the County of Sacramento* (1923) microfiche, CSL; US Bureau of the Census, Population Schedules, Brighton Township, 1920; Robert Higgs, "Landless by Law: Japanese Immigrants in California Agriculture to 1941," *Journal of Economic History* 38 (March 1978): 214-19.

[5]Thompson and West, *History of Sacramento County*, n.p.; James McClatchy & Co., *Map of Sacramento County California Showing Uses of the Soil* (S.l.: 1894); U.S. Bureau of the Census, Agricultural Schedule, Brighton Township, 1860, 1870, and 1880.

[6]The Carmichael, Fairoaks, and Citrus Heights irrigation districts of Sacramento County were all located north of the American River. (California Department of Public Works, "Irrigation Districts in California," *Bulletin No. 21* [Sacramento: SPO, 1929], 139).

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county records indicate that the small farming concerns in the area where surrounded by rural homesteads and light industrial complexes. The records also indicate that the agricultural operations associated with the properties of this survey operated at a marginal economic level.[7]

Transportation

The earliest major transportation routes connecting Sacramento with eastern points developed along what are now State Routes 50 and 80. Overland immigrants used these routes, previously known as the Placerville and Coloma roads, during the mid 1800s to reach California. During the same period, secondary roads and trails developed as miners and freight traffic headed for the southern mines. The Jackson Road was one of these early secondary routes and with travelers following its basic alignment beginning in the late 1840s. The primary destination for most would have been gold camps such as Dry Town, where gold was discovered in 1848, Michigan Bar (1849), or trading centers like the town of Jackson, which grew from a few tents in 1850 to over 1,500 in 1854. Even though labeled as "roads" on contemporary maps, the early routes were actually rough trails with many engineering problems. "The stage roads between the valley and the mining camps [like the Jackson Road] were the cause of endless complaints by travelers because of dust in summer, mud in winter, and general roughness of the roadbed."[8]

Business along the Jackson Road consisted of largely of roadhouses serving both local and through traffic. These roadhouses, like the Ohio Exchange and the 12 Mile House were wayside inns offering rest, stables and supplies for travelers.[9] By foot,

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[7]USGS, *Carmichael Quadrangle,* 7.5 Minute Series (1954; 1967, photorevised 1980); Sacramento County Assessor, Building Records, Central Records (various dates).

[8]Stewart Mitchell, "Crossing the Sierra," California Highways and Public Works, Centennial Edition (September 9, 1950), 52-53; Hoover et al., *Historic Spots in California*, 3rd ed. (Stanford: Stanford University, 1966): 30-34, 301-302; A. W. Thompson, "Sacramento County," (1851) microfiche, CSL; "Map of the Rancho Rio de Los Americanos Granted to W. A. Leidesdorff and Confirmed by the U. S. Land Commission," filed, January 14, 1856, microfiche, CSL; General Land Office, Historic Plat Map of Township 8 North, Range 6 East, 1865, microfiche, USDI, BLM, Sacramento.

[9]Neither of these roadhouses still exist. The Ohio Exchange (also known as the Ten Mile House) was located approximately one mile east of Site #22 in the vicinity of 10320 Jackson Road, and the Twelve Mile House another two miles east of that. 10320 Jackson Road is a historic farm house, built ca. 1882, by local farmer William M. Russell. The precise location of the roadhouse run by land owners who occupied the site before Russell is unknown. (Jeff Crawford, "Site Study of the Property Associated with the Ohio House or Ten Mile House," (1994), passim; Natalie Thompson, "Historical Surey of the Twelve Mile House, Also Known as the Antelope Ranch," (1994), passim.)

horseback or wagon, travel in rural areas along dirt roads was arduous and required frequent stops. None of the properties inventoried in this HASR was a road house or directly related to one. The house at 10004 Jackson Road is distantly related to the Ohio House, which was located about one mile to the east of the project area, at 10320 Jackson Road. The Ohio House, also called the Twelve Mile House, was an early road house on the Jackson Road. William Russell bought the parcel in the 1880s, after the roadhouse had gone out of business, and established a ranch at the site. Russell built the house at 10004 Jackson Road in 1911, probably for one of his children. The site of 10004 Jackson Road, however, was not itself a road house.[10] This area of Sacramento County was historically called "Walsh Station," after another early roadhouse, located at the intersection of modern Bradshaw Road and Jackson Road. The site of Walsh Station is also outside the project area.

Modern improvements to the Jackson Road were slow to develop. Although general interest in constructing and improving road transportation began to grow during the 1890s, Sacramento County voters did not approve improvements to the Jackson Road until 1907. The passage of a $825,000 bond act in that year authorized paving the road. After many organizational changes, the State basically began its highway program by adopting 10 mountain roads in 1912 and the newly created California Highway Commission began studying the construction of a statewide system. By the 1920s the commission still had no plans to take the secondary road into its system, but by the 1950s, the Department of Transportation had designated the Jackson Road as State Route 16.[11]

Other roads within the project area developed as farm access roads during the 1800s, largely following property lines. Because the earliest land holdings in the area included many quarter and half section parcels, these property line alignments run along the section and half section lines in a basic grid pattern. Early maps confirm that many of the roads, such as Elder Creek Road and Bradshaw Road were in place by the 1870s, but county records indicate that they were largely unpaved through the 1930s. Mayhew Road was still dirt into the 1960s.[12]

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[10]Crawford, "Ohio House/Ten Mile House," passim; Thompson, "Twelve Mile House," passim; Meta Bunse, "Northeastern Brighton Township: The Ten Mile House, American Fork House, and/or Patterson's," (1994), passim.

[11]Crawford, 25; Ken Owens, "Historical Trails and Roads in California: A Cultural Resources Planning Study," Vol. 1, for California Department of Transportation (1991), 44-50; California Department of Public Works, "Map of California Showing State Highways," (Sacramento: SPO, 1922); USGS, *Carmichael Quadrangle* (1954).

[12]Sacramento County Assessor, Parcel Maps, various years 1870-1939, SAMCC; Sacramento County Assessor, Building Records, Central Records (various dates).

Conclusion

Historic land holding and use patterns based on small farms has predominated within the project area since the land was first settled in the 1850s. Whether originally part of the Rancho Rio de Los Americanos grant, or public lands, the local farms ranged in size from about 160 to 500 acres. Most of the land within the project area continued to be held in over 100 acre parcels well into the nineteenth century. Local agriculture was based around individual farm units that utilized most of their acreage to produce grains and hay before 1900. Discouraged by declining wheat prices and soil depletion during the 1890s, many farmers turned to stock raising as their primary pursuit, resulting in more irrigated pasture and forage crops. Although many early residents had put in a few acres of fruit trees or vines when they first established homesteads, and some farmers continued to cultivate grape vines well into the 1950s, orchard and vineyard acreage was relatively small in this area.

Transportation through the project area has been dominated historically by traffic along the Jackson Road. Connecting Sacramento with the booming southern gold mines in the late 1840s and 1850s, the road stayed in use after the gold rush as the major transportation corridor for eastern Cosumnes River area farmers. The Jackson Road, now State Route 16, continues to provide the most direct link between the Sacramento area and the Amador County foothills. Other roads in the project area developed along farm property lines, which resulted in a grided network of tertiary roads along section and half section lines.

GENERAL DESCRIPTION OF RESOURCES

The eight resources surveyed in this report include rural homesteads and farm complexes of various ages and styles. Originally part of much larger land holdings, the parcels for each of these properties are now much smaller, ranging in size from about 1 acre to 50 acres. Most of the resources appear to have been constructed after the parcels reached roughly their current size, except for Resource #22 (10004 Jackson Road). Resource #22 originally sat on a ranch property that was about 500 acres in size, but the residence and numerous outbuildings of this property now lie on two parcels, one of about 19 acres (063-0190-027), and the other (063-0170-021) of about 1 acre.

Architecturally, the resources represent various styles and periods of construction. The eight properties are described briefly below; see the attached DPR 523 forms for more detailed descriptions.

Hedge Avenue (Resource # 4). This property includes four irrigation-related structures and objects, including: a galvanized metal water tank on a timber base; a concrete pipe and metal standpipe; a collapsed pump house; and a metal trough. No firm date of

construction was established for these structures but all except the collapsed pump house appear to be less than 50 years old.

9197 Elder Creek Road (Resource # 16). This property includes a modern (built in 1964) residence as well as a 1929 residence and four out-buildings. The 1929 is a modest vernacular building sided in 1" x 6" boards. The out-buildings include a hay barn, milk barn, and a small shed.

6210 Mayhew Road (Resource # 17). This property includes a primary residence, built in 1947, as well as a garage and two outbuildings. The home is a modest cottage, similar stylistically to homes built throughout California during the 1930s and 1940s. The garage has been extensively modified to convert it to a residential unit. The property also includes a small storage shed and a hay barn; the hay barn is probably older than the house.

6155 Mayhew Road (Resource # 18). The property at 6155 Mayhew Road includes a ca. 1915 residence and three outbuildings. The main home is a modest wood frame bungalow with some Craftsman-influenced details. County records indicate the home was built in 1937, a date that is much too late for a building of this architectural character. The date may indicate the home was moved to this site. The ancillary buildings include two small sheds and a modern garage.

6211 Mayhew Road (Resource # 19). The property at 6211 Mayhew Road includes a primary residence, a secondary residence, a garage, and the remnants of a water delivery system. The two homes and garage appear to have been built at the same time, in 1920, according to county records. All are simple vernacular buildings with modest Craftsman details. The main house includes full porches at the facade and left side elevation, protecting the western and southern exposures of the house. The secondary residence is a small cottage with the same siding as the main house. It has been damaged by fire. The garage has been extensively modified, chiefly through installation of new siding.

5745 Bradshaw Road (Resource # 20). The property at 5746 Bradshaw Road includes a heavily altered residence, built ca. 1920, as well as a small chicken house and a milk barn. The residence has been altered through construction of shed-roofed additions to the front and rear, replacement of most windows, and re-siding with a variety of materials, including stucco, corrugated metal, and plywood. The home retains no integrity of design, materials, and workmanship.

5831 and 5841 Bradshaw Road (Resource No. 21). This property includes two post-World War II residences, one built in 1948, the other in 1950. It also includes miscellaneous outbuildings.

10004 Jackson Road (Resource # 22). The property at 10004 Jackson Road includes a 1911 home, a 1911 tank house, a ca. 1911 barn, and dozens of modern

A

outbuildings associated with the current use of the property as a horse ranch. The 1911 home reflects elements of the Queen Anne and Craftsman stylistic influences, a not uncommon blending of design traditions for early 20th century homes in California. The home is generally intact, although its integrity has been diminished somewhat through enclosure of a recessed front entry and enclosure of a rear porch. The tank house is sided and roofed in the manner of the main house, a common pattern among early 20th century California tank houses. The early barn has been modified substantially through a rear addition and re-siding. The modern out-buildings are small barns and sheds associated with the stables of the current owner.

CONCLUSIONS

The properties inventoried in this HASR are complexes of rural homesteads and farm buildings of various ages. None of the eight resources appear to meet the criteria for significance under Section 106 of the National Historic Preservation Act of 1966 as amended (16 U.S.C. 470 *et seq.*), nor do they appear to qualify for listing in the California Register of Historical Resources, which is currently restricted to National Register properties and California Historic Landmarks.

Resources #17 (6210 Mayhew Road) and #21 (5831 and 5841 Bradshaw Road) were built in 1947, 1950, and 1948, respectively, and are therefore less than fifty years old. The National Register of Historic Places requires that eligible historic properties be more than fifty years old unless the property retains exceptional significance. None of these properties meet the criteria for exceptional significance as they do not represent distinguished examples of their type, period or method of construction, nor are they associated with events or persons important to our history.

Although the remaining resources included buildings that were built more than fifty years ago, none of them appear to be historically significant. Resource #4 (water tank near Hedge Avenue), #16 (rear residence at 9197 Elder Creek Road), #18 (6155 Mayhew Road), #19 (6211 Mayhew Road), #20 (5746 Bradshaw Road), and #22 (10004 Jackson Road) all appear to be ineligible for the National Register of Historic Places because of various levels of structural modification, impairing their historic integrity, and because they do not appear to represent distinguished examples of their type, period or method of construction. None of these resources are associated with events or persons important to our history.

RECOMMENDATIONS

As none of the resources surveyed in this report appear to be historically significant, no further historical surveys are recommended. The properties have been recorded and photographed for State DPR523 forms (attached to this report); no mitigation measures are recommended because the resources are not significant.

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FIGURES

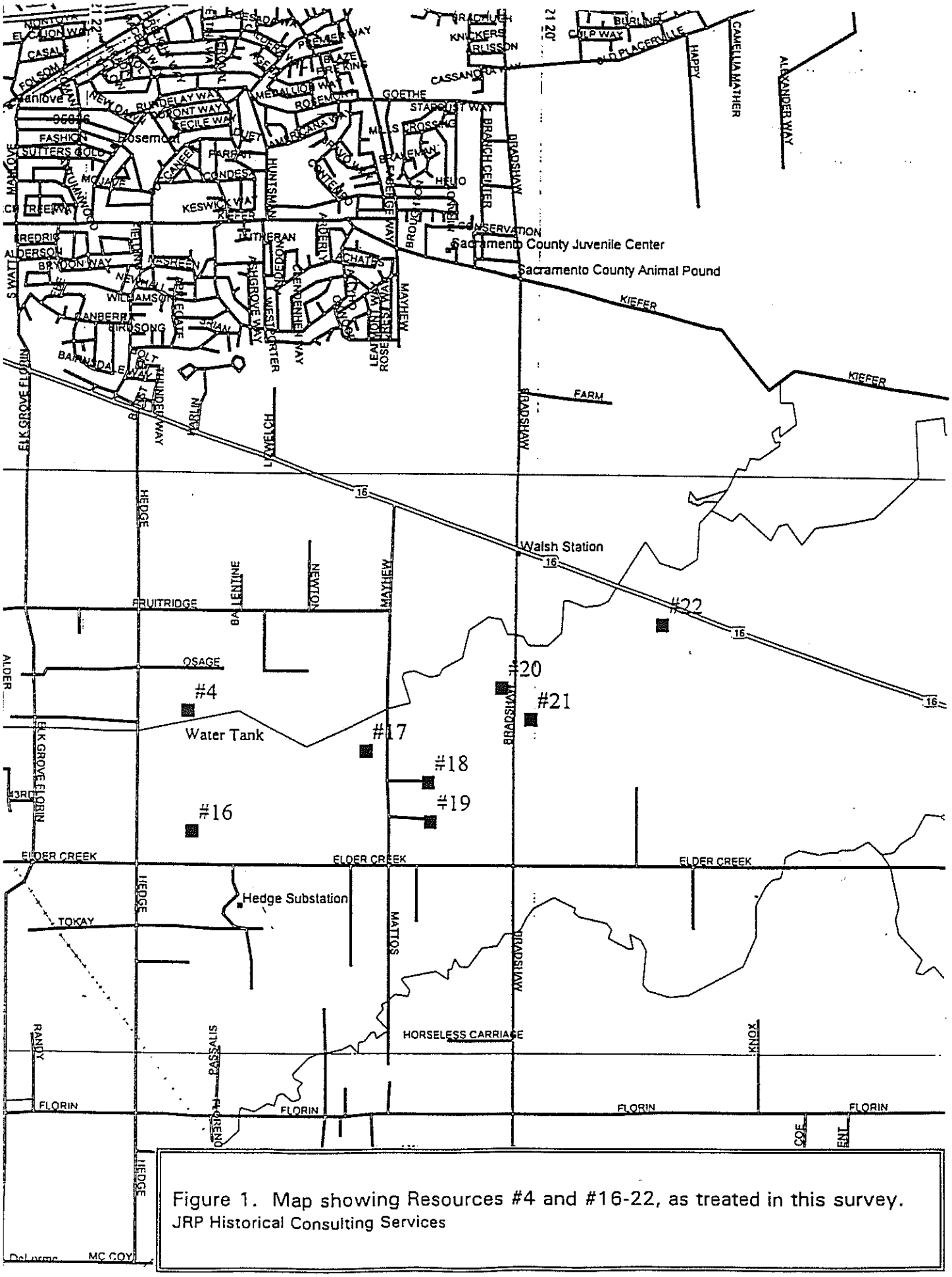


Figure 1. Map showing Resources #4 and #16-22, as treated in this survey.
JRP Historical Consulting Services

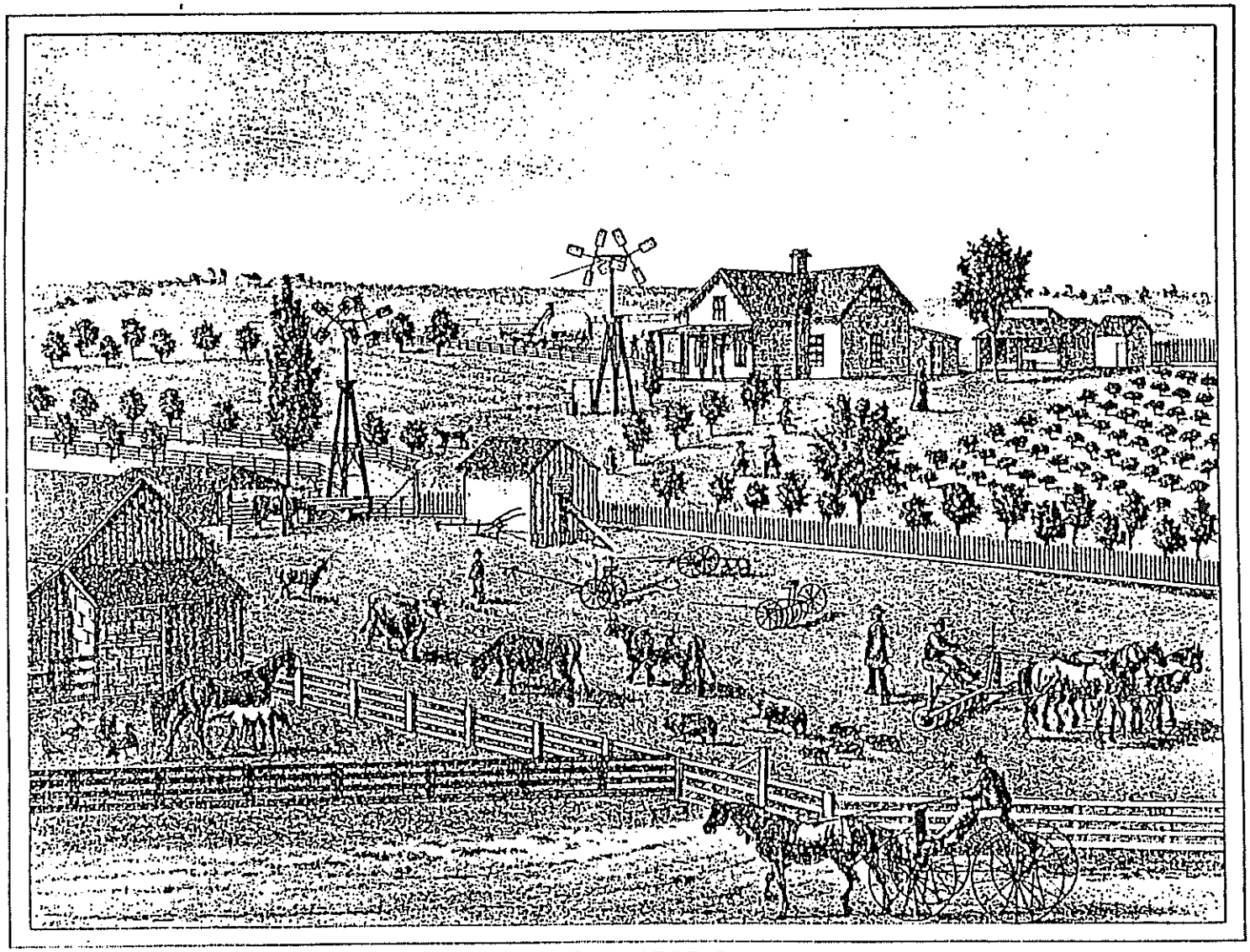
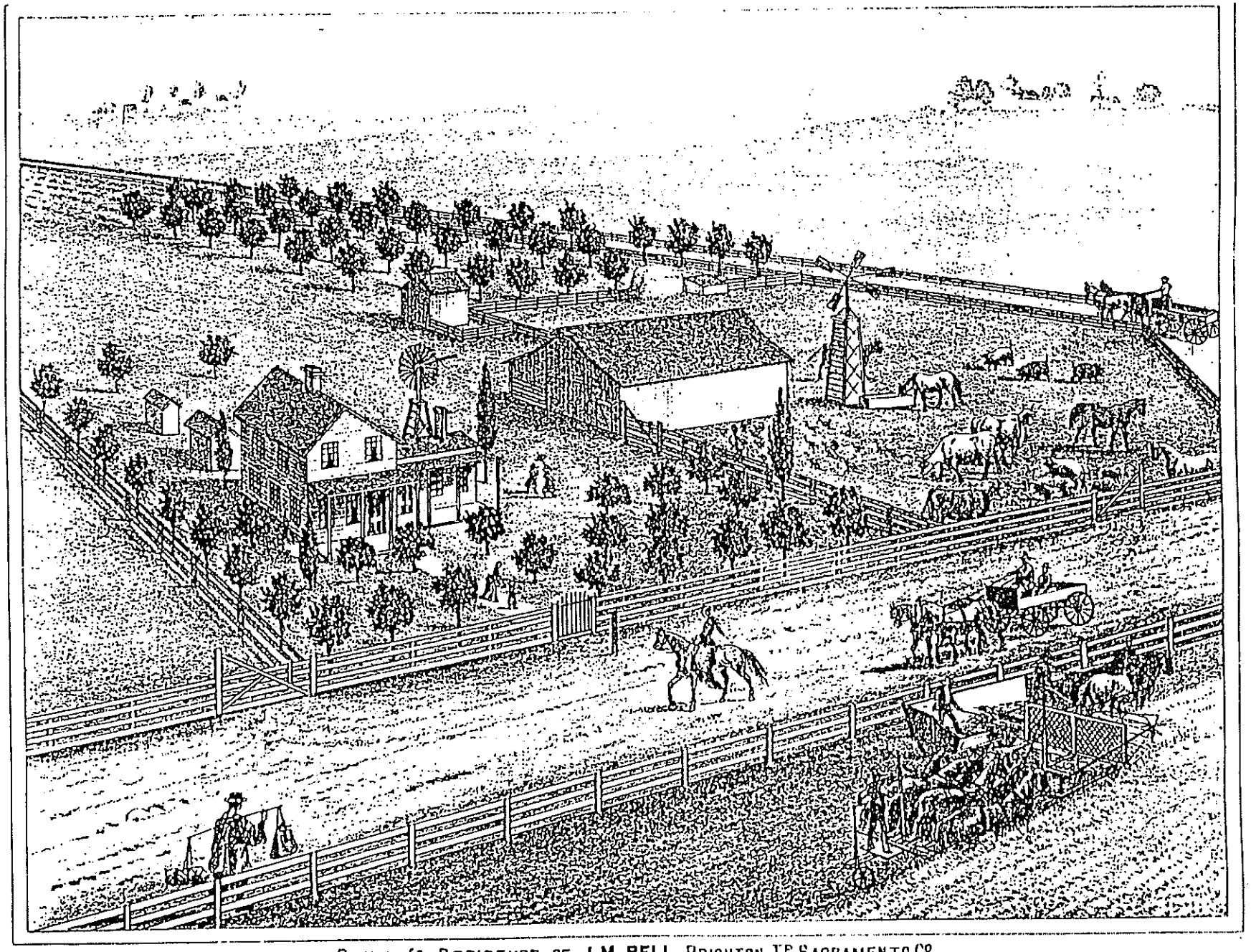


Figure 2. Illustration showing a typical ranch within the project area in 1880. This property no longer exists.
Thompson and West, *History of Sacramento County* (1880).



RANCH & RESIDENCE OF J.M. BELL, BRIGHTON TP. SACRAMENTO CO. CAL.

Figure 3. Illustration showing a typical ranch within the project area in 1880. This property no longer exists.

Thompson and West, *History of Sacramento County* (1880).

DPR 523 FORMS

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
OFFICE OF HISTORIC PRESERVATION

HISTORIC RESOURCES INVENTORY

Ser. No. _____ - _____ - _____
National Register Status_____
Local Designation _____

IDENTIFICATION AND LOCATION

1. Historic Name:

*2. Common Name: 6201 Hedge Avenue

*3. Number & Street: 6201 Hedge Avenue
City: Sacramento Vicinity only: Zip: 95826 County: Sacramento

4. UTM: zone: 10 / Easting: 643000 / Northing: 4264400

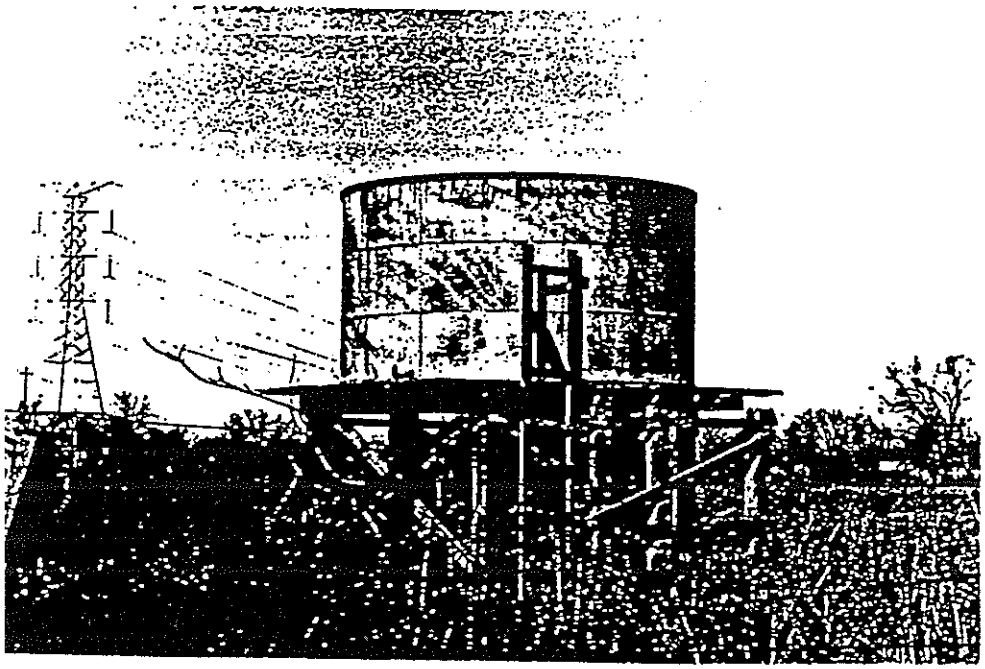
5. Quad map No.: Parcel No.: 063-0090-001 Other: Resource #04

DESCRIPTION

6. Property category: Structure If district, number of documented resources: n/a

*7. Briefly describe the present physical appearance of the property, including condition, boundaries, related features, surroundings, and (if appropriate) architectural style.

This property includes four features related to an irrigation system. The first feature is a galvanized metal water tank, approximately 12' in diameter, supported on a base of wooden posts with diagonal bracing. A second feature is a collapsed woodframe enclosure for a pump (Photograph 2). The pump house measured 6' x 6' when standing and featured a gabled roof. Only the roof is still moderately intact. A third feature is a vertical standpipe (Photograph 3). It stands about 12' in height and includes 24" diameter concrete pipes with a metal insert at the top. A fourth feature, not necessarily part of the irrigation system, is a collapsed metal water trough (Photograph 4). [See continuation sheet.]



8. Planning Agency:

9. Owner & Address:
Granite Construction Co.
P.O. Box 50085
Watsonville, CA 95077

10. Type of ownership:
Private

11. Present use:
Unused

12. Zoning:

13. Threats:
Gravel Mining Project

Send a copy of this form to: State Office of Historic Preservation, P.O. Box 942896, Sacramento, CA 94296-0001
* Complete these items for historic preservation compliance projects under Section 106 (36 CFR 800). All items must be completed for historical resources survey information.
DPR 523 (Rev. 6/90)

HISTORICAL INFORMATION

*14. Construction date(s): ca. 1915-1945 Original location: yes Date moved:

15. Alterations & date: Deterioration of pumphouse; collapse of trough

16. Architect: Unknown Builder: Unknown

17. Historic attributes (with number from list): Water tank (39)

SIGNIFICANCE AND EVALUATION

18. Context for evaluation: Theme: Agriculture Area: Sacramento County
Period: 1900-1945 Property Type: Farmstead Context formally developed? Yes

*19. Briefly discuss the property's importance within the context. Use historical and architectural analysis as appropriate. Compare with similar properties.

The isolated irrigation features at this property do not appear to be eligible for listing in the National Register of Historic Places. This property has been settled and used since the 1870s. The property was owned during the 1870s, 1880s, and early 1890s by Isaac Lea, an early settler in the Brighton Township of Sacramento County. Lea was a hog farmer who owned 720 acres in Sacramento County and nearly 1300 acres in Napa County. By the turn of the century, the property was held by the Sacramento Bank. During the 1910s, the property was held by T.D. Scriver, about whom little is known. From the 1920s through the late 1930s, the parcel was owned by C.E. Wells, about whom little more is known. Wells likely installed some if not all of the equipment. More recently, the parcel has been owned by Peter Tudesko and Steve Vincent. The isolated irrigation equipment, as noted, was likely installed by C.E. Wells and has no relationship to the pioneer settlers of this township, such as Isaac Lea. The tank, standpipe, trough, and collapsed a pump house do not appear to represent distinguished examples of irrigation equipment, nor do they have any known association with events or persons important to our history. For these reasons, this property does not appear to qualify for listing in the National Register.

20. Sources: Sacramento County Assessor Building Records and Assessor Map Books, various years; historic county maps, 1851, 1885, 1903, 1913, 1923; GLO Township Plat, 1865; USGS, *Carmichael Quadrangle*, 1954, 1967, photorevised 1980.

21. Applicable National Register Criteria: n/a

22. Other recognition:
State Landmark No. (if applicable): n/a

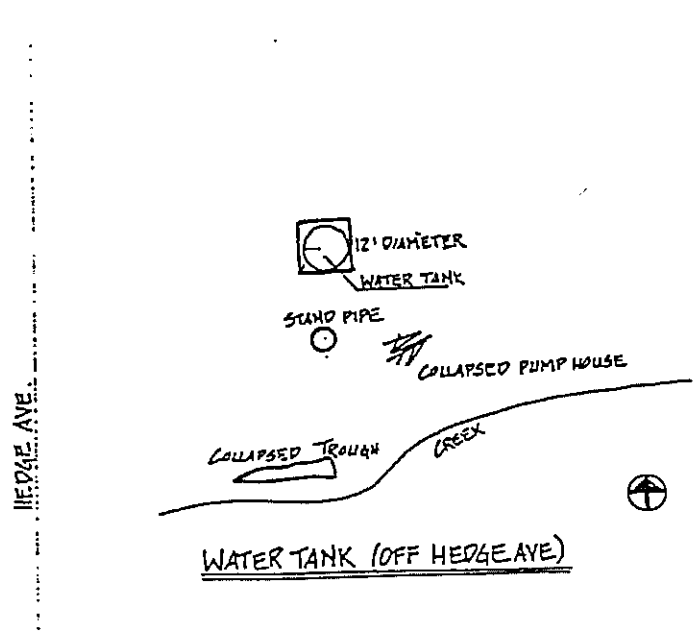
23. Evaluator: Stephen D. Mikesell
Date of evaluation: January 26, 1996

24. Survey type: Comprehensive

25. Survey name: Morrison Creek Mining Reach Downstream (South) of Jackson Highway

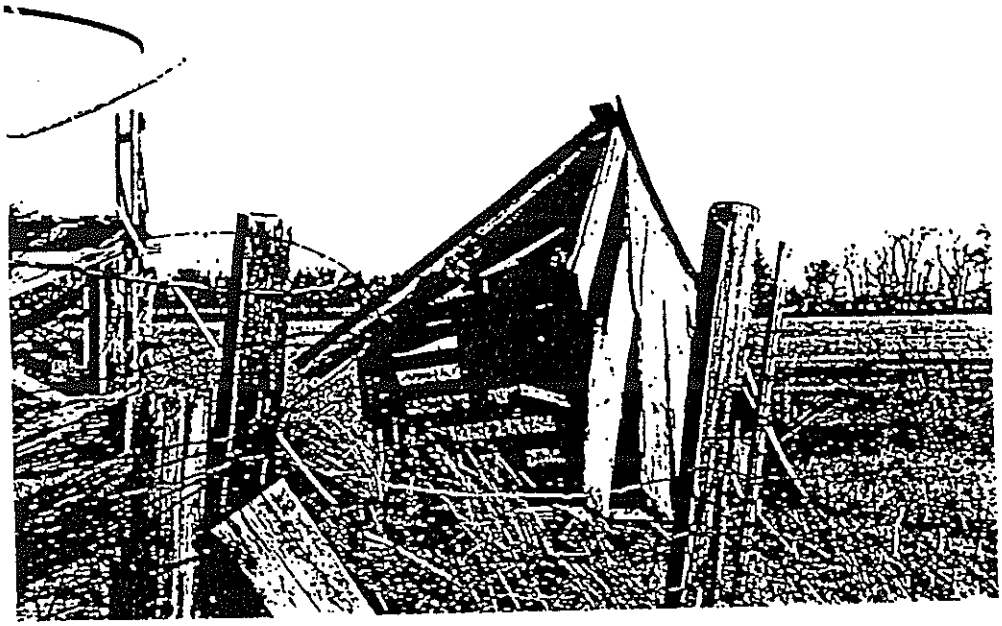
*26. Year form prepared: 1996
By (name): Meta Bunse, Janice Catlin
Organization: JRP Historical Consulting
Address: 712 Fifth Street, Suite F
City & Zip: Davis, CA 95616
Phone: (916) 757-2521

*Sketch map. Show location and boundaries of property in relation to nearby streets, railways, natural landmarks, etc. Name each feature.



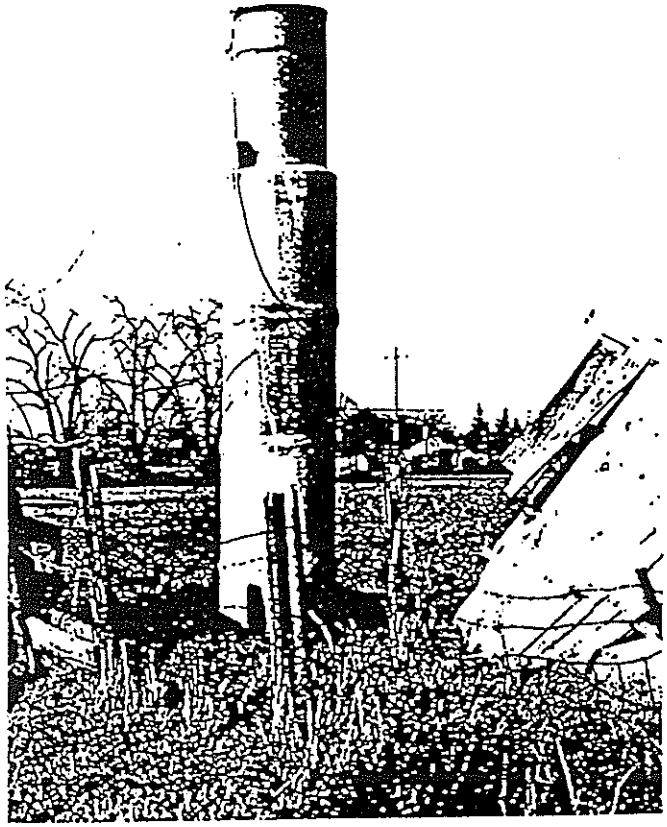
Continuation Sheet

7. These features are associated with an irrigation system serving the parcel bearing the street address of 6201 Hedge Avenue. It is difficult to estimate the dates of construction of these features because the complex of equipment structures burned in 1987. The remaining four features are likely not of the same age. The collapsed pump house is likely the oldest of the group, dating perhaps to the early 20th century. The water tank appears to be in excellent repair, despite the fact of exposed timber and metal; it likely is less than 50 years old. The standpipe similarly appears to have been installed within the last 50 years. The metal trough, although badly damaged, does not appear to be more than 50 years old.



Photograph 2. Collapsed pumphouse.

Photograph 3.
Concrete standpipe.



Photograph 4. Collapsed metal water trough.

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
OFFICE OF HISTORIC PRESERVATION

HISTORIC RESOURCES INVENTORY

Ser. No. ____ - ____ - ____
National Register Status_____
Local Designation _____

IDENTIFICATION AND LOCATION

1. Historic Name:

*2. Common Name: 9197 Elder Creek Road

*3. Number & Street: 9197 Elder Creek Road
City: Sacramento Vicinity only: Zip: 95829 County: Sacramento

4. UTM: zone: 10 / Easting: 643300 / Northing: 4263640

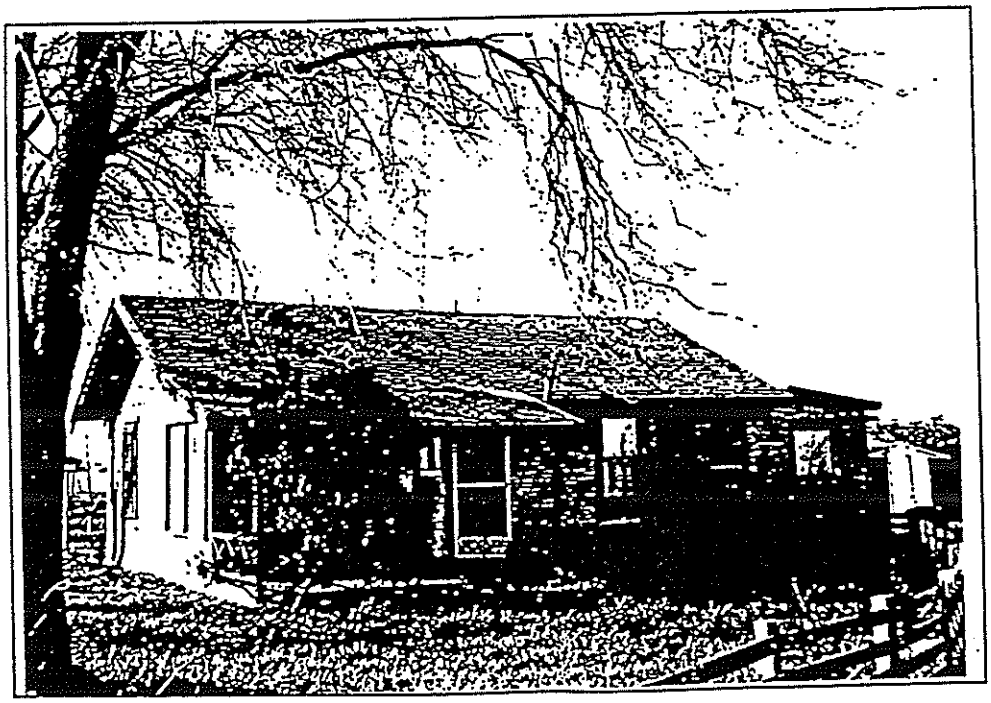
5. Quad map No.: Parcel No.: 063-0110-028 Other: Resource #16
(associated No. 063-0110-029, 063-0110-012)

DESCRIPTION

6. Property category: Building If district, number of documented resources: n/a

*7. Briefly describe the present physical appearance of the property, including condition, boundaries, relate features, surroundings, and (if appropriate) architectural style.

The property at 9197 Elder Creek Road includes a modern (built in 1964) residence as well as a 1929 residenc and four out-buildings. The 1964 home faces the street. Directly behind and to the north of the modern hous is the historic residence of the complex, measuring approximately 20' by 38'. The house is built of woodfram and sits on a concrete foundation. It has a predominant side gable roof and a small shed addition at the righ side. [See continuation sheet.]



8. Planning Agency:

9. Owner & Address:
Granite Construction Co
P.O. Box 15282
Sacramento, CA 95851

10. Type of ownership:
Private

11. Present use:
Commercial/Residential

12. Zoning:

13. Threats:
Gravel Mining Project

Send a copy of this form to: State Office of Historic Preservation, P.O. Box 942896, Sacramento, CA 94296-0001
* Complete these items for historic preservation compliance projects under Section 106 (36 CFR 800). All items must be completed for histo resources survey information.

HISTORICAL INFORMATION

*14. Construction date(s): 1929 Original location: Yes Date moved:

15. Alterations & date: No notable alterations to home; more recent outbuildings.

16. Architect: Unknown Builder: Unknown

17. Historic attributes (with number from list): Farmstead (39)

SIGNIFICANCE AND EVALUATION

18. Context for evaluation: Theme: Agriculture Area: Sacramento County
Period: 1920-1945 Property Type: Farmstead Context formally developed? Yes

*19. Briefly discuss the property's importance within the context. Use historical and architectural analysis as appropriate. Compare with similar properties.

Although largely unmodified, the older residence associated with 9197 Elder Creek Road (#16) and the associated farm buildings do not appear to meet the significance criteria for listing in the National Register. Neither the house, nor the related farm buildings, appear to represent distinguished examples of their type, period or method of construction, nor are they associated with events or persons important to our history.

The land where Resource #16 is located was owned by Isaac Lea from 1870 through 1895. Lea was a hog farmer who owned 720 acres in Sacramento County and nearly 1300 acres in Napa County. By the turn of the century, the property was held by Sacramento Bank and during the 1910s the parcel was held by T.D. Scriver and then Charlotte J. Scriver. C. E. Wells owned the land during the 1920s. Little is known about the Scrivers and Wells. By 1933 Wells sold off a 20-acre portion of his land to Toshiyuki Iwasaka who held the land at least as late as 1939. The residence at Resource #16 was probably constructed while the land was owned by Wells. Jas Hicks owned the land in the 1960s, at which time the property was operating as a small beef cattle farm. [See continuation sheet.]

20. Sources: Sacramento County Assessor Building Records and Assessor Map Books, various years; historic county maps, 1851, 1885, 1903, 1913, 1923; GLO Township Plat, 1865; USGS, *Carmichael Quadrangle*, 1954, 1967, photorevised 1980.

21. Applicable National Register Criteria: n/a

22. Other recognition:
State Landmark No. (if applicable): n/a

23. Evaluator: Stephen D. Mikesell
Date of evaluation: January 26, 1996

24. Survey type: Comprehensive

25. Survey name: Morrison Creek Mining Reach Downstream (South) of Jackson Highway

*26. Year form prepared: 1996
By (name): Meta Bunse, Janice Catlin
Organization: JRP Historical Consulting
Address: 712 Fifth Street, Suite F
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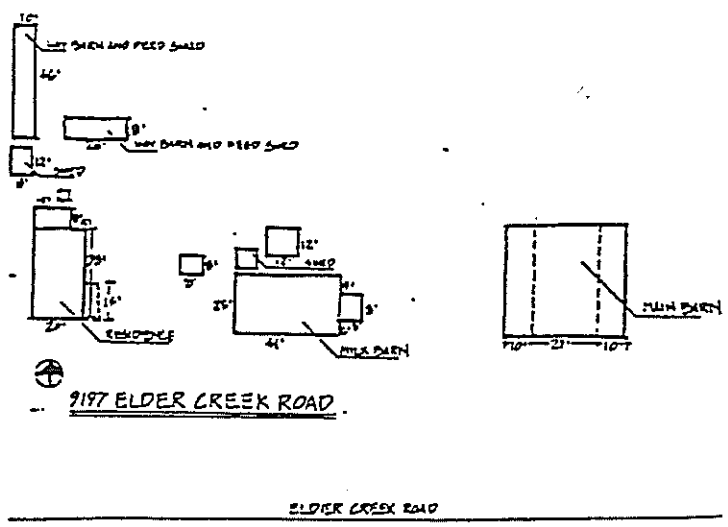
*Sketch map. Show location and boundaries of property in relation to nearby streets, railways, natural landmarks, etc. Name each feature.



Continuation Sheet

7. The roof is now covered by composition shingles, and has overhanging eaves with exposed rafters at the rear and fascia board at the front and sides. Windows are mainly 1/1 double hung wooden sash. A front porch is created by extension of the roofline forward over the front door area.. The porch is supported by simple posts with railing in a simple cross-design. Siding on the house is 1" by 6" two-part drop wooden siding. The shed at the side, which appears to be have been used as a service porch, is composed of wider beveled siding, and fixed pane windows. A small shed measuring 12' by 18' lies at the edge of the property just to the north of the residence. The wood frame pieced together vertical board siding on the walls and shingles (most of which are missing) on the low pitched gable roof. There is a six-pane window on the north wall which has been set into a smaller original opening. Fascia board can be seen at the rafter ends. The shed floor is dirt.

Just north of the small shed is the hay barn and feed shed which measures 56' by 10' (Photograph 2). It is woodframe with a metal shed roof and various pieced together wall siding. A band of openings runs across the front of the structure. An additional smaller shed of similar proportions and materials is set perpendicula to the larger one (Photograph 3). The smaller shed, which measures approximately 10' by 26', has wide wooden drop siding. Rather than just straight openings as on the larger shed, the smaller shed has hinged doo openings with an upper and lower split.

The property also includes a milk barn, which is situated east of the old residence and measures 30' by 36 (Photograph 4). It has a low pitched gable roof form with an additional "ventilator" top at the ridge. Ther is also a shed extension along the north wall. The roofing material is metal. The walls are mainly built c concrete block with wood siding at the upper window level. Decorative scalloped wood is lair vertically in th gables at the end walls. The interior area is divided just west of the center with a through passage from th outside. The smaller room has four pane windows at points around the walls along the upper edge. The large room has a band of windows, having eight panes each, around the walls. A very small woodframe gabled she with wide horizontal wood siding is located at the northwest corner of the milk house. The roof has expose rafters, narrow overhanging eaves, fascia boards at the gable ends, and composition shingles.

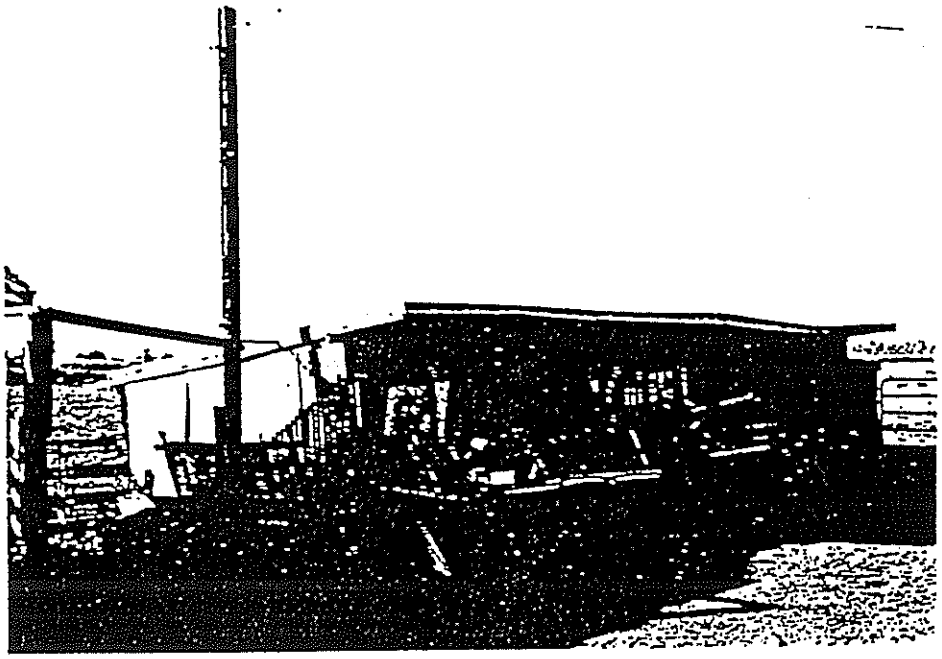
The largest building of the complex is the barn, being two stories in height with a central element that is 2 with 10' wide wings at each side (Photograph 5). The main central element, which sits on a concre foundation, is a woodframe structure is front gables with the large double door opening below. The roof h narrow overhanging eaves with exposed rafters and fascia board at the gable ends. Roof covering composition shingle. Siding at the gable ends is vertical lumber, with horizontal lumber at the side walls a wings.

The 1964 house is shown in Photograph 6.

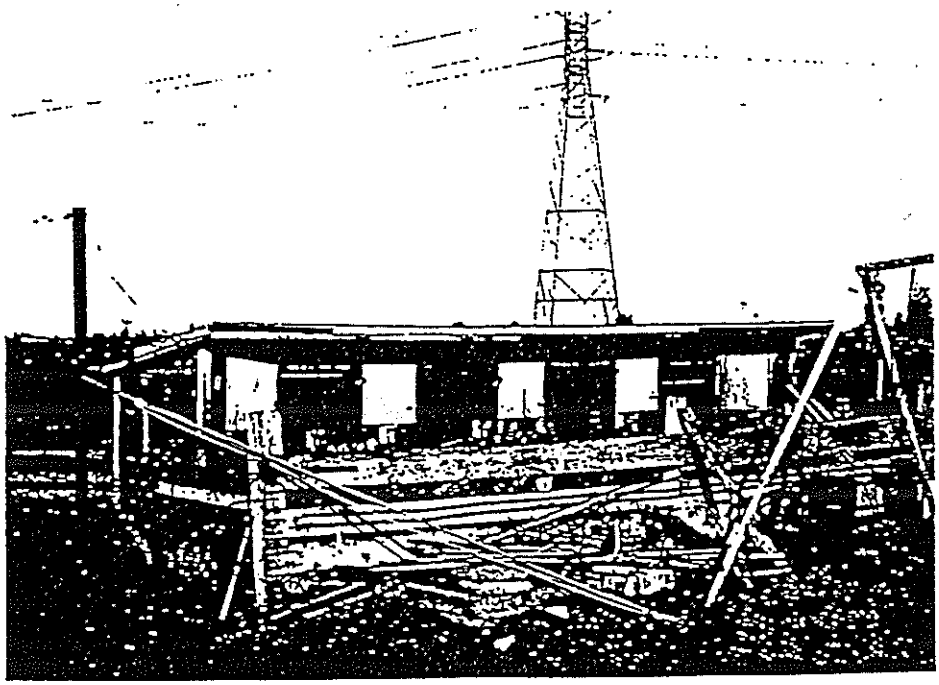
19. County records do not indicate dates of construction for the outbuildings, but report instead that a shed, 1 barn, milk barn, milk room, and chicken house all burned during the 1970s. The residence was unoccupied a no stock or poultry was being kept in any of the associated outbuildings at the time of this survey, howev JRP noted nine structures other than the older residence and modern residence at this address during the fi survey.

The history of this property is further confused by additional division of the parcel sometime after 1940 before 1961 when the parcel was split in half to form 063-0110-029 (the location of Resource #16 and sc of the farm buildings) and 063-0110-28 (the location of the modern residence at 9197 Elder Creek Road). remaining farm buildings associated with #16 appear to lie in the adjacent parcel, 063-0110-012, howe the county assessor records report no structures on 063-0110-029, but do show them on 063-0110-01

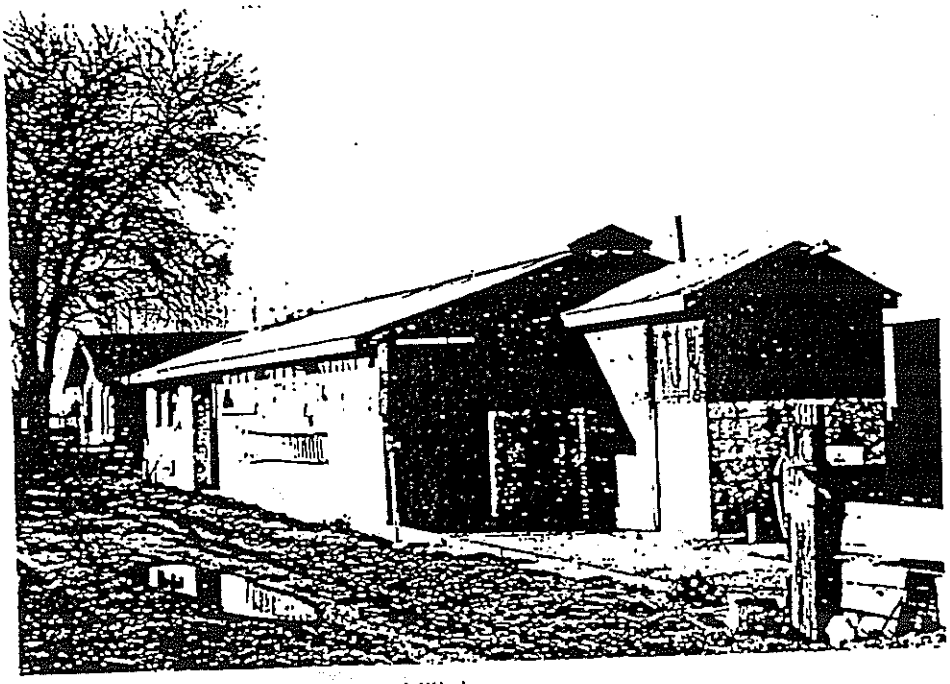
The farmstead does not appear to meet the eligibility criteria for listing in the National Register. The home built while the parcel was owned by C. E. Wells. Wells was a major landowner in the area and it is unli that he resided in this modest cottage. The complex was apparently used as a small dairy operation, perl operated by a tenant. Neither the house nor the complex as a whole appear to be a distinguished examp rural architecture. Lacking architectural significance and having no known association with important ev or persons, the property does not qualify for listing in the National Register.



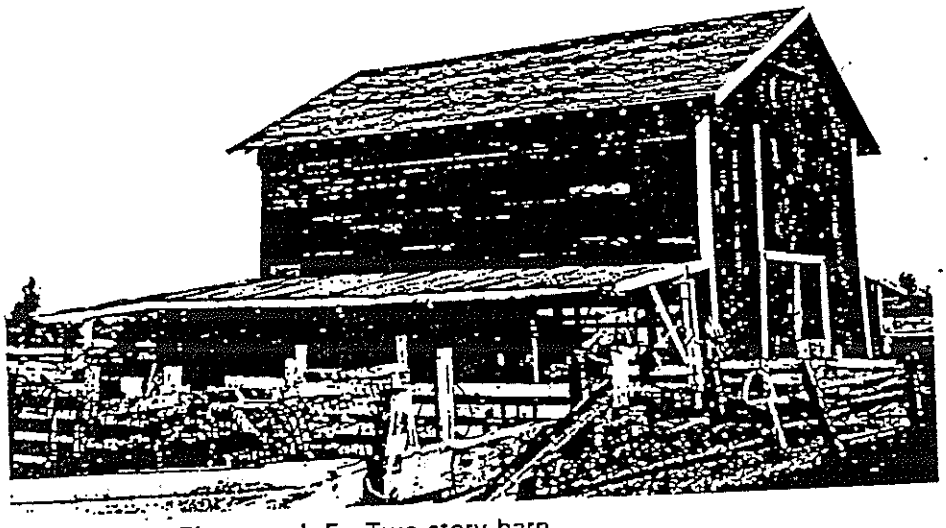
Photograph 2. Hay barn and feed shed.



Photograph 3. Smaller shed



Photograph 4. Milk barn.



Photograph 5. Two story barn.

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
OFFICE OF HISTORIC PRESERVATION

HISTORIC RESOURCES INVENTORY

Ser. No. _____ - _____ - _____
National Register Status_____
Local Designation _____

DENTIFICATION AND LOCATION

1. Historic Name:

*2. Common Name: 6210 Mayhew Road

*3. Number & Street: 6210 Mayhew Road City: Sacramento
Vicinity only: Zip: 95829 County: Sacramento

4. UTM: zone: 10 / Easting: 644440 / Northing: 4264360

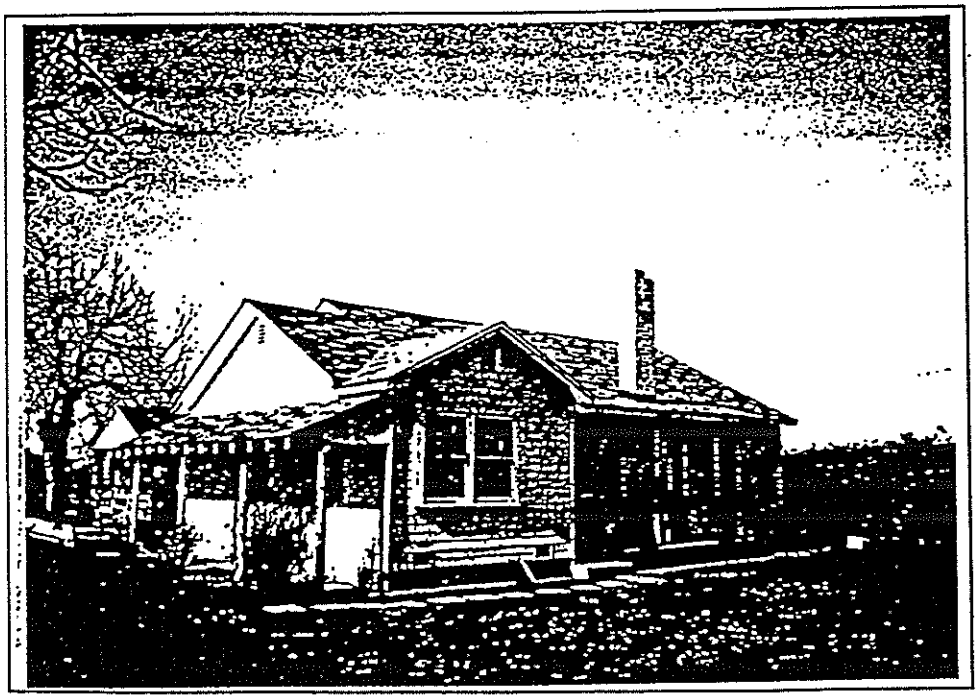
5. Quad map No.: Parcel No.: 063-0110-005 Other: Resource #17

DESCRIPTION

6. Property category: Building If district, number of documented resources: n/a

*7. Briefly describe the present physical appearance of the property, including condition, boundaries, related features, surroundings, and (if appropriate) architectural style.

The property at 6210 Mayhew Road includes a residence, built in 1947, as well as a garage and two outbuildings. The residence is a small woodframe house, measuring approximately 38' by 42', with a main side gabled roof and various other gables which add to the intricacy of the roofline. The eaves side of the main gable is the front of the house which faces Mayhew. At the center of the facade is a recessed porch, and at the left is a front gabled room which extends forward to the front edge of the porch. A brick fireplace can be seen along the wall at the front porch with the chimney piercing the roof of the porch cover. [See continuation sheet.]



8. Planning Agency:

9. Owner & Address:
Granite Construction Co.
P.O. Box 50085
Watsonville, CA 95087

10. Type of ownership:
Private

11. Present use:
Residential

12. Zoning:

13. Threats:
Gravel Mining Project

Send a copy of this form to: State Office of Historic Preservation, P.O. Box 942896, Sacramento, CA 94296-0001
* Complete these items for historic preservation compliance projects under Section 106 (36 CFR 800). All items must be completed for historica resources survey information.

HISTORICAL INFORMATION

*14. Construction date(s): 1947 Original location: Yes Date moved:

15. Alterations & date: Garage adapted for residential use.

16. Architect: Unknown Builder: Unknown

17. Historic attributes (with number from list): Farmstead (33)

SIGNIFICANCE AND EVALUATION

18. Context for evaluation: Theme: Agriculture Area: Sacramento County
Period: 1945-present Property Type: Farmstead Context formally developed? Yes

*19. Briefly discuss the property's importance within the context. Use historical and architectural analysis as appropriate. Compare with similar properties.

Although largely unmodified, the residence and associated buildings at 6210 Mayhew Road (#17) do not appear to meet the significance criteria for listing in the National Register. The buildings do not appear to represent distinguished examples of their type, period or method of construction, nor are they associated with events or persons important to our history. Further, the house, garage, and tool shed are less than 50 years old and do not appear to be exceptionally significant.

From 1870 through at least 1912, Albert D. Miller and his family owned land that included the location of this house. After Miller's death, his widow Margaret J. Miller retained a some of the property, but in 1920 solc off the remainder, including a 20-acre portion to J. H. Yaxley. The property changed hands several times anc was further divided during the 1920s and 1930s. By 1939, K. Miyani owned a 17-acre parcel surrounding the resource that would become 6210 Mayhew Road, which county building records indicate was built in 1947 [See continuation sheet.]

20. Sources: Sacramento County Assessor Building Records and Assessor Map Books, various years; historic county maps, 1851, 1885, 1903, 1913, 1923; GLO Township Plat, 1865; USGS, *Carmichael Quadrangle*, 1954, 1967, photorevised 1980.

21. Applicable National Register Criteria: n/a

22. Other recognition:
State Landmark No. (if applicable): n/a

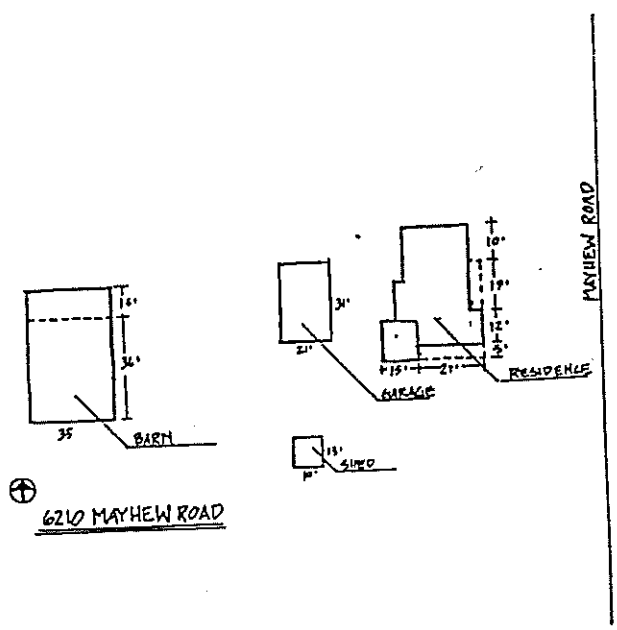
23. Evaluator: Stephen D. Mikesell
Date of evaluation: January 26, 1996

24. Survey type: Comprehensive

25. Survey name: Morrison Creek Mining Reach Downstream (South) of Jackson Highway

*26. Year form prepared: 1996
By (name): Stephen D. Mikesell
Organization: JRP Historical Consulting
Address: 712 Fifth Street, Suite F
City & Zip: Davis, CA 95616
Phone: (916) 757-2521

*Sketch map. Show location and boundaries of property in relation to nearby streets, railways, natural landmarks, etc. Name each feature.



At the side, a gabled area of the same proportions as the main gable, yet smaller, extends the area of the house. A shed porch cover lines the wall of the gable extension. The rear of the house also has one cross gable room extending back from the house (Photograph 2). The eaves of some of the gable ends have a decorative flair at the tips. Eaves around the house, except for the side porch which has exposed rafters, have a moderate overhang with small fascia board.

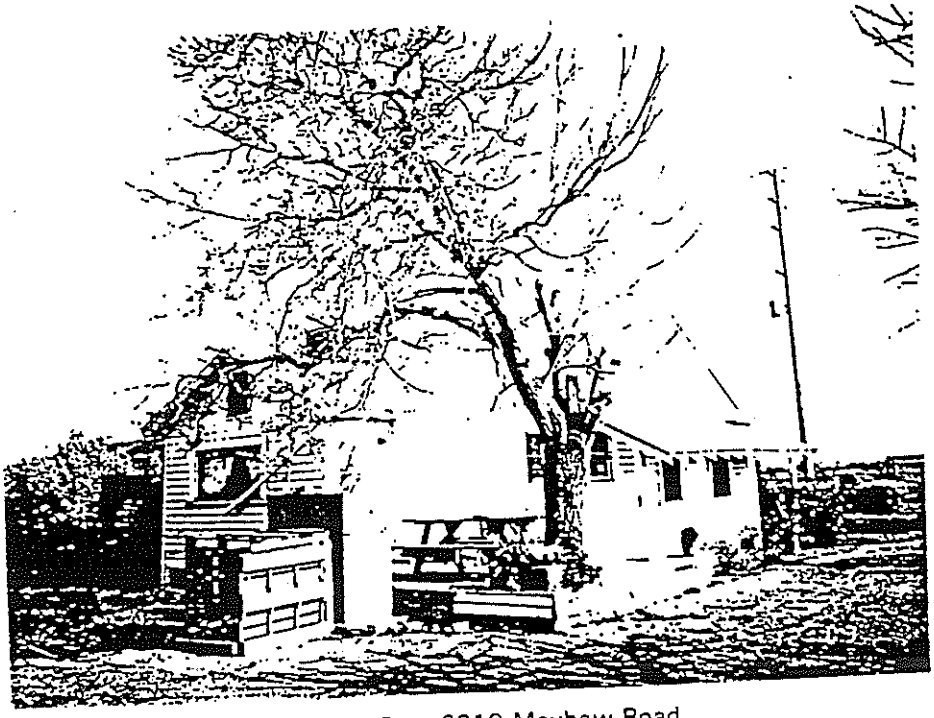
The house is sided in 1" by 6" wooden V-groove siding. Composition shingles currently cover the roof. A concrete foundation supports the full house as well as the front porch. Porch supports have an interesting vertical design composed of narrow pieces of metal (Photograph 3). Windows are generally 6/1 double hung wooden sash, some in pairs. An additional deck has been built into the house at the southwest corner, and has been modified to work around an existing tree.

Directly behind the house is a woodframe, front-gabled garage measuring 20' by 30'', with the main door facing the drive along the south side. The garage has been adapted for use by inhabitants, and the main garage door at the south side has been adapted with plywood to accommodate an aluminum sliding plate glass door (Photograph 4). Older lapped siding like the siding of the main house remains on the other walls. Wood frame doors and windows exist on the east wall.

A small woodframe tool shed, measuring 10' by 13' stands about directly across from the garage at about 39' distance. It has a very low pitched roof with composition shingles and plywood siding. The shed sits on a concrete foundation.

At the rear of the property, approximately 70' beyond the garage, is a front gabled wood frame barn with a shed addition at the side (Photgraph 5). The main barn portion measures 32' by 32', and the shed addition measures 13' by 32'. The floor is concrete and the walls are sided in mixed lumber. Original wood shingles can be seen on the roof, although most of the covering is gone, leaving the interior exposed to the elements. The shed addition is built of the same mixed lumber and flooring materials, but is covered on the roof by corrugated metal.

19. Joseph Omer and Susie Legare owned the residence in the 1960s and the county classified their rural property as grazing land. County building records do not report construction dates for the buildings associated with 6210 Mayhew, but indicate that since the late 1970s a corrugated iron pump house (9' x 8') has been removed and the tool shed has been added to the property.



Photograph 2. Rear 6210 Mayhew Road.

Photograph 3.
Detail of porch support .

Photograph 4. Converted garage.

Photograph 5. Woodframe barn.

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
OFFICE OF HISTORIC PRESERVATION

HISTORIC RESOURCES INVENTORY

Ser. No. _____ - _____ - _____
National Register Status_____
Local Designation _____

IDENTIFICATION AND LOCATION

1. Historic Name:

*2. Common Name: 6155 Mayhew Road

*3. Number & Street: 6155 Mayhew Road
City: Sacramento Vicinity only: Zip: 95829 County: Sacramento

4. UTM: zone: 10 / Easting:644700 / Northing: 4264080

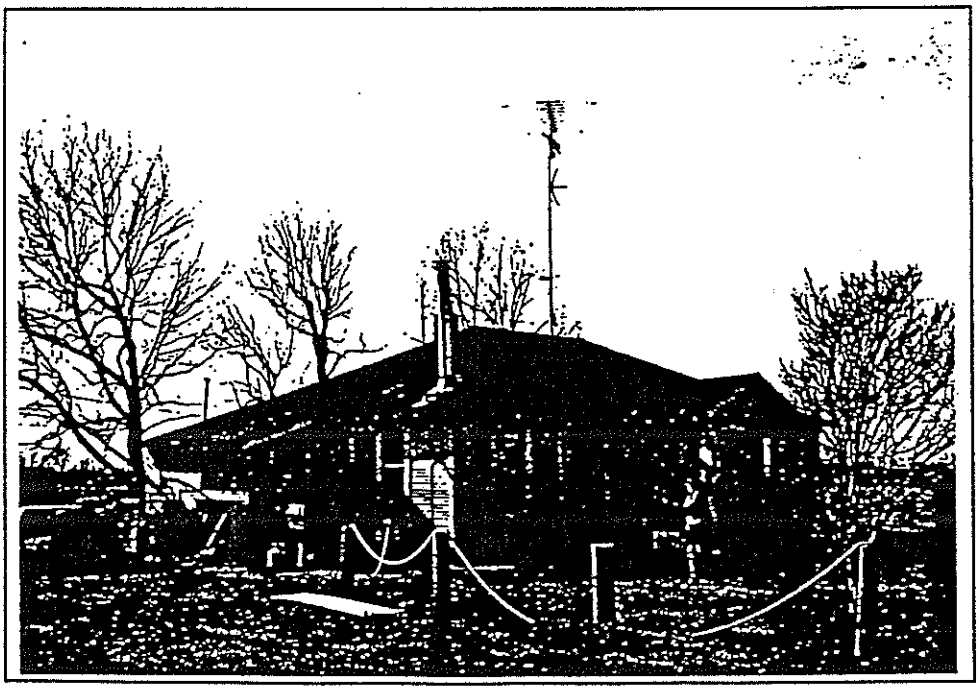
5. Quad map No.: Parcel No.: 063-0130-009 Other: Resource #18

DESCRIPTION

6. Property category: Building If district, number of documented resources: n/a

*7. Briefly describe the present physical appearance of the property, including condition, boundaries, related features, surroundings, and (if appropriate) architectural style.

The residence at 6155 Mayhew Road includes a ca.1915 residence and three outbuildings. The residence is a modest wood frame bungalow, approximately 40' in width, which displays some Craftsman elements. The form of the house is essentially rectangular in plan, with a ridged hip roof of moderate pitch, a small front gable porch, and a small shed addition at the left rear. Rafters are exposed at the eaves and fascia board fronts the gable porch entry.



8. Planning Agency:

9. Owner & Address:
Teichert Land Co.
P.O. Box 13308
Sacramento, CA 95813

10. Type of ownership:
Private

11. Present use:
Residential

12. Zoning:

13. Threats:
Gravel mining project

Send a copy of this form to: State Office of Historic Preservation, P.O. Box 942896, Sacramento, CA 94296-0001
* Complete these items for historic preservation compliance projects under Section 106 (36 CFR 800). All items must be completed for historic resources survey information.
DPR 523 (Rev. 6/90)

HISTORICAL INFORMATION

*14. Construction date(s): ca. 1915 Original location: Unknown Date moved:

15. Alterations & date: No major alterations to house; recent outbuildings

16. Architect: Unknown Builder: Unknown

17. Historic attributes (with number from list): Farmstead (39)

SIGNIFICANCE AND EVALUATION

18. Context for evaluation: Theme: Agriculture Area: Sacramento County
Period: 1900-1945 Property Type: Farmstead Context formally developed? Yes

*19. Briefly discuss the property's importance within the context. Use historical and architectural analysis as appropriate. Compare with similar properties.

Although largely unmodified, the residence and associated buildings at 6155 Mayhew Road (#18) do not appear to meet the significance criteria for listing in the National Register. The buildings do not appear to represent distinguished examples of their type, period or method of construction, nor are they associated with events or persons important to our history.

During the 1870s and early 1880s this land was owned successively by Jared Kibbe, Amy Chatfield and Amy E. Potter. Little is known about these individuals except Amy Chatfield, who was originally from New York and Michigan. She married H. 8. Chatfield in 1843, had six children, and Mr. Chatfield died in 1870. In 1880 Mrs. Chatfield owned 400 acres in Brighton township. The details of the transfer are not clear, but in 1886 Edwin K. Alsip and J. H. Miller subdivided the former Chatfield parcel into 35 roughly 10-acre lots. 6155 Mayhew is sited on Lots 14 through 16 of this old subdivision. Sacramento County Assessor parcel maps and official county maps do not indicate individual ownership of the lots from the time of its creation through 1939. County building records, however, report that in 1962 Nobuyashi and Kazuye Ito owned the property. [See continuation sheet.]

20. Sources: Sacramento County Assessor Building Records and Assessor Map Books, various years; historic county maps, 1851, 1885, 1903, 1913, 1923; GLO Township Plat, 1865; USGS, *Carmichael Quadrangle*, 1954, 1967, photorevised 1980.

21. Applicable National Register Criteria: n/a

22. Other recognition:
State Landmark No. (if applicable): n/a

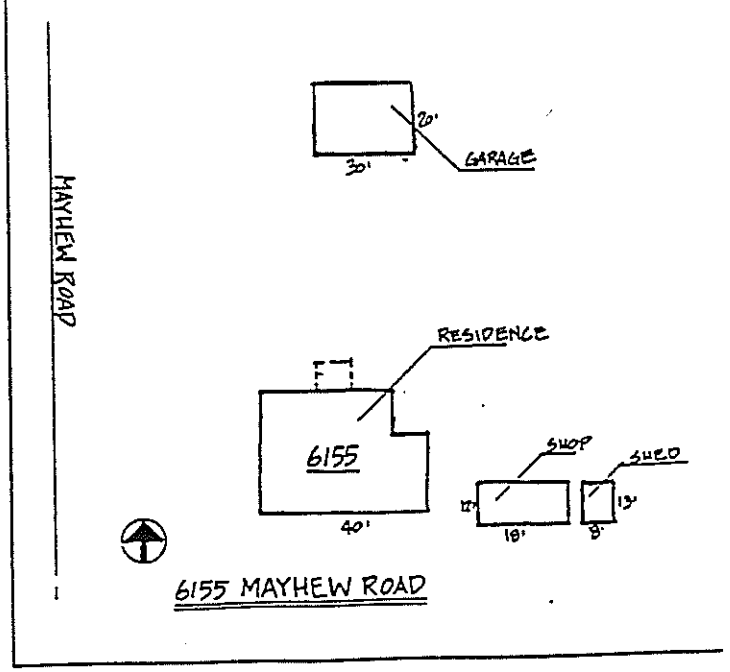
23. Evaluator:
Date of evaluation: January 26, 1996

24. Survey type: Comprehensive

25. Survey name: Morrison Creek Mining Reach Downstream (South) of Jackson Highway

*26. Year form prepared: 1996
By (name): Meta Bunse/Janice Catlin
Organization: JRP Historical Consulting
Address: 712 Fifth Street, Suite F
City & Zip: Davis, CA 95616
Phone: (916) 757-2521

*Sketch map. Show location and boundaries of property in relation to nearby streets, railways, natural landmarks, etc. Name each feature.



7. The entry carries the strongest elements of the Craftsman style, as displayed in the brick piers and squared columns, the simple porch railing, the ten-pane front door with ten-pane side lights, and additional ten-pane windows at each side. Other windows in the house are generally 1/1 double hung wood sash.

The house sits on a concrete foundation and is sided in two-part drop beveled wood siding. Current roofing material is composition shingle. A brick chimney stands just behind the roof ridge, and a metal stovepipe stands at the front left of the house.

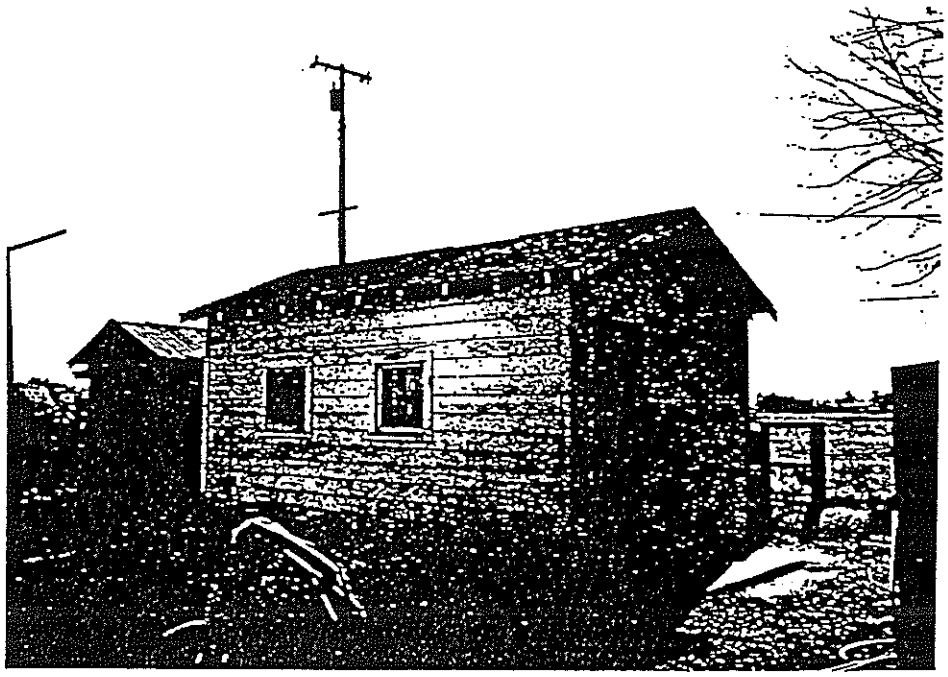
About 15' east of the house is a small woodframe building, measuring 12' by 18', which appears to have been used as a shop (Photograph 2). The rectangular building has a front gable entry with the wood frame door facing the main house. A concrete foundation raises the floor above ground level. Wide horizontal beveled wood siding covers the walls and straight vertical siding fills the gable at the east side. Windows at the eave sides are six-pane hinged. Gable ends have fascia board and eave sides have exposed rafters.

A small shed with corrugated metal siding and roof, measuring approximately 8' by 13', stands directly to the east of the wood frame shop. The shed has a low pitched gable roof with the gable end facing north.

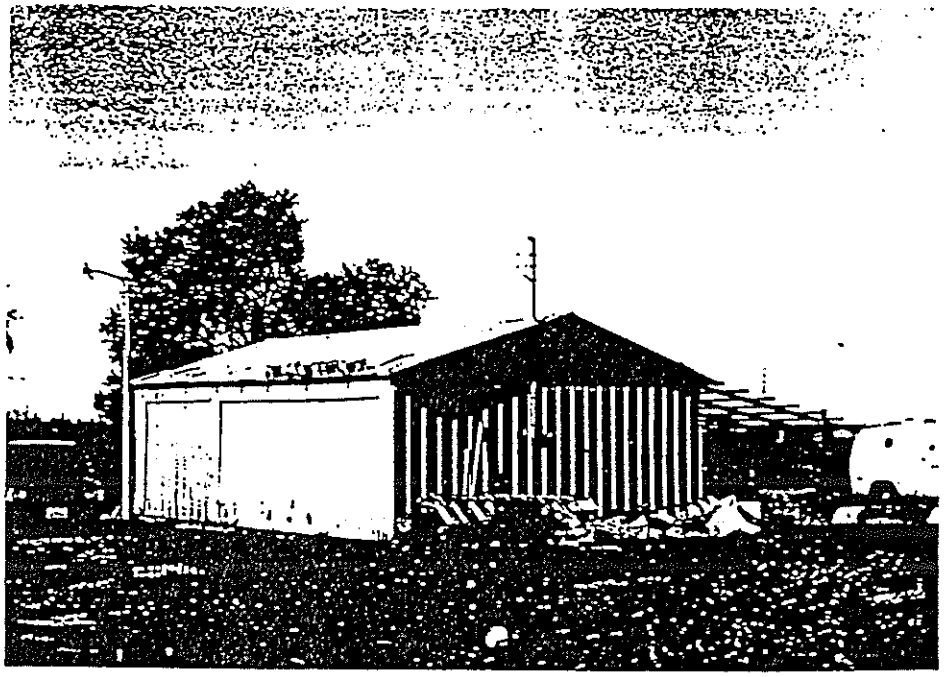
A modern metal garage with moderate pitch side gable roof is situated to the north of the house, with the main automobile doors facing the house (Photograph 3). Floor space measures approximately 22' by 30'. Wood framing within the metal structure can be seen in the rafters and gable ends.

19. For at least part of its history this property produced grapes. Although all removed in 1973, two acres of grape vines had been planted in 1910, five acres in 1951 and an additional four acres in 1956. At sometime after 1962 a 42' x 42' board and batten barn was removed as well. The origin of the hop or storage building to the east of the house is not recorded, but its construction and roof slope are characteristic of World War II temporary military buildings and may have been moved to the site. The corrugated metal garage was built in 1956.

The property does not appear to meet the eligibility criteria for listing in the National Register of Historic Places. The home was likely built in about 1915, during the period in which Craftsman design was the most popular mode of residential construction throughout California. County records give a 1937 construction date for the home. This date -- much too late for the building's construction -- may indicate that the house was moved to this site at that time. Architecturally, the house is an undistinguished example of a small Craftsman bungalow, a building type represented in abundance in Sacramento County. The complex as a whole reflects many eras of construction, including a modern garage, a ca. 1945 shed, and a somewhat older pump enclosure. The buildings are not significant architecturally and have no known association wit events or persons important to our history. For these reason, the property does not appear to eligible for listing in the National Register.



Photograph 2. Woodframe shop building.



Photograph 3. Modern metal garage.

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
OFFICE OF HISTORIC PRESERVATION

HISTORIC RESOURCES INVENTORY

Ser. No. _____ - _____ - _____
National Register Status_____
Local Designation _____

IDENTIFICATION AND LOCATION

1. Historic Name:

*2. Common Name: 6211 Mayhew Road

*3. Number & Street: 6211 Mayhew Road
City: Sacramento Vicinity only: n/a Zip: 96839 County: Sacramento

4. UTM: zone: 10 / Easting: 644700 / Northing: 4263840

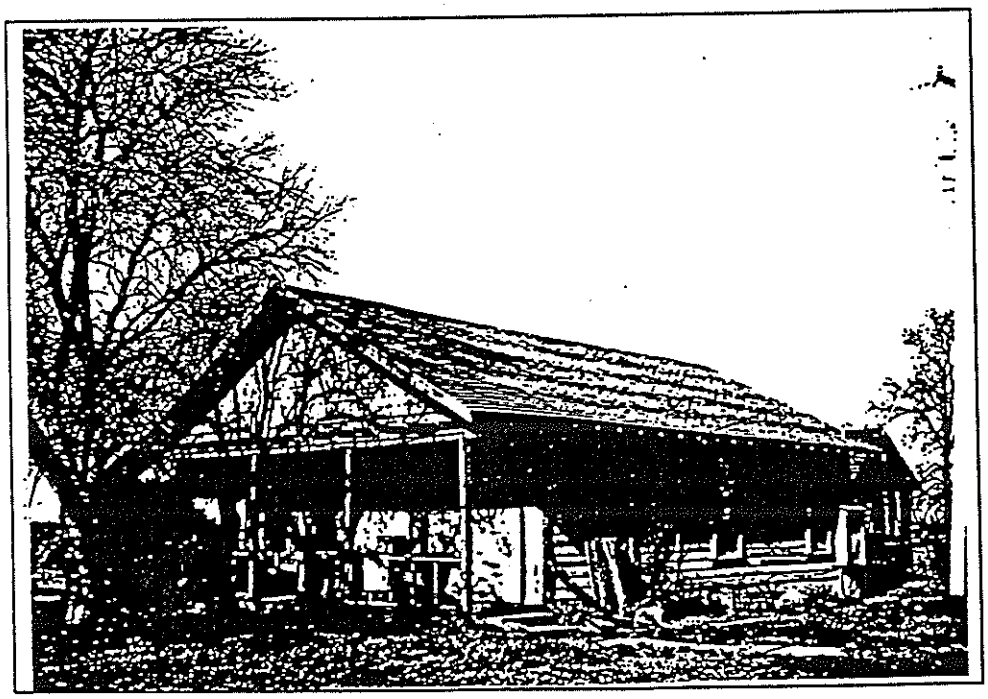
5. Quad map No.: Parcel No.: 063-0130-010 Other: Resource #19

DESCRIPTION

6. Property category: Building If district, number of documented resources: n/a

*7. Briefly describe the present physical appearance of the property, including condition, boundaries, relat features, surroundings, and (if appropriate) architectural style.

The property at 6211 Mayhew Road includes a primary residence, a secondary residence, a garage, and remnants of a water delivery system. The main house is a simple woodframe bungalow, measur approximately 35' by 42', and oriented with the front porch facing south. The building form is essenti rectangular in plan with front facing gable, an additional shed porch cover at the west side, and a full reces porch at the front end which has an additional shed extension to the left side. [See continuation sheet.]



8. Planning Agency:

9. Owner & Address:
Teichert Construction
P.O. Box 13308
Sacramento, CA 9581

10. Type of ownership:
Private

11. Present use:
Residential

12. Zoning:

13. Threats:
Gravel mining project

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* Complete these items for historic preservation compliance projects under Section 106 (36 CFR 800). All items must be completed for hi resources survey information.
DPR 523 (Rev. 6/90)

HISTORICAL INFORMATION

*14. Construction date(s): 1920 Original location: Unknown Date moved:

15. Alterations & date: Fire damage to secondary residence

16. Architect: Unknown Builder: Unknown

17. Historic attributes (with number from list): Farm (33)

SIGNIFICANCE AND EVALUATION

18. Context for evaluation: Theme: Area:
Period: Property Type: Context formally developed?

*19. Briefly discuss the property's importance within the context. Use historical and architectural analysis as appropriate. Compare with similar properties.

The residence and associated buildings at 6211 Mayhew Road (#19) do not appear to meet the significance criteria for listing in the National Register. The buildings do not appear to represent distinguished examples of their type, period or method of construction, nor are they associated with events or persons important to our history.

During the 1870s and early 1880s this land was owned successively by Jared Kibbe, Amy Chatfield and Amy E. Potter. In 1886 Edwin K. Alsip and J. H. Miller subdivided the former Chatfield parcel into 35 roughly 10-acre lots. Like Resources #18 and 20, the property at 6211 Mayhew is located on a parcel comprised of lots of the "Anderson Tract" subdivision. The parcel includes Lots 18 and 19, and most of Lots 17 and 20, for a total of 35.41 acres. According to county building and rural property records, the residence was built in about 1920. Joseph Colangelo, Jr. owned the property by 1961 and was producing hay on his land at that time. [See continuation sheet.]

20. Sources: Sacramento County Assessor Building Records and Assessor Map Books, various years; historic county maps, 1851, 1885, 1903, 1913, 1923; GLO Township Plat, 1865; USGS, *Carmichael Quadrangle*, 1954, 1967, photorevised 1980.

21. Applicable National Register Criteria: n/a

22. Other recognition:
State Landmark No. (if applicable): n/a

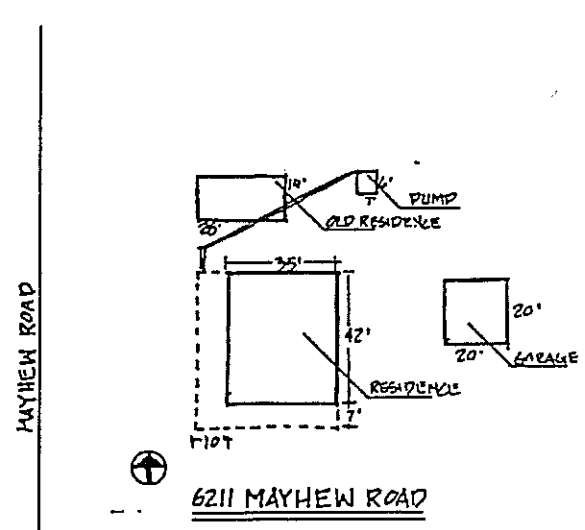
23. Evaluator: Stephen D. Mikesell
Date of evaluation: January 26, 1996

24. Survey type: Comprehensive

25. Survey name: Morrison Creek Mining Reach Downstream (South) of Jackson Highway

*26. Year form prepared: 1996
By (name): Meta Bunse/Janice Catlin
Organization: JRP Historical Consulting
Address: 712 Fifth Street, Suite F
City & Zip: Davis, CA 95616
Phone: (916) 757-2521

*Sketch map. Show location and boundaries of property in relation to nearby streets, railways, natural landmarks, etc. Name each feature.



7. The roof is a medium pitch and is currently covered in composition shingles.. A concrete perimeter foundation supports the house and extends across the width of the outside porches. It is sided in wide 1" by 10" shiplap siding. Windows are generally 1/1 double hung wooden sash.

Craftsman elements and details can be seen at various points around the house. The full front porch is a typical Craftsman element with simple wood posts and wood railing enclosure. Ceiling joists which protrude from the front of the house are carved at the tail ends. Rafters are exposed at the eaves. The full side porch is another Craftsman elements featuring double doors into the house which have multiple panes of glass set into a Craftsman-styled frame.

Directly behind the main residence is the remnant of a smaller woodframe residence, measuring approximately 14' by 28', which has suffered some fire damage (Photograph 2). The small house is a simple rectangular form with medium pitch gable roof and a small recessed front porch. Roof eaves have exposed rafters and fascia boards at the gable ends. Siding is the same 1" by 10" shiplap siding which is found on the main house. The woodframe windows are generally 1/1 double hung sash. Craftsman details can be found in the front entry door, which has the same geometric fixed pane configuration that the double doors have at the side of the main house.

An old garage measuring 20' by 20' stands at the side of the main house with the automobile opening facing south (Photograph 3). The garage is wood frame with a concrete floor, corrugated metal roofing, and various types of siding, including narrow lapped weatherboard and some three part beveled drop siding. Two garage doors are suspended from a top metal track.

The property retains remnants of a water system consisting of a pump and a trough which runs approximately 47' and attaches to both the main residence and the smaller rear residence (Photographs 4 & 5).

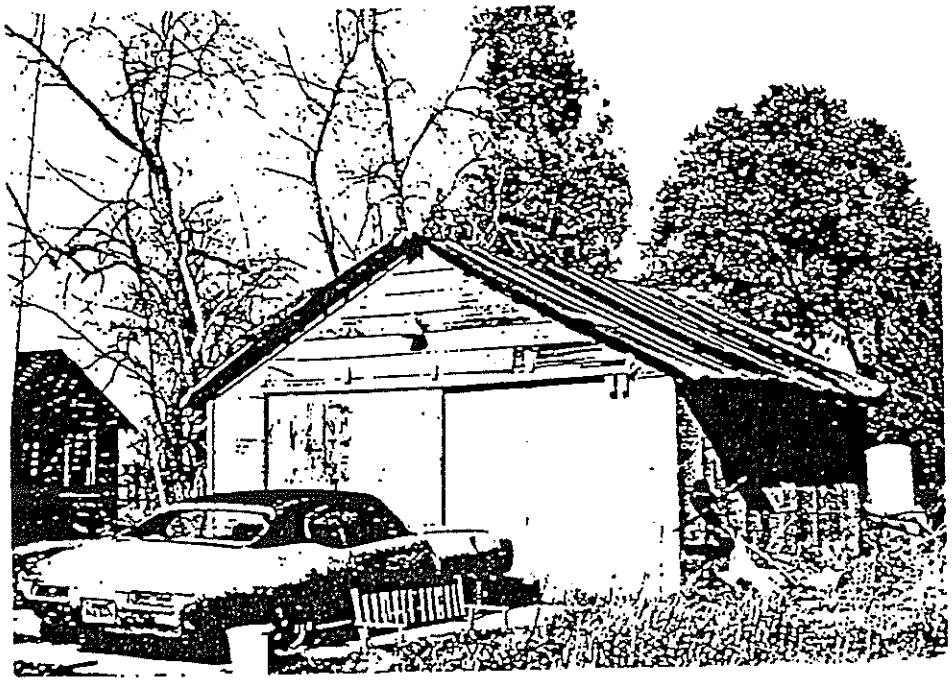
19. County records do not indicate dates for the other buildings on the property, but in the 1960s the assessor noted the existence of two barns, a garage, a shed, and two pump systems, one of which was listed as "old, not used." The property currently consists of a garage, a secondary residence, and an old well, besides the main residence. The removal of the barns and shed and the addition of the secondary residence are not recorded. The old well box, of coarse aggregate concrete, measures approximately 7' x 6' and feeds an open trough of the same material that runs 47' from the well into the main residence. As noted by the county records, it does not appear to have been used in many years and its partially filed with organic debris and weeds.

This property does not appear to meet the criteria for listing in the National Register. As noted, the "Anderson Tract" was established into 10 acre parcels in the late 1880s. Very few of the colony-type parcels sold, however, and the remaining lots were re-combined into more economical units. This farmstead was constructed in about 1920, according to county records, and once included many outbuildings, nearly all of which have been demolished.

What remains are a primary residence, secondary residence, and garage. All appear to have been built at the same time. All are simple vernacular buildings with modest Craftsman details. The main house is somewhat unusual in that it includes full porches at the front and one side, sheltering its southern and western exposures. The building is otherwise undistinguished. The secondary residence mimics the main house in its roof detail and siding. This building has suffered recent fire damage. The detached garage is likely part of the original complex. Its integrity has been diminished through random installation of replacement siding.

Taken as a whole, the group of buildings do not appear to represent a distinguished example of the California farmstead of the early 20th century. Lacking architectural significance and having no known association with important events or persons, the complex does not appear to qualify for listing in the National Register of Historic Places.

Photograph 2. Secondary residence.



Photograph 3. Garage.

Photograph 4. Remnants of water system pump.

Photograph 5. Remnants of water system trough.

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
OFFICE OF HISTORIC PRESERVATION

HISTORIC RESOURCES INVENTORY

Ser. No. _____ - _____ - _____
National Register Status_____
Local Designation _____

)ENTIFICATION AND LOCATION

. Historic Name:

2. Common Name: 5746 Bradshaw Road

3. Number & Street: 5746 Bradshaw Road
City: Sacramento Vicinity only: Zip: 95829 County: Sacramento

. UTM: zone: 10 / Easting: 645260 / Northing: 4264700

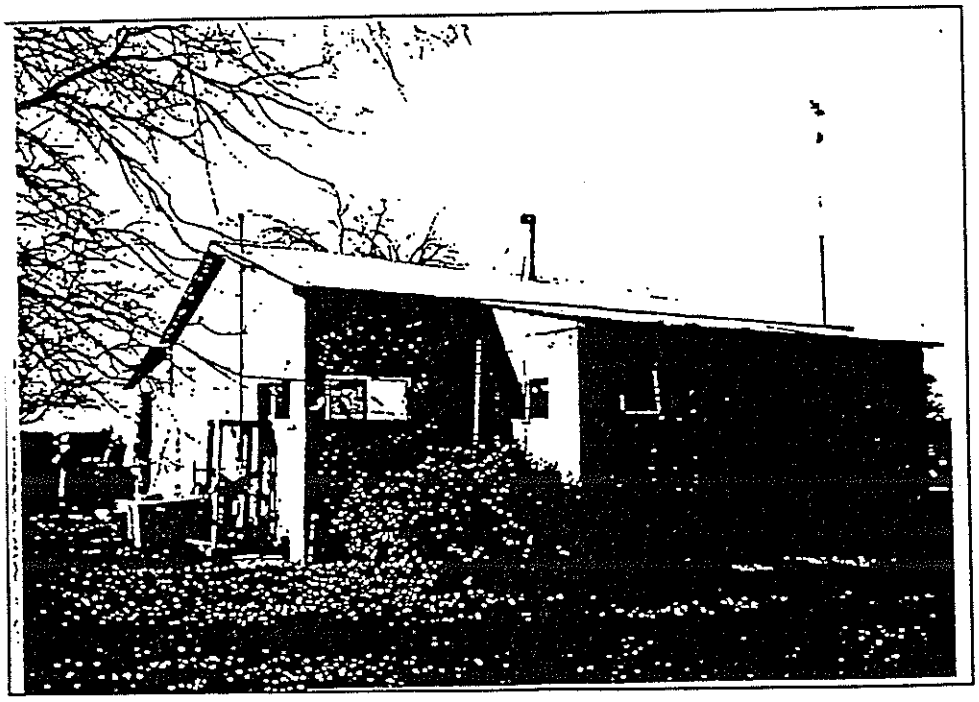
. Quad map No.: Parcel No.: 063-0100-019 Other: Resource #20

)ESCRIPTION

;. Property category: Building If district, number of documented resources: n/a

·7. Briefly describe the present physical appearance of the property, including condition, boundaries, related features, surroundings, and (if appropriate) architectural style.

The property at 5746 Bradshaw Road includes a heavily altered residence, built ca. 1920, as well as a small chicken house and a milk barn. The residence appears to represent a small (700 sf) cottage from 1920 with major additions to the front and rear. At the center is a rectangular element with a low pitched gable roof and narrow eaves. Two shed roofed additions have been made to the rear of the house: a larger garage as well as a small enclosed porch.



8. Planning Agency:

9. Owner & Address:
Granite Construction Co.
P.O. Box 50085
Watsonville, CA 95077

10. Type of ownership:
Private

11. Present use:
Residential

12. Zoning:

13. Threats:
Gravel Mining Project

Send a copy of this form to: State Office of Historic Preservation, P.O. Box 942896, Sacramento, CA 94296-0001
* Complete these items for historic preservation compliance projects under Section 106 (36 CFR 800). All items must be completed for historic-resources survey information.
DPR 523 (Rev. 6/90)

HISTORICAL INFORMATION

*14. Construction date(s): 1920 Original location: unknown Date moved:

15. Alterations & date: Many - see "Description."

16. Architect: Unknown Builder: Unknown

17. Historic attributes (with number from list): Farmstead (33)

SIGNIFICANCE AND EVALUATION

18. Context for evaluation: Theme: Agriculture Area: Sacramento County
Period: 1920-1945 Property Type: Farmstead Context formally developed? Yes

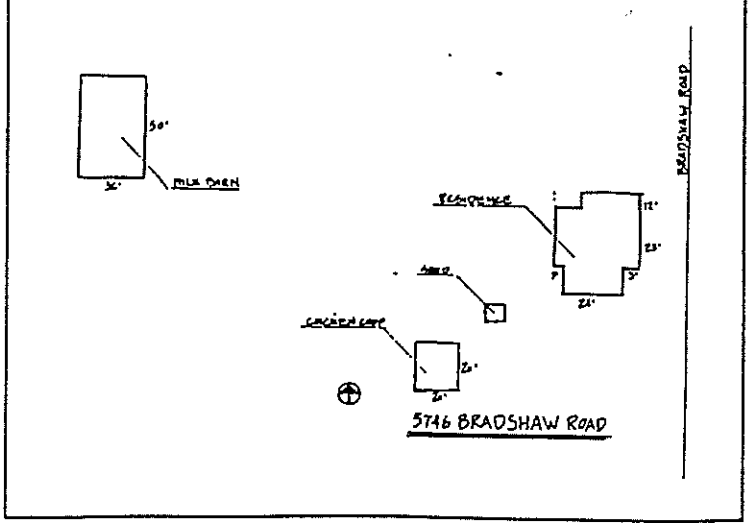
*19. Briefly discuss the property's importance within the context. Use historical and architectural analysis as appropriate. Compare with similar properties.

The residence and associated outbuildings at 5746 Bradshaw Road (#20) do not appear to meet the significance criteria for listing in the National Register. The buildings do not appear to represent distinguished examples of their type, period or method of construction, nor are they associated with events or persons important to our history. Further, the residence has been substantially altered, to an extent that it no longer retains integrity of design, materials, or workmanship.

During the 1870s and early 1880s this land was owned successively by Jared Kibbe, Amy Chatfield and Amy E. Potter. In 1886, Edwin K. Alsip and J. H. Miller subdivided the former Chatfield parcel into 35 roughly 10-acre lots. Like Resources #18 and 19, this residence is located on a parcel comprised of lots of the "Anderson Tract" subdivision. The parcel at 5746 Bradshaw Road includes Lots 32, 33, and a portion of 34, for a total of 24.69 acres. County records estimate that the main residence on this parcel was constructed around 1920, although, the sketch plan of the main residence does not closely represent 5746 Bradshaw. [See continuation sheet.]

20. Sources: Sacramento County Assessor Building Records and Assessor Map Books, various years; historic county maps, 1851, 1885, 1903, 1913, 1923; GLO Township Plat, 1865; USGS, *Carmichael Quadrangle*, 1954, 1967, photorevised 1980.

*Sketch map. Show location and boundaries of property in relation to nearby streets, railways, natural landmarks, etc. Name each feature.



21. Applicable National Register Criteria: n/a

22. Other recognition:
State Landmark No. (if applicable): n/a

23. Evaluator: Stephen D. Mikesell
Date of evaluation: January 26, 1996

24. Survey type: Comprehensive

25. Survey name: Morrison Creek Mining Reach Downstream (South) of Jackson Highway

*26. Year form prepared: 1996
By (name): Meta Bunse, Janice Catlin
Organization: JRP Historical Consulting
Address: 712 Fifth Street, Suite F
City & Zip: Davis, CA 95616
Phone: (916) 757-2521

The east side (the facade) includes an enclosed porch. The exterior walls are covered by various finishes, none of which appear to be original. Rough stucco covers the main central element and east side addition. The west side garage addition is fronted with wide wood siding, and the remainder is sided with corrugated metal (Photograph 2). The porch behind the garage is sided in plywood. Most of the house sits on a concrete foundation while the west additions are held by concrete footings.

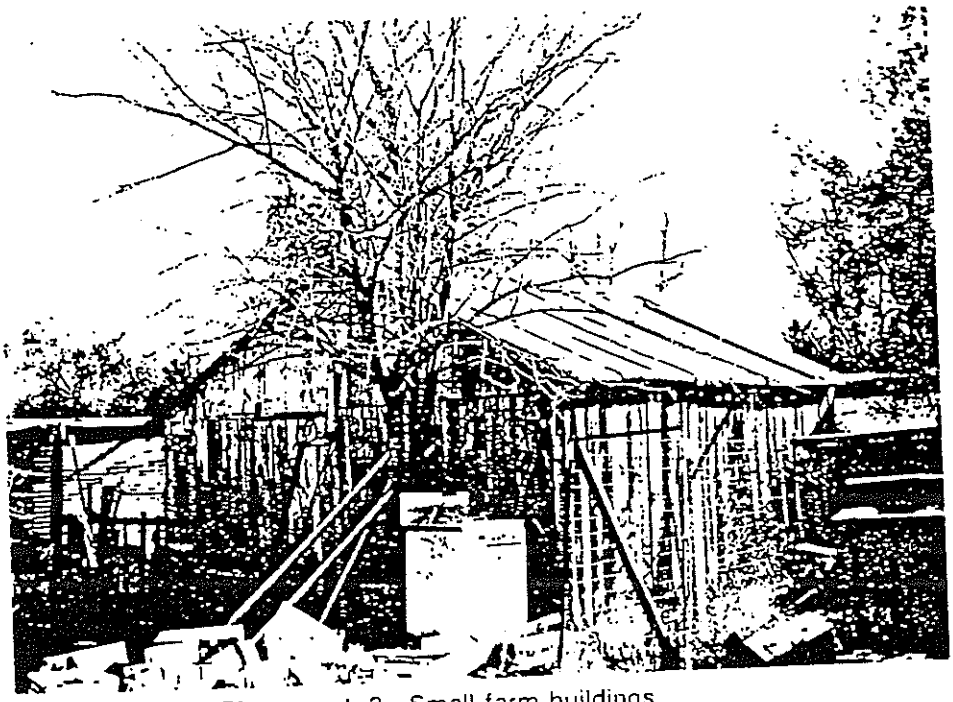
Most windows in the house appear to be replacements, most having aluminum sash sliding windows. A door with ten window panes can be seen the entry along with six pane sidelights, indicative of an original style which the house might have once possessed. An additional 1/1 double hung wooden sash window also still exists.

About 20 yards southwest of the house is a small farm building used in conjunction with keeping chickens (Photograph 3). The front gabled structure measures approximately 20' by 20' and is built of wood frame with simple vertical plank siding. Pieces of flat metal cover the roof. Two pair of side hinged doors open to the front of the building.

To the west of the house and out in the fields is a large milk barn measuring 36' by 50'. The woodframe structure takes form with a gable roof and an additional shed element. A stone foundation supports the walls which are sided in board and batten. The floor is of unfinished dirt.

19. The discrepance apparently relates to the front and rear additions, made after the sketch plan was completed. In its current condition, the appearance of the building is dominated by recent modifications, including front and rear additions, new windows, and replacement siding. The house lacks integrity and therefore does not qualify for listing in the National Register.

Photograph 2. West side garage addition.



Photograph 3. Small farm buildings

Photograph 6. 1964 Residence.

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
OFFICE OF HISTORIC PRESERVATION

HISTORIC RESOURCES INVENTORY

Ser. No. _____ - _____ - _____
National Register Status_____
Local Designation _____

IDENTIFICATION AND LOCATION

1. Historic Name:

*2. Common Name: 5831 Bradshaw Road, 5841 Bradshaw Road

*3. Number & Street: 5831 Bradshaw Road, 5841 Bradshaw Road
City: Sacramento Vicinity only: Zip: 95829 County: Sacramento

4. UTM: zone: 10 / Easting: / Northing:

5. Quad map No.: Parcel No.: 063-0190-025 Other: Resource #21

DESCRIPTION

6. Property category: Building If district, number of documented resources: n/a

*7. Briefly describe the present physical appearance of the property, including condition, boundaries, related features, surroundings, and (if appropriate) architectural style.

This parcel includes two woodframe houses 5831 and 5841 Bradshaw Road. The houses share a common circular drive, each standing at the tope of the drive across from the other. Various outbuildings surround the houses at the perimeter. [See continuation sheet.]

8. Planning Agency:

9. Owner & Address:
Teichert Land Co.
3510 American River Dr.
Sacramento, CA 95864

10. Type of ownership:
Private

11. Present use:
Residential

12. Zoning:

13. Threats:
Gravel mining project

Send a copy of this form to: State Office of Historic Preservation, P.O. Box 942896, Sacramento, CA 94296-0001
* Complete these items for historic preservation compliance projects under Section 106 (36 CFR 800). All items must be completed for historical resources survey information.
DPR 523 (Rev. 6/90)

HISTORICAL INFORMATION

*14. Construction date(s): 1948, 1950 Original location: Yes Date moved:

15. Alterations & date: –

16. Architect: Unknown Builder: Unknown

17. Historic attributes (with number from list): Farmstead (33)

SIGNIFICANCE AND EVALUATION

18. Context for evaluation: Theme: Agriculture Area: Sacramento County
Period: 1945-present Property Type: Rural homestead Context formally developed? Yes

*19. Briefly discuss the property's importance within the context. Use historical and architectural analysis a appropriate. Compare with similar properties.

The residences at 5831 and 5841 Bradshaw Road (Resource #21) do not appear to meet the significanc criteria for listing in the National Register. The houses do not appear to represent distinguished examples c their type, period or method of construction, nor are they associated with events or persons important to ou history. In addition, county records indicate that 5831 Bradshaw was built in 1950 and 5841 was built ir 1948. Because both residences are less than fifty years old, and do not possess exceptional historic significance, they cannot qualify for the National Register of Historic Places.

20. Sources: Sacramento County Assessor Building Records and Assessor Map Books, various years; historic county maps, 1851, 1885, 1903, 1913, 1923; GLO Township Plat, 1865; USGS, *Carmichael Quadrangle*, 1954, 1967, photorevised 1980.

21. Applicable National Register Criteria: n/a

22. Other recognition:
State Landmark No. (if applicable): n/a

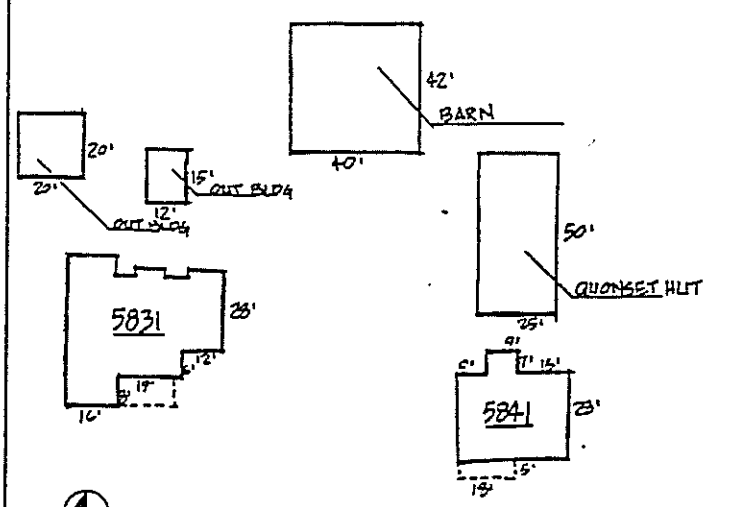
23. Evaluator: Stephen D. Mikesell
Date of evaluation: January 26, 1996

24. Survey type: Comprehensive

25. Survey name: Morrison Creek Mining Reach Downstream (South) of Jackson Highway

*26. Year form prepared: 1996
By (name): Meta Bunse, Janice Catlin
Organization: JRP Historical Consulting
Address: 712 Fifth Street, Suite F
City & Zip: Davis, CA 95616
Phone: (916) 757-2521

*Sketch map. Show location and boundaries of property in relation to nearby streets, railways, natural landmarks, etc. Name each feature.



7. The house at 5841 Bradshaw is a modest, side-gabled structure measuring approximately 34' by 28' (Photograph 1). It was built in 1948. The house, which sits on a concrete foundation, is essentially rectangular in plan, with an additional shed front porch on the west side and enclosed shed portion on the east. The moderate pitched roof has clipped eaves and is currently covered in composition shingles, except for the back porch which is covered by corrugated metal. Walls are covered in stucco, with an additional used brick wainscot with ledge surrounding the front and side walls. The front porch carries the most detail with the simple posts and railing, the scalloped fringe, and front entry posts with a "zig-zag" pattern between them. Some 1/1 double hung wooden sash windows remain, while others have been replaced by sliding aluminum sash windows.

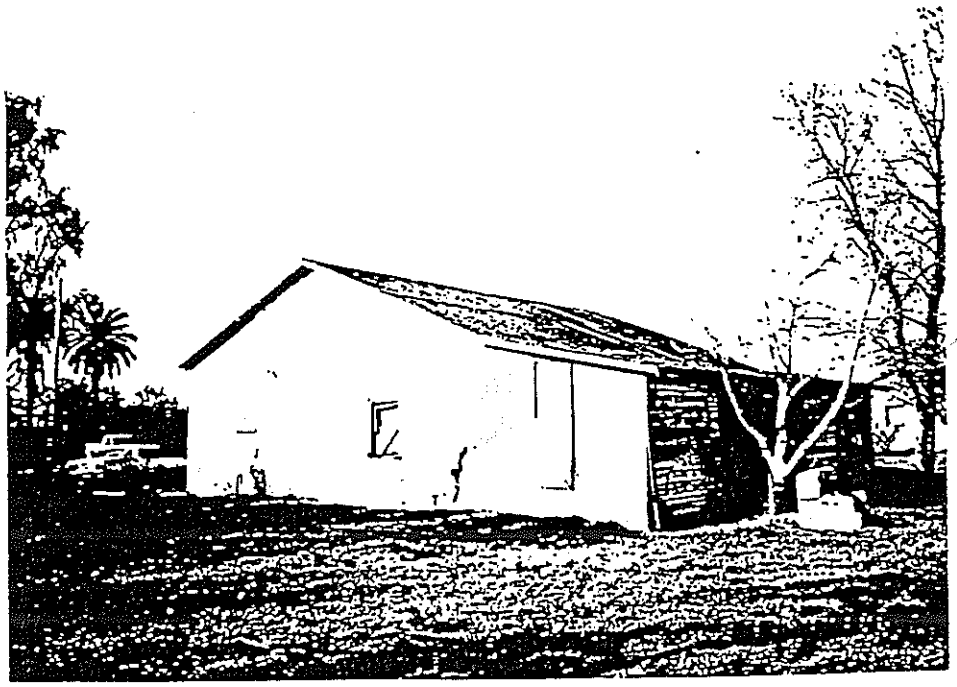
Behind the house at about 12' distance is a truncated Quonset hut shed.(Photograph 2). The perimeter of the concrete foundation measures 24' by 45'. The full Quonset shape is not finished at the north side as it is cut short by a straight wall. The straight wall has at the top a long metal track which suspends several large sliding doors. Six pane fixed windows exist on the west wall.

At the rear of the property, between the two houses, is a barn-type structure measuring 40' by 40' (Photograph 3). It has a side gabled roof with an additional shed element at the rear. The north wall is the only wall which shows the original V-groove wood siding. The other three walls have been covered with stucco. Corrugated metal covers the roof. Various wood frame windows and doors can be found around the building. The foundation and floor of the main gabled element are concrete, and the rear shed floor is dirt. It may be an older residence, converted for use as a barn.

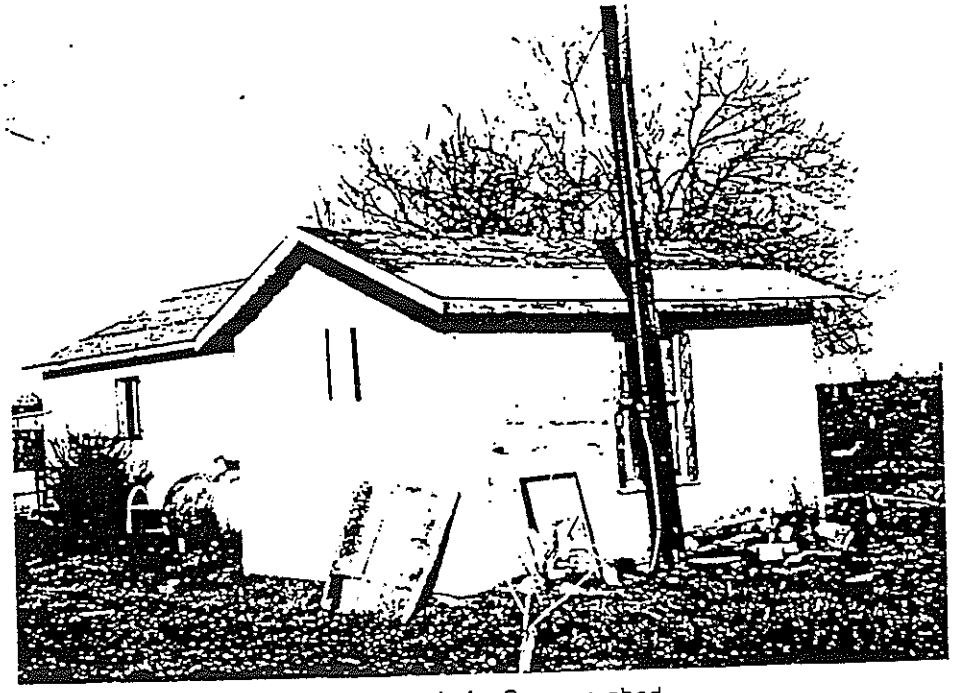
Two small woodframe outbuildings lie between the large barn and the other house. The first is a small gabled storage shed, measuring 10' by 14', which sits on a concrete foundation and has channeled drop siding (Photograph 4). The roof has slightly overhanging eaves with fascia board and is covered in composition . Windows are 1/1 double hung wood sash. The second building is a garage, measuring 20' by 22', with a moderate pitched gable roof, composition roof shingles, and stucco walls. It has a concrete foundation and floor.

The second residence on the property is a woodframe house, measuring approximately 42' by 48' and sitting on a concrete foundation (Photograph 5). The form is a low pitched side gabled roof which has various cross gables and side gables adding to the roofline. A small side gabled garage is attached at the left side of the house. A cross front gable extends from the left side of the front, a smaller side gable extends from the right side of the house, and a front gabled element extends from the back. The roof is covered in composition shingles and has narrow overhanging eaves. Walls are sided with stucco and a wainscot of used bricks surrounds the house on the front and sides. Windows are generally aluminum sliding sash.

Photograph 2. Quonset hut shed.



Photograph 3. Barn-type structure.



Photograph 4. Storage shed.

Photograph 5. Residence at 5831 Bradshaw Road

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
OFFICE OF HISTORIC PRESERVATION

HISTORIC RESOURCES INVENTORY

Ser. No. _____ - _____ - _____
National Register Status_____
Local Designation _____

)ENTIFICATION AND LOCATION

. Historic Name:

2. Common Name: Cracker Jack Ranch

3. Number & Street: 10004 Jackson Road
City: Sacramento Vicinity only: Zip: 95827 County: Sacramento

.. UTM: zone: 10 / Easting: 646380 / Northing: 4265100

). Quad map No.: Parcel No.: 063-0190-027 Other: Resource #22
associated parcel: 063-0170-021

)ESCRIPTION

). Property category: Building If district, number of documented resources: n/a

'7. Briefly describe the present physical appearance of the property, including condition, boundaries, related features, surroundings, and (if appropriate) architectural style.

The property at 10004 Jackson Road is a ranch composed of a house with water tower, a large barn, some horse stalls, and various outbuildings and structures associated with the functions of the ranch. The residence is a 1½ story woodframe house, essentially rectangular in plan, and measuring approximately 35' by 50'. The house sits on a concrete foundation which has been scored and shaped to look like cut stone.

8. Planning Agency:

9. Owner & Address:
Triangle Associates Inc.
3500 American River Dr.
Sacramento, CA 95864

10. Type of ownership:
Private

11. Present use:
Residential/Commercial

12. Zoning:

13. Threats:
Gravel Mining Project

Send a copy of this form to: State Office of Historic Preservation, P.O. Box 942896, Sacramento, CA 94296-0001
* Complete these items for historic preservation compliance projects under Section 106 (36 CFR 800). All items must be completed for histori resources survey information.
DPR 523 (Rev. 6/90)

HISTORICAL INFORMATION

*14. Construction date(s): 1911 Original location: Yes Date moved:

15. Alterations & date: Many; see "Description" and "Significance."

16. Architect: Unknown Builder: Unknown

17. Historic attributes (with number from list): Farm (33)

SIGNIFICANCE AND EVALUATION

18. Context for evaluation: Theme: Agriculture Area: Sacramento County
Period: 1900-1945 Property Type: Farmstead Context formally developed? Yes

*19. Briefly discuss the property's importance within the context. Use historical and architectural analysis as appropriate. Compare with similar properties.

The farmstead at 10004 Jackson Road does not appear to be eligible for listing in the National Register of Historic Places. Although built in the early 20th century by a prominent local farmer, William Russell, the home does not appear to be the property best associated with Russell's life or achievements. Russell's original home from the 1880s still exists at 10320 Jackson Road, about one mile east of this house; it is a far more important property in that regard. Neither does the home appear to be significant from the architectural standpoint. While a handsome early 20th century residence, the homes does not appear to be an important example of its type, period, or method of construction. In addition, it retains marginal integrity of design, materials, workmanship, feeling, and association. The property is of some interest because it retains a large number of outbuildings, including a tank house that is contemporary with the home. [See continuation sheet.]

20. Sources: Sacramento County Assessor Building Records and Assessor Map Books, various years; historic county maps, 1851, 1885, 1903, 1913, 1923; GLO Township Plat, 1865; USGS, *Carmichael Quadrangle*, 1954, 1967, photorevised 1980. Crawford, Jeff. "Site Study of the Property Associated with the Ohio House or Ten Mile House." January 20, 1994. 94/57/09. SAMCC.

21. Applicable National Register Criteria: n/a

22. Other recognition:
State Landmark No. (if applicable): n/a

23. Evaluator: Stephen D. Mikesell
Date of evaluation: January 26, 1996

24. Survey type: Comprehensive

25. Survey name: Morrison Creek Mining Reach Downstream (South) of Jackson Highway

*26. Year form prepared: 1996
By (name): Meta Bunse, Janice Catlin
Organization: JRP Historical Consulting
Address: 712 Fifth Street, Suite F
City & Zip: Davis, CA 95616
Phone: (916) 757-2521

*Sketch map. Show location and boundaries of property in relation to nearby streets, railways, natural landmarks, etc. Name each feature.

-- See continuation sheet --

The mixed roofline displays characteristics of the transition between styles of the Queen Anne and Craftsman periods. At the center of the form is a medium-pitched front gabled roof.. An extension of the lower portion of the roof at the front and rear makes the roof hipped at the bottom portion with the gable showing at the top portion. An additional smaller front gable is found at the right front corner of the house over the shallow bay window. Roof covering is currently composition shingle. Each of the gables has within it a pattern of fishscale and square cut shingles. At each side of the more steeply pitched gable roof are two hipped dormers. The dormers each have a pair of double hung wooden sash windows. The eaves of the roof are boxed with molding. A frieze runs along the perimeter of the building.

Siding on the house is mainly two-part beveled drop siding, with areas of more modern siding where changes have taken place, such as with the front entry and back porch enclosures. Simple cornerboards mark the original corners of the house. Windows are generally double hung wooden sash except where modern windows have replaced originals. Although the new walls of the back porch enclosure have a band of fixed aluminum windows, the original wall with the original siding and windows is visible through them. Original shallow bay windows exist on the front and west side walls. The wood frames of the old windows have small decorative carved brackets under the ledge. Nearly all windows now have screens placed over them.

Characteristics of both the Queen Anne and Craftsman eras can be found on this house. The overall form, with the medium pitched gables is more in the essence of Queen Anne. Details such as the patterned shingles, boxed eaves, wide frieze, and narrow siding are also indicative of Queen Anne style. Craftsman ideas come into play with the hipped dormers at the sides and the shallow bays which became much more common on later houses. The house is shown in Photograph 1.

Directly behind the house at about 18' distance is an enclosed water tower or "tank house" (Photograph 2). The structure measures 12' by 12', sits on a concrete foundation, and has walls sided in the same two part drop bevel siding as the original siding of the house. The roof of the tower has a simplified pattern of the house roof with the medium pitched gable at center and the hipped ridge running around the lower portion. The eaves are also boxed with a wide frieze at the top of the walls. The main access door is at ground level facing the house on the north wall. A second door at middle level is found on the west side wall, with the original access stairs to the door now partially missing. Wood frame vents are found on the four walls at the upper level just below the roofline. Other miscellaneous vents and openings can be found around the structure.

To the southeast of the house and tower, and among the various stables and equipment, is a small shed structure measuring approximately 22' by 13' (Photograph 3). The slope of the single pitched roof is oriented toward the south with the higher side of the building facing north. The structure is of wood frame with board and batten siding and a metal roof. Some parts of the walls have been patched with corrugated metal. The wood access door is on the east side wall and boarded over windows are found on the north front wall and the west side wall. Three decorative pieces of wood adorn the upper center of the north front wall. A modern metal carport, measuring about 11' across, is attached to the shed at the west side wall.

Directly east of the shed structure by about 47' is a small enclosed cabin with a front gabled roof (Photograph 4). A timber base supports the structure with exposed post and beam framing. Siding of the eaves side walls is plywood. Simple wood board siding, a pedestrian door, and horizontal aluminum sash sliding windows are placed at the front gable end. The roof is covered with pieces of corrugated metal.

The largest structure of the complex is the large barn, about 16' northeast of the cabin, and measuring approximately 56' by 60' (Photograph 5). The main opening faces west toward the house and outbuildings at the rear of the house. The barn is a large woodframe structure with a steeply pitched gable roof which extends to a peak at each end point. A smaller shed addition is at the west opening side. A shed extension also exists along the north side wall. Walls of the main barn are board and batten. Plywood lines the walls of the west shed addition. The high foundation for the main barn is concrete. A portion of the foundation for the south wall of the shed addition appears to be made from river rock and mortar, such as may have been a stone fence before being enclosed. Window openings at the side walls of the barn are square with side hinged wooden shutters. At the lower portion of the wall below each window is an additional small opening which appears to be used moving materials through the barn wall.

At the north side of the main large barn are some various smaller horse barns with corrals to link ther (Photographs 6 &7). The first structure, directly to the west of the barn, is a simple low pitched gable structur with a wide through opening at each gable end. Large doors are suspended by metal tracks at the uppe portion of both gable ends. Various windows and other openings can be found along the eaves side walls Two other horse barns exist to the north of the first horse barn. The shape of the second and third horse barn is unusual in that the central ridge of the gable roofs is not centered but off to one side, making them lopside with different pitches and lengths of the eaves sides. Walls are made of various materials including vertica planks of wood and board and batten. Other door and window openings can be found at various points o the building.

To the east and north of the main large barn is a series of small horse sheds, with wood frame constructio and the one-sided shed roof (Photograph 8). The small structures are aligned along a pathway which lead the corrals and the main barn.

19. The farmstead does not represent a distinguished entity, however, because the house and many outbuilding were built over a long period of time, most in recent decades, and are not reflective of agriculture in the are from the early 20th century, or any subsequent era.

The property at 10004 Jackson Road was long associated with the family of William M. Russell. Russell, bor in North Carolina, came to California at some point before the 1870s, and worked as a day laborer in Brighto Township during the 1870s.[1] In 1880, Russell married Laura Bell, a daughter of pioneer settlers in the area In 1883, Russell purchased a farm along the Jackson Road. Russell's initial purchase was a farm at what i now 10320 Jackson Road, a long-settled parcel that had been the site of an early roadhouse, called the Ohi House. The Ohio House was long closed by 1883, however, and Russell concentrated on farming. He wa apparently quite successful and was soon able to buy adjacent parcels of land to amass a farm of more tha 500 acres. He was also able to construct the handsome house that still stands at 10320 Jackson Road; th home was likely built in the early 1880s. William and Laura Russell had four children.

By the second decade of the 20th century, Russell's children were grown and he began to provide for the livelihoods. His son, Charles, farmed with him and would ultimately inherit the main farm and farmhouse 10320 Jackson Road. Russell elected to provide for his daughters by transferring land in Section 28 -- th section that includes the house at 10004 Jackson Road. When he died in 1926, Russell gave the land Section 28 to two married daughters, Annie Nichols and Alice Menke. The parcel that includes the house 10004 Jackson Road was given to Annie Nichols.[2] Nichols did not own the parcel for long. By 1933, th land was owned by W.S. and Mabel Dyas, who continued to own it through the late 1930s. (The fourth chil Joe Russell, died young, in 1919.)

Given the land ownership history of this parcel, two things can be concluded. First, the house was built wh the parcel was owned by William Russell. Second, the house was never Russell's primary residence; Russ always lived at the house at 10320 Jackson Road. The question remains as to when and for whom this hous the house at 10004 Jackson Road, was built.

County assessment records indicate the home was built in 1911; this date is given, not as an estimated da but as a known date of construction. This date is generally consistent with the architectural character of t house. Experience in working with these county records suggest that the date of construction is probal correct; while not infallible, Sacramento County assessment records are generally quite reliable in this rega

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[1]Russell's life is best recorded in Jeff Crawford, "Site Study of the Property Associated with the Ohio House or Ten Mile House," January 1994, a graduate paper prepared at California State University, Sacramento. A copy is available at the Sacramento Archives and Museum. The authors of this report are indebted to Crawford for sharing his research files relating to the Russell family.

[2] Rural Assessment Plats, various years.

on Sheet

orking against this date, however, is a fragmentary map reference. A 1903 "Official Map of Sacramento unty" includes two symbols for homes on land owned by Russell: one at the location of his home at 10320 ckson Road and one in the approximate location of the house at 10004 Jackson Road. Based upon available idence, the home was either built in 1911 or a few years earlier, with the greater likelihood being that it was nstructed in 1911.

ecause the land was still owned by William Russell, it is likely that he had the home built for one of his ildren, or possibly for an employee. As noted, William Russell farmed with his son, Charles. Charles lived ith his mother, Laura Bell Russell, at the house at 10320 Jackson Road after William Russell died in 1926. hey both lived in the house until they died, Laura in 1951 and Charles in 1966. Charles' obituary stated that e had "lived nearly all his life on the family ranch." [3] The possibility exists that William Russell built the home or his son, who was essentially a partner in the farming business in 1911. It is also possible that William ussell built the house for one of his married daughters, perhaps Annie Nichols, who inherited the land upon Villiam Russell's death. It is also possible that this house was built for a farm hand, although this seems nlikely. No evidence has been found to identify the original occupant of this house. The house was almost ertainly built by William Russell and it is probable that the house was occupied by one of his children.

he physical evidence of the home and its outbuildings suggest the home was used for farming purposes while t was owned by Russell. The property includes dozens of buildings other than the house. Of these, only two ppear to be contemporary with the house: the tank house (shown in Photograph 2) and the main barn (shown n Photograph 5). The tank house served the house and does not necessarily indicate any agricultural uses at he property. The barn, however, is of such a scale as to suggest it was used for more than the horses equired for the residents of the house. The barn is equipped with a large hay loft with a central aisle and multiple stalls. Much of the internal work in the barn is probably related to more recent uses of the property as a horse farm. Nonetheless, the barn is large enough to have supported a small dairy operation or other farm uses.

The property at 10004 Jackson Road does not appear to be eligible for listing in the National Register of Historic Places because it does not meet the significance criteria for the program and because it retains marginal integrity. Under Criterion A, the property does not appear to be associated with events or patterns important to our history. The farm complex was assembled in about 1911 but was, as noted, marginally associated with the farming operation of William Russell. It is presumed that Russell built the house for one of his children. He never lived there, however, and the operational center of his ranch was always his home to the east. After he died, his daughter briefly owned the property before selling it. Various parties have used the land since that time, none having any known associations with important farming practices in the area Under Criterion B, the property does not appear to be associated with persons important to our history. William Russell is arguably of some importance to the farming practices of this part of Sacramento County. His life, however, is most closely associated with his home to the east. In no respects can the house at 10004 Jackson Road be seen as the property most importantly associated with his life.

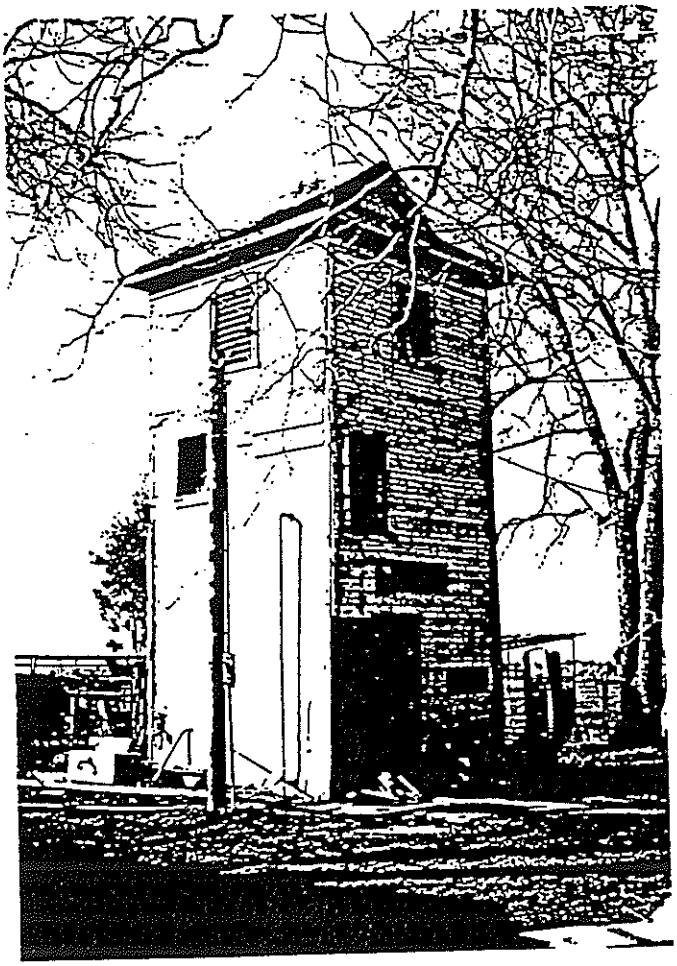
Neither does the property appear to be significant from an architectural standpoint, whether the house is considered in isolation or as part of a larger farmstead. The house is typical of many homes built in the early 20th century in California, in rural as well as urban settings, with stylistic influences from the Queen Anne as well as Craftsman and other popular residential styles of the period. Predominantly influenced by the Queen Anne, the home is not a refined example of the style. In addition, the building has been substantially altered through enclosure of the recessed entry at the facade, enclosure of the rear screen porch, and major modifications to the stairway at the facade. The home was likely not a distinguished example of its type in an unmodified condition; it is even less distinguished today, owing to the aforementioned alterations.

nuation Sheet

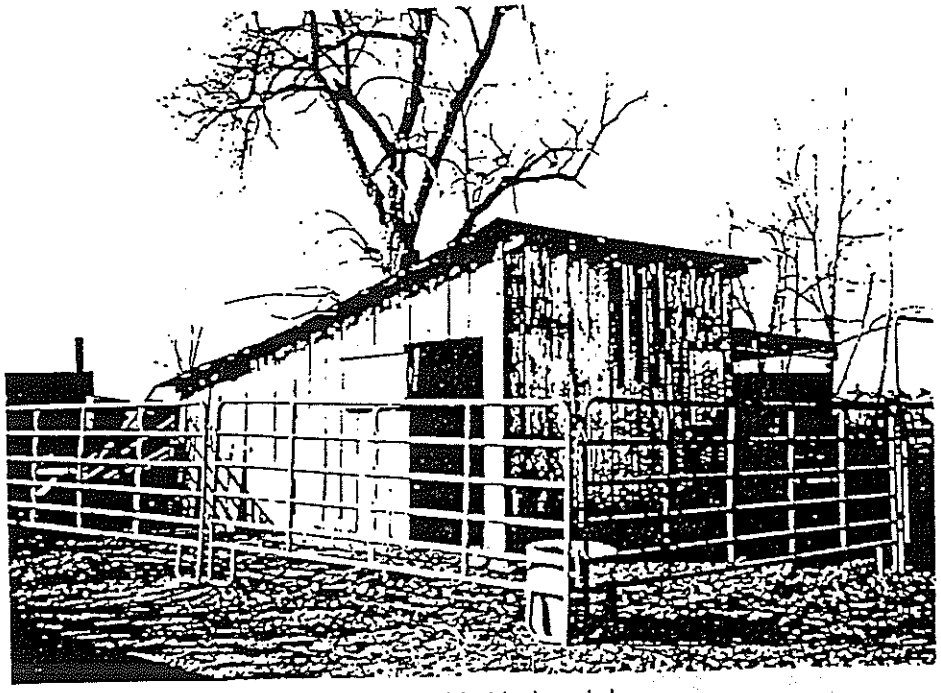
[3] Crawford, p. 27.

Taken as a group, the home and outbuildings do not appear to represent a significant example of a California farmstead from the early 20th century. As noted, only the house, tankhouse, and large barn appear to be older than 50 years. The tank house is the least modified of the three, although it has been altered through removal of much of the first story. The barn has been extensively altered through construction of a rear shed and plastering of the south wall. The remainder of the buildings appear to have been built since 1945, with the majority of the buildings having been constructed in recent decades. Most buildings at the site are small horse barns, built by the current owners. Taken as a group or individually, the buildings at 10004 Jackson Road do not appear to be significant architecturally.

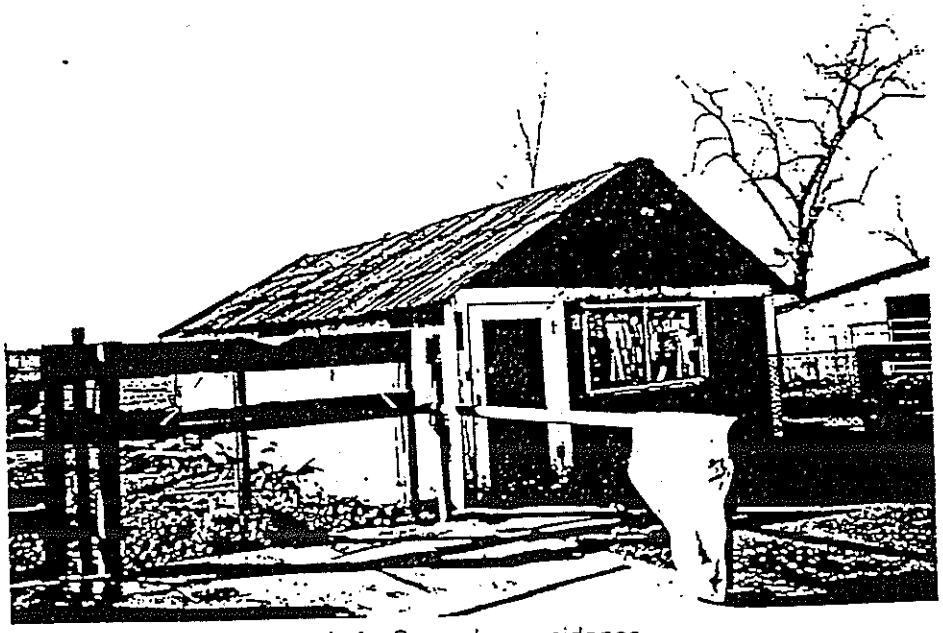
For the reasons mentioned, this property does not appear to meet the eligibility criteria for listing in the National Register.



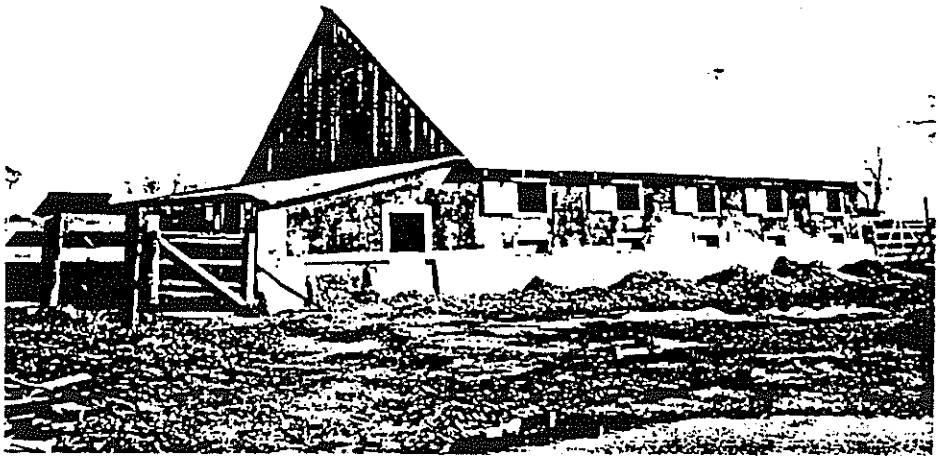
Photograph 2. Tank house



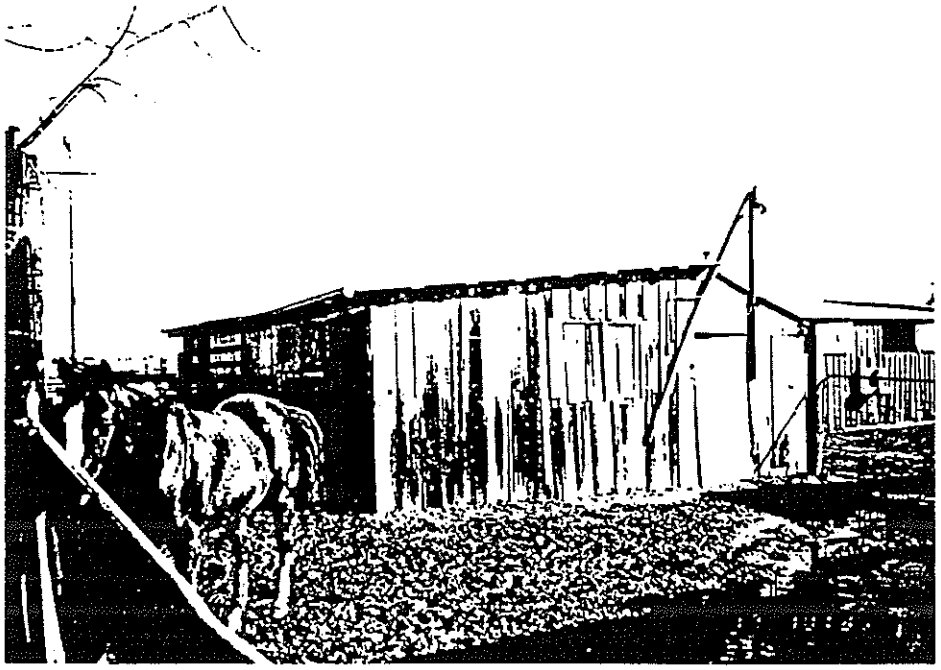
Photograph 3. shed behind tank house.



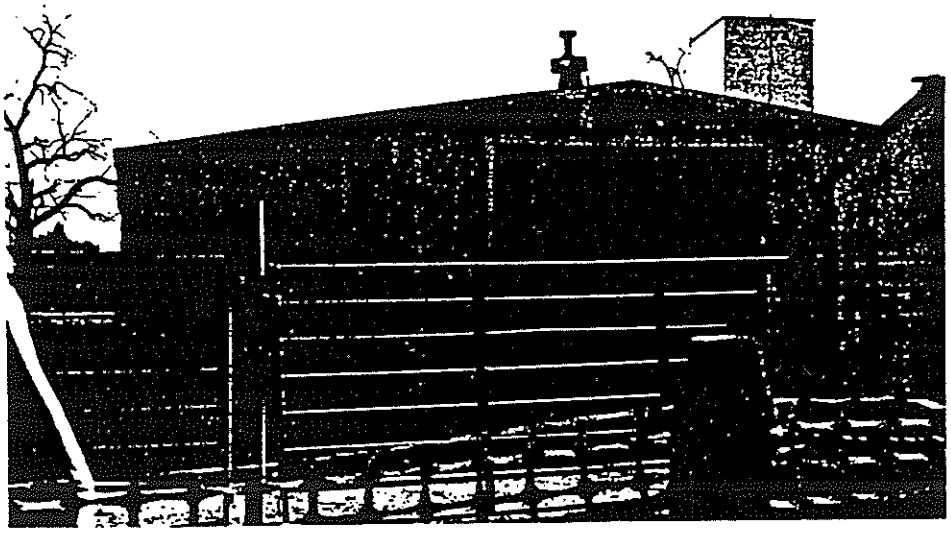
Photograph 4. Secondary residence.



Photograph 5. Main barn.

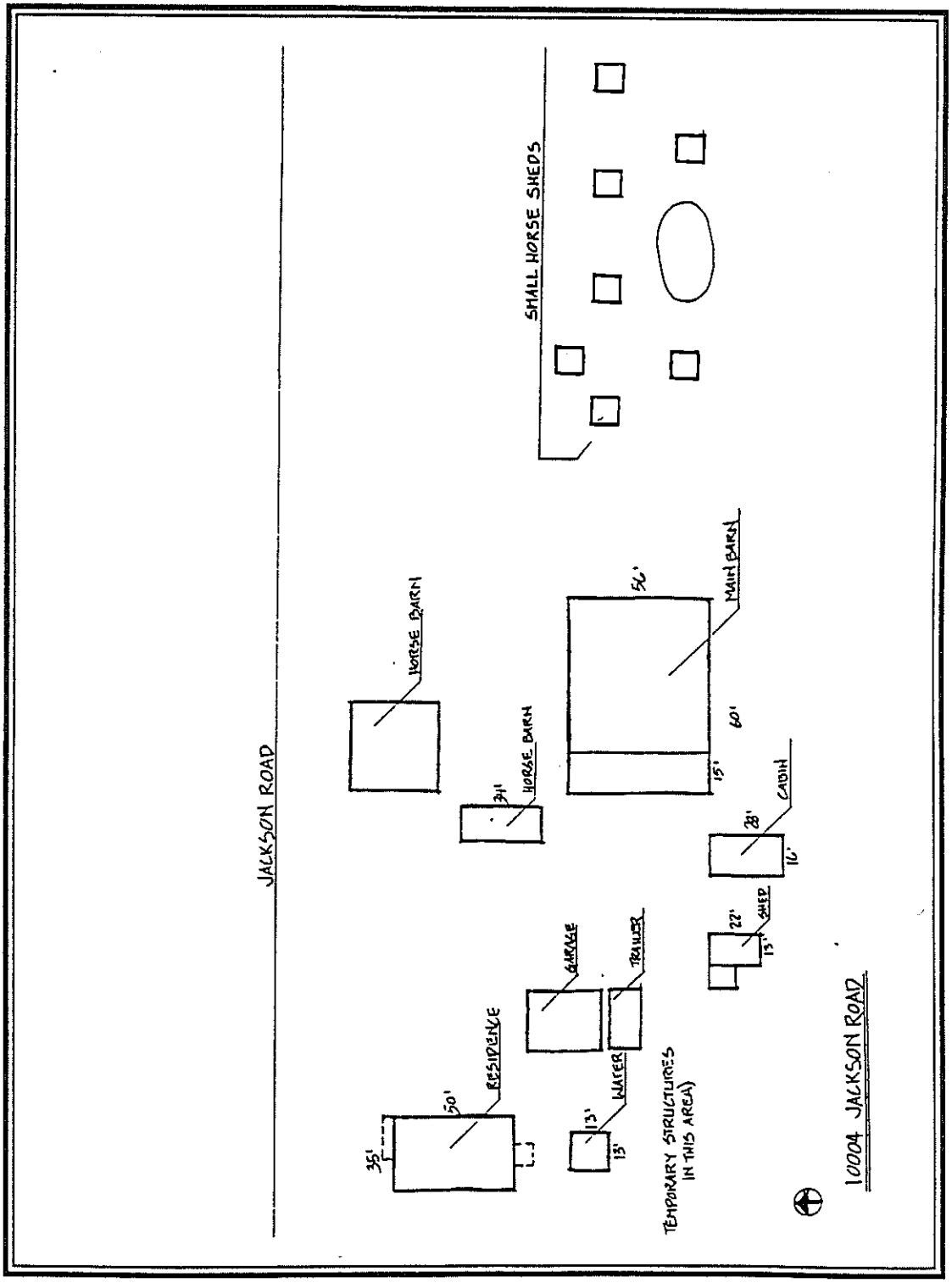


Photograph 6. Typical horse barn near main barn.



Photograph 7. Typical small horse shed, west of main barn.

Photograph 8. Group of sheds.



Sketch Map of the Property at 10004 Jackson Road

APPENDIX B

BIOLOGICAL RESOURCES - BACKGROUND INFORMATION

APPENDIX B

PLANT SPECIES OBSERVED ON THE MORRISON CREEK MINING REACH DOWNSTREAM (SOUTH) PROJECT SITE

*** Asterisk indicates non-native species.**

DICOTS:

Aceraceae
Acer negundo
box-elder

Amaranthaceae
Amaranthus sp.
amaranth

Anacardiaceae
Toxicodendron diversilobum
poison oak

Apiaceae
Eryngium vaseyi
coyote thistle

Asclepiadaceae
Asclepias fascicularis
narrow-leaved milkweed
Asclepias speciosa
showy milkweed

Asteraceae
* *Anthemis cotula*
mayweed
Artemesia douglasiana
Douglas' mugwort
Bidens frondosa
stick-tight
Baccharis pilularis
coyote bush
* *Centauria solstitialis*
yellow starthistle
* *Cichorium intybus*
blue sailors
* *Cirsium vulgare*
bull thistle
Conyza canadensis
horseweed
* *Cotula coronopifolia*
brass buttons
Gnaphalium sp.
cudweed

Asteraceae (cont.)
Hemizonia fitchii
Fitch's tarweed
Holocarpha virgata
virgate tarweed
* *Hypochaeris glabra*
smooth cat's-ear
* *Lactuca serriola*
prickly lettuce
Lasthenia fremontii
Fremont's goldfields
* *Matricaria matricariodes*
pineapple weed
Psilocarphus brevissimus var. *brevissimus*
dwarf woolly-heads
* *Silybum marianum*
milk thistle
* *Taraxacum officianale*
dandelion
* *Xanthium spinosum*
spiny clotbur
* *Xanthium strumarium*
cocklebur

Betulaceae
Alnus rhombifolia
white alder

Boraginaceae
Amsinckia sp.
fiddleneck
Plagiobothrys stipitatus
stipitate popcornflower

Brassicaceae
* *Brassica nigra*
field mustard
* *Lepidium latifolium*
broad-leaved peppergrass
Lepidium nitidum
shining peppergrass
* *Raphanus raphanistrum*

jointed charlock

Brassicaceae (cont.)

* *Raphanus sativus*
wild radish

Rorippa curvisiliqua
curved-fruited water cress

Callitrichaceae

Callitriche marginata
water-starwort

Campanulaceae

Downingia sp.
downingia

Caprifoliaceae

Sambucus mexicana
blue elderberry

Caryophyllaceae

* *Stellaria media*
chickweed

Chenopodiaceae

* *Chenopodium album*
lamb'squarters

Convolvulaceae

* *Convolvulus arvensis*
bindweed

Crassulaceae

Crassula aquatica
water pygmyweed

Cuscutaceae

Cuscuta howelliana
vernal pool dodder

Euphorbiaceae

Eremocarpus setigerus
turkey mullen

Fabaceae

Glycyrrhiza lepidota
American licorice

* *Lotus corniculatus*
birdsfoot trefoil

Lotus purshianus
Spanish clover

Lupinus bicolor
miniature lupine

* *Medicago polymorpha*
bur clover

* *Robinia pseudoacacia*
black locust

Trifolium depauperatum
dwarf sack clover

* *Trifolium hirtum*
rose clover

Vicia sp.
vetch

Fagaceae

Quercus douglasii
blue oak

Quercus kelloggii
black oak

Quercus lobata
valley oak

Geraniaceae

* *Erodium botrys*
filaree

* *Geranium dissectum*
cutleaf geranium

Hypericaceae

* *Hypericum perforatum*
klamathweed

Juglandaceae

Juglans californica
var. *hindsii*
Northern California black walnut

Lamiaceae

* *Marrubium vulgare*
horehound

* *Mentha pulegium*
pennyroyal

* *Mentha spicata*
var. *spicata*
spearmint

Pogogyne zizyphoroides
Sacramento mesa-mint

Limnanthaceae

Limnanthes striata
meadow-foam

Lythraceae

* *Lythrum hyssopifolium*
hyssop-leaved loosestrife

Molluginaceae

* *Glinus lotoides*
glinus

Moraceae

* *Maclura pomifera*
osage orange

Myricaceae

* *Eucalyptus globulus*
blue gum

Oleaceae

* *Olea europaea*
European olive

Brassicaceae

Epilobium cleistogamun
cleistogamus epilobium

Brassicaceae (cont.)
Epilobium brachycarpum
panicled willow-herb
Ludwigia peploides
water primrose
Ludwigia repens
water primrose
Papaveraceae
Eschscholtzia lobbii
Lobb's poppy
Phytolaccaceae
* *Phytolacca americana*
pokeweed
Plantaginaceae
* *Plantago lanceolata*
English plantain
Polemoniaceae
Navarretia leucocephala
white-headed navarretia
Polygonaceae
Polygonum amphibium
water smartweed
* *Polygonum arenastrum*
doorweed
Polygonum punctatum
water smartweed
* *Rumex acetosella*
sheep sorrel
* *Rumex crispus*
curly dock
* *Rumex pulcher*
fiddle dock
Portulacaceae
* *Portulaca oleracea*
purslane
Ranunculaceae
Ranunculus bonariensis
var. *trisepalus*
Carter's buttercup
* *Ranunculus muricatus*
spiny-fruited buttercup
Rosaceae
Prunus sp.
plum
* *Rubus discolor*
Himalayan blackberry
Salicaceae
Populus balsamifera
balsam poplar
Populus fremontii
Fremont cottonwood
Salix exigua
slender willow
Salix gooddingii
black willow

Salicaceae (cont.)
Salix ~~lasiandra~~ laevigata
red willow
Salix lasiolepis
arroyo willow
Scrophulariaceae
Mimulus guttatus
seep monkey-flower
Triphysaria sp.
owl's clover
Veronica peregrina
ssp. *xalapensis*
purslane speedwell
Solanaceae
Datura wrightii
tolguacha
* *Solanum nigrum*
black nightshade
Verbenaceae
Phyla nodiflora
var. *nodiflora*
garden lippia
Vitaceae
Vitis californicus
wild grape
Zygophyllaceae
* *Tribulus terrestris*
puncture weed

MONOCOTS:

Alismataceae
Alisma plantago-aquatica
common water-plantain
Sagittaria latifolia
tule potato
Cyperaceae
Carex sp.
sedge
Cyperus eragrostis
umbrella nut-sedge
Eleocharis macrostachya
spike rush
Juncaceae
Juncus sp.

rush
Juncus balticus
Baltic rush
Juncus bufonius
toad rush

Juncaginaceae
Lilaea scilloides
flowering-quillwort
Liliaceae
Brodiaea sp.
brodiaea
Poaceae
Aegilops sp.
goat grass
* *Agrostis avenacea*
hairy-flowered bent grass
* *Aira caryophyllea*
hairgrass
* *Arundo donax*
giant reed
* *Avena fatua*
wild oats
* *Briza minor*
little quaking grass
* *Bromus diandrus*
ripgut brome
* *Bromus hordeaceus*
soft chess
* *Cynodon dactylon*
Bermuda grass
Deschampsia danthoniodes
purple hairgrass
* *Echinochloa crus-galli*
barnyard grass
Glyceria sp.
manna grass
* *Hordeum leporinum*
foxtail
* *Hordeum marinum ssp. gussonianum*
mediterranean barley
Leptochloa fascicularis
bearded sprangletop
Leymus triticoides
wild rye
* *Lolium multiflorum*
Italian rye-grass
* *Lolium perenne*
perennial rye-grass
* *Paspalum dialatatum*
dallis grass
Phalaris sp.
canary grass
* *Phleum pratense*
cultivated timothy
* *Poa annua*
annual bluegrass
Poaceae (cont.)
* *Polypogon monspeliensis*
rabbitfoot grass
* *Taeniatherum caput-medusae*
medusa head
* *Vulpia myuros*
fescue
Typhaceae
Typha domingensis
southern cattail
Typha latifolia
broad-leaved cattail

FERNS AND FERN-ALLIES:

Marsileaceae
Marsilea vestita
ssp. *vestita*
hairy water-fern

Source: This list has been compiled based upon a reconnaissance site visit conducted by Garcia and Associates in August, 1995 and from plant lists presented by Sugnet & Associates (1991a, 1994a, 1994b, 1994c, 1995a, 1995b).

APPENDIX B

WILDLIFE SPECIES OBSERVED AT THE MORRISON CREEK DOWNSTREAM (SOUTH) PROJECT SITE

Mammals

Coyote	*Canis latrans*
Black-tailed hare	*Lepus californicus*
Striped skunk	*Mephitis mephitis*
Desert cottontail	*Sylvilagus audubonii*

Birds

Red-winged blackbird	*Agelaius phoeniceus*
Mallard	*Anas platyrynchos*
Scrub jay	*Aphelocoma coerulescens*
Great blue heron	*Ardea herodias*
Great horned owl	*Bubo virginianus*
Cattle egret	*Bubulcus ibis*
Red-tailed hawk	*Buteo jamaicensis*
Red-shouldered hawk	*Buteo lineatus*
Green-backed heron	*Butorides striatus*
California quail	*Callipepla californica*
House finch	*Carpodacus mexicanus*
Great egret	*Casmerodius albus*
Turkey vulture	*Cathartes aura*
Belted kingfisher	*Ceryle alcyon*
Killdeer	*Charadrius vociferus*
American crow	*Corvus brachyrhynchos*
Yellow-rumped warbler	*Dendroica coronata*
Brewer's blackbird	*Euphagus cyanocephalus*
American kestrel	*Falco sparverius*
Black-necked stilt	*Himantopus mexicanus*
Cliff swallow	*Hirundo pyrrhonota*
Northern mockingbird	*Mimus polyglottos*
Brown-headed cowbird	*Molothrus ater*
Plain titmouse	*Parus inornatus*
House sparrow	*Passer domesticus*
Ring-necked pheasant	*Phasianus colchichus*
Yellow-billed magpie	*Pica nuttallii*
Black phoebe	*Sayornis nigricans*
Western meadowlark	*Sturnella neglecta*
European starling	*Sturnus vulgaris*
Western kingbird	*Tyrannus verticalis*
Barn owl	*Tyto alba*
White-crowned sparrow	*Zonotrichia leucophrys*
Mourning dove	*Zenaida macroura*

Appendix B (continued)

Reptiles

Common kingsnake	*Lampropeltis getulus*
Western fence lizard	*Sceloporus occidentalis*
Western terrestrial garter snake	*Thamnophis elegans*

Amphibians

Pacific treefrog	*Hyla regilla*
Bullfrog	*Rana catesbeiana*

Insects

Valley elderberry longhorn beetle*	*Desmocerus californicus dimorphous*

* Elderberry shrubs, the host plant for the valley elderberry longhorn beetle, including several with valley elderberry longhorn beetle exit holes were observed.

Sources: Sugnet & Associates, 199a, 1994a, 1994b, 1994c, 1995a; Zentner and Zentner, 1994.

GRANITE VINEYARD

WETLAND
MITIGATION PLAN

Zentner and Zentner
Sacramento
Walnut Creek

Prepared for:
Granite Construction Company

Issued: January 18, 1994

Project No. 084 GCC

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Executive Summary

GRANITE VINEYARD

WETLAND MITIGATION PLAN

Granite Construction Company has proposed the excavation of 21 million tons (MT) of aggregate from the 403-acre Granite Vineyard site located along Morrison Creek in Sacramento County, just southeast of the City of Sacramento. The project alternatives analysis reviewed the demand for aggregate in this and adjoining regions and concluded that demand in the Sacramento-Fairfield production-consumption region will outstrip useable supplies within approximately 10 years at current rates of development. Use of alternative sites within the region is not practicable primarily because other minable sites are already either being mined or are planned for production in the near future by either the applicant or a competitor. Additionally, these other sites are often constrained by combinations of land costs, existing wetlands, and incompatible adjoining land uses.

Exclusion of the project site for aggregate production will increase the speed with which alternative sites in other regions will be mined. Use of aggregate from other regions will necessarily increase truck traffic. Mining resources outside the region and trucking them to Sacramento under current conditions will increase CO and ozone emissions by several tons per day. The Sacramento region is currently in non-compliance for ozone and near non-compliance for CO.

Mining of the project site will result in the excavation of 21.95 acres of wetlands and other waters of the U.S. as verified by the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act, including 8.29 acres of perennial marsh and 4.27 acres of riparian woodland associated with Morrison Creek, and 9.39 acres of seasonal marshes isolated from the Creek. Morrison Creek will be re-created in the central portion of the site as a meandering creek corridor averaging 600 feet in width with a total length on-site of about 5,000 feet. A total of 49.24 acres will be created, comprised of the following habitats: 12.62 acres of perennial marsh; 8.76 acres of riparian woodland; 11.74 acres of seasonal marsh; and 16.12 acres of oak savanna.

The Creek corridor will encompass approximately 69 acres, including approximately 53 acres of riparian woodland and marsh in the lowest portions of the channel and about 16 acres of valley oak woodland on the slopes adjacent to the Creek. This program also includes a five-year monitoring and management element and maintenance guidelines.

The proposed project also includes installation of a perimeter conveyance structure with a 1650 c.f.s. capacity to convey upstream flood flows. The re-created (or restored) Creek channel will accommodate on-site drainage (which will be treated prior to discharge into the Creek) and has a capacity to store 263 acre-feet in the event of a 100-year storm. If necessary, a small pump (10-25 c.f.s.) will be installed at the downstream end of the re-created Creek channel to pump water between storms from this to the perimeter bypass channel.

Chapter 1
Introduction

A. PURPOSE

Granite Construction Company has proposed the excavation of 21 million tons (MT) of aggregate on the project site (described below). Mining will result in the excavation of 21.95 acres of wetlands and other waters, including drainage ditches, the riparian woodlands and perennial marshes associated with Morrison Creek (Creek), and isolated seasonal marshes. This plan details the provisions of the wetland mitigation program for this project.

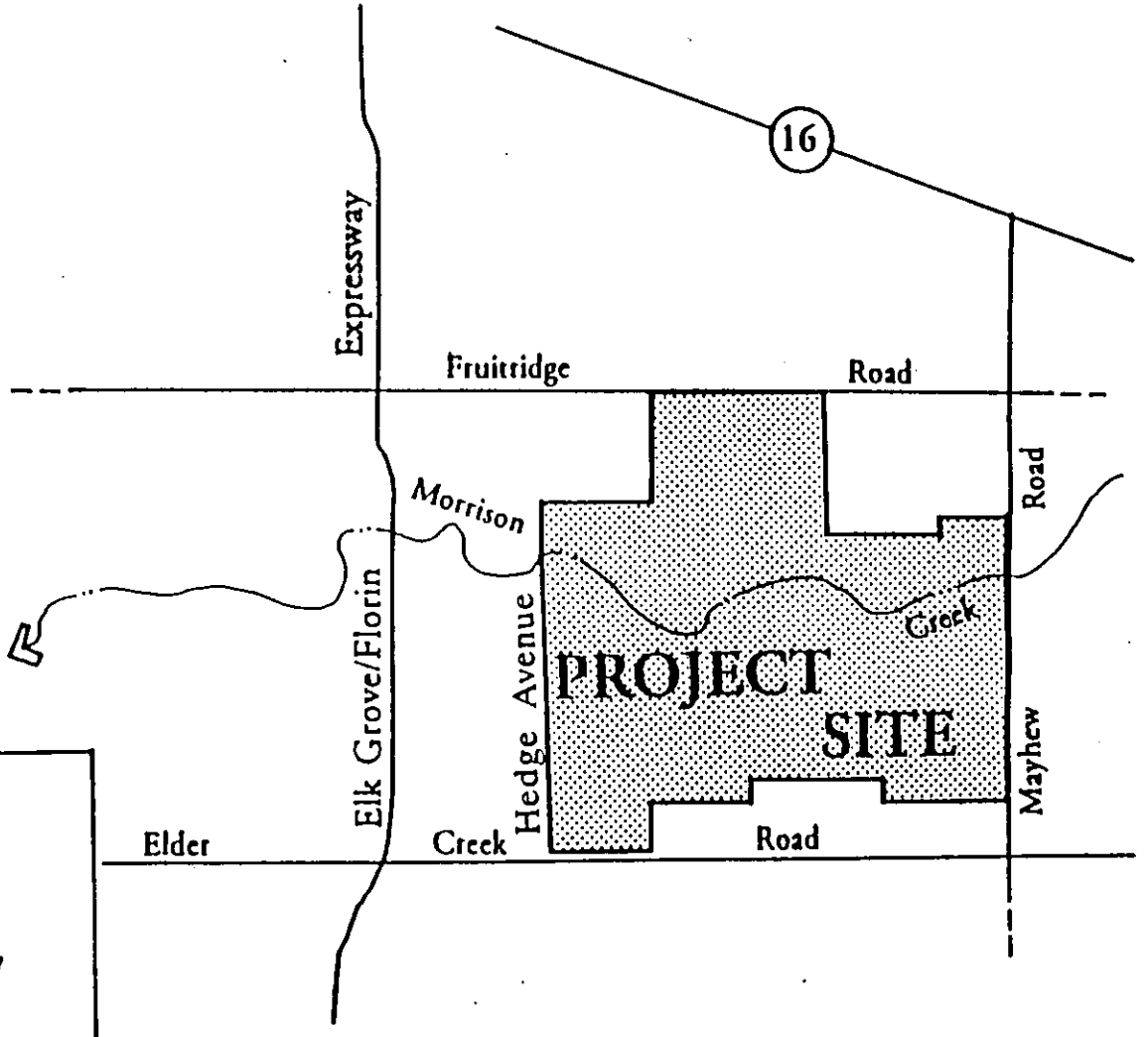
B. PROJECT SITE

The project site is in south-central Sacramento County, CA. Morrison Creek bisects the site, which is bounded on the north generally by Fruitridge Road, the south by Elder Creek Road, the east by Mayhew Road, and the west by Hedge Avenue (Figure 1). The Granite Vineyard property is generally level with a few homes, a sod farm, and oat hay fields. Much of the site has been heavily disturbed; a review of historic aerial photographs (to 1939) shows this site has an extended history of farming and rural residential uses. The woodlands and marshes associated with Morrison Creek were probably more extensive at one time, but farming over the past century has reduced their extent to a relatively thin fringe.

C. JURISDICTIONAL AREAS (WETLANDS AND OTHER WATERS)

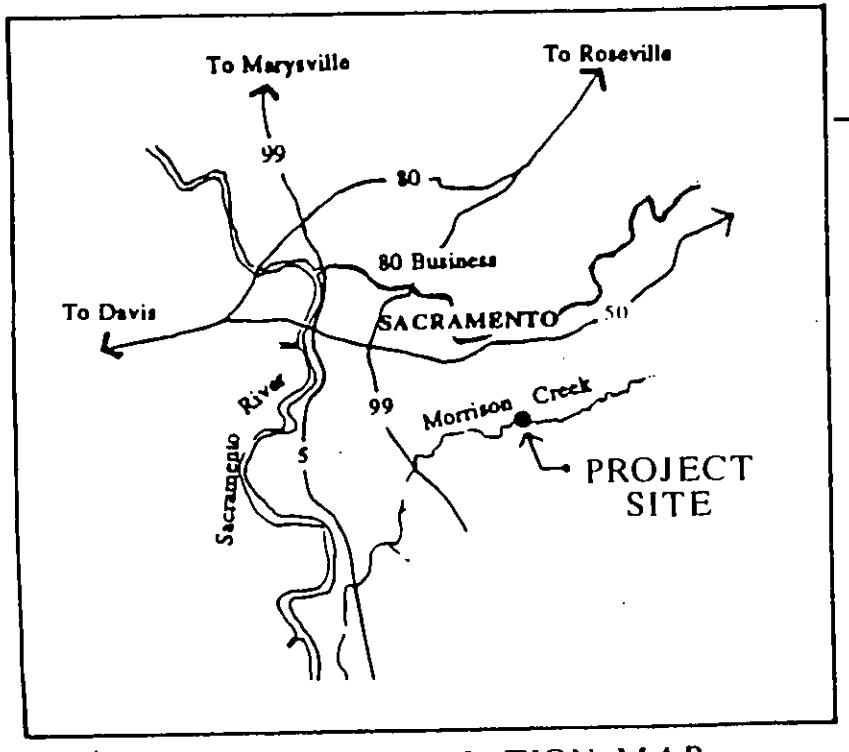
1. Introduction

Jurisdictional areas on the project site include perennial marshes and riparian woodlands adjacent to the Creek and isolated seasonal marshes on terrace lands outside of the Creek corridor. Perennial marshes include both vegetated



VICINITY MAP

Not to Scale



REGIONAL LOCATION MAP

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Location Map

FIGURE 1

wetlands and some open water. The vegetation is typically four (4) to eight (8) feet tall, herbaceous, and adapted to soil that is saturated or inundated up to three (3) feet nine (9) to twelve (12) months each year. Riparian woodlands are dominated by trees and shrubs and occur along waterways where soils are relatively loose and friable. As typified by the project site, several zones or "terraces" of woodlands can be identified in this region based upon inundation levels. Low-terrace riparian woodlands occur near or adjacent to perennial water, just inland from the perennial marsh zone while mid- or upper terrace woodlands occur at higher levels. Seasonal marshes occupy the zone between low terrace riparian woodlands or perennial marshes and uplands. Typically, they are shallowly inundated for one to three months with an additional one to three months of soil saturation. These wetlands are dominated by short (6 to 18 inches) perennials and grasses.

Wetlands in this region are often strongly influenced by soils. Less permeable, relatively old soils (which are common in this region) typically support seasonal or perennial marshes while younger, more permeable soils will also support riparian woodlands. The San Joaquin series is the most common soil in the project area. Its great age (100,000 to 300,000 years) has permitted extensive development of a duripan (hardpan) that restricts growth of woody plant root systems. As a result, prior to European settlement of this region, vegetation on most of the site probably consisted of an extensive perennial grassland dominated by creeping wild rye (*Elymus triticoides*) near the Creek and purple needle grass (*Stipa pulchra*) in drier areas. The Galt series, found in basins or along streams within San Joaquin-dominated regions, is found in isolated patches and resembles the San Joaquin in the existence of a duripan and lack of significant woody vegetation. In prehistoric conditions, the Galt series was dominated by tule (*Scirpus acutus*), but this species was replaced by seasonal marsh species such as spike rush (*Eleocharis palustris*) and Baltic rush (*Juncus balticus*) and finally creeping wild rye at progressively drier sites.

The site also contains Columbia sandy loam and Hedge series soils. The Creek and adjacent lands are often dominated by Columbia series, sandy soils that do not retain water well. Generally, the only hydric soils in this series are near

perennial creeks in low terraces below the mean annual flood line. The Hedge series, found in the northwestern portion of the site, is poorly defined and may represent a conglomeration of different soil types. Some Hedge soils have hydric soils with hardpans appearing like the San Joaquin-Galt complex while other areas more closely resembled a San Joaquin series soil. Generally, where the Hedge series was even occasionally flooded it was hydric, unlike the Columbia which appeared to require sustained inundation to develop hydric characteristics.

2. Methods

The jurisdictional boundary analysis was first completed by Zentner and Zentner in 1989 with field work occurring between December, 1988, and August, 1989. A February 1986 aerial photograph also was used in this delineation which showed the extent of flooding during the approximately 50-year event recorded that month. Site reviews consisted of analyzing site vegetation, soils, and hydrology in conformance with the 1987 Corps Wetland Delineation Manual. The analysis was completed by John Zentner and Rod Macdonald of Zentner and Zentner with assistance from David Kelly, a soils scientist.

A second, more recent delineation was completed to update the map. This work was done by David Self and Kellie Berry of Zentner and Zentner and confirmed by the Corps on December 28, 1992.

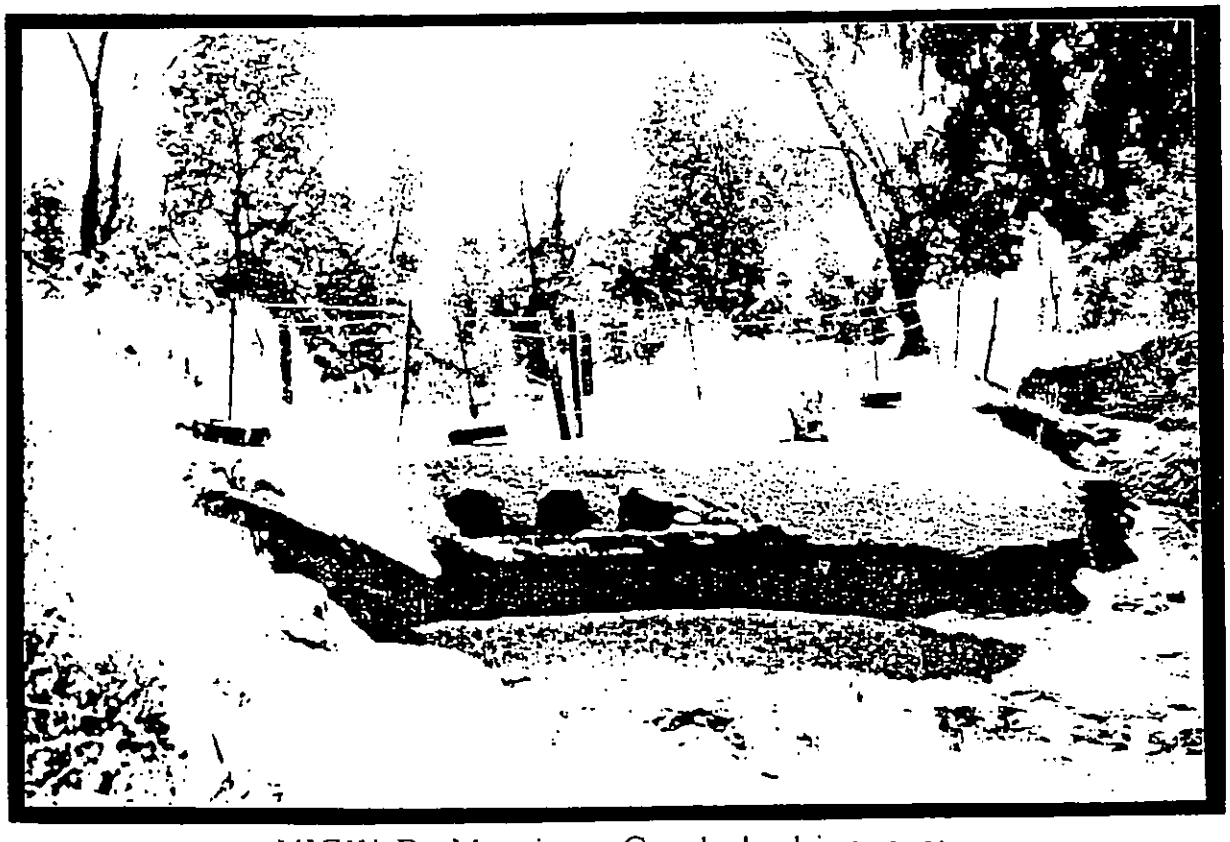
3. Results

Jurisdictional areas on the site consist of: (1) the open water and perennial marshes of Morrison Creek; (2) the riparian woodlands of the Creek; and (3) several drainage swales and isolated basins dominated by seasonal marsh. Figure 2 provides the locations and boundaries of the 21.95 acres of wetlands and other waters as well as the locations of Views A through D.

a. Morrison Creek Perennial Marshes and Open Water

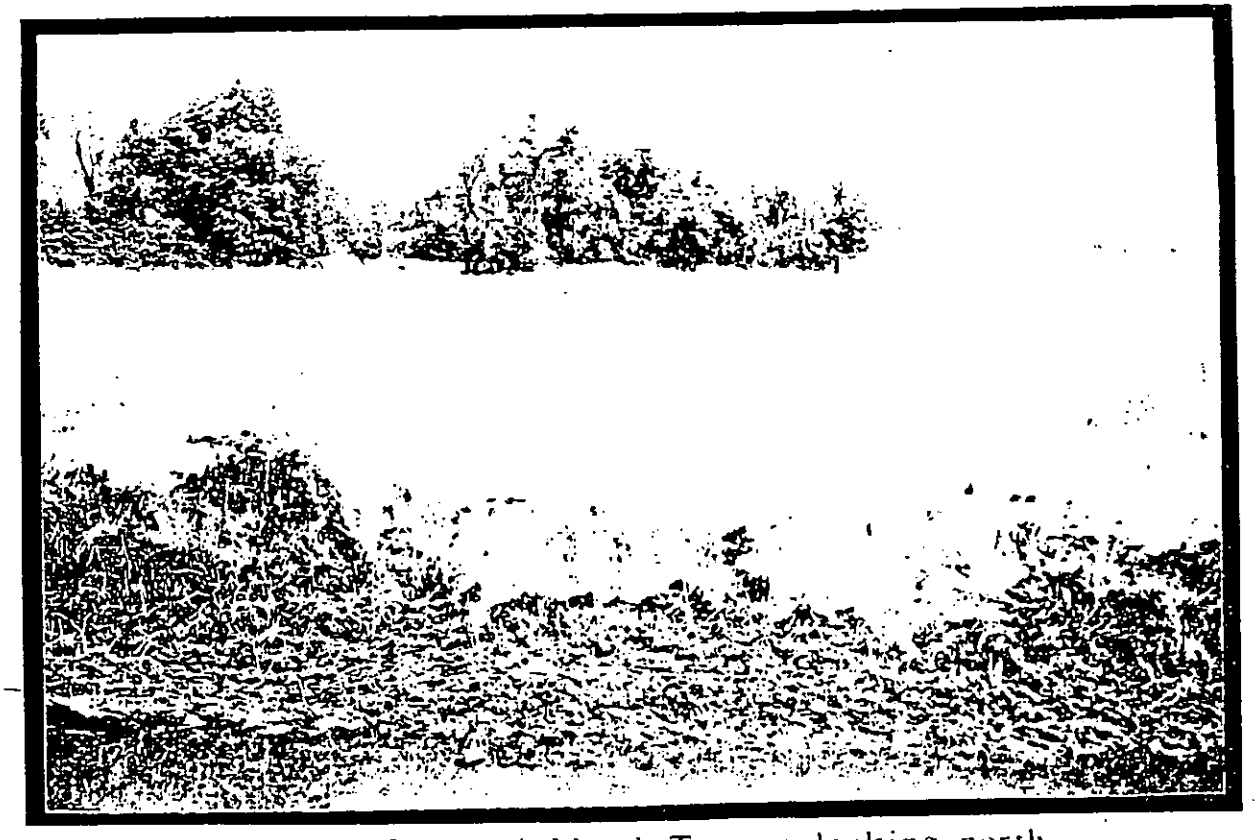
The perennial marsh zone in Morrison Creek on the project site occupies 8.29 acres (approximately 65% of wetland No. 1 in Figure 2). Vegetation in the lowest portion of the Creek is dominated by perennial marsh plants (View A)

VIEW A: Morrison Creek looking east



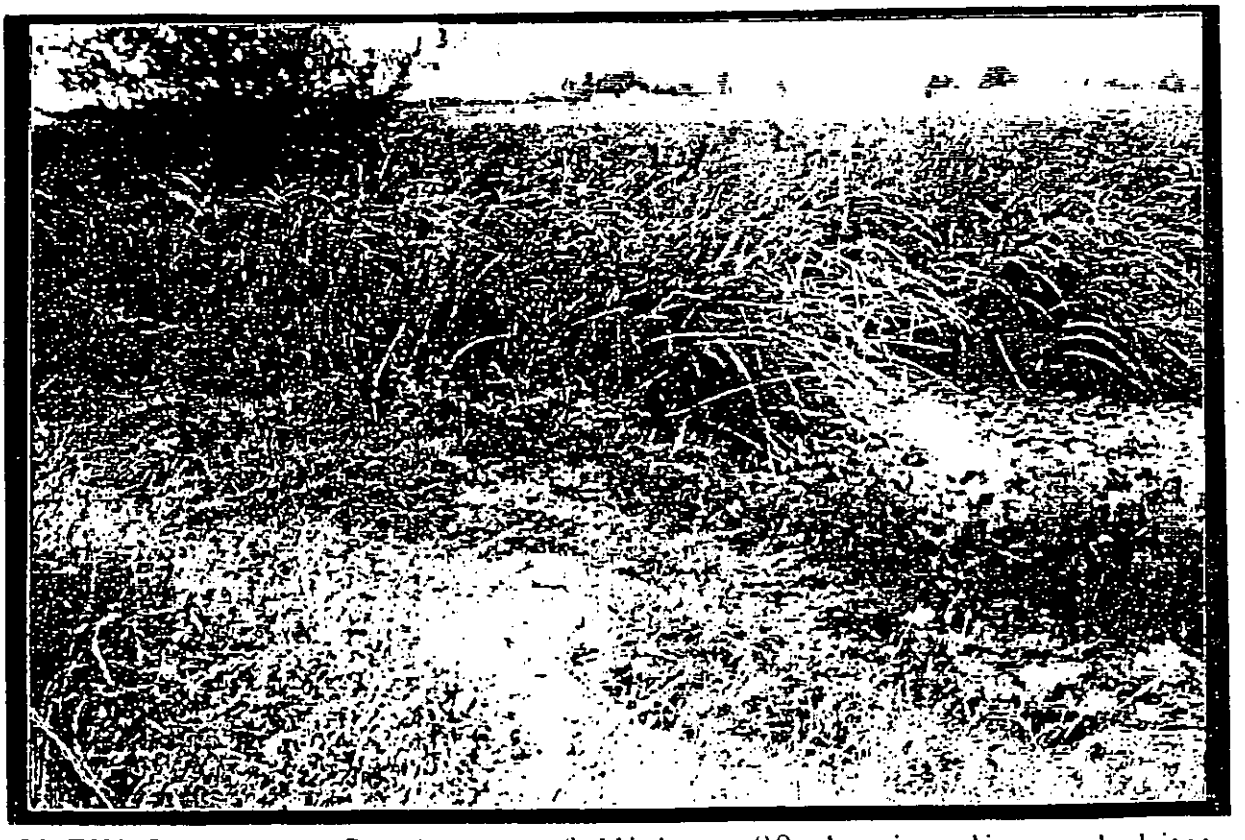
VIEW B: Morrison Creek looking east

VIEW C: Morrison Creek oxbow, looking east, note burned trees



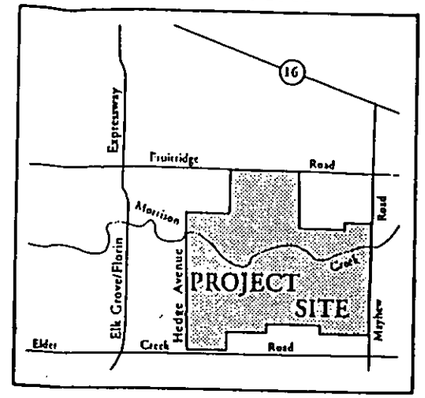
VIEW D: Seasonal Marsh Terrace looking north

VIEW E: Laguna Creek just east of Highway 99, note open water, mature perennial marsh, and woodland



VIEW F: Laguna Creek east of Highway 99 showing diverse habitat

VICINITY MAP



LEGEND

- Jurisdictional Area
- 5 Wetland (or Other Waters) Number
- 30 Sample Point
- Habitat Boundary

VIEW C

VIEW A

VIEW B

VIEW D

JURISDICTIONAL AREA CHART

Wetland #	Type	Area
1	Riparian	12.56 Acres
2	Tributary	2.05 Acres
3	Tributary	.88 Acre
4	Tributary	.87 Acre
5	Tributary	.34 Acre
6	Seasonal Marsh	.53 Acre
7	Seasonal Marsh	4.11 Acres
8	Seasonal Marsh	.50 Acre
9	Seasonal Marsh	.028 Acre
10	Seasonal Marsh	.043 Acre
11	Seasonal Marsh	.014 Acre
12	Seasonal Marsh	.011 Acre
13	Seasonal Marsh	.007 Acre
14	Seasonal Marsh	.009 Acre
TOTAL AREA		21.95 ACRES

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North

Jurisdictional Delineation

FIGURE 2

The Vineyard I
Wetland Delineation

Wetland Delineation Map

such as the common cattail (*Typha latifolia*). Soils are sandy and saturated adjacent to the Creek, with some organic streaking above this layer but without hydric characteristics up to the top of the bank. Much of this area is open water in the winter and bare soil in the summer and late fall. In the vegetated portions, the species richness in randomly selected 6' by 6' plots ranged from four (4) to seven (7) species with an average of five (5) species. Plant height ranged from four to six feet with an average of five feet. Inundation or saturation for this habitat type occurs for at least nine (9) months in a typical year.

b. Morrison Creek Riparian Woodlands

The riparian woodland zone adjacent to Morrison Creek on the project site occupies approximately 4.27 acres (about 35% of wetland No. 1 in Figure 2). Vegetation in this zone is dominated by willows (*Salix* spp.), cottonwoods (*Populus fremontii*), and walnuts (*Juglans hindsii*) (View B). Soils are sandy, with some organic streaking.

A total of eight (8) tree, shrub, and vine species were found in this zone. Tree height ranges from 12 to 45 feet with an average of 25 feet. Many of the trees in the western portion of the site have been burned within the recent past (View C); though stump-sprouting was common for all but a few individuals. The shrub and vine layer was depauperate, few vines were found and the shrubs were confined primarily to coyote bush (*Baccharis pilularis*), a relatively weedy native. Saturation within the root zone for this habitat type occurs for at least six (6) months in a typical year. The substrate must be relatively permeable to support woodlands.

c. Seasonal Marshes

Vegetation in the lowest terraces adjacent to the Creek are typically dominated by wild rye (*Elymus triticoides*), baltic rush (*Juncus balticus*), curly dock, and sedge (View D). The soil was mottled faintly with colors of 10YR3/2 and a hardpan at approximately six inches. Hydrologic indicators were found (primarily matted detritus) and the 1986 aerial photograph showed these portions of the site under water.

Several tributaries dominated by seasonal marsh species drain toward the Creek. The wetland portions are noticeably low and have been man-modified. Vegetation is dominated by flat-head sedge, curly dock, and Italian rye grass. Soils are dark, 10YR2/1, and hydrologic indicators, in the form of matted detritus, are abundant.

Other seasonal marshes were found as isolated basins, typically underlain by soils of the Hedge series. Wetlands were dominated by pleum (*Pleum pratense*), curly dock, flat-head sedge, hyssop loosestrife (*Lythrum hyssopifolia*), sedge, spike rush, and Italian rye grass. Soils were a mottled clay with colors of 10YR 3/2 over a hardpan at four inches. Matted detritus was widespread.

The species richness in the 9.39 acres of seasonal marshes (all other wetlands in Figure 2) in randomly selected 6' by 6' plots ranged from three (3) to twelve (12) species with an average of six (6) species. Plant height ranged from 0.5 to 3 feet with an average of 1.5 ft. Inundation or saturation for this habitat type occurs for at least 45 days in a typical year. Soils are typically a heavy clay or Hedge series with a duripan.

d. Uplands

The upland areas were typically dominated by non-native annuals such as ripgut brome (*Bromus rigidus*), mayweed (*Anthemis cotula*), soft chess (*Bromus mollis*), Italian rye, Mediterranean barley (*Hordeum hystrix*), and bindweed (*Convolvulus arvensis*). Soils were sandy without mottling and with colors of 10YR 4/3.

D. SPECIAL-STATUS SPECIES

For purposes of this Mitigation Plan, special-status species are defined as follows:

1. Species listed or proposed for listing as threatened or endangered under the federal Endangered Species Act (FESA);

2. Species that are candidates for listing under the FESA;

3. Species listed or proposed for listing under the California Endangered Species Act (CESA); and

4. California Species of Special Concern (CSC) monitored by the California Department of Fish and Game (DFG).

The U.S. Fish and Wildlife Service (FWS) regulates impacts to species listed or proposed for listing as threatened or endangered under the FESA. Candidate species are not afforded the same legal protection as listed or proposed species. However, this plan addresses potential impacts to candidate species found or potentially occurring within the project boundaries.

The DFG regulates impacts to listed and proposed species under the CESA. CSC are monitored by the DFG but are not afforded legal protection under the CESA.

The information contained in this section is drawn from field research by Zentner and Zentner, interviews with federal and state agency staff, and the lists maintained by the FWS, and the California Natural Diversity Data Base (CNDDB) and the FWS. Table One presents a list of the species reviewed. Status designations are as follows:

FT - Federally listed threatened
FPE - Federally proposed endangered
C1 - Federal candidate, category 1
C2 - Federal candidate, category 2
SE - State-listed endangered
ST - State-listed threatened
CSC - California Species of Special Concern

TABLE ONE

Special-Status Species Reviewed for This Plan

Common Name	Scientific Name	Status
Giant garter snake	*Thamnopsis couchi gigas*	FT; ST
Tricolored blackbird	*Agelaius tricolor*	C2; CSC
Swainson's hawk	*Buteo swainsoni*	ST

Valley elderberry longhorn beetle	*Desmocerus californicus dimorphous*	FT
California tiger salamander	*Ambystoma tigrinum californiense*	C2; CSC
Western spadefoot toad	*Scaphiopus hammondi*	CSC
Vernal pool fairy shrimp	*Branchinecta lynchi*	FPE
California linderiella	*Linderiella occidentalis*	FPE
Conservancy fairy shrimp	*Branchinecta conservatio*	FPE
Vernal pool tadpole shrimp	*Lepidurus packardi*	FPE
Slender orcutt grass	*Orcuttia tenuis*	C1; SE
Delta tule pea	*Lathyrus jepsonii* ssp. *jepsonii*	C2
Bogg's Lake hedge-hyssop	*Gratiola heterosepala*	C2
Sanford's arrowhead	*Sagittaria sanfordii*	C2

Only two (2) special-status species were found in the project area. Seven (7) blue elderberries (*Sambucus mexicana*), the host plant for the federally-listed threatened Valley elderberry longhorn beetle (VELB), were found clustered along the Creek in the central portion of the site. These plants contain a total of 448 stems greater than one (1) inch in diameter and three (3) plants showed evidence of beetle emergence holes. Sanford's arrowhead (*Sagittaria sanfordii*), a Federal category 2 candidate, was found in four locations in the old Creek oxbow. Appendix A contains more detailed results and definitions for the status designations.

E. VALUE ASSESSMENT

1. Defining Wetland Values

Much of the value of wetlands is derived from the shallow flow or ponding of water across a vegetated or semi-vegetated plain. The combination of shallow water and vegetation can remove pollutants from the water; increase nutrient production, flood storage, and groundwater recharge; reduce storm-induced erosion; create waterfowl and shorebird habitat; and provide passive and active recreation.

Several federal agencies have completed detailed studies on methods to quantify habitat values. The FWS uses its Habitat Evaluation Procedure (HEP), which uses models of the preferences of particular species to define habitat value and mitigation requirements for a site, resulting in a numeric rating. The rating,

multiplied by the acreage involved and other factors, combined with the ratings from other species, provides a quantified evaluation of a particular site that can then be compared to the evaluation of a mitigation site to ensure no loss of habitat values occurs.

The Federal Highway Administration prepared a qualitative method for evaluating wetlands using the wetland functions described in the Federal Clean Water Act. The "Adamus" method, as it was termed originally, relies on the analysis of a large number of factors to compare the opportunity and effectiveness of different wetlands to perform these functions. The results are qualitative in that they are expressed as ratings of high, moderate, or low for each function of a particular wetland.

2. Results

This plan uses the Adamus method to examine and compare the values of the jurisdictional areas found on the project site. For purposes of this analysis, these areas are characterized as either "riparian" wetlands for the 12.56 acres of wetlands and other waters found along the Creek, *i.e.*, the riparian woodlands and perennial marshes adjacent to the Creek, or "palustrine" wetlands for the 9.39 acres isolated from the Creek, *i.e.*, the isolated seasonal marshes. Table Two and Figure 3 summarizes the values for the riparian and palustrine wetlands within the proposed project area. Appendix B contains a detailed discussion of this analysis.

TABLE TWO

Value Summary: Project Site Jurisdictional Areas

Function	Riparian	Palustrine
Groundwater Recharge	Moderate	Low
Flood Storage and Reduction	Moderate	Low
Shoreline Anchoring	Moderate	Low
Sediment Trapping	Moderate	Low
Nutrient Retention	Moderate	Low

Food Chain Support	Moderate	Low
Fisheries Habitat	Moderate	Low
Wildlife Habitat	High	High
Active Recreation	Moderate	Low
Passive Recreation and Heritage Values	Low	Low

The riparian wetlands (perennial marshes and riparian woodlands hydrologically connected to the Creek) generally have moderate values for a broad range of functions. However, these wetlands have high value for wildlife habitat but low value for passive recreation and heritage values. Less degraded riparian systems in this region would typically have high values for each of the above functions due to the ability of riparian systems in low gradient areas to slow flood waters within a system of marshes and woodlands on a variety of terraces adjacent to the stream. The resulting infiltration of water through a riparian system removes sediment and transforms nutrients, thereby also providing important downstream food chain support. On this site, though, historic channelization of the creek and the elimination of the natural hydrologic connections to the upper and middle terraces (now eliminated by farming) have reduced the area of potential infiltration among the components of the riparian system. The high value rating for wildlife habitat for the existing system is as much a result of the overall loss of riparian systems in the region and the resulting exploitation of almost any habitat by wildlife as it is a reflection of the value of the existing system. Even with the potential rarity of riparian systems in the State, however, the lack of native flora and the poor condition of the woodlands make the system of low heritage or passive recreational value.

The palustrine wetlands (the isolated seasonal marshes and tributaries) were found to have low values for almost all of the described functions due to their hydrologic isolation from the Creek. The sole exception was their high value to wildlife, a result of the movement of many migratory species through this region at the same time as the seasonal marshes generally reach their peak inundation levels.

JURISDICTIONAL AREA CHART

Wetland #	Type	Area
1	Riparian	12.56 Acres
2	Tributary	2.05 Acres
3	Tributary	.88 Acre
4	Tributary	.87 Acre
5	Tributary	.34 Acre
6	Seasonal Marsh	.53 Acre
7	Seasonal Marsh	4.11 Acres
8	Seasonal Marsh	.50 Acre
9	Seasonal Marsh	.028 Acre
10	Seasonal Marsh	.043 Acre
11	Seasonal Marsh	.014 Acre
12	Seasonal Marsh	.011 Acre
13	Seasonal Marsh	.007 Acre
14	Seasonal Marsh	.009 Acre
TOTAL AREA		21.95 ACRES

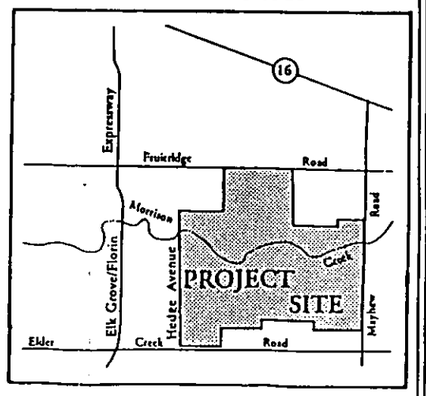
LEGEND

- Jurisdictional Area
- 5 Wetland (or Other Waters) Number
- 30 Sample Point
- Habitat Boundary

VALUES OF JURISDICTIONAL AREAS

- Moderate Value
- Low Value

VICINITY MAP



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North

Values of Jurisdictional Areas

FIGURE 3

The Vineyard I
Wetland Delineation

Wetland Delineation Map

F. APPLICABLE REGULATIONS

1. Federal Clean Water Act

The Corps regulates the discharge of dredged or fill material into wetlands and other waters of the U.S. under Section 404 of the federal Clean Water Act. Wetlands, a sub-category of waters of the U.S., are defined in Section 404 as the presence of saturated hydrologic conditions during the growing season, a predominance of wetland plants, and hydric soils. Section 404 permits are required for any wetland fill and the discharge of dredged material into wetlands and other waters, including certain excavation activities, such as those associated with the proposed mining project.

2. Federal Endangered Species Act (FESA)

The FESA, administered by the FWS, prohibits the "taking" or harassment of a federally listed endangered or threatened species unless: 1) FWS issues an opinion under Section 7 of the FESA stating that the proposed project will not result in jeopardy to the species; or 2) a Habitat Conservation Plan for the species has been approved and an "incidental take" permit has been issued by FWS under Section 10(a) of the FESA.

Generally, the FWS requires that impacts to listed species be mitigated first by avoiding impacts to the species or its habitat and then, if avoidance is not practicable, by re-creating habitat for the species equal to or greater than the habitat acreage lost. The VELB potentially occurs on-site; it is likely the Corps will initiate a Section 7 consultation for impacts to this species. This plan includes mitigation for these impacts in accordance with the current FWS compensation guidelines (see Chapter 3, Section E.1, *infra*). Sanford's arrowhead, a candidate, Category 2 species, is not legally protected under the FESA and no specific mitigation for potential impacts is required. However, this plan proposes to plant this species within the created perennial marsh.

3. California Endangered Species Act (CESA)

The CESA prohibits the taking or harassment of state-listed endangered or threatened species. The DFG is the lead agency within the state for

implementation of the CESA and makes written findings on a proposed project's impacts to listed species. The DFG may request mitigation for such projects if, in its opinion, the project could reduce populations of the endangered or threatened species, or reduce habitat value or availability. The process for state-listed species is intended to mirror the federal process discussed above; however, the DFG has only recently developed permitting policies, which are still being refined. No state-listed species are known to occur on this site.

4. Streambed Alteration Agreements

Section 1600 *et seq.* of the California Fish and Game Code requires that any private or public entity seeking to alter a streambed must first reach an agreement with the DFG as to the nature of the alteration and any needed mitigation. Streambeds are broadly defined by the DFG and almost always include any wetlands associated with waterways. A Streambed Alteration Agreement will be required for this project.

Chapter 2
Project Description

A. PROJECT GOALS

The goals for the mitigation program include the following.

1. Provide for no net loss of on-site wetlands.

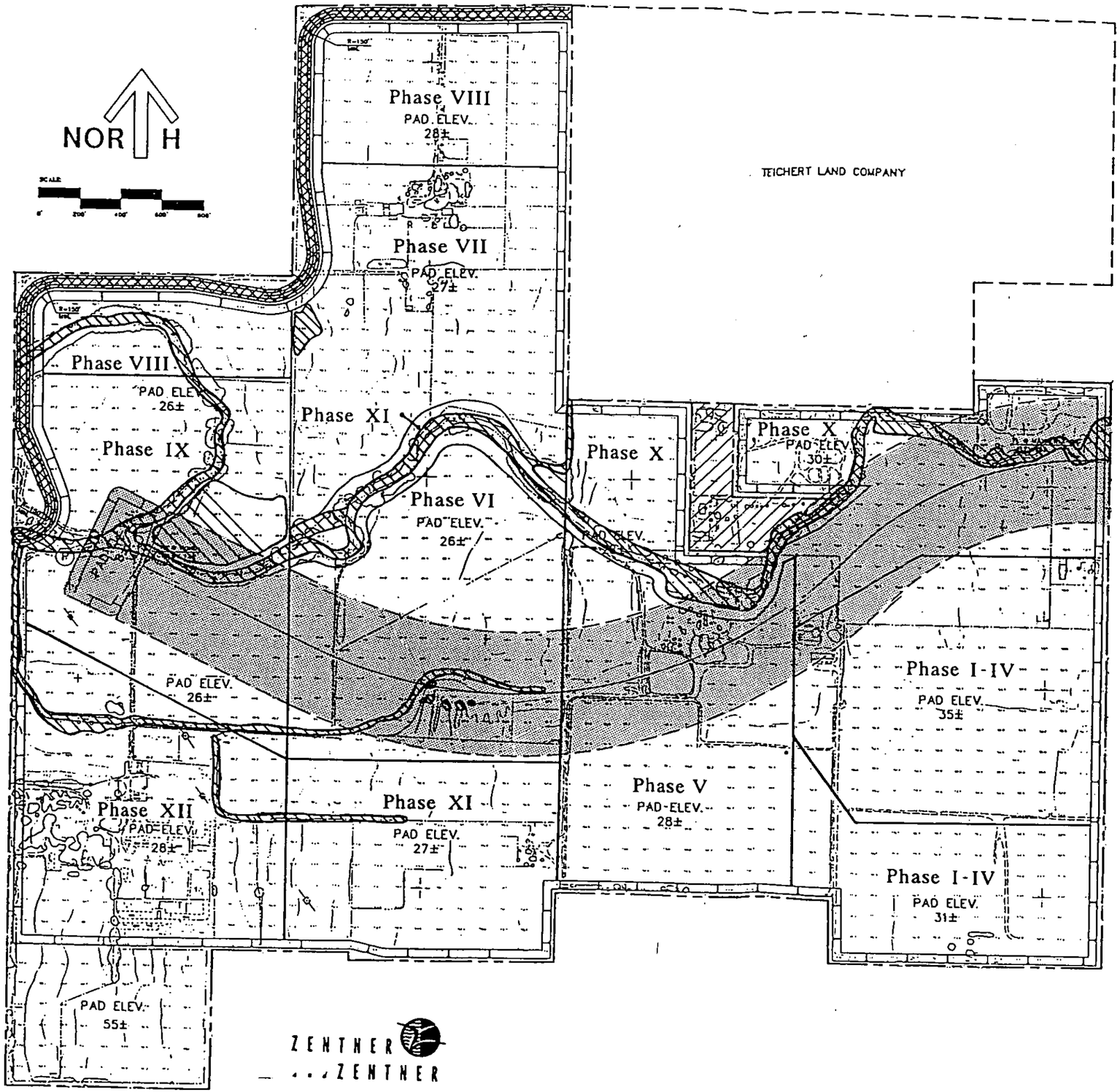
2. Provide for in-kind replacement of the lost habitats.

B. PROJECT DESIGN

All jurisdictional areas on-site will be excavated in phases for aggregate mining purposes. Each phase would begin with removal of overburden soils, proceed through mining and end with reclamation of that phase. Included within the reclamation portion would be the salvaging of the next phase's surface soils for use in the reclamation area.

The applicant also proposes to phase the mitigation, with the first phase of mitigation commencing in Phase V of the mining operation, prior to any impacts on jurisdictional areas. (Phases I-IV of the operation involve construction of a temporary processing plant, with actual mining operations beginning in Phase V.) The existing Creek shall not be impacted until Phase IX. All mining prior to this phase shall occur away from the Creek. Mining in the Creek shall not commence until the perimeter bypass channel has been constructed and flows diverted into this channel.

Figure 4 shows a plan view with phases and pad elevations; Figure 5 provides a second plan view with the proposed vegetation associations depicted; Figures 6 through 8 depict different portions of one typical cross-section(note the varying vertical exaggeration used in each of these figures); Figure 9 shows an axonometric view. As illustrated in these figures, Morrison Creek will be re-routed through the center of the site within a 600-foot wide riparian corridor that

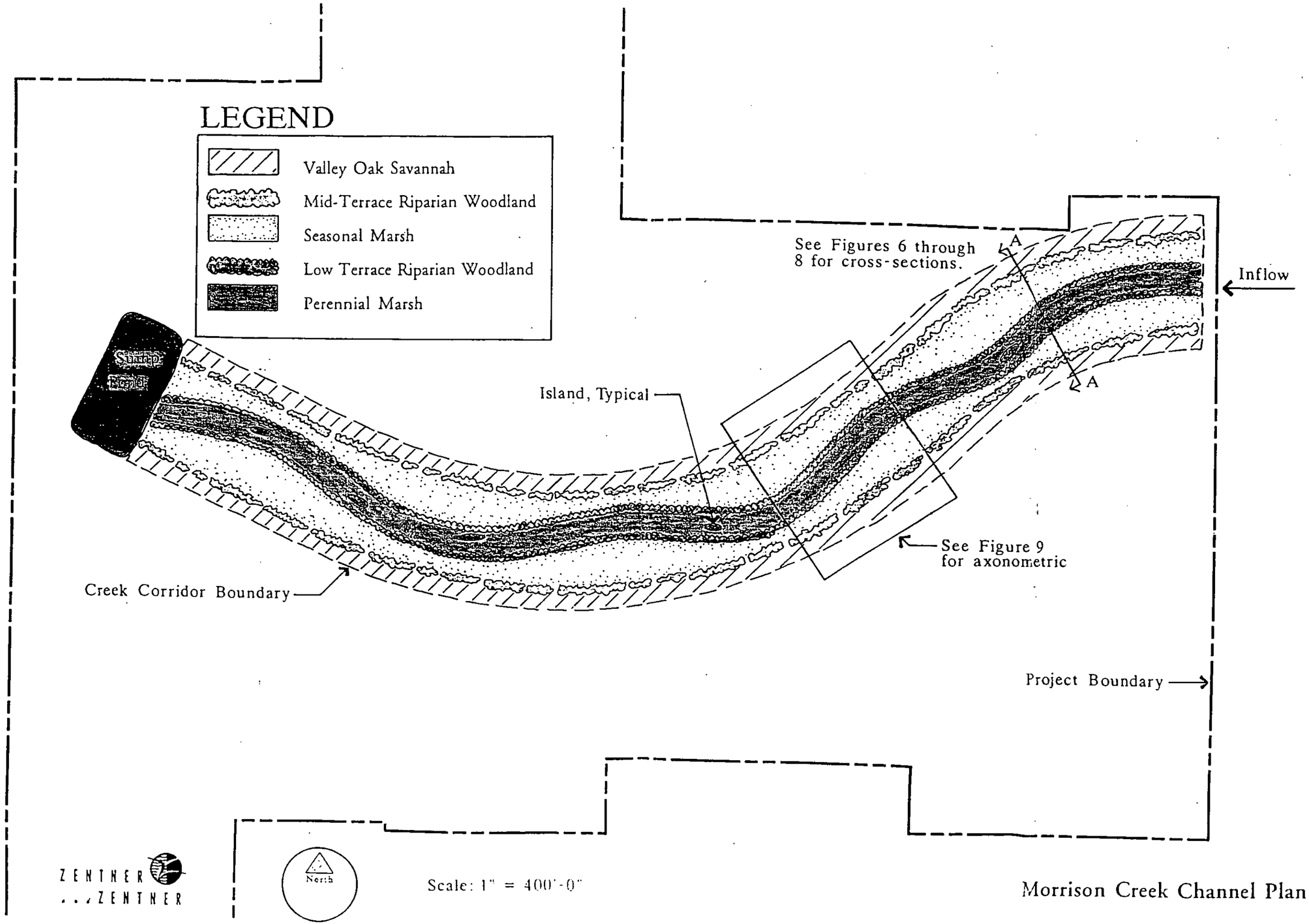


LEGEND

- Site Boundary
- Project Phase Number
- Phase X — Project Phase Boundary
- Realigned Morrison Creek Corridor
- Existing Wetlands to be Removed
- Perimeter Conveyance Structure

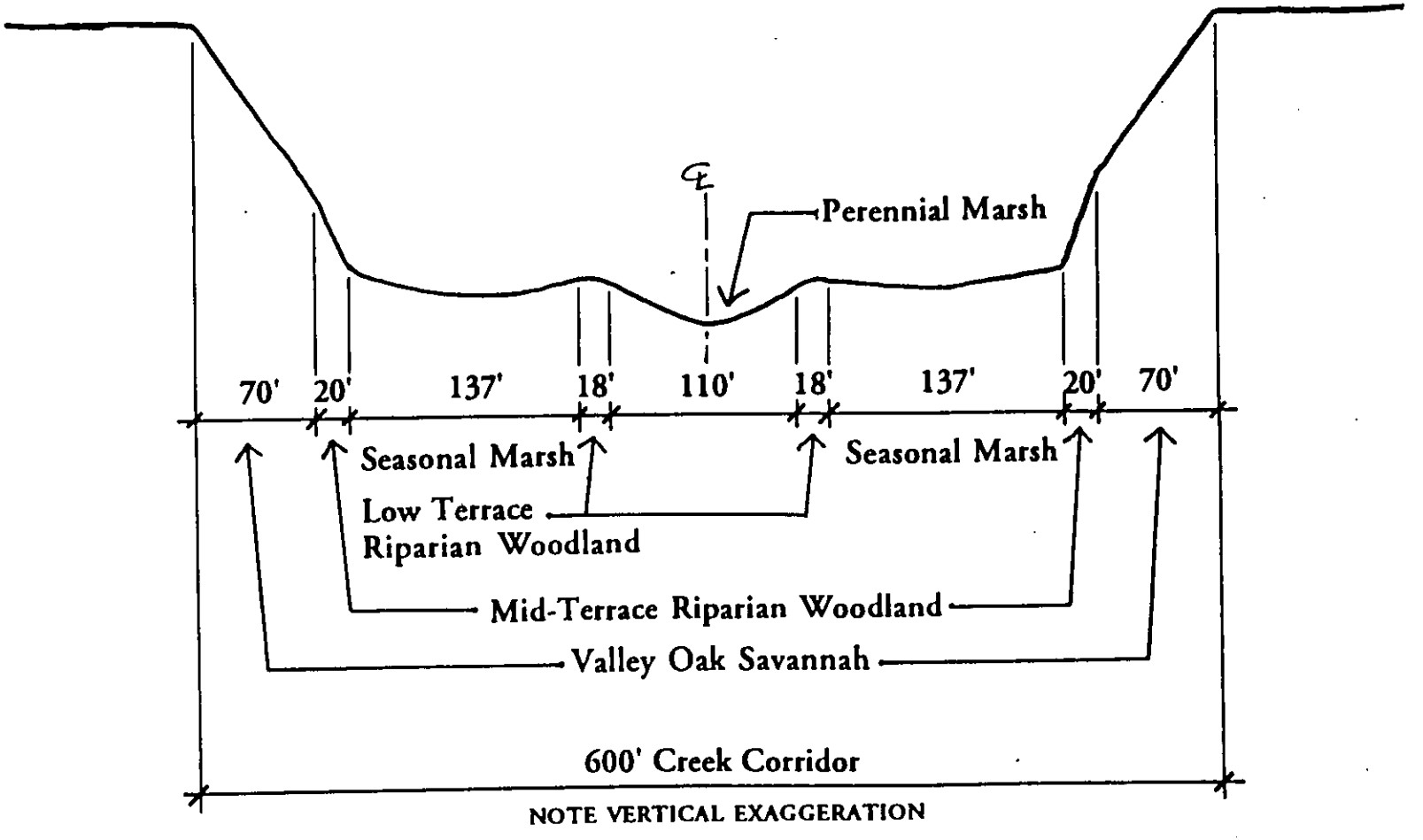
Wetland Mitigation Plan

FIGURE



Morrison Creek Channel Plan View

FIGURE 5



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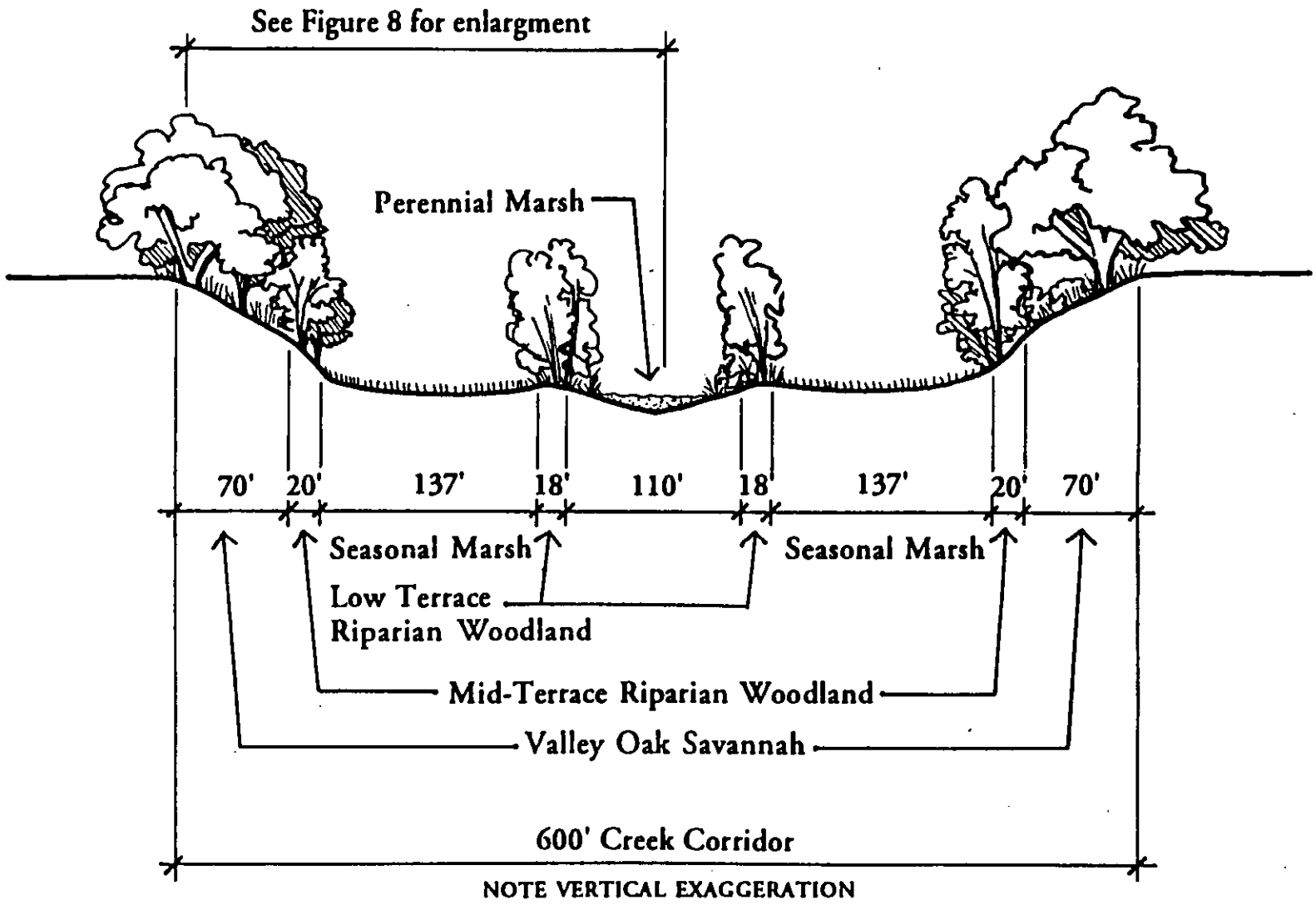
HORIZONTAL SCALE: 1" = 100'-0"

VERTICAL SCALE: 1 " = 10 '-0"

Channel Cross-Section

FIGURE 6



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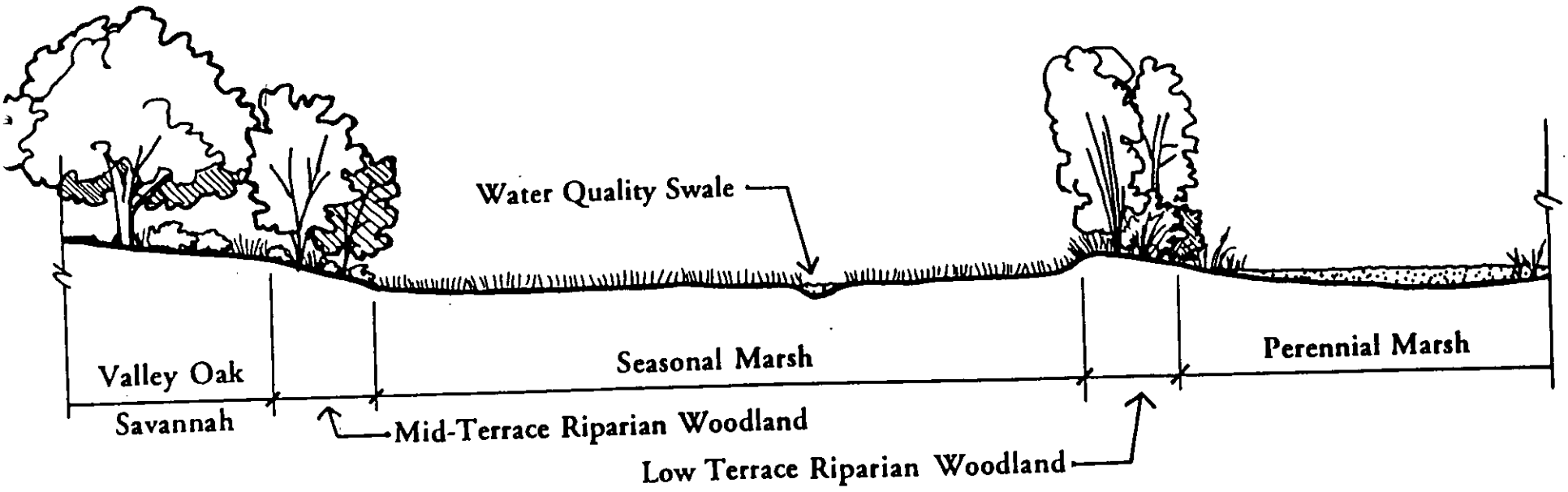
HORIZONTAL SCALE: 1" = 100'-0"
VERTICAL SCALE: 1 " = 20'-0"

Morrison Creek Cross-Section

FIGURE 7



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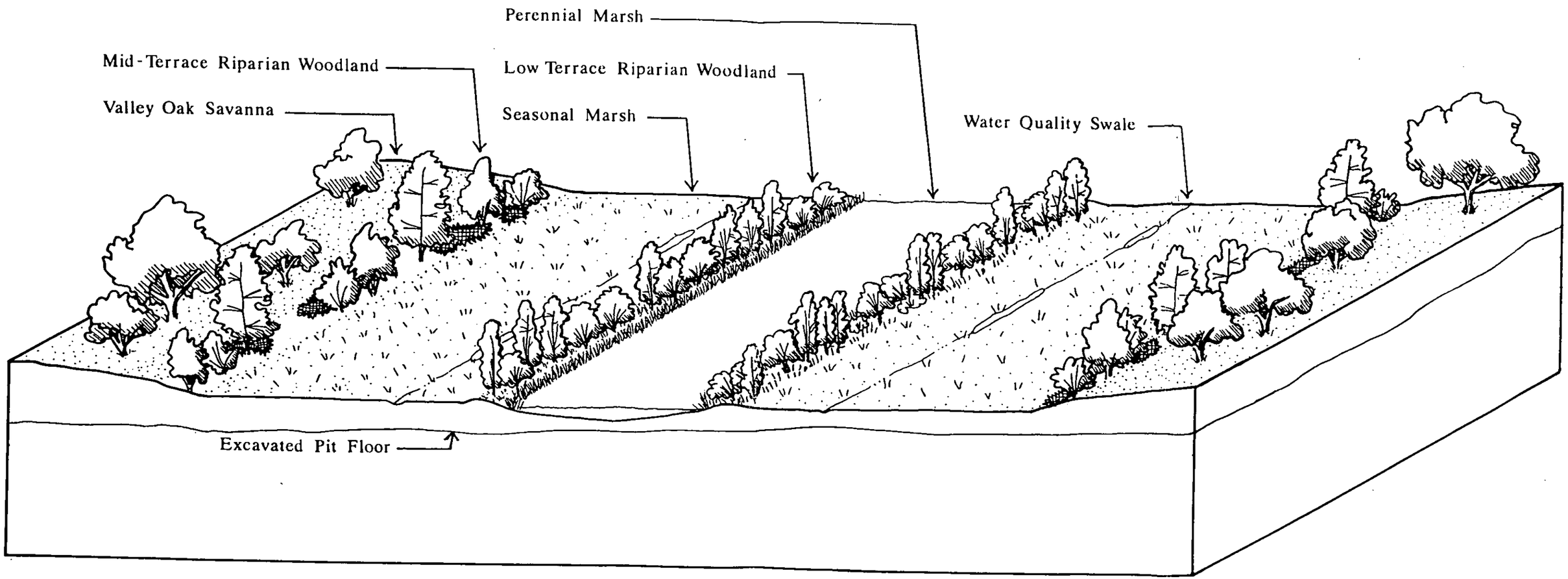
SCALE: 1" = 30'-0"

Morrison Creek Riparian Zone

FIGURE 8



ZENTNER
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SCALE: 1" = 50'

Reclaimed Creek Corridor Axonometric

FIGURE 9

will contain the Creek, perennial marsh, riparian woodlands, seasonal marsh and valley oak woodland in a series of terraces. If necessary during the phasing of the mitigation, temporary measures shall be employed to divert water from the existing Creek to the mitigation areas to support the created habitats.

Low flows will enter the re-created Creek channel from the perimeter bypass channel through a low flow weir or pipe. The Creek will then meander through the center of the site, mimicking the historic pattern of creeks in this area prior to farming impacts of the past century. The downstream end of the Creek on-site may include a sump pond to allow pumping of the Creek back up to grade. The Creek corridor also will contain water quality treatment in the form of shallow swales in the seasonal marsh terrace. Table Three provides the existing and proposed acreage of habitats on-site.

TABLE THREE

Habitat Loss and Creation

Habitat Type	Lost	Created	Ratio
Perennial Marsh	8.29	12.62	1.5:1
Riparian Woodland	4.27	8.76	2:1
Seasonal Marsh	9.39	11.74	1.25:1
Valley Oak Savanna	N/A	16.12	N/A
Totals	21.95	49.24	

Mitigation ratios were determined by evaluating the value of the existing habitat and the anticipated time necessary to establish the created habitat to the same or greater value as exists today. Riparian woodland was given the highest mitigation ratio due its relatively high value and the lag time required to grow trees to the height of the existing trees (approximately seven to nine years for cottonwoods, the dominant species). Perennial marsh was given a 1.5:1 ratio due to the relatively moderate value of this habitat and also taking into account the relative ease and speed with which this habitat establishes (1 to 2 years). Seasonal marsh was given a 1.25:1 ratio due to its relatively low value but slightly longer establishment period (2 to 3 years).

The total area of habitat in the corridor will be approximately 69.12 acres. Aside from the 49.24 acres of mitigation land identified above, the corridor also will include about 5.4 acres of seasonal marsh for water quality treatment and about 14.48 acres of additional land available for future mitigation by the applicant or another permittee. This future mitigation land is included within the seasonal marsh areas shown on Figure 5 (but is not included as mitigation for this project).

The project also includes installation of a perimeter conveyance structure as shown in Figure 4. The structure has been designed to convey excess storm water flows through the Morrison Creek basin, and will accommodate 1650 c.f.s. The design of this conveyance channel is consistent with the County Department of Water Resources' comprehensive drainage plan for the "Morrison Creek Mining Reach".

The re-created Creek channel on the project site shall accommodate 263 acre-feet (sufficient to hold flood flows during a 100-year event), which includes 50 acre-feet of storage in the on-site pond at the downstream end of the re-created Creek. If necessary, a small pump (10 - 25 c.f.s. capacity) shall be located at the downstream end of the re-created Creek channel to pump water between storms from this channel into the perimeter bypass channel.

C. WATER QUALITY

Storm water treatment for on-site run-off will occur within swales built in the lowest terrace of the Creek corridor. Figure 7 shows a typical swale in cross section. The swales will contain approximately 5.4 acres, sufficient to detain and treat the storm water run-off from the 403-acre site to current County standards before its discharge into the sump at the downstream end of the Creek. These measures are designed to comply with the joint NPDES permit held by the City and County of Sacramento for control of storm water pollution.

D. PHASING

Impacts to jurisdictional areas occur in Phases VI through XII of the proposed mining project. The applicant also proposes to phase implementation of the mitigation, with habitat construction commencing in Phase V and continuing in Phases VI, IX and X, as shown in the Figure 4. Complete segments of the re-created Creek corridor, including perennial marsh, riparian woodland, seasonal marsh and oak savanna buffer, will be constructed in each of these phases. Table Four sets forth total jurisdictional impacts, habitats impacted, habitats created and net gain in jurisdictional habitat for each phase.

TABLE FOUR (in acres)

Habitat Impacts and Creation By Phase

Phase	Impact	Habitat Impacted[1]	Habitat Created[2]	Net Gain	Oak Woodland Created
I-IV	0	None	0	0	0
V	0	None	8.45	8.63	2.57
VI	1.04	SM	13.73	21.32	4.18
VII	0.53	SM	0	20.79	0
VIII	1.15	PM;RP	0	19.64	0
IX	11.02	PM; RP; SM	8.08	16.7	2.46
X	5.77	PM; RP	22.7	33.63	6.91
XI	0.32	SM	0	33.31	0
XII	2.12	SM	0	31.19	0
Totals	21.95		52.96		16.12

[1] PM - Perennial Marsh
RP - Riparian Woodland
SM - Seasonal Marsh

[2] Acreage figures include perennial marsh, riparian woodland, seasonal marsh, water quality treatment areas (5.4 acres) and additional mitigation land (14.48 acres). Because complete segments of the Creek corridor will be constructed in each designated phase, all habitat types will be created in each phase of mitigation implementation.

E. BUFFERS

1. Introduction

Buffers are both a shield for sensitive habitats and, for wetlands, an area that provides habitat for wetland species that also use uplands. As a shield, a buffer is designed to reduce or eliminate harmful intrusion into the habitat. From this perspective, an effective buffer might be relatively limited in extent but extremely resistant to intrusion. A densely planted strip, for example, would be more effective than a large area of unplanted open space. As habitat, though, a buffer consists of an area of uplands adjacent to the wetlands to which wetland-related wildlife can migrate. Many ducks, for example, nest in grass-dominated uplands near wetlands, although wetlands are their primary habitat. Buffers are also more than just the width of the land between the upper edge of the wetland and the lower edge of the development area. A determination of an appropriate buffer width must take into account the character of uplands provided as well as the sensitivity of the protected wetland and the propensity of the neighboring development to encourage disturbance.

Although the width of a particular buffer is often one of the most contentious issues in wetland permits, little or no research is available on this subject. An analysis completed for the State Coastal Conservancy reviewed several different land uses for their impact on adjacent wetlands and found that research and development business parks tend to have the least impact on adjacent wetlands while residential developments tended to have the greatest. However, this study reviewed only a few examples. More recently, an analysis for the Washington State Department of Ecology reviewed a wide variety of buffer types and projects. Unfortunately, this study provides few concrete guidelines that are applicable to central California.

2. Relevant Policies

Few agencies have specific policies for buffers. The DFG recently developed wetland buffer guidelines that define buffers as both a shield for the wetland and an upland habitat (pers. comm. Dave Zezulak, DFG). Where the wetland to be protected is a perennial waterway, DFG recommends a buffer of approximately 100 feet; where a seasonal marsh or waterway is to be protected, the buffer may be 50 feet. This buffer can include created habitat areas, such as created seasonal marsh or vernal pools, that also act to shield the preserved habitat.

3. Buffer Description

Consistent with DFG policies, the buffer for this project will include approximately 70 feet of oak savanna (a mix of woodlands and native grasslands) and an additional 137 feet of created seasonal marsh on both sides of the Creek channel.

The woodland portion of the buffer will be planted in a variety of native woodland species. Average densities will vary depending on the location; see the next chapter for more detail. Trees and shrubs will be clustered much more densely near the uppermost edge of the woodland with the interior of the savanna planted in native grasses.

Chapter 3
Mitigation Program

A. PROJECT DESCRIPTION

1. Introduction

Habitat mitigation activities include the following elements:

1. The loss of 4.27 acres of riparian woodland, 8.29 acres of perennial marsh and 9.39 acres of seasonal marsh will be mitigated through the creation of 8.76 acres of riparian woodland, 12.62 acres of perennial marsh and 11.74 acres of seasonal marsh, achieving an overall 1.5:1 created-to-lost mitigation ratio.

2. A buffer averaging approximately 200 feet in width on each side of the Creek will be provided adjacent to the perennial wetlands of the Creek corridor. This buffer will consist of native oaks and associated species in a matrix of native grasses and created seasonal marsh. These habitats will provide both buffer and associated habitat for the Creek.

2. Financing and Ownership

The applicant plans to fund construction, mitigation, and monitoring costs for all improvements, and presently intends to retain ownership of all portions of the property.

B. PERENNIAL MARSH

1. Goals

The primary goals of this effort are: 1) Establishment of a diverse marsh system; and 2) assurance that this system will be self-maintaining to the maximum extent practicable without creating problems such as mosquito production.

a. Habitat Diversity

Habitat diversity will be a product of providing open water, perennial marsh, and low terrace riparian woodlands. Providing a diversity of habitats will ensure habitat for a variety of plant and wildlife species. During a field tour of the Lower Laguna Creek area, John Brode of the DFG identified several areas of existing perennial marsh that are highly diverse habitat. One of these stands is located just east of Highway 99 on Laguna Creek. This perennial marsh area contains pockets of open water, islands of low terrace riparian woodlands, and occasional hummocks dominated by seasonal marsh forbs and grasses (Views E and F). Because of its diversity, this area will be used as the "template" or model for low-terrace riparian woodland and perennial marsh construction in the project area.

b. Mosquito Abatement

The presence of large numbers of mosquitos is a good indication that a project is not trending toward self-maintenance. The Sacramento-Yolo Mosquito & Vector Control District has developed guidelines for use in wetland restoration projects that were used to develop the following guidelines for this project.

1. An independent water level control system is provided for the Creek. Water levels are controlled using a pump at the downstream end of the project site, which could allow drainage for mosquito control and will provide the appropriate inundation and saturation levels to support marsh and woodlands.

2. The banks of areas that retain water after June 1 (the beginning of the optimal mosquito breeding period) will be steep enough to prevent pooling as the water level recedes and to allow wave action and access by predators. Shoreline configuration will provide for continuous connections among the water bodies and channels and not isolate channels or ponds from the main body of water.

3. Water depth in perennially wet areas (open water and perennial marsh) will be maintained at a minimum of two feet during warm mosquito breeding months (June-October) while seasonally wet areas (the seasonal marshes) will allow only for soil saturation near the surface during the mosquito breeding season. Hydroperiod analyses for these types of wetlands in the project area have shown that perennial marsh will flourish with two to three feet of water depth

during the warmer months, while seasonal marsh is typically dry by June 1. Water levels will not fluctuate appreciably during the summer months. Winter wet areas will drain into a deep area (a series of ponds in the creek channel) to give refuge to insectivorous fish and predatory insects.

4. Dense stands of aquatic vegetation will be limited in shallow areas to lower harborage and enhance wave action. Perennial marsh species, like cattails and bulrushes, in moderate stands generally do not promote mosquito productivity and will function as substrate for mosquito predators.

5. Wetlands will be stocked with the mosquito fish *Gambusia affinis* or other insectivorous fish.

6. Access will be allowed to all wet areas for Mosquito Control District staff for larval and adult mosquito surveillance and the monitoring of water quality and vegetation density.

2. Perennial Marsh Construction

As stated above, project goals for perennial marsh construction focus on the provision of a diverse habitat (including habitat for special-status species) while avoiding some of the potential problems of constructed marshes such as increased mosquito production. 12.62 acres of perennial marsh will be created.

Perennial marsh requires at least six months, and preferably at least nine months, of inundation and can withstand depths of up to three feet of water during this period. Providing permanent open water within the perennial marsh zone to create a more diverse habitat will require the creation several ponds scattered throughout the perennial vegetation that are at least three (3) feet deep during summer water conditions. In this system, the control provided by the pump system will also allow for management of circulation and water levels.

Ensuring that this system does not provide for increased mosquito production is problematic but resolvable during the design stage. Areas that will pond water during the summer must include deep water pockets to hold mosquito predators and also support dense stands of perennial marsh plants near such pockets. The sides of these areas should be relatively steep (3:1 slopes).

Experience has demonstrated that planting the mature perennial marsh species in their proposed establishment zone is cost-effective and provides for rapid establishment of a diverse marsh flora. Planting of perennial marsh species is implemented by salvaging plugs of native marsh plants like *Scirpus acutus*, *S. californicus*, and *S. olneyi* from perennial marshes at the site and in its vicinity (for more detail see Appendix D). The plugs are then planted on six-foot centers in the appropriate areas. Transplanting of perennial marsh root masses (the preferred planting strategy) can be extremely successful where the root masses are kept inundated from the time of transplanting which occurs almost immediately (within hours) after salvaging. The applicant also proposes to plant within the perennial marsh the federal candidate species Sanford's arrowhead (*Sagittaria sanfordii*).

C. RIPARIAN WOODLAND

The 8.76 acres of riparian woodland will be densely planted on the edges of islands and slopes inland from both the perennial and seasonal marsh areas. Zones to be planted include low terrace riparian woodland (dominated by willows and cottonwoods) and mid-terrace riparian woodland (dominated by box elder, dogwood, and Oregon ash). Species to be planted from the driest to wettest zones are shown in Table Five.

TABLE FIVE

Mid-Terrace Riparian Woodland Planting List

Species		Approximate #/acre
Sambucus mexicana	Blue elderberry	5
Quercus lobata	Valley oak	13
Juglans hindsii	California walnut	11
Rosa californica	Wild rose	15
Vitis californica	Wild grape	16
Acer negundo	Box elder	18

Fraxinus latifolia	Oregon ash	12
Cornus stolonifera	Dogwood	16
Elymus triticoides	Creeping wild rye	plugs
Muhlenbergia rigens	Deer grass	plugs

Low Terrace Riparian Woodland Planting List

Species		Approximate #/acre
Populus fremontii	Fremont cottonwood	126
Salix gooddingii	Black willow	103
Salix laevigata	Red willow	103
Salix lasiandra	Arroyo willow	103

In the mid-terrace zone, the trees, shrubs, and vines will be planted in clumps at an average spacing of 20-foot centers. This provides a total of about 100 to 110 trees, shrubs, and vines per acre. The understory grasses will be planted as plugs in openings between clumps of trees or shrubs on 5-foot centers. The low terrace zone will be planted in dense, even plantings on approximate 10-foot centers (425 to 450 plants per acre). These planting forms reflect the natural distribution of these trees within these zones in riparian systems in this region.

All woodland areas will be graded to a constant slope. After placement and grading of the salvaged topsoil, the slopes will be disced, cross-disced and ring-rolled to prepare a seedbed. Soil tests after seedbed preparation may disclose the need for soil amendments such as the addition of fertilizers. The native grasses to be planted on these slopes are adapted to low nutrient regime conditions and should not require significant amendments. All trees and shrubs planted in the woodlands should be planted with a slow-release fertilizer. Most of the low terrace riparian trees in the Creek corridor will be planted with pole cuttings. Other trees and shrubs will have been grown in D-pots or one-gallon containers.

D. SEASONAL MARSH

1. Goals

This plan proposes the construction of 11.74 acres of seasonal marsh. Experience with seasonal marsh construction has shown that provision of appropriate soil and hydrologic regimes as well as control of nonnative plants are all important considerations.

2. Hydrology

a. Introduction

Like the perennial marshes, the seasonal marshes also may go through a successional process from seral systems dominated by large numbers of weedy species (*Cyperus eragrostis*, *Lythrum hyssopifolia*, etc.) to mature systems dominated, in this region, by either Baltic rush (*Juncus balticus*) and creeping wild rye (*Elymus triticoides*) or spike rush (*Eleocharis palustris*). These two forms of seasonal marsh also may be termed the drier and wetter forms of seasonal marsh or, respectively, wet meadow and seasonal marsh.

The wetter spike rush-dominated marshes occur just above the low-terrace riparian woodland zone and require four to six months of inundation with a month or more of soil saturation at either end of the inundation cycle. Water depths are generally much less than in perennial marshes, although depths may reach two feet in very wet conditions. Soils are typically very heavy clay or hardpan soils.

Baltic rush-dominated marshes are generally only shallowly inundated (6 to 12 inches) for one to three months with several months of saturation. Locally, Baltic rush and creeping wild rye occur most frequently where standing water is infrequent and soil oxygenation is too poor for riparian trees. In more permeable soils, these wet meadows may be found without standing water but with a lengthy (six to nine months) period of soil saturation to the surface. Baltic rush and similar species are typical dominants in irrigated pastures in this region. These pastures are typically kept saturated, but not inundated, for two to three weeks of every month. Consequently, seasonal marshes can be created where the hydroperiod will range from one to six months of inundation with varying periods of soil saturation and water depths of 6 to 24 inches.

Seasonal marsh hydrology will be supported both by high winter flows within the Creek channel and seepage from the swales constructed in the seasonal marsh terrace for storm water treatment. The stormwater runoff especially will provide the low levels of soil saturation preferred by the seasonal marsh species.

3. Seasonal Marsh Planting Program

Planting the seasonal marsh zone will be a combination of seeding and plugging, with seed bed preparation and seeding occurring first with subsequent plugging of other target species. Table Six below presents a list of proposed species and the method of planting.

TABLE SIX

Seasonal Marsh Planting List

Species	Species	Form & Amount
Eleocharis palustris	Spike rush	120 plugs/ac.
Juncus balticus	Baltic rush	450 plugs/ac.
Hordeum brachyantherum	Meadow barley	seed 8 lbs/ac.
Elymus triticoides	Creeping wild rye	seed 22 lbs/ac.

More detail on planting technique and maintenance is contained in Appendices C and D.

A wide variety of other species are likely to seed into these areas over the first year of project establishment. Reviews of newly created seasonal marshes in this region demonstrate a very high species diversity during the first few years of these projects with subsequently lower diversity as the dominant species of the mature marsh spread through the system.

E. VALLEY OAK SAVANNA (INCLUDING ELDERBERRY MITIGATION)

Most of the project area was historically a grassland without the large stands of diverse woodlands as were present, for example, along the Sacramento River. The native grassland dominant was probably creeping wild rye (*Elymus triticoides*) with some purple needle grass (*Stipa pulchra*) on higher and drier sites. Where oaks occurred (and where they still occur), generally the soils shift from the San Joaquin series with its hardpan to the Columbia series, which is more permeable but less common on this site.

Consequently, establishing a native woodland may require augering to provide for root penetration of the upper soil layers. Even with this action, the appropriate woodland type is a valley oak savanna with clusters of trees and shrubs in expanses of open grassland on dry sites or dense clusters of willows, cottonwoods, and associated species in saturated sites. Species to be planted in the valley oak savanna area are shown in Table Seven.

TABLE SEVEN

Valley Oak Savanna Planting List

Species		Approximate # or lbs/acre
Quercus wizlensii	Interior live oak	6
Quercus lobata	Valley oak	13
Aesculus californica	California buckeye	8
Sambucus mexicana	Blue elderberry	1344 stems
Cercis occidentalis	Redbud	11
Juglans hindsii	California walnut	9
Rubus ursinus	Native blackberry	8
Baccharis pilularis	Coyote bush	10
Rosa californica	Wild rose	15
Vitis californica	Wild grape	16
Stipa pulchra	Purple needle grass	plugs
Elymus triticoides	Creeping wild rye	plugs
Muhlenbergia rigens	Deer grass	plugs

Average densities will be 100 trees and shrubs per acre, requiring an average of 20-foot spacings. However, these trees and shrubs will be planted in clusters of four to five trees or shrubs, generally toward the top of the bank. The clusters will typically consist of a single species, although mixed groupings, *e.g.*, Valley oak-elderberry also would occur. Clusters will be planted 40 to 60 feet apart with native grasslands in between the clusters.

1. Elderberry Mitigation

The proposed project will impact seven (7) blue elderberries, the host plant for the federally threatened Valley elderberry longhorn beetle. These plants contain a total of 448 stems greater than one (1) inch in diameter; three (3) of the seven (7) plants contained beetle emergence holes. FWS General Compensation Guidelines for the Valley Elderberry Longhorn Beetle (February 26, 1993) (Guidelines) require:

a. Transplanting the three (3) shrubs with emergence holes;

b. Planting replacement stems (seedlings) at a 3:1 ratio because less than 50% of the shrubs contain emergence holes; and

c. Planting associated native plants at a 2:5 ratio (two [2] associated plants for every five [5] new stems [seedlings] planted).

In addition to transplanting the three (3) shrubs with emergence holes, the applicant shall plant 1,344 elderberry seedlings and 538 associated native species. Plantings shall placed in basins 40' by 40', with each basin containing five (5) seedlings and at least two (2) associated species (requiring a total of 9.8 acres). This mitigation shall occur within the 16-acre oak savanna buffer proposed for the project. The applicant also shall comply with the monitoring and other requirements contained in the Guidelines.

Chapter 4
Monitoring Program

A. INTRODUCTION

This section of the mitigation plan provides the general requirements for the monitoring program and specific parameters for the monitored elements, performance standards for determining post-construction success, and a discussion of proposed remedial actions which may be warranted if the performance standards are not met.

Monitoring is divided into two phases. The first phase involves monitoring of the construction project to ensure its compliance with the approved mitigation program and relevant permits. The final monitoring phase will be a study of changes to the Creek corridor after construction to observe establishment of the existing and created vegetation and hydrology and recommend any needed remedial actions.

B. CONSTRUCTION MONITORING

Construction of the re-created Creek channel, and excavation activities within the project boundaries which affect created wetlands or their buffers and/or preserved (temporarily preserved until excavated in later phases) wetlands, shall be monitored by a qualified ecologist with proven experience in the areas of habitat development and wetland restoration, hereafter termed the "Ecological Monitor" (EM).

During the construction phases, it is the responsibility of the applicant to ensure that the project is built in accordance with the approved mitigation program, relevant permits, and any other documents approved as a part of this project. The EM shall be under direct contract with the applicant and not to any other contractor or permittee working on the project site and shall assist the applicant in ensuring the project is built in accordance with the approved permits.

The EM shall inspect all aspects of the Creek corridor construction which relate to implementation of the mitigation program and shall keep a daily construction log of all relevant construction activities. The EM shall immediately notify the applicant whenever construction deviates from the approved permits and mitigation program.

When necessary, the EM shall notify the applicant of any changes required in the relevant project permits due to adverse site or other conditions encountered during construction. Within six months of completion of any phase of the construction project, the EM shall sign a copy of the construction log and as-builts and certify the project was built in accordance with the relevant permits. At that time, the applicant will send a copy of the signed as-builts to the relevant permitting agencies and request, in writing, inspection of the project. If the permitting agencies do not respond within 45 days, project construction shall be deemed complete and constructed in accordance with the relevant permits.

C. POST-CONSTRUCTION MONITORING

1. General Requirements

a. Post-construction monitoring shall occur for five (5) years after construction. Monitoring and construction may be phased such that phases of the project are monitored at different times.

b. The results of the monitoring program, including photographs taken along permanent transect lines, shall be submitted in an annual report to the appropriate agencies by August 15 of each year.

c. All post-construction monitoring shall be completed by an EM who shall ensure that the project is monitored and maintained in accordance with the relevant permits. The EM shall be under contract directly to the applicant and not to any other contractor working on-site.

d. At the end of the fifth year of monitoring of any phase, a delineation of the constructed wetlands shall be prepared for review and approval by the Corps, with a copy also submitted to the County. The extent of wetlands identified in this delineation should match or exceed the target acreage identified in this mitigation plan.

e. To ensure long-term maintenance practices continue which support the purposes of the mitigation program, a maintenance manual shall be developed during the fifth year of the post-construction monitoring for the first phase of project implementation and circulated to the relevant resource agencies for comments. The manual shall then be finalized and submitted to these agencies with the final monitoring report for that phase of the mitigation program. The manual shall detail maintenance procedures such as erosion control, debris removal, exotic plant eradication, irrigation guidelines, species cultural requirements, replanting, protective fencing, and signing. The manual may be amended as necessary if different maintenance procedures are warranted for any subsequent phase of mitigation implementation.

2. Monitoring Parameters

a. Channel Stability

Elements of the monitoring program discussed in this section include channel stability, sedimentation, and flood conveyance.

The hydrologic analysis for this mitigation program assumes that sediment movement in the Creek is relatively minor. Monitoring of sediment deposition will include a survey of two monumented cross sections at opposite ends of the channel. Monitoring will be done once every two years. The cross sections will be marked so that successive surveys are taken in the same location.

Geomorphic mapping of the entire Creek corridor will be conducted simultaneously with the channel survey to document changes in channel morphology and bank stability problems. Bank stability will be mapped in detail by depicting any erosion or sedimentation on a project base map, which will be included in the annual monitoring reports. Locations of large sediment deposits, scour, and bank failure also will be documented following all moderate and major flows.

b. Vegetation

(1) Introduction

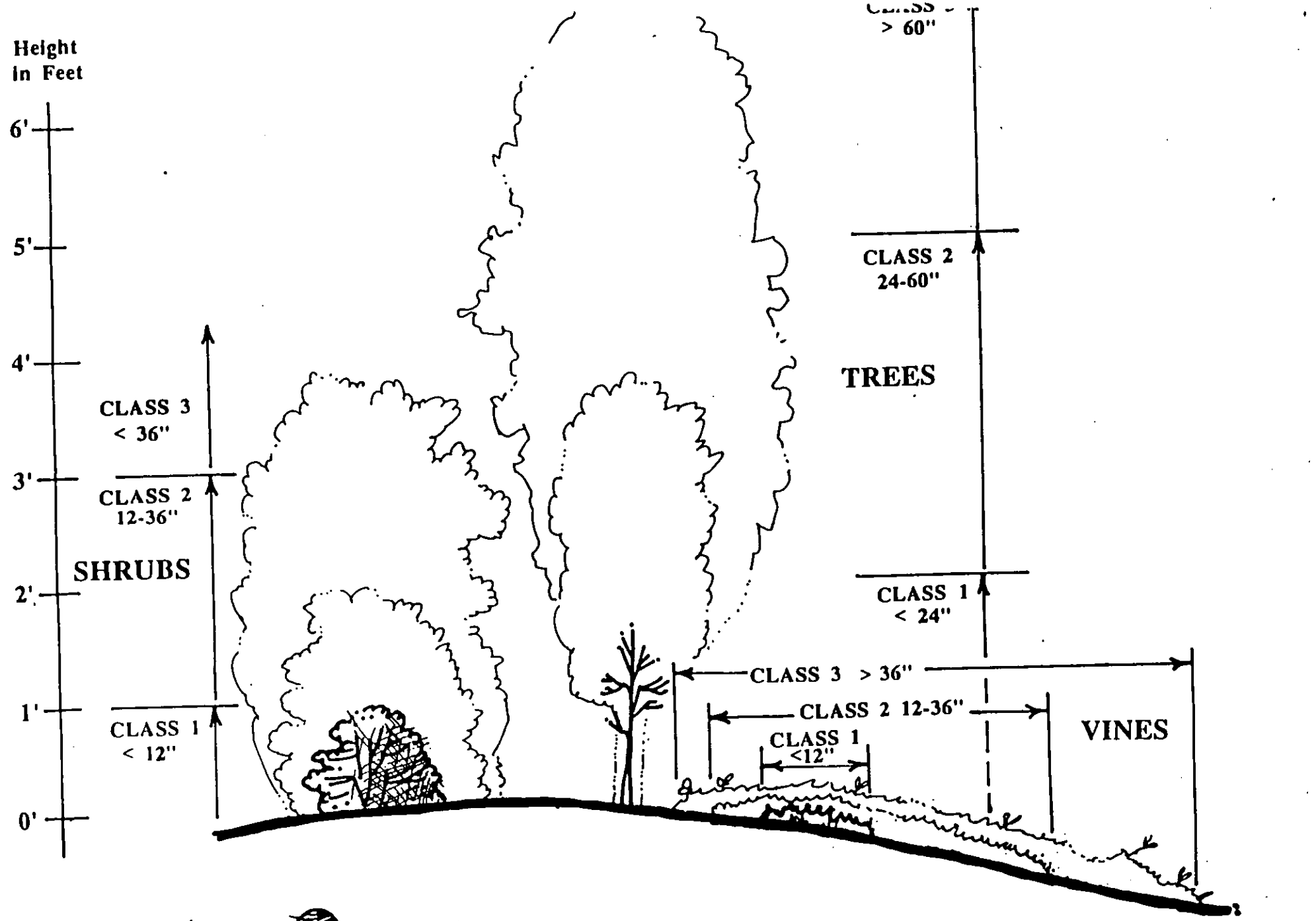
Elements of the monitoring program discussed in this section include: woodland (tree and shrub) mortality, vigor, height, and natural regeneration; herb strata (perennial and seasonal marsh) cover, species richness, and water surface elevations.

(2) Woodland Monitoring

Mortality rates, vigor, and height of all planted trees and shrubs will be evaluated by field surveys during both the early spring and late summer (the period of early emergence of new growth and that of greatest stress on the planted vegetation, respectively). Each planted tree or shrub will be assigned to one of three height classes: Class 1 plants will be trees 24 inches or less in height, shrubs 12 inches or less in height, and vines 12 inches or less in diameter; Class 2 plants will be trees from 24 to 60 inches in height, shrubs from 12 to 36 inches in height, and vines from 12 to 36 inches in diameter; Class 3 plants will be trees greater than 60 inches in height, shrubs greater than 36 inches in height, and vines greater than 36 inches in diameter (Figure 10). At the same time, the EM will assign each plant to a category of healthy, unhealthy, or dead. Photographs of each plant type for a representative sample will be included in the monitoring reports. Woodland monitoring also shall include an inventory of all native trees and shrubs that germinate on-site and reach a height of 36 inches or more. The height, number, and species of these plants shall be included in the monitoring reports.

(3) Marsh Monitoring

Permanent plots marked by rebar or other, permanent markers in the marshes will be used to assess plant cover, species richness, and the relative cover of wetland species. Sampling will use 6' x 6' sample plots or similar procedures. A total of at least 45 permanent plots divided among the phases will be used to monitor these elements. Plot locations shall be divided equally among those placed on the edges of the proposed habitat and those placed within the interior of the proposed habitat. Within those two areas, locations shall be randomly selected. Sampling will occur once annually during the late spring.



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Monitoring Categories

FIGURE 10

These plots also shall be monitored weekly during the rainy season for water surface elevation and inundation/saturation period. Water surface elevation monitoring shall consist of a permanent marker (the rebar marker noted above may be used) that can be used to define water depth. Seasonal marshes shall contain at least three piezometers (or similar measuring device) to define soil saturation levels.

During the spring of the fifth year of post-construction monitoring for any phase, the extent of the wetlands and other jurisdictional areas in this phase shall be mapped using the standard Corps delineation method.

c. *Schedule*

Table Eight summarizes the monitored elements, the frequency of the monitored element, the monitoring season, and the years during the monitoring period in which the element is monitored.

TABLE EIGHT

Monitoring Program Summary

Element	Frequency	Season	Years
Sedimentation	Every 2 Years	Spring	1,3,5
Geomorphic Mapping	Every 2 Years	Spring	1,3,5
Woodland Vigor, Height & Mortality	Twice Annually	Spring & Fall	Yearly
Wetland Hydrology	Weekly	Winter & Spring	Yearly
Wetland Cover & Species Richness	Annually	Spring	Yearly
Wetland Extent	Once	Winter/Spring	Year 5

D. PERFORMANCE STANDARDS

Each phase shall be evaluated against the following performance standards at the end of the fifth year of monitoring of that phase as depicted in Table Nine.

TABLE NINE

Mitigation Performance Standards

Habitat	Element	Standard
Woodlands		
	Plant vigor	Class 3 and healthy
	Species diversity	Same number of species in relatively the same proportion as provided in this plan
	Mortality	80% survival of all planted trees and shrubs
Marshes		
	Hydrology	Hydroperiod and depth sufficient to establish the specific habitat type
	Plant cover	80%
	Species richness	5 perennial marsh and 6 seasonal marsh species. Table Ten below provides typical species for each habitat.
	Extent	Equivalent to requirements in mitigation program

TABLE TEN

Sample Plants by Wetland Type

PERENNIAL MARSH	
Alisma plantago-aquatica	Water plantain
Azolla filiculoides	Fern-like mosquito fern
Ceratophyllum demersum	Common hornwort
Jussiaea repens var. peploides	Creeping seedbox
Ludwigia peploides	Floating seedbox
Mentha pulegium	Penny-royal
Rorippa sinuata	Spreading yellow cress
Scirpus acutus	Tule
Typha domingensis	Southern cattail
Typha latifolia	Broad-leaf cattail
SEASONAL MARSH	
Ascelpias fascicularis	Narrow-leaf milkweed
Briza minor	Little quaking grass
Centaurium floribundum	June centaury
Cotula coronopifolia	Brassbuttons
Cyperus eragrostis	Tall flatsedge
Eleocharis macrostachya	Creeping spike rush
Juncus balticus	Baltic rush
Juncus bufonius	Toad rush
Lolium perenne	Perennial ryegrass
Lotus corniculatus	Birdsfoot trefoil
Lythrum hyssopifolia	Hyssop loosestrife
Paspalum dilatatum	Dallisgrass
Plantago lanceolata	English plantain
Plantago major	Common plantain
Polygonum aviculare	Common knotweed
Polygonum persicaria	Lady's thumb
Polypogon monspeliensis	Rabbit-foot grass
Ranunculus muricatus	Spiny buttercup
Rumex crispus	Curly dock
Sida hederacea	Alkali mallow
Xanthium strumarium	Common cocklebur

After completion of any phase of the construction program, all elements noted above will be monitored annually for a period of five (5) years. At the fifth year, a jurisdictional delineation will be completed and provided to the Corps for verification, with a copy submitted to the County. The monitoring or the relevant component of the monitoring shall be extended, if all or a portion of the project is judged to be unsuccessful, until the unsuccessful portion of the project meets the above performance standards.

E. REMEDIAL ACTIONS

The applicant has the responsibility to create a successful mitigation program and will manage the Creek corridor in an iterative manner, *i.e.*, the applicant shall take remedial action if an area is not meeting the proscribed performance standards. These actions would include site modification and/or replanting. For example, a portion of the plantings may fail due to inappropriate elevations (too high or too low). The mortality or lack of vigor in the plants would make this problem and the logical solution evident within the first few years of the monitoring.

Generally, the marsh creation components of the program are relatively immune to post-construction problems if the water surface elevations and hydroperiods established after construction are appropriate. However, woodland plantings will require active maintenance during the monitoring period and are subject to the common problems of many landscape construction projects, such as malfunctioning irrigation lines, small-scale erosion, etc. To ensure against poor performance of the woodlands, the following contingency measure is specifically required for these areas. As noted above, the woodland survival standard requires that 80% of the planted trees and shrubs be healthy, Class 3 plants at the end of the five-year monitoring period. To meet this objective, in the fall of the third year following construction, all planted trees and shrubs that are unhealthy, dead, or within Class 1 (the lowest level of performance) will be replaced by trees and shrubs having a greater rootball size than the rootball size originally planted. For example, one-gallon or equivalent plants that are unhealthy, dead, or Class 1 in size will be replaced by five-gallon or equivalent size stock. Five-gallon stock will be replaced by 15-gallon and so forth.

Major corrective actions generally will occur after an annual progress report, including recommendations for remedial actions to ensure the project meets the performance standards, has been submitted. If the agencies do not comment within thirty (30) days on the report recommendations, the report shall be deemed acceptable and the applicant shall proceed to implement these recommendations. At the end of the fifth year, the monitoring report will summarize the previous reports and evaluate the overall success of the project against the performance standards. The applicant may request an extension of the final evaluation for all or a specified portion of the project if at any time a major adjustment to the program occurs, *i.e.*, regrading or similar action.

Where the mitigation program or a portion of the mitigation program fails to meet the performance standard, it will be the applicant's responsibility to correct the unsuccessful portions of the project. Corrective measures will include techniques that have been shown to be successful at this site or other similar areas and could include significant regrading or replanting. These unsuccessful portions of the project will then be monitored until they are shown to meet the specified performance standards.

REPORT PREPARATION

This document was prepared by Zentner and Zentner under contract to Granite Construction Company. The persons responsible for preparing this document are listed below:

John Zentner	Principal in Charge
Kellie Berry	Project Manager
Jeff Glaspy	Habitat Restoration
Dave Self	Wetland Ecology
Glen Holstein	Endangered Species
Susan Collopy	Graphics
Kathy Nielsen	Word Processing

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APPENDIX A

SPECIAL-STATUS SPECIES SURVEY RESULTS AND STATUS DESIGNATION DEFINITIONS

APPENDIX A — Special-Status Species Survey Results

Species surveyed for but not found in the project area include the following:

Swainson's hawk (*Buteo swainsoni*) is listed by the state as threatened. This hawk typically nests in riparian forests adjacent to open lands. The species formerly nested throughout the open plains of California and is now restricted to the Central Valley. This raptor has not been seen in the project area but DFG now considers any area within ten miles of a nest (most of Sacramento County) as foraging habitat.

California tiger salamander (*Ambystoma tigrinum californiense*), a federal candidate (Category 2) and a California Species of Special Concern (CSC) which is monitored by DFG; and **Western spadefoot toad** (*Scaphiopus hammondi*) a CSC, may occur in the study area (pers. comm., John Brode). The western spadefoot toad and the California tiger salamander spend most of the year in underground burrows, up to 36 inches below the surface (DFG 1988). The western spadefoot toad digs its own burrows in the immediate vicinity of the breeding grounds, while the California tiger salamander uses mammal burrows that may be up to a mile from the breeding grounds (pers. comm., John Brode). Both of these species breed and lay eggs primarily in vernal pools (DFG 1988).

Vernal pool fairy shrimp (*Branchinecta lynchi*), **California linderiella** (*Linderiella occidentalis*), **Conservancy fairy shrimp** (*Branchinecta conservatio*), and **Vernal pool tadpole shrimp** (*Lepidurus packardi*) are federal candidate species that may occur in the study area (pers. comm., Chris Nagano, U.S. Fish and Wildlife Service [FWS] Entomologist). The fairy and tadpole shrimps and the linderiella lay eggs capable of withstanding long periods of desiccation. These eggs are widely dispersed by wind and animals (pers. comm., Dr. Allen Knight, Professor of Aquatic Biology, University of California, Davis).

Slender orcutt grass (*Orcuttia tenuis*) is a state-listed endangered and a federal candidate (Category 1) species found primarily in vernal pools on Redding series soils, which are not found in the project area.

Delta tule pea (*Lathyrus jepsonii* spp. *jepsonii*), federal candidate (Category 2) but not listed by the state, has been observed along Snodgrass Slough south of Twin Cities Road. It primarily occurs in brackish water and is unlikely to occur in the study area.

Bogg's Lake hedge-hyssop (*Gratiola heterosepala*), federal candidate (Category 2), also may occur in the Elk Grove Creek area (pers. comm., W.S. White, FWS), although this is not a likely species for the study area as it is typically confined to deeper pools similar to the orcutt grass.

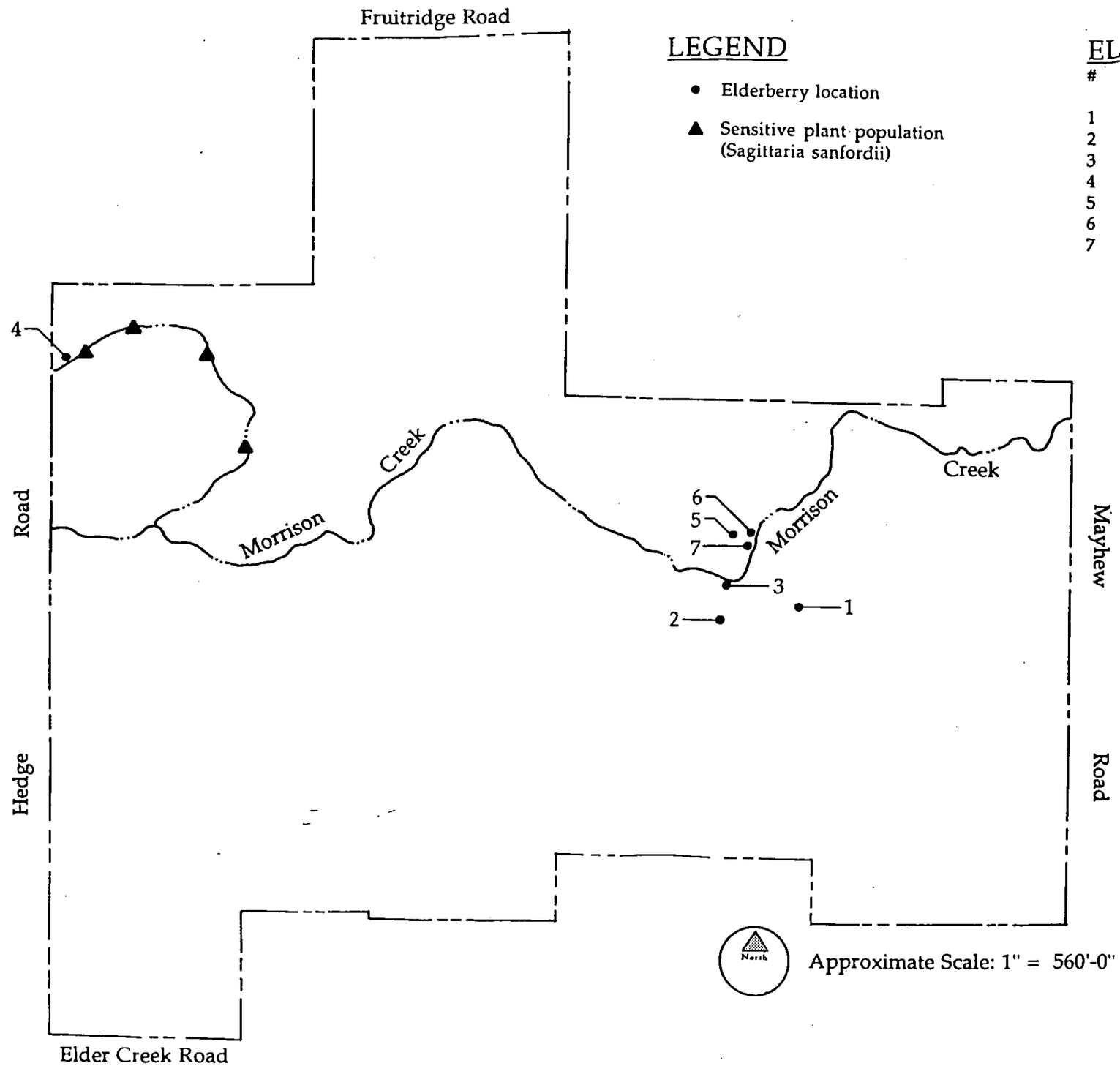
Giant garter snake (*Thamnopsis couchi gigas*) is federally and state listed as threatened. The snake is known to inhabit the Central Valley in rivers, creeks, irrigation ditches, and rice fields. It appears to prefer smaller tributaries (about 15 feet wide) that do not contain substantial open water but do contain cattails and tules.

Tricolored blackbird (*Agelaius tricolor*) is a candidate for federal listing (Category 2) and a CSC. This blackbird is known only from freshwater marshes in California. It also is found in marsh vegetation in riparian wetlands and around lakes and, during the nonbreeding season, in grasslands and rice fields. This species has not been seen recently in the study area, but it has been seen on nearby creeks according to the CNDDB lists.

Species surveyed for and found in the project area include the following (see Figure A-1 for a location map):

Valley elderberry longhorn beetle (*Desmocerus californicus dimorphous*) is federally listed as threatened but is not listed by the state. This beetle once resided throughout the Central Valley on elderberry shrubs but now may be reduced to a few locations. Seven (7) elderberry shrubs are presently known from the project area, including several with VELB exit holes.

Sanford's arrowhead (*Sagittaria sanfordii*) is a candidate for federal listing (Category 2) but is not listed by the state. The arrowhead is found in or adjacent to slow-running or standing water in the Central Valley.



LEGEND

- ● Elderberry location
- ▲ Sensitive plant population (Sagittaria sanfordii)

ELDERBERRY DATA

#	Stems >1"	Height	Beetle Evidence
1	120	8 ft.	+
2	16	8 ft.	-
3	70	12 ft.	+
4	2	7 ft.	-
5	150	20 ft.	+
6	20	12 ft.	-
7	70	15 ft.	-

ELDERBERRY AND SENSITIVE PLANT LOCATION MAP
FIGURE 1A

DEFINITIONS FOR SPECIAL-STATUS SPECIES DESIGNATIONS

Federal Endangered Species Act

The following are the standard definitions for the status designations under the federal Endangered Species Act (ESA), implementing regulations and relevant notices (as published in the Federal Register). The ESA is administered by the U.S. Fish and Wildlife Service (FWS).

Endangered - A species which is in danger of extinction throughout all or a significant portion of its range.

Threatened - A species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Candidate:

Proposed for Listing - Taxa formally noticed as being under review to determine whether listing as threatened or endangered is warranted.

Category 1 (C1) - Taxa for which FWS has on file sufficient information on biological vulnerability and threat to support a proposed rule to list the species as endangered or threatened. Proposals to list have not yet been issued because this action is precluded by other listing activity. Development and publication of proposed rules on Category 1 species are anticipated. Species in this category are assigned a listing priority in order to assist the FWS in determining those species most in need of protection.

Category 2 (C2) - Taxa for which information currently in the possession of FWS indicates that a formal listing proposal may be appropriate, but for which sufficient data on biological vulnerability and threat is not currently available to support proposed rules. There is sufficient information that these species are possibly under threat to their continued existence, but further field studies or other information are required before final determinations can be made.

Category 3 (C3) - Taxa that once were considered for listing as threatened or endangered but are no longer under such consideration. Taxa in Category 3 are not current candidates for listing. Such taxa are further divided into three subcategories. A species in this category may be considered extinct (3A), not an entity that meets the definition of "species" under the ESA (3B), or sufficiently common and not at risk to the degree that requires protection under the ESA at this time (3C).

California Endangered Species Act

The following are the standard definitions for the status classifications under the California Endangered Species Act (CESA), administered by the California Department of Fish and Game (DFG).

Candidate species - A native California species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant is a candidate when the Fish and Game Commission (Commission) has formerly noticed it as being under review by the DFG to determine whether listing as threatened or endangered is warranted, or when it is the subject of a proposed rulemaking by the Commission to list as threatened or endangered (Fish and Game Code, Section 2068).

Rare species - A native California plant (species, subspecies or variety) is rare when, although not presently threatened with extinction, it is in such small numbers throughout its range that it may become endangered if its present environment worsens (Fish and Game Code, Section 1901).

Threatened species - A native bird, mammal, fish, amphibian, reptile or plant (subspecies or species) is threatened when, although not presently threatened with extinction, it is likely to become an endangered species in the foreseeable future in the absence of special protection and management efforts. Any animal listed as "rare" by the Commission on or before January 1, 1985, is a threatened species (Fish and Game Code, Section 2067).

Endangered species - A native California bird, mammal, fish, amphibian, reptile or plant (species or subspecies) is endangered when it is in serious danger of becoming extinct throughout all, or a significant portion of, its range due to one or more causes, including loss of habitat, change of habitat, over-exploitation, predation, competition or disease (Fish and Game Code, Section 2062).

A California species of special concern (CSC) is a plant or animal species or subspecies that is possibly declining or is vulnerable to extirpation and may be considered for listing or for special management and protection measures. These species, although not legally protected under the CESA, are monitored by the DFG.

APPENDIX B

WETLAND VALUES ANALYSIS

APPENDIX B — Wetland Values Analysis

A. INTRODUCTION

Much of the value of wetlands is derived from the shallow flow or ponding of water across a vegetated or semi-vegetated plain. The combination of shallow water and vegetation can remove pollutants from the water; increase nutrient production, flood storage, and groundwater recharge; reduce storm erosion; create waterfowl and shorebird habitat; and provide passive and active recreation. The following discussion focuses on these wetland values, as they have been described in the scientific literature, and their applicability to the study reach.

The following discussion uses the Adamus method to examine and compare the values of the major wetland and other jurisdictional habitats found on the project site. For ease of discussion, these types have been characterized in the Adamus analysis as either "riparian" for those wetlands and other jurisdictional areas found along the Creek, *i.e.*, the riparian woodlands and perennial marshes including the Creek and other open waters, or "palustrine" for those areas isolated from the Creek, *i.e.*, the seasonal marshes.

B. ADAMUS ANALYSIS

1. Groundwater Recharge

Groundwater recharge is the movement of surface water or precipitation through a wetland and into the groundwater system. Early studies found that a substantial portion of the output of shallow vegetated wetlands becomes groundwater, thereby replenishing underground aquifers.

The Adamus method rates riparian wetlands on the project site as moderate to low value for groundwater recharge due to the slowing of Creek flows and the increased opportunity for percolation, even though the heavy clay soils do not allow water to percolate to the groundwater, which is generally well below the surface. The palustrine wetlands are rated as low value; the underlying soils are generally impermeable and do not allow the ponded water to percolate into underlying aquifers.

2. Flood Storage and Reduction

Wetlands reduce flood hazards by delaying the passage of peak storm flows and by storing flood waters and releasing them more gradually than adjacent uplands. Adamus found that wetlands in some areas may reduce flood peaks by as much as 60 to 70 percent. One measure of the value of wetlands for flood protection is found in reports from flood losses in Pennsylvania. The report findings indicate that the two bridges left intact (of hundreds washed out) after severe floods were both immediately downstream of preserved wetlands.

The Adamus method generally rates riparian wetland areas as high value for flood protection. These wetlands can contain substantial amounts of flood water and are heavily vegetated, which slows down flood flows considerably. The on-site wetlands are of moderate value though due to their limited extent and flood capacity. Palustrine wetlands are rated as low value; they contain little more flood water than the surrounding lands, and the vegetation is not significant enough to slow flood waters.

3. Shoreline Anchoring

Wetlands can protect waterway edges through the holding power of the vegetation's fibrous root systems. Early reports found that, after a severe coastal storm, the only areas left relatively undamaged in a coastal study site were those areas inland of marshes. The marsh vegetation was capable of holding soil within the root mass even under severe erosive pressure. Wetlands are typically exposed to extreme events and most marsh plants can act as erosion control agents. In Florida, marsh grasses have been used successfully to deter coastal erosion.

The Adamus method usually rates riparian wetlands as high value for shoreline protection due to the density of the plant cover, which reflects root extent and, therefore, soil holding power. The on-site wetlands have relatively low total cover, though, and many of the trees have been eliminated, reducing the value to moderate levels. Palustrine wetlands generally have only low values for shoreline anchoring due to the lack of substantial vegetation.

4. Sediment Trapping

Many authors have reported on the ability of wetlands to remove sediment and other suspended solids from agricultural and urban runoff. Some wetlands are capable of removing up to 90 percent of the sediment load from flowing water.

Riparian wetlands in low-gradient areas often have high values for sediment trapping due to their low gradient. The on-site riparian wetlands have a relatively low gradient but channelization has eliminated the lower terraces which usually act to receive sediment loads. Palustrine wetlands generally have low values for this function, as evidenced by the absence of sedimentation in these basins.

5. Nutrient Retention

Wetlands improve water quality by storing nutrients within wetland plants or sediments or by converting nitrogen nutrients to gas. Numerous analyses have found that wetlands can remove nutrient compounds from wastewater flowing through the wetlands. One report estimated that waste treatment functions of a marsh can be valued at about $14,000 per acre per year when comparing the treatment capability of wetlands to conventional systems. Riparian wetlands with significant marsh components can act to purify water with even substantial nutrient levels.

Riparian wetlands would often be rated high for this function. The wetlands can suspend flows and reduce nitrogen outputs through trapping and plant use or through conversion to gas. The channelization of the Creek has greatly reduced the ability of the existing riparian system to trap flows. Palustrine wetlands would have a low rating for these values due to the isolation from nutrient-bearing waters.

6. Food Chain Support

Through their conversion of nutrients into plants and plant detritus, wetlands convert pollutants into food for fungi and small invertebrates, which, in turn, are preyed upon by larger organisms such as sportfish and waterfowl. Numerous reports have noted the connection between the "outwelling" of nutrients from marshes and commercially important fisheries and that loss of wetlands leads to game fish population declines.

The Adamus method would usually rate riparian wetlands in this system as high value for this function. The riparian wetlands can provide nutrients in the form of litter, decomposing plant detritus, and invertebrates, which are fed upon by migratory and resident fish. However, the elimination of much of the tree cover has reduced this value considerably. The palustrine wetlands would have a low value. These wetlands provide algae and invertebrates, which are fed upon by migratory shorebirds and waterfowl, but the Adamus method discounts food chain support that is not connected through some form of hydrologic flow to the habitat of the feeding organisms.

7. Fisheries Habitat

Wetlands provide habitat both for adult fish, for feeding and propagation, and for juveniles, primarily for predator avoidance. Several analyses have found that a substantial portion of the commercially important fish of the U.S. utilize wetlands for some portion of their life cycle.

The Adamus method would rate the riparian wetlands as moderate value for this function. Fishing has been observed along Morrison Creek although not in the study reach. The author's observations indicate that low dissolved oxygen-tolerant species are the only likley inhabitants. The palustrine wetlands have low values for fisheries habitat due to their ephemeral ponding.

8. Wildlife Habitat

Wetlands are primarily known for their value to wildlife. The riparian wetlands are important habitats for migratory ducks; shorebirds; game birds such as quail and pheasant; deer; and many other species.

Both the riparian and palustrine wetlands would be rated as high value for wildlife habitat.

9. Active Recreation

Riparian wetlands in the study reach are infrequently used for active recreation (hunting, fishing, boating, etc.). The palustrine wetlands may be used for hunting although no information on such use is available.

10. Passive Recreation and Heritage Values

The Adamus methodology defines this function as the use of wetlands for aesthetic enjoyment, picnicking, education, research, preservation of sensitive species, or the other mostly intangible uses. Due to the low visibility and floral interest, both riparian and palustrine wetlands would be rated as low value.

APPENDIX C

PRELIMINARY HABITAT CONSTRUCTION SPECIFICATIONS

APPENDIX C — Preliminary Habitat Construction Specifications

A. CONSTRUCTION NOTES

1. It is to be understood that all specifications throughout this document are preliminary in nature and are not to be used for bidding purposes.

2. Before actual construction begins, specifications as to detailed quantities, rates, ratios, and/or cultural practices will be required to construct the mitigation program.

3. The order of operations set forth in these specifications is believed to be the most efficient method of constructing this project; however, changes or adaptations to the order of operations may be necessary to allow for weather conditions or other factors.

4. It is imperative that the created and temporarily preserved habitats are not disturbed by grading (defined as nonhabitat construction activities). This includes using these habitats as right-of-ways to transport equipment.

5. Communication and coordination relating to grading activities and habitat construction is essential. Items such as access to sites, turning on or off utilities, stockpiling materials on project sites, or any situation which might affect each other's operations need to be resolved in advance.

6. The applicant will designate a Ecological Monitor (EM) to ensure that the habitat area is constructed as per the approved mitigation plan. The EM will be responsible for certifying that the project has been built in accordance with the approved permit and mitigation program and will monitor all operations occurring in the habitat areas. The name and phone number of the EM will be given to all site project managers for distribution.

7. The EM will attend any pre-job conferences or meetings during construction which are pertinent to the habitat area.

B. ORDER OF OPERATIONS

Each phase of habitat construction shall occur as specified in the following Order of Operations.

1. Overview of Operations

a. Mark Boundaries
b. Mowing
c. Grading
d. Augering
e. Irrigation
f. Planting
g. Seeding
h. Fencing
i. As-Builts

2. Description of Operations

a. Mark Boundaries — The EM will be responsible for having the boundaries of the habitat area located and marked, as well as designating any indigenous material which is to be saved or salvaged. All habitat and salvage areas will be marked so they will be easily identified in the field.

b. Mowing — Mowing requirements will vary from site to site depending on the extent of weeds and grading. Areas with little or no grading will require thorough mowing so that debris will not hamper construction. A flail-type mower will be used and all debris will be mulched thoroughly. The EM will identify mowing needs.

c. Grading — Grading operations must follow local regulations regarding times of operation and dust control as required. All grading will comply with the approved mitigation plan. The EM will monitor grading construction and grade checking.

Any plant material which must be salvaged prior to grading will be done at the direction of the EM. Any excess soil that needs to be transported off-site will be coordinated with the site project manager.

d. Augering — Where planting occurs in low-permeability soils, all plants will require an augered hole for each planting. The EM will be responsible for determining soil permeability and plant locations. Holes for one-gallon or equivalent stock will be augered to a depth of 48" using a 9" diameter auger with larger diameter augers used for larger stock. All holes augered each day will be backfilled by the end of that same workday. All holes will be completely saturated to promote settling of excavated soil. It is the responsibility of the contractor to ensure settling is complete.

e. Irrigation — Irrigation systems will be required to ensure success of new plantings. Each system will require a reduced-pressure backflow assembly which has been approved by the local government. Each backflow assembly must be inspected and tested by a certified backflow technician. All irrigation lines will include a tracer line (#14 UF direct burial for easy identification of line location).

All new plants and cuttings, unless otherwise stated, will be irrigated using a drip irrigation system. Each plant receives its own emitter. Before passing through the polyethylene tubing, all water will be filtered and the pressure reduced. Irrigation main lines and valves will be below grade, however, poly lines may be installed above grade. Six-inch staples or jute hooks will be used to secure poly tubing in place. Staples will be placed every ten feet and one foot on both sides of the planting. All lines must be thoroughly flushed before inserting emitters. Lines will be flushed using flushing end caps. Each emitter must be placed directly over the rootball as the density of the rootball and indigenous soil are quite different. Pressure testing upon completing the main line and valves will be required. Lateral lines will be left on for a period of at least two hours to visually inspect all leaks. Upon completing the irrigation system, the EM will do a final walk through and verify the system is operating correctly.

f. Planting — To the extent practicable and feasible, all plant material used for this site will be collected from material within the same region. Considerations as to the proximity of the gene pools and planted species vary greatly from one plant species to another and the EM shall give direction in this area.

Plants for this site must be collected, propagated, and grown for at least one growing season prior to planting. Plant material will be free from disease, insects, weeds, and will not be rootbound. All plant material will be identified correctly as to genus and species. All plant species and quantities will correspond to the planting plan. No substitutions will be allowed without authorization from the EM. The EM will inspect all plants before planting occurs.

Planting should occur sometime between late fall and early spring. All augered holes should be completely settled so plants will not sink below grade. Holes shall be dug in the soil just big enough to accept the rootball. Osmocote fertilizer 18-6-12 will be dibbled in the hole at the specified rate noted in the planting plan. The plant shall be planted so that the crown is level with grade. The rootball will be covered with 1/4" of soil to prevent wicking effect from drying out the rootball. A two-foot water ring two inches deep and a berm two inches above grade will be centered around the plant. Plant emitters shall be placed directly on top of the rootball and the plant watered thoroughly. All plants shall all be checked for settling and stress. After approval of the planting by the EM, pathway or shredded bark, or similar mulch, will be placed on watering basins to a depth of two inches ensuring not to cover the crown of the plant.

Pole cuttings may be used on certain riparian species. Poles will be 3/4" to 2" in diameter and three feet in length. All cuttings will be taken from first year's wood and be free of disease. Two feet of cutting will be pounded into the ground and soil tamped around the cutting or placed in an augered hole. Six to 12 inches will be left

above grade and the top cut off at a 45 degree angle. Cuttings must be kept moist and planted the same day as they were cut. The EM will monitor the pole cutting operation and give direction as to locations and identification of plant material.

The location of all salvaged material, such as marsh plants which must be transplanted, will be identified by the EM. The method of planting also will be identified by the EM due to variable site conditions.

g. Seeding — The optimal time for all seeding operations is in the fall. Seed failure can be planted any time between fall and spring; however, the earlier the seed is planted, the percentage of seed emergence which becomes permanently established will be much higher. The key will be to get the root zone as deep as possible before summer conditions arrive. The deeper the roots of the seeded material before summer conditions occur, the better opportunities these roots will have to follow the subsurface moisture level downward through the soil.

All seed used on this site will be certified as to germination and purity percentages. Seed will be weed-free and disease-free and follow specifications in the planting plan. No substitutions will be made without advance permission from the EM. All rates and ratios will follow specifications in the planting plan and the EM will inspect all seed, soil preparation, calibration ratios, and phases of seeding operations. Soil preparation and seeding techniques will be adopted for each habitat type and outlined in the appropriate planting plan(s).

h. As-Builts — The EM shall be responsible for preparing grading, planting and irrigation as-builts when each phase of habitat construction is completed. The EM shall certify that the project has been built in accordance with the mitigation plan and transmit the as-builts and certification to the Corps, County and other appropriate agencies.

APPENDIX D

PRELIMINARY MAINTENANCE GUIDELINES

APPENDIX D — Preliminary Maintenance Guidelines

A. MAINTENANCE TASK SUMMARY

All specifications in this maintenance section are general in nature and are not to be used for bidding purposes.

This maintenance section applies to all habitat areas within this project. This plan is based on a five-year schedule to achieve mitigation goals.

1. **Weed Abatement**

   a. Basin control
   b. Native grass area control
   c. Buffer area control
   d. Other areas

2. **Litter Control**

3. **Plant Care**

4. **Irrigation**

   a. Maintenance
   b. Scheduling

B. MAINTENANCE TASK DESCRIPTIONS

1. Weed Abatement

The most significant task on any recently disturbed area will be the control of exotic weeds. The most invasive of these is yellow star thistle (*Centaurea solstitialis*). It is extremely important that exotic weed species be kept under control from the beginning of the maintenance period in an attempt to reduce the seed bank in the soils on site. The EM will be notified in advance before any weed abatement begins. All parties involved in weed abatement tasks will be aware of the mitigation specifications and location of sensitive areas on-site. When mowing with tractor implements, a flail-type mower will be used and a fire extinguisher will be on the tractor at all times.

a. Basin control — Basin control is very important, especially during the first two years of maintenance. Weeds in and around basins will compete for sunlight, water, and

nutrients with the plant. Basins will be kept weed free in a four foot diameter circle centered around each plant. Planted trees and shrubs which are closer than six feet will have a weed free strip between them. No use of weed-eating machinery will occur in or around the crown area of the plant to prevent girdling.

b. Native grass control — The EM will direct the timing of weed abatement as dictated by site conditions and weather. Native grass areas will need to be mowed periodically to promote root growth. Exotic annual grasses in native grass areas will need to be mowed as seed heads are being formed but before seed maturation.

c. Other area controls — Open areas which are to be maintained will be outlined in the planting plan. These areas are to be mowed when the weeds reach two feet in height.

Note: It may be necessary during the first two years of the maintenance period to use integrated pest management techniques and incorporate broadleaf herbicide applications. This may be necessary if invasive exotic weeds become dominant after mowing operations. Herbicide applications will be kept to a minimum. All spraying will be done by and all herbicide use will follow the written recommendations of a California Licensed Qualified Applicator This written recommendation will be kept on file by the EM. No spraying will occur within ten feet of any wetland area.

2. Litter Control

Once a month, the created habitats will be thoroughly inspected. Litter and debris will be removed from the site.

3. Plant Care

Most plants should require little cultural care, except for irrigation and the items listed below.

Plants should be fertilized once in the spring of the second and third years of maintenance. Fertilizer will be dibbled into the basin.

Trees may need to be staked. This decision will be made by the EM. Two eight-foot, pressure-treated stakes, two inches in diameter, will be placed two feet in the ground, one foot on either side of the tree where so directed. One-inch tree-tie tape will be placed in a figure-eight pattern between the tree and stake one foot below the top of the stake.

4. Irrigation

A check of the irrigation system should be done during each watering. All irrigation scheduling decisions will be made by the EM.

a. Maintenance — All drip lines and filters shall be flushed as needed. Emitters must be checked regularly for malfunctions, the position of emitter over rootball, and vandalism. Flushing end caps must be checked regularly.

   Backflow devices and main line systems shall be drained completely at the end of the irrigation season to prevent rupturing due to freezing during the winter season.

b. Scheduling — Irrigation for plantings is a temporary tool to help establish the created habitat. Water will be decreased every year and ideally will not be needed by the fourth year. Watering the plants should not be used to create lush plants, which will become dependent on regular watering. Deep watering, spaced at the longest time possible before plants show signs of stress, will be used. The watering will encourage plant roots to travel downward into water zones in the soil.

GRANITE VINEYARD

ALTERNATIVES ANALYSIS

Zentner and Zentner
Sacramento
Walnut Creek

Prepared for:
Granite Construction Company

Issued: January 18, 1994

Project No. 084 GCC

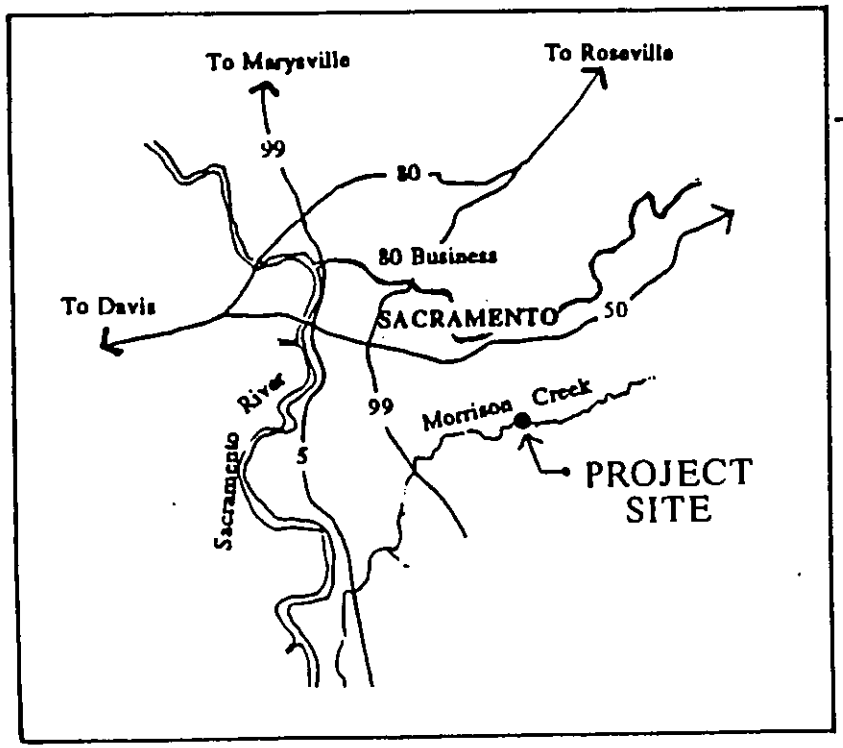
GRANITE VINEYARD

ALTERNATIVES ANALYSIS

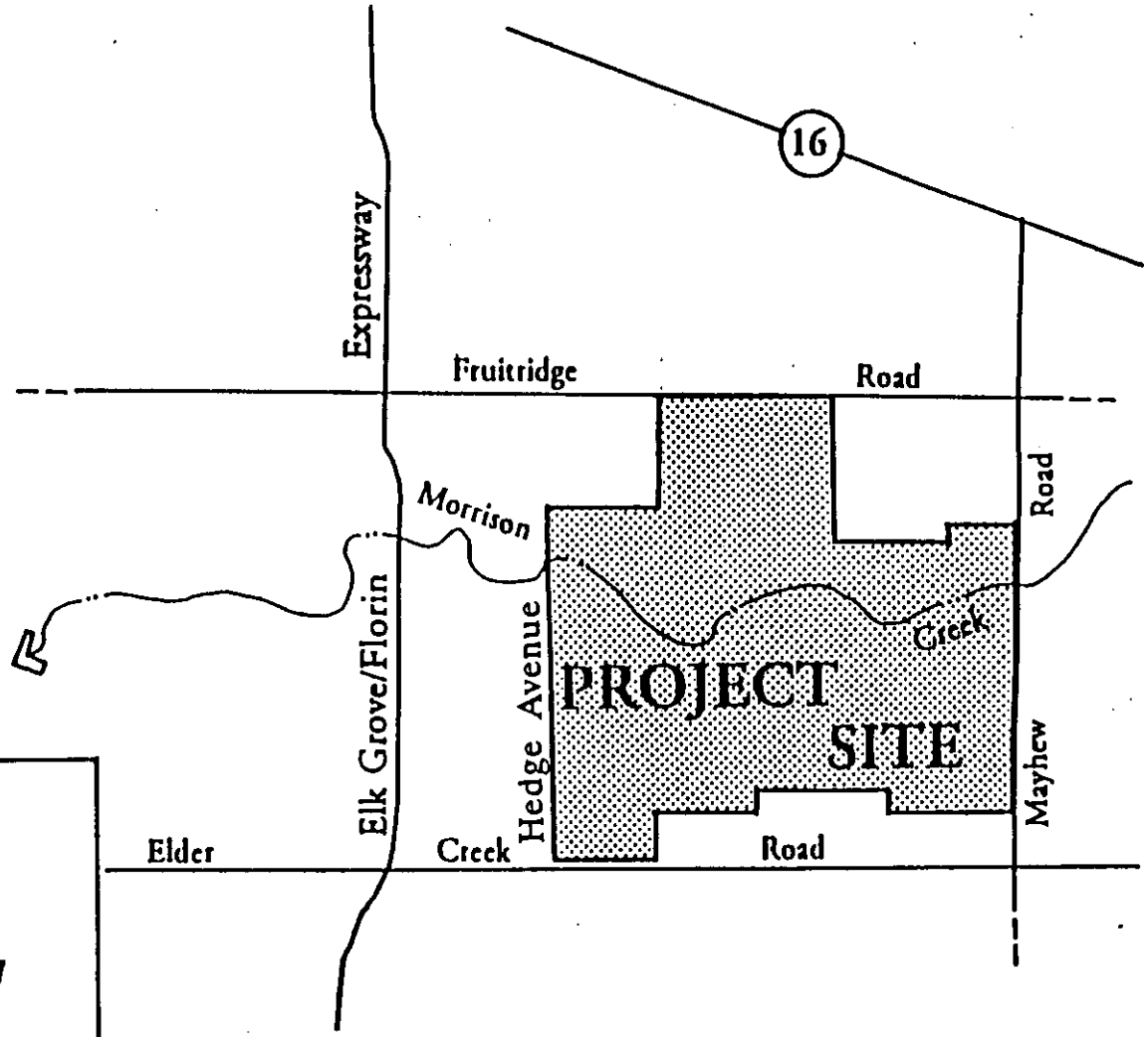
I. Executive Summary

Granite Construction Company has proposed the excavation of 21 million tons (MT) of aggregate from a 403-acre site located southeast of the City of Sacramento in the County of Sacramento (Figure 1) and the Sacramento-Fairfield Production-Consumption Region (Figure 2). The analysis contained in this report reviewed the demand for aggregate in this and adjoining regions and concludes that demand in the Sacramento-Fairfield production-consumption region will outstrip useable supplies within 10 years at current rates of development. Use of alternative sites within the region is not practicable primarily because other minable sites are already either being mined or are planned for production in the near future by either the applicant or a competitor. Additionally, these other sites also are often constrained by combinations of land costs, existing wetlands, and incompatible adjoining land uses. Finally, the recently adopted Sacramento County General Plan (1993) recognizes the importance of these resources and purposefully designates this site as a production location, despite the General Plan's recognition of wetland and other potential constraints, as evidenced by the County-initiated Surface Mining (SM) Combining Zone overlay.

Exclusion of the project site for aggregate production will increase the speed with which alternative sites in other regions will be mined. Use of aggregate from other regions will necessarily increase truck traffic. Mining resources outside the region and trucking them to Sacramento under current conditions will increase CO and ozone emissions by several tons per day. The Sacramento region is currently in non-compliance for ozone and near non-compliance for CO.



REGIONAL LOCATION MAP



VICINITY MAP

Not to Scale

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Location Map

FIGURE 1

Recent rulings in litigation concerning the insufficiency under the Clean Air Act of the 1982 Air Quality Plan for the Sacramento region require preparation by the Environmental Protection Agency (EPA) of a Federal Implementation Plan (FIP) to achieve the National Ambient Air Quality Standard (NAAQS) for ozone. EPA currently is under court order to publish a draft FIP for the Sacramento non-attainment area by February 14, 1994. A final FIP would be promulgated approximately one (1) year later. Under the FIP, Sacramento may be required to achieve NAAQS attainment standards by either 1999 or 2005. In either case, air quality is a significant issue which must be addressed in all land use decisions. The applicant's proposal to construct a conveyor system to transport the mined aggregate to the on-site processing plant will not result in an increase in vehicle emissions, nor contribute to the existing significant noncompliance in the Sacramento region with the NAAQS for ozone.

This Alternatives Analysis has been prepared as required by Section 404(b)(1) of the Clean Water Act in connection with Granite Construction Company's application for an individual permit under Section 404 for the discharge of dredged material into waters of the U.S. Aggregate excavation on the project site will result in the loss of the following jurisdictional areas: 8.29 acres of perennial marsh, and 4.27 acres of riparian woodland associated with Morrison Creek; and 9.39 acres of seasonal marshes isolated from the Creek. In mitigation, the applicant proposes to create 12.62 acres of perennial marsh, 8.76 acres of riparian woodland, 11.74 acres of seasonal marsh (an overall mitigation ratio of 1.5:1), and a 16.12-acre oak savanna. (See *Granite Vineyard Wetland Mitigation Plan [Zentner and Zentner January 1994]* for more detail.)

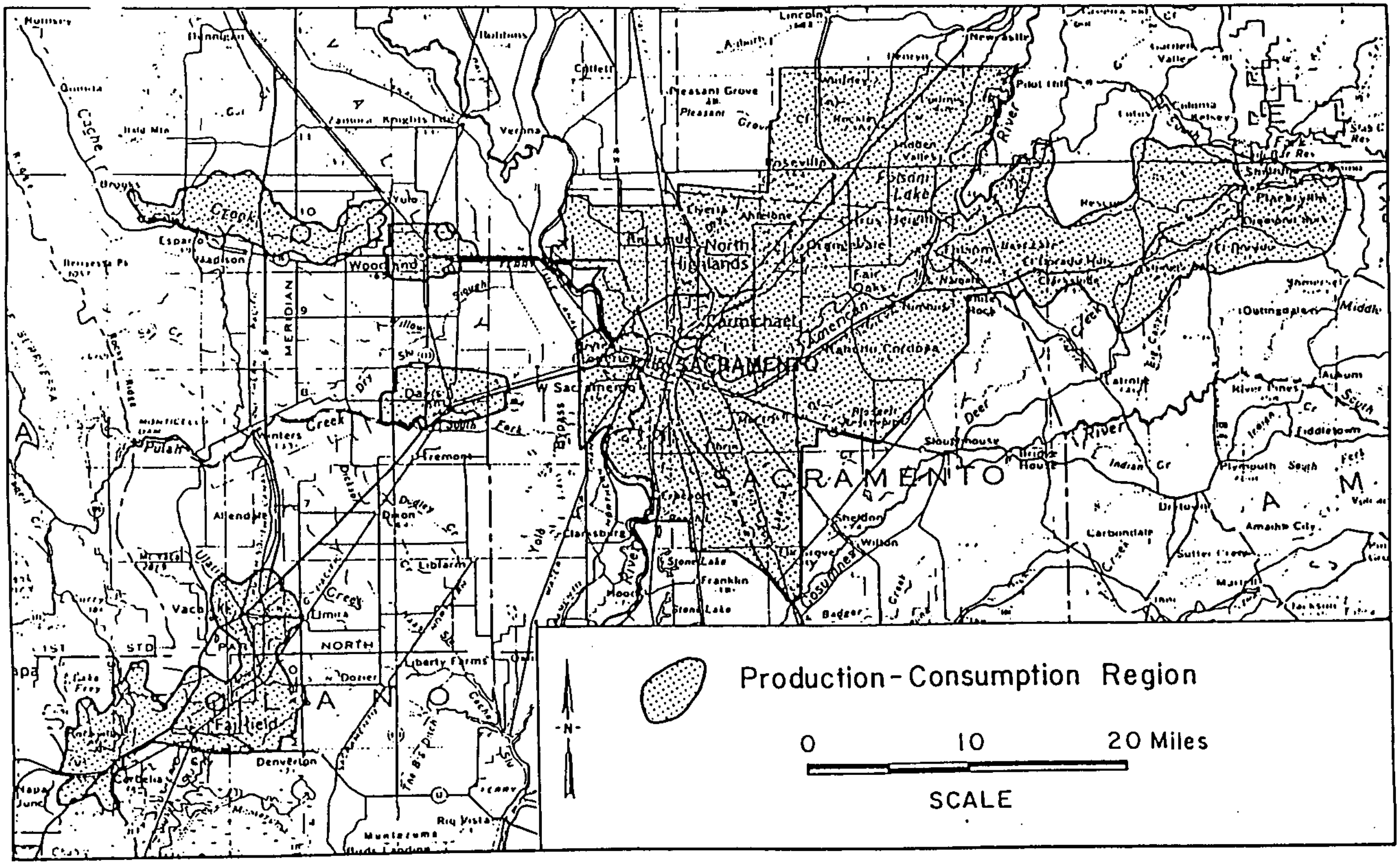


FIGURE 2 The Sacramento-Fairfield Production-Consumption Region Boundaries.

SOURCE: DUPRAS 1985

II. Section 404(b)(1) Guidelines

The 404(b)(1) Guidelines (40 C.F.R. 230) establish the environmental criteria to be used by the Army Corps of Engineers in evaluating Section 404 permit applications. Under the Guidelines, an applicant proposing a non-water-dependent project which results in the discharge of dredged or fill material into "special aquatic sites" (a subcategory of waters of the U.S. which includes wetlands) must demonstrate there is no practicable alternative to the proposed discharge which would have a less adverse impact on the aquatic ecosystem. 40 C.F.R. 230.10(a)(3).

The project purpose is to mine aggregate to meet the growing demand within this region. As demonstrated in this analysis, the proposed project presents the least environmentally damaging practicable alternative. There are no alternative sites or site designs which would result in less overall impacts. The applicant proposes to create a diverse marsh system to mitigate for excavation of the existing Morrison Creek. Habitat values on the site are moderate to low and the proposed mitigation would result in greater habitat values. The project also will not contribute to the further degradation of air quality in an ozone non-attainment area.

III. Aggregate Demand and Available Supplies

A. Aggregate Demand

1. Market Areas

Aggregate demand within the Sacramento area is defined by the State Division of Mines and Geology (DMG) as occurring within the "Sacramento-Fairfield Production-Consumption Region" (Region). Within this Region, the DMG found two primary production centers, one on old deposits of the American River in Sacramento County and the other along Cache Creek in Yolo County. Other production-consumption regions relevant to this report include the San Francisco-Monterey, Stockton-Lodi, and Yuba City-Marysville Regions (cf. Stinson et al, 1986).

2. Historic Demand

Population levels correlate strongly with aggregate demand. Table One shows historic aggregate production, population, and per-capita consumption in the region from Dupras (1985). Annual rate variation over the period examined is due to a number of factors, including interest rates (which influence development and related building activities) and the construction of large public works projects. The average consumption of aggregate in the region is approximately 10.2 tons per person per year. This rate is typical for an urbanizing area but may slow as the region matures (Dupras, 1985).

3. Future Demand

The DMG (Dupras, 1985) used a simple linear regression of the historic record to determine future demand for aggregate in the Sacramento region. Population projections were supplied from 1983 data by the State Department of Finance. Figure 3 and Table Two provide the results.

TOTAL P-C REGION PER-CAPITA CONSUMPTION

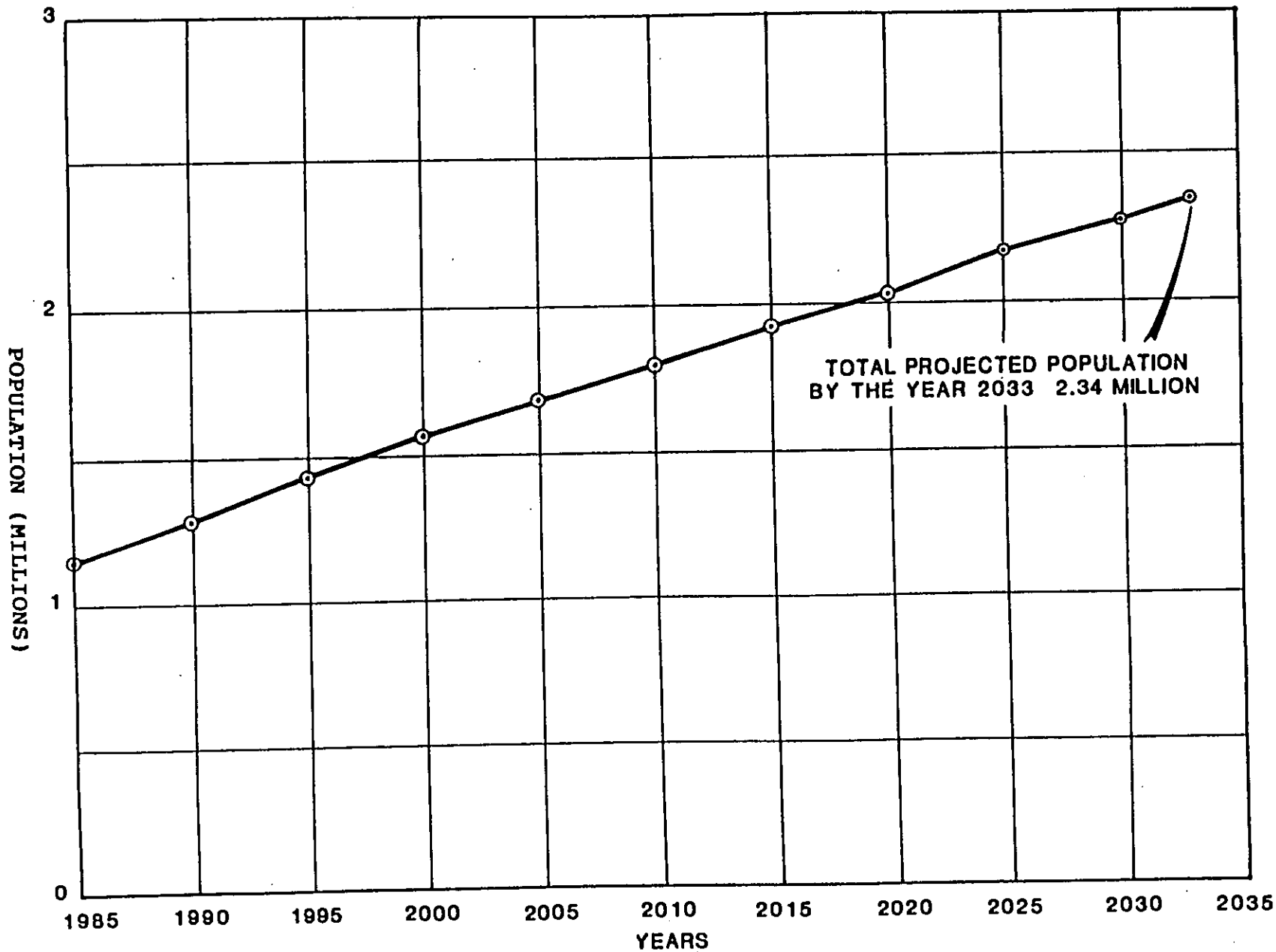
YEAR	TOTAL AMERICAN RIVER PRODUCTION (Tons)	90%** of CACHE CREEK PRODUCTION (Tons)	TOTAL PRODUCTION (Tons)	TOTAL P-C REGION POPULATION	PER-CAPITA CONSUMPTION (Tons/ Person/Yr.
1960	4,308,000	1,301,000	5,609,000	488,000	11.5
1961	5,346,000	1,387,000	6,733,000	515,000	13.1
1962	4,123,000	1,375,000	5,498,000	542,000	10.1
1963	4,679,000 *	1,384,000 *	6,063,000 *	569,000	10.7
1964	5,234,000	1,392,000	6,626,000	596,000	11.1
1965	7,009,000	1,815,000	8,824,000	662,000	13.3
1966	4,965,000	1,753,000	6,718,000	649,000	10.4
1967	5,023,000	1,816,000	6,839,000	676,000	10.1
1968	5,529,000	1,913,000	7,442,000	703,000	10.6
1969	6,387,000	1,933,000	8,320,000	730,000	11.4
1970	5,673,000	2,258,000	7,931,000	756,000	10.5
1971	5,644,000	1,825,000	7,469,000	782,000	9.6
1972	5,836,000	2,354,000	8,190,000	807,000	10.1
1973	4,476,000	3,476,000	7,952,000	832,000	9.6
1974	5,616,000	2,546,000	8,162,000	858,000	9.5
1975	4,422,000	2,207,000	6,629,000	883,000	7.5
1976	4,067,000	2,313,000	6,380,000	908,000	7.0
1977	4,780,000	2,920,000	7,700,000	934,000	8.2
1978	6,205,000	3,106,000	9,311,000	959,000	9.7
1979	7,499,000	4,028,000	11,527,000	984,000	11.7
1980	6,484,000	3,107,000	9,591,000	1,010,000	9.5

AVERAGE P-C REGION PER-CAPITA CONSUMPTION = 10.2 TONS/PERSON/YEAR

* Production data for 1963 is unavailable - these production figures were averaged from 1962 and 1964 production figures and used in Figure 12.

** Roughly 10% of Cache Creek's annual aggregate production is exported outside of the Sacramento-Fairfield P-C Region.

TABLE ONE



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Project Population in the Sacramento-Fairfield P-C Region to the year 2033, based upon data from the State Department of Finance Populations: 1985 through 2020.

Figure B-98

Projected aggregate consumption to the year 2033 for the Sacramento-Fairfield P-C Region. Five-year per-capita consumption = 51 tons/person (one-year per-capita consumption = 10.2 tons/person).

YEARS	*AVERAGE POPULATION (millions)	AGGREGATE CONSUMPTION ALL AGGREGATE (million tons)	AGGREGATE** CONSUMPTION PCC AGGREGATE (million tons)
1983-1984	1.12	22.8	9.1
1985-1989	1.23	62.7	25.1
1990-1994	1.37	70.0	27.9
1995-1999	1.50	76.5	30.6
2000-2004	1.62	82.6	33.0
2005-2009	1.74	88.7	35.5
2010-2014	1.85	94.4	37.7
2015-2019	1.96	100.0	40.0
2020-2024	2.09	106.7	42.6
2025-2029	2.22	113.2	45.3
2030-2033	2.32	71.0	28.4

TOTAL AGGREGATE	=	**888.6 million tons**
TOTAL PCC AGGREGATE	=	**355.2 million tons**

* Population projections for the years 1985-2020 were obtained from the California Department of Finance Report 83-P-3. Population projections for the years 2020-2033 were projected be a linear-regression analysis from data in Report 83-P-3.

** Approximately 40 percent of the aggregate consumed 1960 to 1980 was PCC quality.

TABLE TWO

SOURCE: DUBRAS 1985

Average Population and Consumption for 5-Year Periods in the American River Resource Area

5-Year Period	Average Population Each Year	Consumption @8.5 Per Capita Rate
1985-1990	1,046,000	44,455.000 tons
1990-1995	1,176,000	49,980,000 tons
1995-2000	1,302,000	55,335,000 tons
2000-2005	1,420,000	60,350,000 tons
2005-2010	1,533,000	65,153,000 tons
2010-2015	1,644,000	69,870,000 tons
2015-2020	1,752,000	73,440,000 tons
2020-2025	1,848,000	78,540,000 tons
2025-2030	1,937,000	82,323,000 tons
2030-2035	2,030,000	86,275,000 tons
Total consumption needs to year 2035		**666,000,000 tons****

**Total reserves available	47.9 million tons
Total likely resources	161 million tons

Note: If depletion takes place at the uniform rate of 6.7 million tons per year (see preceding page), depletion of reserves projected to occur by the end of 1992; depletion of resources projected to occur by the end of 2009, but only if all likely resources remain available.

TABLE THREE

SOURCE: DUPRAS 1985

In their review of aggregate use, P.K. Morton and Associates (Morton) (1986) used an average of 8.5 tons per person per year (Table Three). This figure was derived from a division of the region into two sub-regions at a line running approximately north-south from Davis. The lower consumption figure of 8.5 tons per year for the eastern portion of the region (generally Yolo County) is offset by a much higher per capita use of 21.4 tons per person per year in the western portion of the region (generally Sacramento County). The average of the two areas, 10.2 tons, was used by Dupras for the DMG forecasts of future consumption while Morton used the lower consumption figure of 8.5 tons.

The lower average use figure may be more realistic. Habel and Campion (1988) found the Yuba City-Marysville Region to have an annual average consumption of 5.4 tons. Jensen and Silva (1988) found the Stockton-Lodi region to have an annual average consumption of 8.5 tons.

Morton also used a lower population growth rate for the Sacramento area than Dupras (compare Tables Two and Three) based on more recent (1985) Department of Finance data. Their findings differ from Dupras significantly. For example, demand for the period 2005 to 2010 is described as 65 MT by Morton and 88.7 MT by Dupras. Morton's assessment appears to be more realistic, primarily due to a more appropriate consumption per capita ratio and more accurate population projections.

B. Aggregate Supply

Aside from in-County sources, Sacramento County also receives aggregate from the Cache Creek area in Yolo County (which is included within the Region) and the Yuba River area. Cache Creek is approximately 28 miles west of Sacramento and the Yuba fields are approximately 40 miles north. Figure 4 shows production distribution patterns from the current producers as described by Dupras (1985).

Dupras (1985) estimated that the PCC-Grade aggregate resources (the resource grade required by Cal Trans and others in specifications for roads and other aggregate-based improvements) in the region are 320 million tons. These

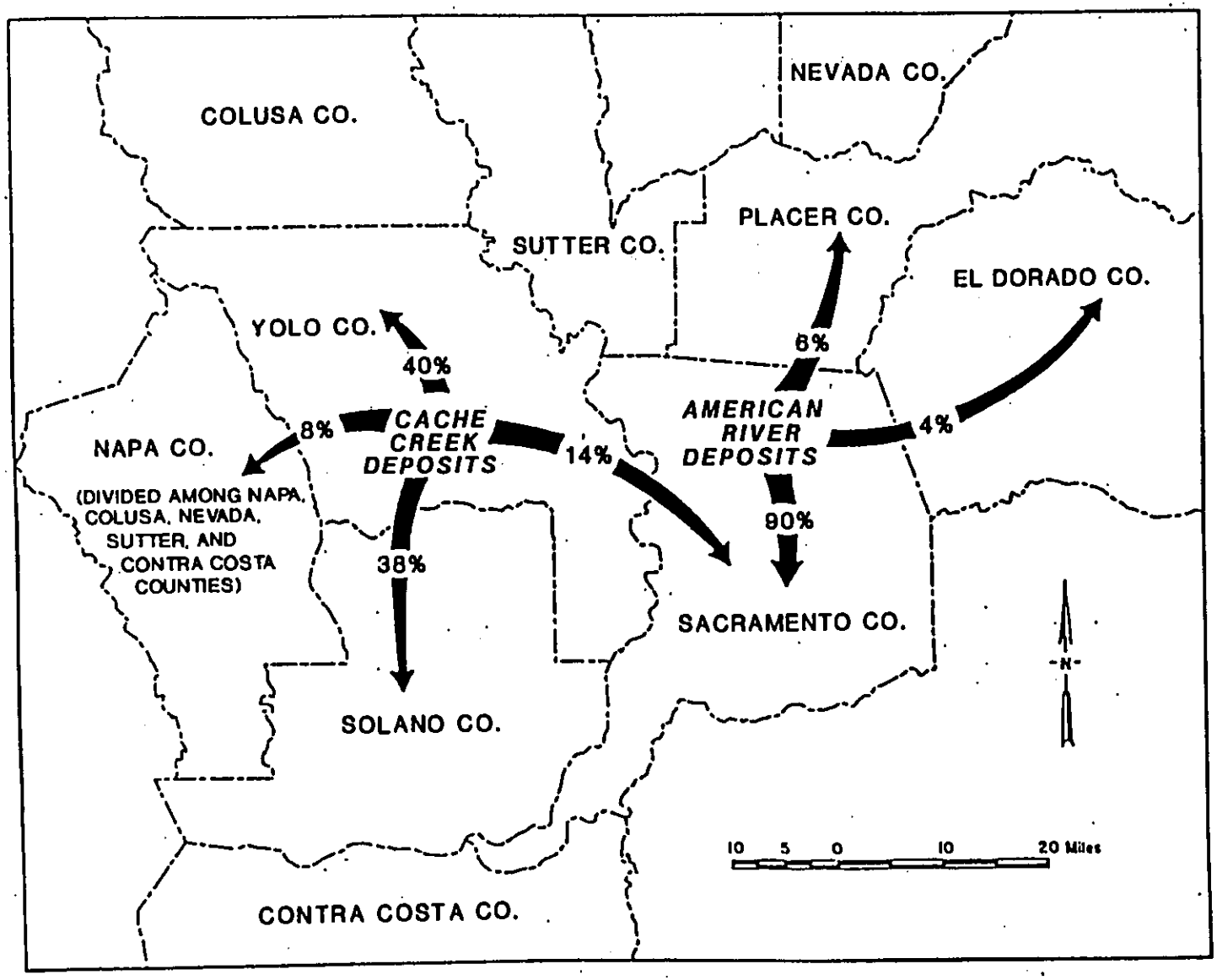

FIGURE 4

American River and Cache Creek Aggregate Marketing Distribution Patterns, Generalized Over the Past Decade

ZENTNER & ZENTNER

reserves are divided almost equally between "questionable resources" and "likely resources". Likely resources are those occurring in areas already permitted for mining or which have few constraints to mining. Questionable resources are those which are controversial due to environmental impacts or which are likely to be impracticable to mine for other reasons.

C. Supply and Demand: A Summary

Figure 5 shows the relationship projected by Morton (1986) between presently available reserves (the "likely resources" of Dupras) and maximum available resources (the "questionable resources" of Dupras). As shown by the 1986 table, consumption was expected to outstrip the supply of presently available reserves by 1992; however, the economic recession over the past several years has greatly reduced construction and related aggregate consumption. Since publication of the 1986 Morton report, several small parcels have been permitted for additional surface mining. Presently available reserves are now projected to last until 1996. Assuming additional reserves are permitted for mining, Figure 5 shows that the maximum available resources would be depleted by 2010.

The recently revised Sacramento County General Plan (Conservation Element) also reviewed these aggregate consumption figures. The General Plan concluded that the general production and consumption data is still accurate, although the General Plan further concluded that more current consumption rates would exhaust known resources by 2004 rather than by 2010 (Sacramento County, 1993).

CONSUMPTION AND DEPLETION PROJECTION OF GREATER SACRAMENTO AREA

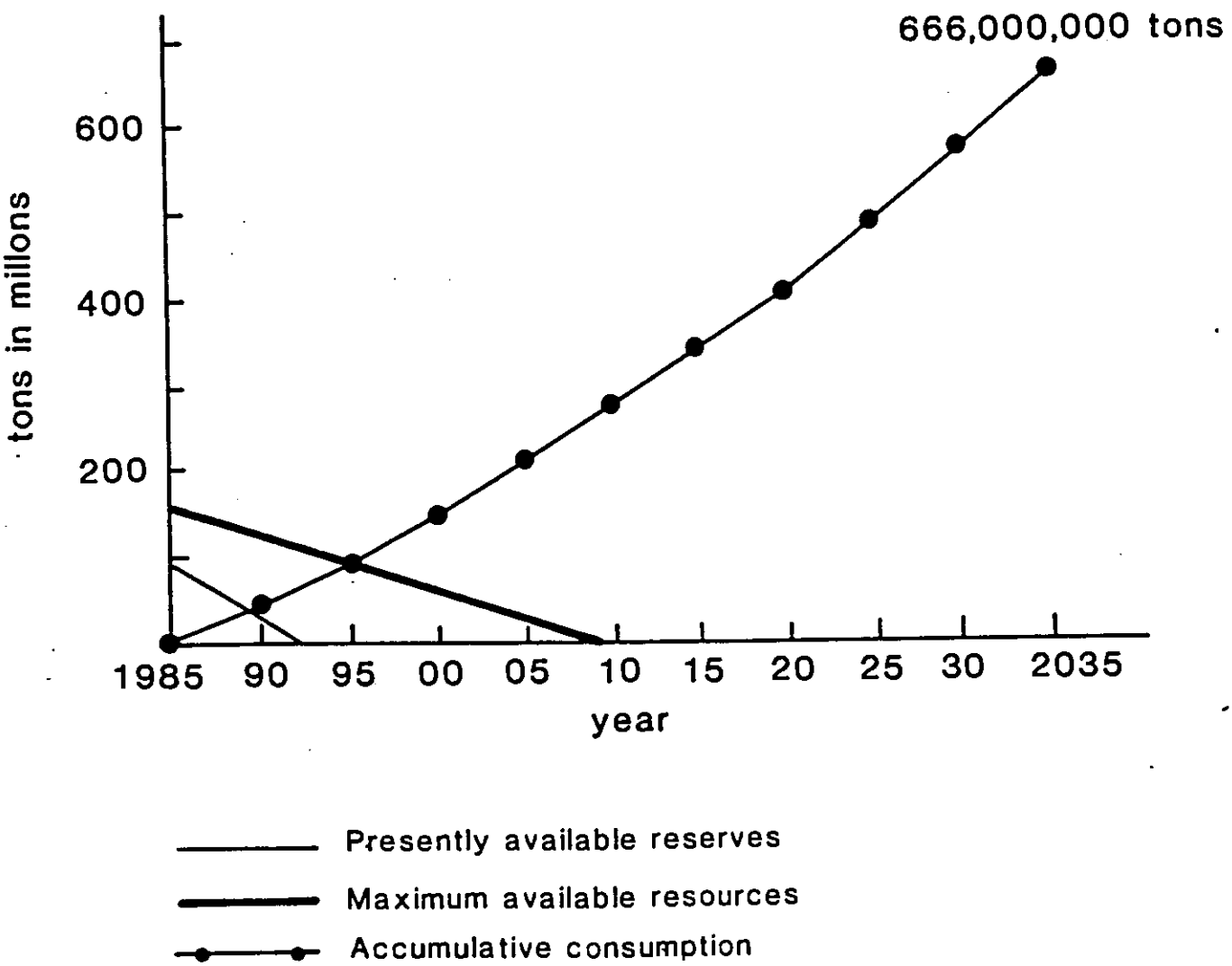

FIGURE 5

SOURCE: PK MORTON & ASSOC. 1986

IV. Alternative Sites and Project Design

A. Alternative Sites Within the Region

1. Introduction

Areas within the Region which contain aggregate resources were identified by the State (Dupras, 1983)[1] and listed as "Sectors" (see attached oversize Figure A), and further reviewed during the recent Sacramento County General Plan update. The following discussion of each Sector examines minable resources, incompatible adjoining land uses, existing mining patterns, and wetland resources, and relies upon data generated by Morton (1986) and recent site reviews by Zentner and Zentner.

Generally, minable areas are divided between "reserves" (aggregate sources presently permitted and available) and "resources" (reserves plus those aggregate sources judged to be commercial in quality but not presently permitted for mining). The analysis below provides both figures where they differ. Unless noted, these are both "Likely Resources" (those occurring in areas presently permitted for mining or judged by DMG and Morton to have few impediments to mining) and "Questionable Resources", which include those sources considered to be controversial for some reason or which lack enough data to be classified as "Likely".

Wetland habitats are classified as either minor, significant, or highly significant based on the extent of the wetlands and the degree of degradation. For example, extensive coverage (10 to 30% of the total site) by vernal pools with relatively sharp borders would be termed "highly significant". Incompatible land uses are noted by type and by the density of the adjacent uses. Where a site already has been mined, no notes on other criteria are provided.

---

[1]Sector maps were updated in 1988, however, no significant revisions (and no changes relevant to this analysis) were made to these maps.

Not noted in this summary are air quality effects of mining. The project site contains 21 MT of aggregate. As aggregate trucks typically haul 22 tons of material, this site represents a potential total air quality impact of: 6,242,727 grams of CO (6.9 tons); 2,424,544 grams of hydrocarbon (2.7 tons); and 12,628,630 grams of NOx (13.9 tons) per mile of transport. However, this project proposes a conveyor system for transporting the mined resources to a relocated on-site processing plant. Therefore, no vehicle emissions will result. Other potential mining sites most likely would require truck transportation of the resource to area processing plants. Consequently, every ton of aggregate not mined at the project site and mined at other sites farther away from the processing plants (which could not be accessed via conveyor) could contribute significantly to the degradation of air quality.

2. *Sector Analysis*

Sector E

206 acres of dredge tailings in and along Humbug Creek near Blue Ravine Road in Folsom. Considered separately from the resources found in Sector E-2 (see below) as these are defined as "Questionable Resources" due to the proximity of housing. Resources are 8.4 MT but local ordinances place strict controls on mining within City of Folsom limits (*e.g.*, permits for surface mining and reclamation activities require approval of 2/3 of the qualified electorate)[2]. Highly significant wetland (riparian) resources occur amongst the tailings. A sophisticated mining program might provide for wetland avoidance, but such avoidance would significantly reduce minable resources.

Sector E-2

Owned by American River Aggregates. Resources are 1.1 MT. Minor wetland (riparian) habitats occur with the tailings which make up most of this resource. No ownership or land use conflicts.

---

[2]*See* Folsom Municipal Code Chapter 17.97; Chapter 17.60, Section 17.60.070.

Sectors F-1, 2, and 4

309 acres considered "Questionable" due to the high percentage of fines in the resource and close proximity of dense housing. Resources are 16.1 MT. Morton (1986) note that these sectors are divided among 25 owners with parcel sizes as small as 2 acres. Parcelization, aside from making acquisition almost impossible, has decimated most of the wetland habitat (vernal pools and seasonal marshes) which likely occurred on the surface. Current habitats are limited and significantly affected by adjacent development.

Sector F-3

277 acres owned by Teichert; largely depleted (resources were 11.8 MT).

Sector F-5

228 acres mined by Granite. Resources are now exhausted.

Sector F-6

752 acres; 107 acres owned by Sacramento Aggregates and largely depleted; the majority of the remaining acreage owned by Teichert and Granite. Reserves are 4.9 MT; resources are 39.1 MT. Includes the project site (approximately 54% of the sector) which contains minor riparian and seasonal wetland habitats.

Sector F-7

253 acres mined by Teichert. Resources are 5.3 MT. The site has been graded and now contains minor wetland resources.

Sector F-9

210 acres owned by Granite. Resources are exhausted.

Sector F-11

1,281 acres owned by Granite, Teichert and H.C. Muddox. Resources are 53.5 MT. Highly significant wetland (vernal pool and seasonal wetland) habitats exist on-site. No ownership or land use conflicts. Portions of the sector (approximately 130 acres) are depleted. Three companies are currently mining this resource.

Sector F-12

370 acres owned by Teichert. Resources are 15.4 MT. Highly significant wetland (vernal pool, seasonal wetland) habitats exist on-site, with oaks along the channel. No ownership or land use conflicts.

Sector G-1

485 acres owned and currently mined by RMC Lonestar. Resources are believed to be less than 2.0 MT. Dredge tailings. The site has been mined and surface graded.

Sector G-2

335 acres owned and currently mined by RMC Lonestar. Resources are believed to be 3.0 MT. The eastern two-thirds of the site has been surface graded. No ownership or land use conflicts exist.

Sector H-2

289 acres considered "questionable" because this sector is adjacent to relatively intense commercial uses. Industrial development activities have been initiated by the landowner. Resources are 11.1 MT. Significant wetland (vernal pool and seasonal wetland) habitats exist on-site.

Sector H-5

Already mined.

Sector I

1,067 acres considered "questionable" due to the relatively large size of the overburden layer and the relatively thin layer of aggregates. Resources are 34.2 MT. Highly variable with regards to wetland habitats. Some subsectors, *e.g.*, I-3, have highly significant wetland (vernal pool) habitats while others, such as I-2, have been farmed and all wetlands eliminated. This sector is comprised of multiple parcels of relatively small acreages. Acquisition would be expensive while permitting and harvesting would be difficult due to the large number of landowners both within, and adjacent to, this sector.

Sector J

This sector is a part of the American River Parkway. The Department of the Interior designated the Parkway a "National Recreational Trail" and the River as a "Recreational River", precluding mining activities.

Sector K

Same as Sector J.

Sector L

This sector owned by the Bureau of Reclamation (BOR). Reserves are 0.5 MT; resources total 10.5 MT. Highly significant wetland (riparian) habitats. Some mining on Mississippi Bar is now occurring through a lease with BOR.

Sector M

166 acres southeast of Roseville. Listed as questionable as a previous operator could not economically produce PCC-Grade materials from the site and housing developments have been built directly adjacent to the site. Resources are 6.9 MT. Minor wetland (riparian) habitats found scattered throughout the area.

3. *Summary*

Table Four provides a summary of the sector analysis.

TABLE FOUR

Alternative Sites Summary

Site	Ownership	Wetland	Land Use	Resource (MT)
E	x	HS	x	8.4
E-2	o	minor	o	1.1
F1,2,4	x	minor	x	16.1
F-3	o	SIG	o	11.8
F-5	--	--	--	mined
F-6	o	minor	o	4.9
F-7	o	o	o	5.3
F-9	o	o	o	1.0

F-11	o	HS	o	53.5
F-12	o	HS	o	15.4
G-1	o	o	o	10.7
G-2	o	minor	o	4.4
H-1	x	minor	o	84.1
H-2	x	SIG	x	11.1
H-5	--	--	--	mined
I	o	SIG	x	34.2
J	x (American River Parkway)			
K	x (American River Parkway)			
L	x	HS	o	10.5
M	o	minor	x	6.9

KEY: "o": no appreciable constraint
"x": appreciable constraint
"minor": minor wetland habitats on-site
"SIG": significant wetland habitats on-site
"HS": highly significant wetland habitats on-site

The Region currently holds up to 120 MT of Likely Reserves or 280 MT of Reserves and Questionable Resources. An analysis of alternative sites within the Region shows sufficient resources only until shortly after the year 2000 (Figure 4). Many of these alternative sites also are constrained in some fashion by ownership, wetland resources, or adjacent incompatible land uses.

This data has been reviewed recently and validated by the updated Sacramento County General Plan. The Plan identifies the remaining minable areas as important resources that should be developed as aggregate mining sites to reduce potential future impacts. Permitting the mining of existing resources in the County would postpone the date by which out-of-Region resources would need to be trucked into the Region to meet the projected demand. That postponement not only would delay the corresponding air quality impacts (due to increased vehicle emissions from truck transportation of the aggregate resources), but also would allow air quality improvement measures proposed by Sacramento County as part of the updated General Plan to take effect and ameliorate the adverse impacts of increased truck traffic.

B. Alternative Sites Outside the Region and Along Cache Creek

Three sites, two outside the Region and one within the Region but some distance to the west, potentially could provide or do provide aggregate to Sacramento. These include the Yuba gold fields tailings deposits to the north, the Bear River deposits to the east, and within the Region, the Cache Creek deposits. Areas south of Sacramento County, in the Stockton-Lodi Region, were not examined since this area is projected to run out of PCC-Grade aggregate by the year 2004 (Jensen and Silva, 1988). Areas to the west, in the San Francisco-Monterey Region, were not examined since this region also is projected to run out of aggregate materials between 1999 (south SF Bay) and 2030 (north SF Bay) (Stinson et al, 1986).

1. The Yuba Fields

The Yuba gold fields consist of the tailings deposits found along the Marysville River near Yuba City north of Beale AFB. Total resources in this region are 2.3 billion tons (Habel and Campion, 1988).

Current production is limited to 1 MT yearly by plant and mining capacities. In the only new mining proposal, project sponsors have proposed mining aggregate and shipping the product via a new rail line through Beale AFB. The time required to negotiate plant construction, the extension of the rail

line, and all permit-related elements dictate that aggregate will not be available from this site for at least 12 to 20 years (Omni-Means, 1989). Additionally, the cost of this new proposal most likely will raise the price to Sacramento consumers by $4.00/ton or more.

2. *Bear River*

The Bear River deposits are well known for their production of specialty "salt and pepper" stone used in landscaping. Patterson Aggregates has proposed expanding its operation to mine resources from the Bear River and truck them to the Roseville area and Sacramento. Current reserves are unknown.

Increased mining at this site would create substantial wetland impacts. The proposed plan of operation would eliminate a riparian corridor on the river. Truck traffic would be routed to Roseville via Camp Far West Road and then over Highway 65 through Sheridan and Lincoln, adding about 50 miles to the distance currently traveled by aggregate operators currently servicing this area. Omni-Means (1989) estimates that this operation would add 42,500 tons of NOx, 21,000 tons of CO, and 8,100 tons of organic hydrocarbons per year, severely violating ozone standards.

3. *Cache Creek*

Six aggregate companies currently operate in or along Cache Creek. The quality of the aggregate at the mining sites is good to excellent. Haul distances are relatively long, 20 to 40 miles to the general Sacramento market.

A 1979 Yolo County ordinance will not permit mining below the "theoretical thalweg" of the 1979 stream channel; however, recent surveys by the Yolo County Aggregate Producers' Association indicate that less than 4 million tons of reserves are currently available above the thalweg (Morton, 1986).

Local demand in the Fairfield area is projected to exhaust the permitted Cache Creek reserve by 1995.

4. *Summary*

Aggregate supplies outside the Region and along Cache Creek do not appear to be likely sources of significant supplies in the near future. It is likely, however, that the resources in the Yuba gold fields will be mined as prices increase in the Sacramento area. Every ton of material taken from this area to Sacramento increases air pollution significantly (see the above discussion). Consequently, mining all available resources in the Region before looking outside the Region to meet demand will reduce short-term air quality impacts and assist in long-term improvement of air quality. Further, transporting these resources from outside the Region will increase construction and related development costs. These increases ultimately will be passed on to the consuming public.

C. Alternative Project Designs

The proposed project consists of mining the entire site to the extent allowable under current regulations. Alternative project designs necessarily include reducing the extent of mining in response to various competing objectives, *e.g.*, wetland preservation.

Two factors argue against reduced surface mining on this site. First, as noted above; total regional resources are now about 120 MT of likely resources and about 280 MT of likely plus questionable resources. Projected demand for the Region is expected to be about 666 million tons over the next 50 years (see Figure 4). As demand exceeds local production, the truck traffic will significantly increase, worsening local traffic and air quality.

Sacramento is now a non-attainment area for ozone. Plans being prepared through the AQMD may bring the region into compliance within the next 10 to 15 years if current air quality projections are met. However, these projections do not take into account significant increases in truck traffic from outside the region. Consequently, where aggregate resources are recoverable within the Region in locations with lower value wetland habitats, these resources should be fully mined.

The second factor presents a logistical issue. Where the perimeter of the mined area contracts, the volume of aggregate resource left untouched also expands due to the preservation of the slopes needed to reduce slope erosion and hazardous conditions. In the case of this project site, the wetland resources are located in almost the center of the site. Preservation of the main stem of the Creek alone, and the creation of sideslopes to protect the Creek from adjacent mining, would eliminate a horizontal width of at least 260 feet through the center of the site, almost 25% of the total resource on-site.

V. Conclusion

The mining proposal for the Granite Vineyard site provides an opportunity to supply aggregate necessary to meet the projected demand, while minimizing air quality impacts and impacts to valuable biological resources (*i.e.*, wetlands). The proposal includes a conveyor system to transport the mined aggregate to a relocated on-site processing plant, thereby avoiding an increase in vehicle emissions. Although jurisdictional areas on the site (Morrison Creek and associated perennial marsh and riparian woodland, and isolated seasonal marsh) ultimately will be impacted by the proposed mining operation, these areas have been rated as moderate to low value. Mitigation efforts shall commence prior to any impacts to these areas and the re-created Creek and associated habitats will provide higher value wildlife habitat than currently exists on the site. As discussed in this analysis, the proposed project presents the least environmentally damaging project. There are no alternative sites or site designs which will result in less impacts to either air quality or biological resources.

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WETLAND MITIGATION PLAN

Aspen IV South

TEICHERT AGGREGATES

SACRAMENTO COUNTY

Prepared for:

U.S. Army Corps of Engineers
Sacramento District

Sacramento County

California Department of Fish and Game

13 October 1994

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ENVIRONMENTAL CONSULTANTS

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Appendix D: Prevalence Index Calculation
Appendix E: Wetland Compensation Plan (1"=200)

SECTION 1.0 | *SUMMARY*

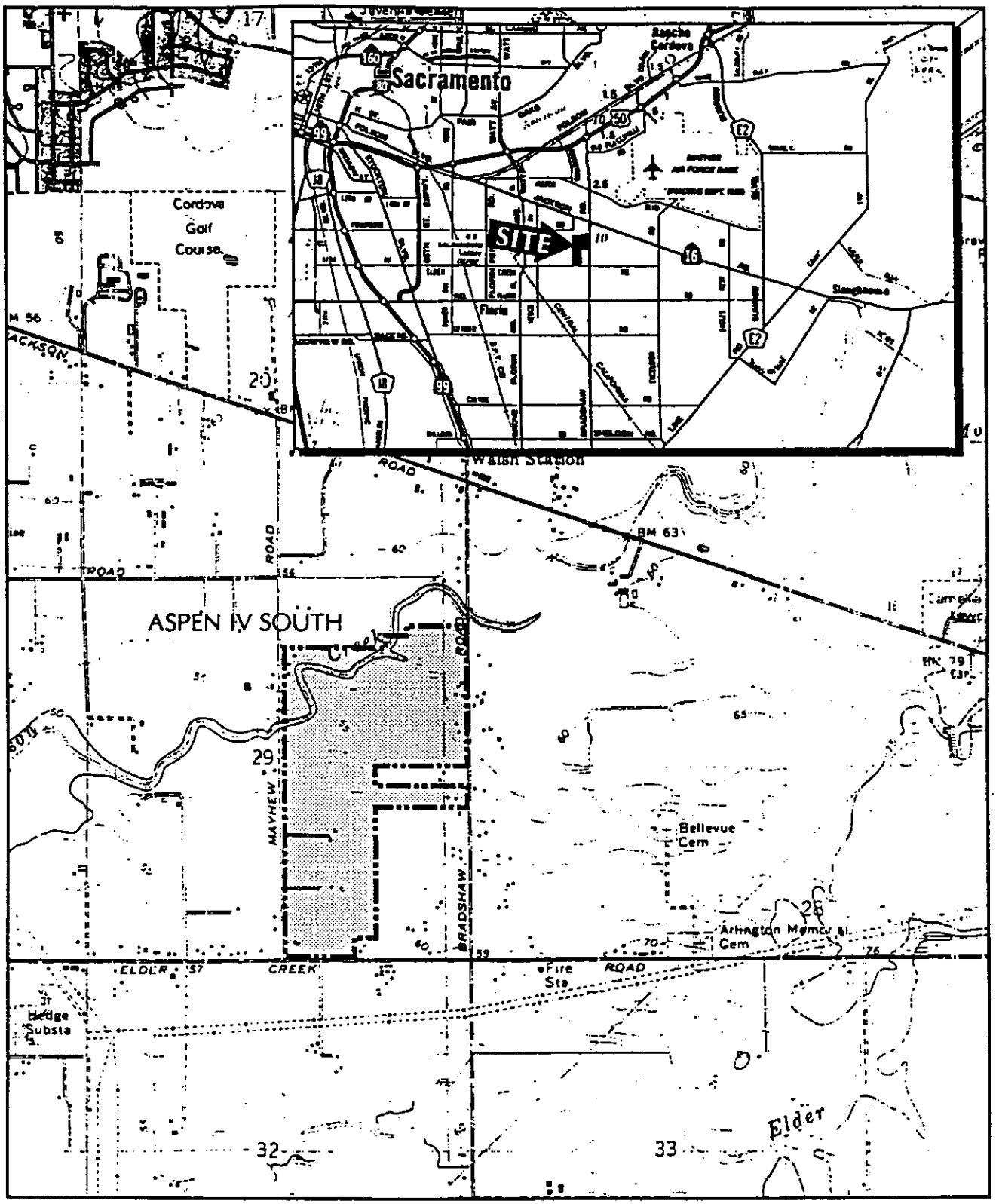
This wetland mitigation plan is submitted to address wetland impacts of the proposed mining of the ±180-acres Aspen IV South property (Figure 1-1) and to support an application for an Individual Permit to fill wetlands and waters under Section 404 of the Clean Water Act. Wetland mitigation will take place within the Aspen IV South site. Approximately 24 acres of the reclaimed pit floor will be preserved as open space/wetlands compensation area. The project is designed to mitigate for impacts to wetlands and Waters of the U.S. by providing no net loss in wetland acreage and wetland functions consistent with U.S. Army Corps of Engineers and Sacramento County policy. Table 1-1 summarizes impacts to waters of the U.S. and compensation acreages for those impacts.

Table 1-1. Waters of the U.S. Acreage -- Impacts and Compensation

Type	Impact	Compensation
Morrison Creek	1.09	--
Drainage Channel	0.44	--
Low-Flow Channel	--	0.20
Wetlands		
Seasonal Wetland	0.25	--
Emergent Marsh	--	2.44
Total:	1.78	2.64

Key elements of the mitigation plan are outlined below:

- A total of 2.44 acres of emergent marsh and 0.20 acres of low-flow channel will be constructed within a creek corridor (600 feet wide). This emergent marsh and channel are intended to compensate for impacts to 0.25 acres of seasonal wetlands, 1.09 acres of intermittent/perennial stream, and 0.44 acres of drainage channels.



PROJECT SITE AND VICINITY

FIGURE 1-1

SCALE IN FEET 0 1000 2000

"Carmichael Quadrangle" USGS 7.5 minute topographic map.

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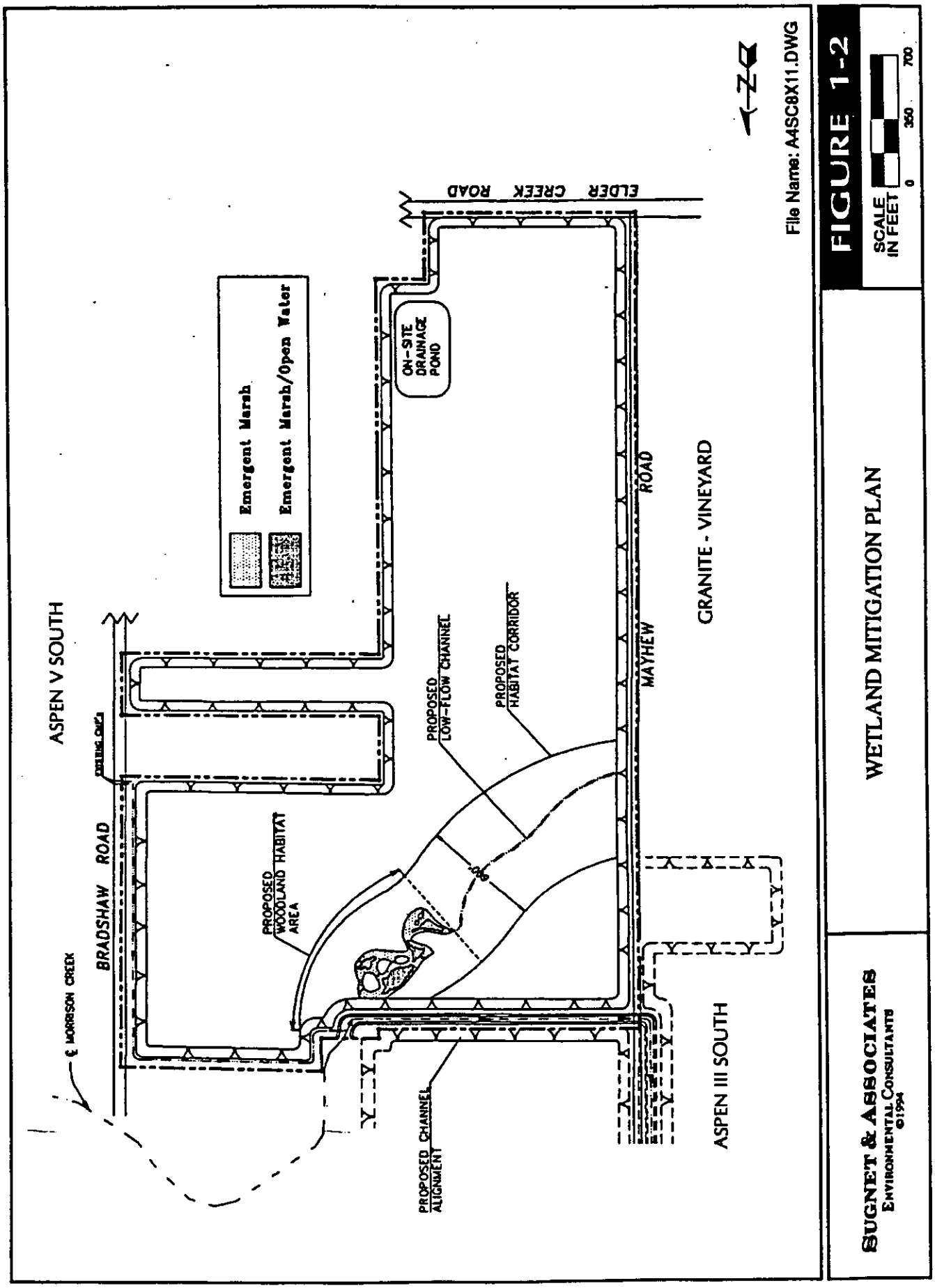
- All flows entering the site from Morrison Creek will be carried within an at-grade bypass channel. A creek corridor will be set aside within the reclaimed pit floor to provide habitat functions similar to existing creek habitats. The creek channel will be allowed to meander within the floodplain defined by the creek corridor. Wetland habitats will be supplied by low-flow diversions from the bypass channel.

- A woodland habitat area of ±6.5 acres will be developed within the creek corridor to compensate for losses to the limited woody riparian vegetation found on site.

- These elements are illustrated in Figure 1-2.


ASPEN V SOUTH
BRADSHAW ROAD
℄ MORRISON CREEK
PROPOSED WOODLAND HABITAT AREA
PROPOSED LOW-FLOW CHANNEL
PROPOSED HABITAT CORRIDOR
PROPOSED CHANNEL ALIGNMENT
Emergent Marsh
Emergent Marsh/Open Water
ON-SITE DRAINAGE POND
ELDER CREEK ROAD
MAYHEW ROAD
GRANITE - VINEYARD
ASPEN III SOUTH
File Name: A4SC8X11.DWG
FIGURE 1-2
SCALE IN FEET
0
350
700
WETLAND MITIGATION PLAN
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SECTION 2.0

INTRODUCTION

PROJECT DESCRIPTION

Teichert Aggregates intends to mine Aspen IV South, a ±180-acre site in Sacramento County, California. The subject property is an irregularly shaped parcel located west of Bradshaw Road, east of Mayhew Road, and north of Elder Creek Road (Figure 2-1).

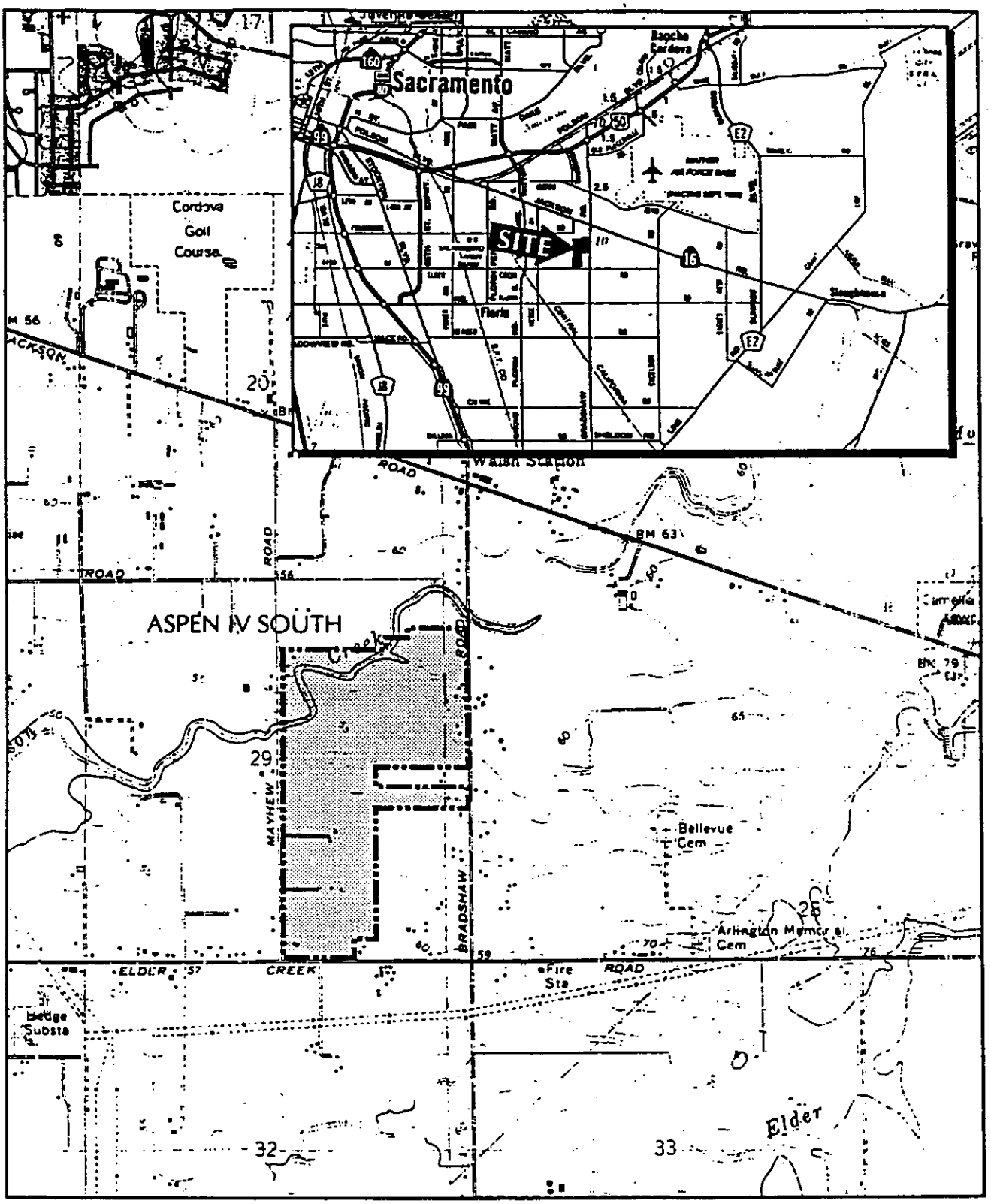
The purpose of the project is to mine aggregate resources on the site to a depth of approximately 30 to 40 feet below existing site grade. At the completion of each phase of mining, the overburden (soils overlying the aggregate) will be replaced and the area reclaimed for agriculture and/or wetland mitigation. Due to the existing hydrologic conditions on the site, restoration and enhancement of Morrison Creek will include construction of an at-grade bypass channel. Compensation emergent marsh habitat and a channel within a 600'-wide habitat corridor will be constructed on the reclaimed pit floor.

An assessment of wetland, hydrologic, and other sensitive biotic resources was conducted prior to the development of mining plans (Sugnet & Associates, 1991). The major wetland resources on the project site include isolated seasonal wetlands and Morrison Creek. Morrison Creek, because it only carries winter/spring flows, supports limited aquatic plant life. Only a few sparse pockets of riparian vegetation occur along Morrison Creek.

This mitigation plan is designed to compensate for unavoidable impacts to existing wetlands and Waters of the U.S. on the Aspen IV South site with the goal of no net loss of total wetland habitat. Impacts to wetlands currently on site will be mitigated on portions of the site after the mitigation areas are mined and reclaimed.

The objectives of this wetland mitigation plan are:

- Compensation for project impacts to aquatic habitat.
- Development of a significant open space corridor.
- Long-term preservation of aquatic habitat.



PROJECT SITE AND VICINITY

FIGURE 2-1

SCALE IN FEET 0 1000 2000

"Carmichael Quadrangle" USGS 7.5 minute topographic map.

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EXISTING CONDITIONS

A wetland delineation of the project site was conducted in accordance with U.S. Army Corps of Engineers Methodology (U.S. Army Corps of Engineers, 1987). This delineation was field checked by Karen Shaffer of the Corps of Engineers on August 25, 1994 (Appendix).

A map of wetlands found on the project site is presented in Figure 2-2. Table 2-1 summarizes wetland type and acreage for the site.

- LAND USE

This rural site has primarily been used for agriculture, including row crops, irrigated pasture, and other farming activities. Several existing homes are located on the site.

- HYDROLOGY

Morrison Creek

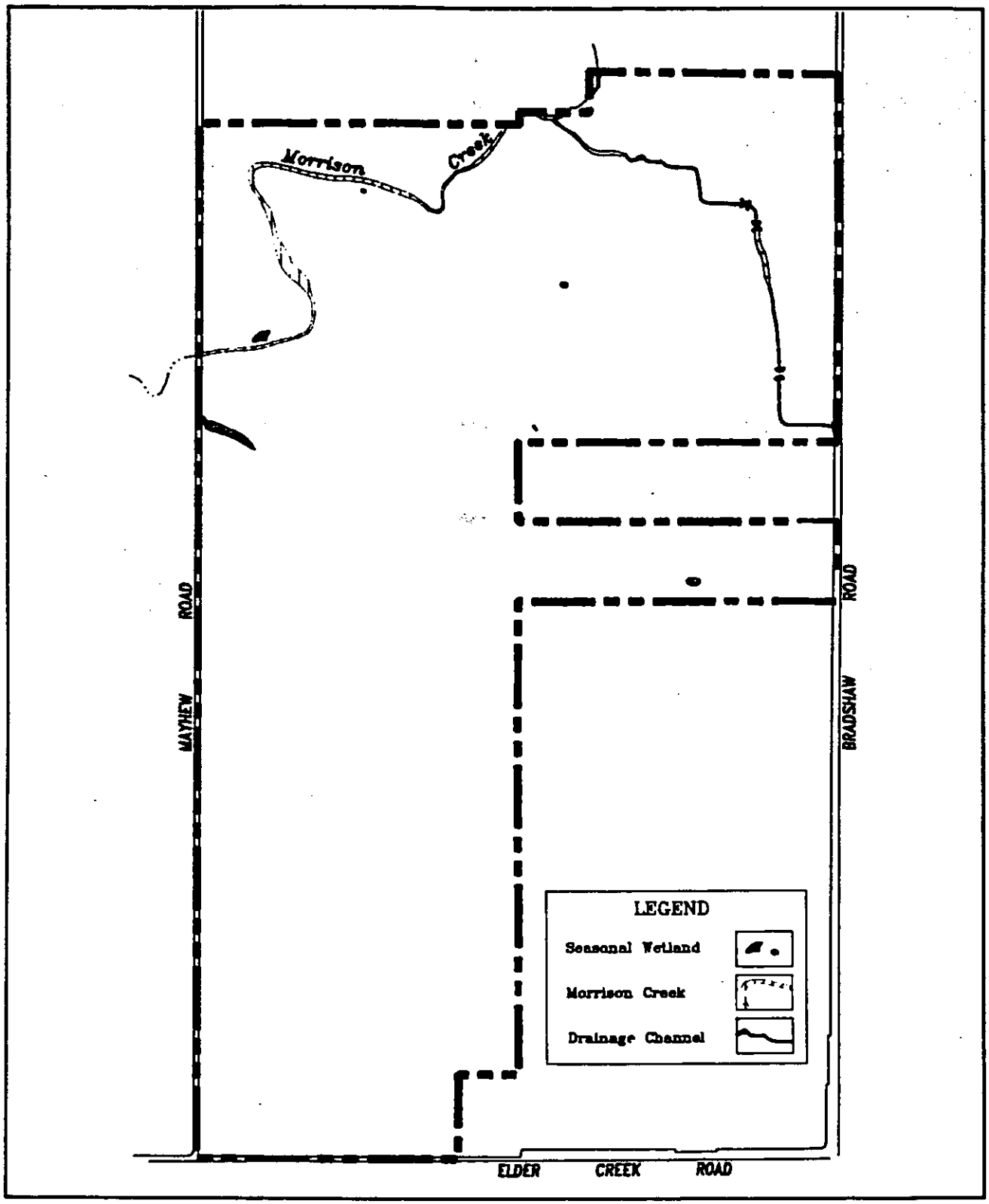
Entering from the middle of the northern boundary, Morrison Creek angles across the northwest corner of the site, draining off the property at Mayhew Road. Morrison Creek is joined on site by a small tributary which carries irrigation runoff from nearby properties.

Groundwater

In the vicinity of the site, groundwater flows to the southwest. The direction of flow is caused by a large cone of depression southwest of the project site where ground water levels have been lowered due to intensive pumping. The water table occurs roughly from -30 to -10 feet (MSL) in the vicinity of the site. Since the elevation of the pit floor after excavation would be no lower than 6 to 12 feet (MSL), the mining operation would not intersect the water table.

Table 2-1. Waters of the U.S. -- Existing Acreages

Type	Acres
Morrison Creek	1.09
Drainage Channel	0.44
Wetlands	
Seasonal Wetland	0.25
Total:	1.78



WETLAND DELINEATION

FIGURE 2-2

SCALE IN FEET 0 300 600

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File Name: A4SWD811.DWG

Precipitation

Precipitation in this portion of Sacramento County averages approximately 18 inches annually, occurring as low to moderate-intensity rainfall primarily during the period from November through April.

- SOILS

The project site is located on soils that formed in residuum from riverbank formation (alluvium). The soil survey of Sacramento County (USDA, Soil Conservation Service, 1990) maps five different soil types on the project site (Figure 2-3). Summary SCS descriptions follow:

118 Columbia sandy loam, drained, 0 to 2% slopes, occasionally flooded.

Drainage:	Poor
Permeability:	Moderately rapid
Water Capacity:	Moderate
Hydric Components:	Yes
Depth to hardpan:	Not Available
Uses:	Irrigated crops

157 Hedge loam, 0 to 2% slopes.

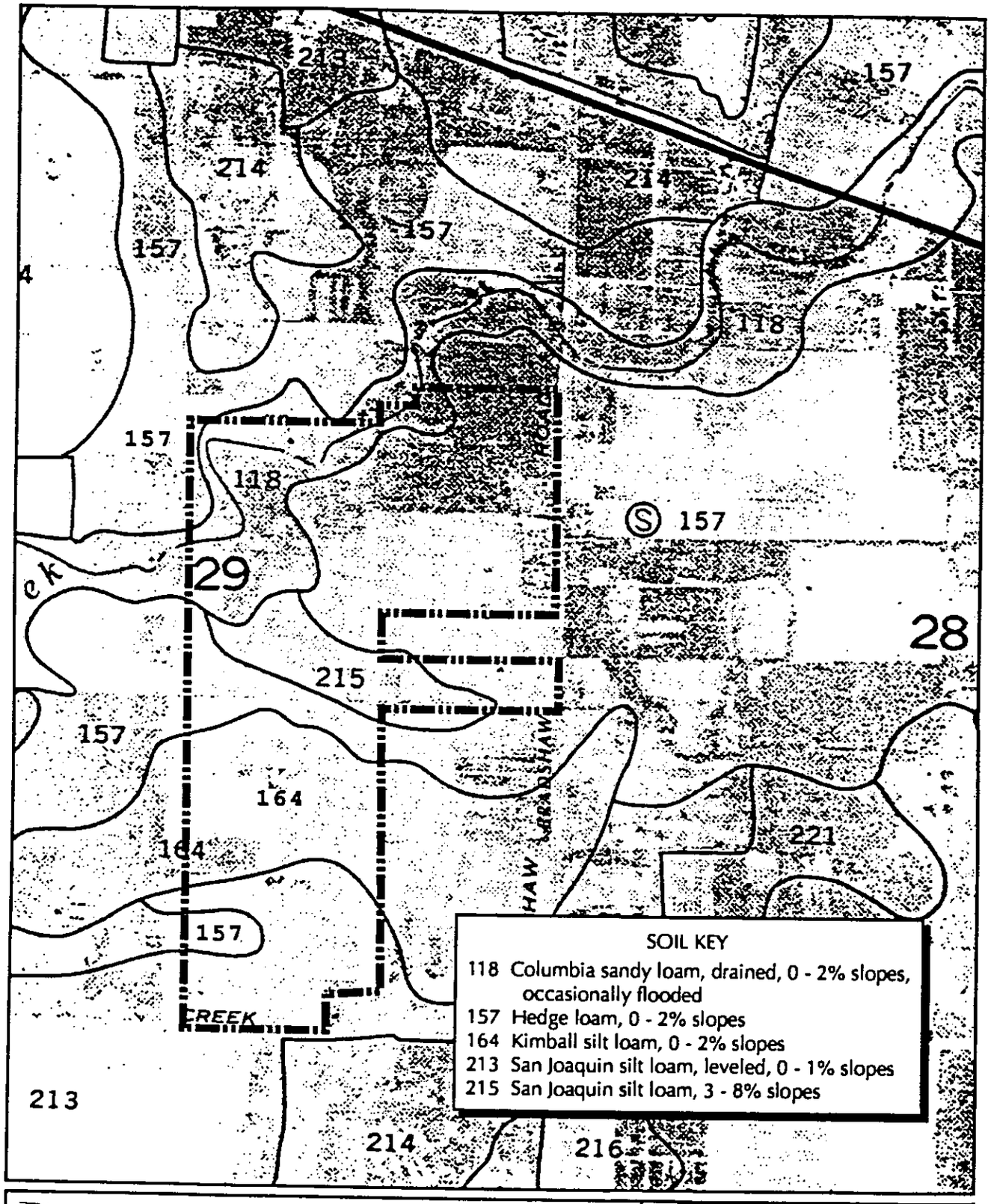
Drainage:	Moderately well-drained
Permeability:	Moderately slow
Water Capacity:	Low - moderate
Hydric Components:	No
Depth to hardpan:	20-40 inches
Uses:	Rangeland/Dryland crops

164 Kimball silt loam, 0 to 2% slopes.

Drainage:	Well-drained
Permeability:	Very slow
Water Capacity:	Moderate
Hydric Components:	No
Depth to hardpan:	40-60 inches
Uses:	Irrigated crops

213 San Joaquin silt loam, leveled, 0 to 1% slopes.

Drainage:	Moderately well-drained
Permeability:	Very slow
Water Capacity:	Low
Hydric Components:	No
Depth to hardpan:	23-40 inches
Uses:	Irrigated crops



SCS SOIL TYPES

FIGURE 2-3

SCALE IN FEET 0 500 1000

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SCS Soil Survey, Sacramento County

WMP: Aspen IV South

215 *San Joaquin silt loam, 3 to 8% slopes*

Drainage:	Moderately well-drained
Permeability:	Very slow
Water Capacity:	Low
Hydric Components:	Yes
Depth to hardpan:	23-40 inches
Uses:	Rangeland/Dryland crops

- VEGETATION AND WILDLIFE

The primary vegetation type on the project site is annual grassland, including pasture and irrigated pasture. Other vegetational components of the project site include scattered patches of riparian scrub along Morrison Creek and isolated seasonal wetlands. Lists of plant and wildlife species found on-site are included in the Appendix.

Annual Grassland/Pasture

This community comprises approximately 90% of the entire project site. Common species include ripgut brome, soft chess, wild oat, Italian ryegrass, foxtail fescue, quaking grass, lupine, cranesbill, and vetch. Areas to the north have been used for livestock grazing, while areas to the south have been used for crop production.

Grassland habitat supports a low diversity of wildlife species, providing limited cover for small mammals such as field voles, jack rabbits, deer mice, and pocket gophers. These mammals attract predators such as northern harriers, red-tailed hawks, black-shouldered kites, American kestrels, gopher snakes, rattlesnakes, and coyotes. Species that use grasslands for feeding but require other habitats for cover or nesting include the red-tailed hawk, Brewer's blackbirds, yellow-billed magpie, and western kingbird. Other animals inhabiting annual grassland at the site include western fence lizard, western meadowlarks, horned lark, killdeer, and finches.

Seasonal Wetland

Seasonal wetland habitat occurs within the annual grassland as swales and shallow depressions underlain by slowly permeable soils. Vegetation in these areas is dominated by low-growing grasses and annual herbs including ryegrass, barley, and hyssop loosestrife. All seasonal wetlands on site have been highly disturbed by normal agricultural practices, particularly disking and livestock grazing. Habitat value to wildlife is only marginally different than the adjacent annual grassland.

Riparian Scrub

Three areas of riparian scrub occur along portions of Morrison Creek. The western portions contains several blackberry thickets and two large valley oaks. The northern area of the creek supports a variable stand of riparian scrub vegetation of which blackberry, valley oak, willow, and eucalyptus are the main components. The remainder of the creek lacks woody vegetation.

The riparian scrub community provides cover, foraging grounds, and nesting habitat for a variety of wildlife species. Species that may inhabit the blackberry thickets include blackbirds, song sparrows, California quail, white-crowned and golden-crowned sparrows, cottontails, opossums, striped skunks, and raccoons. The willows, oaks, and other riparian species may provide cover, foraging and breeding habitat for species such as rufous-sided towhee, northern oriole, western kingbird, and northern flicker. Red-tailed hawks and great horned owls were observed in the tall Eucalyptus trees in the northern riparian scrub area.

Special-Status Species

There are no special-status species known to occur in Waters of the U.S. on the project site.

WETLAND FUNCTIONS "IMPORTANT TO THE PUBLIC INTEREST"

The Corps of Engineers Regulatory Policy (33 C.F.R. parts 320-330) identifies wetland functions which are considered "important to the public interest" (33 C.F.R. Section 320.4(b)(2)). Realizing that "methods or determining the effects of a discharge," or "assessing the functions of wetland," fail to satisfactorily address the administrative and technical requirements of the program, the Corps has recently published *A Conceptual Framework for Assessing the Functions of Wetlands* (TR WRP-DE-3) (Smith, 1993). The report outlines a conceptual framework and organizational structure for developing a method to assess the functions of wetlands which satisfies the administrative and technical requirements of the 404 Regulatory Program (Smith, 1993). The following functions and their associated benefits are outlined in Smith's publication. Sugnet & Associates has further observed that these functions can be further grouped based upon where and how the functions occur and the benefits are received, as follows:

1) **Functions which occur in wetlands, but are really features of the watershed as a whole:**
   - **Floodwater storage and/or conveyance**
   - **Groundwater recharge**

Any upland area within a watershed or adjacent to a waterway can potentially carry floodwater or infiltrate groundwater. Many wetlands fulfill these functions well, but jurisdictional wetland status is not a prerequisite to the function.

2) **Functions which occur at waterway margins, coincidentally by wetlands:**
   - **Storm surge buffer**
   - **Shoreline stabilization**
   - **Streambank stabilization**

These functions, by definition, occur at the margins of waterways. The presence of a wetland at the margin can be an effective means to fulfill these functions, but non-wetland features (such as non-erosive bedrock) could fulfill these functions as well.

3) **Functions which benefit downstream waterways:**
   - **Groundwater discharge**
   - **Nutrient removal / detention / transformation**
   - **Contaminant removal / detention / transformation**
   - **Sediment removal / detention**
   - **Production export and fisheries nursery**

These functions are normally specific to wetlands. Their primary benefits are realized not within the wetlands themselves, but within waterways adjacent to or downstream from the wetland. These functions result in improved downstream water quality, perennial flow during the dry season, and/or contribute to support of downstream food chains and biodiversity.

4) **Intrinsic Wetland Functions:**
   - **Maintenance of Biodiversity (including Special-Status Species)**
   - **Setting for Cultural Activities (including recreation, education, aesthetics, archeology, history)**

These functions are not only specific to wetlands, but can be quite specific to wetland type. The benefits of these functions are realized directly within the same wetland.

SITE-SPECIFIC ASSESSMENT OF WETLAND FUNCTIONS

The functions and benefits of the wetlands at the Aspen IV South site have been identified using an evaluation of site-specific conditions. The indicators identified in *Wetland Evaluation Technique* (WET, Adamus, 1987), and *A Guide to Wetland Functional Design* (Marble, 1990) were utilized in conjunction with calculations of measurable features and the professional judgement of wetland biologists to perform this evaluation.

- **Floodwater storage and/or conveyance**

Flood control is a significant need in the Morrison Creek drainage basin. A flood control project is a high priority item for the County of Sacramento, in order to protect existing downstream developments. Future development, both up and down stream, will require floodwater storage, either on an individual project basis or in a regional planning context. The present creek configuration does not provide significant overbank storage or hydrologic delay.

- **Groundwater recharge**

Groundwater recharge is an important issue in the Sacramento area, where groundwater depletion and uncertainty of long-term supply are pressing concerns. The Aspen IV project site is located in an area where the groundwater elevation has been substantially depressed by years of pumping in excess of recharge. The presence of impervious layers at the surface, however, limits the potential for groundwater recharge in this area.

- **Storm surge buffer**

This is a function of wetlands located in coastal areas or on the margins of large lakes. It is not relevant to this site.

- **Shoreline stabilization**

This is a function of wetlands located in coastal areas or on the margins of large lakes. It is not relevant to this site.

- **Streambank stabilization**

Vegetation along the banks of Morrison Creek is generally sparse, providing little bank stabilization. Morrison Creek and its tributary drainage have distinctly incised channels in this reach, indicating long-term active erosion.

- **Groundwater discharge**

No evidence of groundwater discharge exists at this site.

- **Nutrient removal / detention / transformation**

This function results from the presence of broad, shallow, vegetated areas, preferably with a constricted outlet, resulting in extended hydraulic retention time and substantial contact between water and actively growing vegetation. This reach of Morrison Creek does not include any such configuration. Seasonal wetlands will tend to retain whatever nutrients they receive, but their very small watersheds limit the overall value of this function.

- **Contaminant removal / detention / transformation**

This function requires a similar wetland configuration as does nutrient removal, although the vegetation need not be actively growing. This project site does not include any such configuration.

- **Sediment removal / detention**

This function requires a either a similar wetland configuration as nutrient removal, or the presence of sufficiently deep pools to encourage physical settling. This project site does not include any such configuration.

- **Production export and fisheries nursery**

Morrison Creek is dry during summer and fall, greatly limiting its value as a fishery. Seasonal wetlands exhibit neither production export nor fisheries functions due to their lack of outlets and seasonal nature.

- **Maintenance of Biodiversity (including Special-Status Species)**

Morrison Creek contributes to local biodiversity as a seasonal water source for local wildlife, and also provides wildlife habitat in the riparian scrub zones. The seasonal wetlands are typically dominated by non-native grasses and forbs.

- **Setting for Cultural Activities (including recreation, education, aesthetics, archeology, history)**

Public access to these wetlands is not presently allowed. No known cultural or historical resources are present.

These functions are summarized for the Aspen IV South site in Table 2-2.

Table 2-2. Summary of Wetland Functions

Function	Extent	Measurement / Indicator
Floodwater storage/conveyance	Slight	Minimal spreading configuration
Groundwater recharge	Absent	Clay and hardpan soils
Storm surge buffer	Absent	Not relevant to this site
Shoreline stabilization	Absent	Not relevant to this site
Streambank stabilization	Slight	Sparse streambank vegetation
Groundwater discharge	Absent	Not relevant to this site
Nutrient removal	Absent	Lacks required configuration
Contaminant removal	Absent	Lacks required configuration
Sediment removal	Absent	Lacks required configuration
Production export	Slight	Infrequent water and minimal wetland vegetation in portions of Morrison Creek.
Maintenance of Biodiversity	Slight	Seasonal Wetlands
Setting for Cultural Activities	Absent	No public use

SECTION 3.0

WETLAND MITIGATION PLAN

PROJECT IMPACTS

- WETLANDS TO BE EXCAVATED

Proposed mining operations will result in the excavation 1.09 acres of Morrison Creek, 0.44 acres of drainage channel, and 0.25 acres of seasonal wetland (Table 3-1). Impacts will occur over the 3-5 year life of the project, and mitigation for these impacts will be initiated during preliminary reclamation of the creek corridor area.

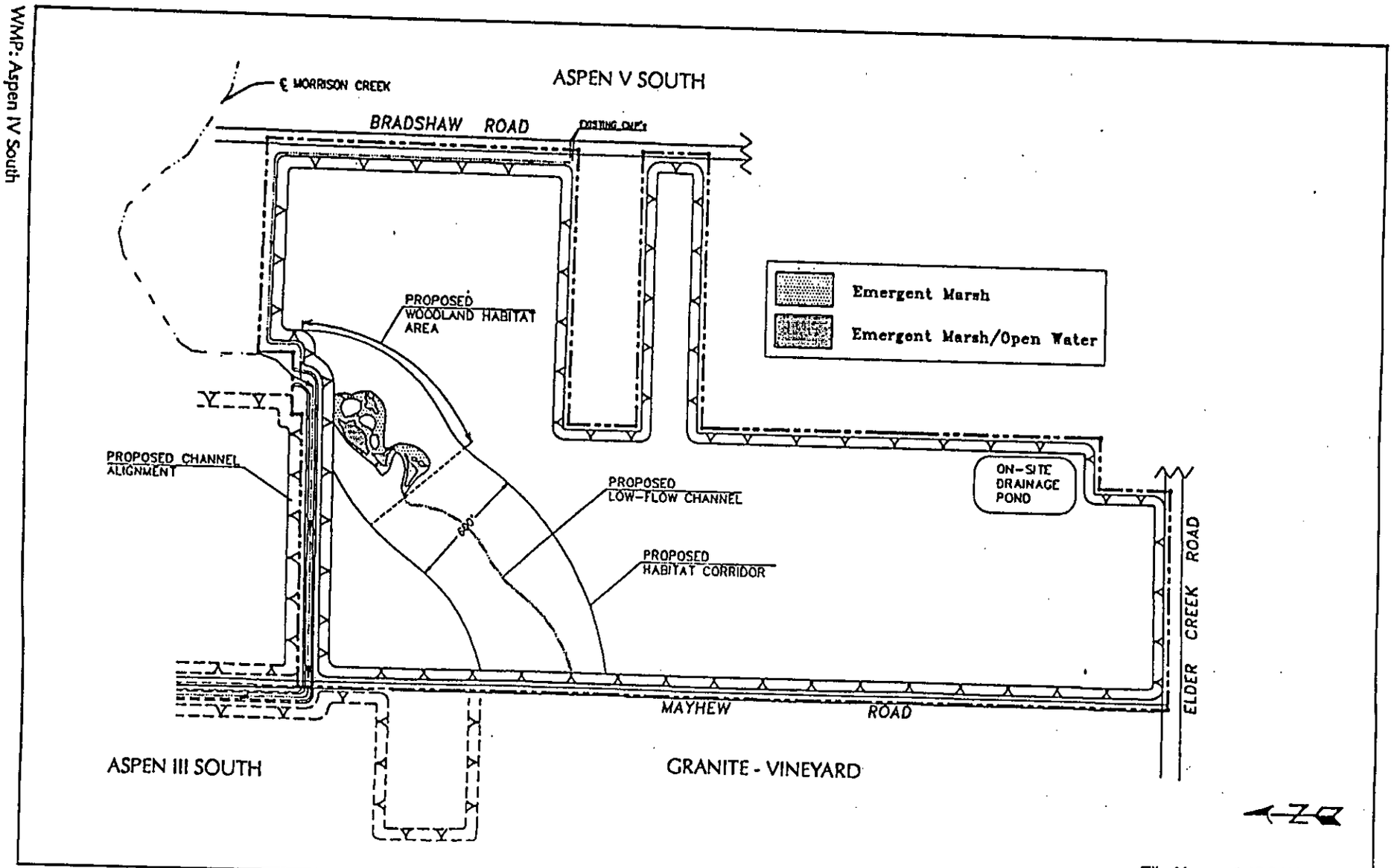
MITIGATION PLAN

The conceptual wetland mitigation plan (Figure 3-1) is designed to result in no net loss of wetland acreage or function consistent with Corps of Engineers and Sacramento County policy. Construction of 2.44 acres of emergent marsh on the reclaimed project site will ensure no net loss of wetland function. A low-flow channel (0.2 acres) will provide creek and creekside habitat. The creek corridor will include a woodland habitat area to mitigate loss of the limited woody riparian vegetation impacted by mining. Figure 3-2 illustrates the relationship between the components of the mitigation plan.

This plan is designed to be contiguous and compatible with the proposed mitigation corridor on the Granite-Vineyard mining site west of Mayhew Road (Zentner & Zentner, 1994).

Table 3-1. Waters of the U.S. Acreage -- Impacts and Compensation

Type	Impact	Compensation
Morrison Creek	1.09	--
Drainage Channel	0.44	--
Low-Flow Channel	--	0.20
Wetlands		
Seasonal Wetland	0.25	--
Emergent Marsh	--	2.44
Total:	1.78	2.64



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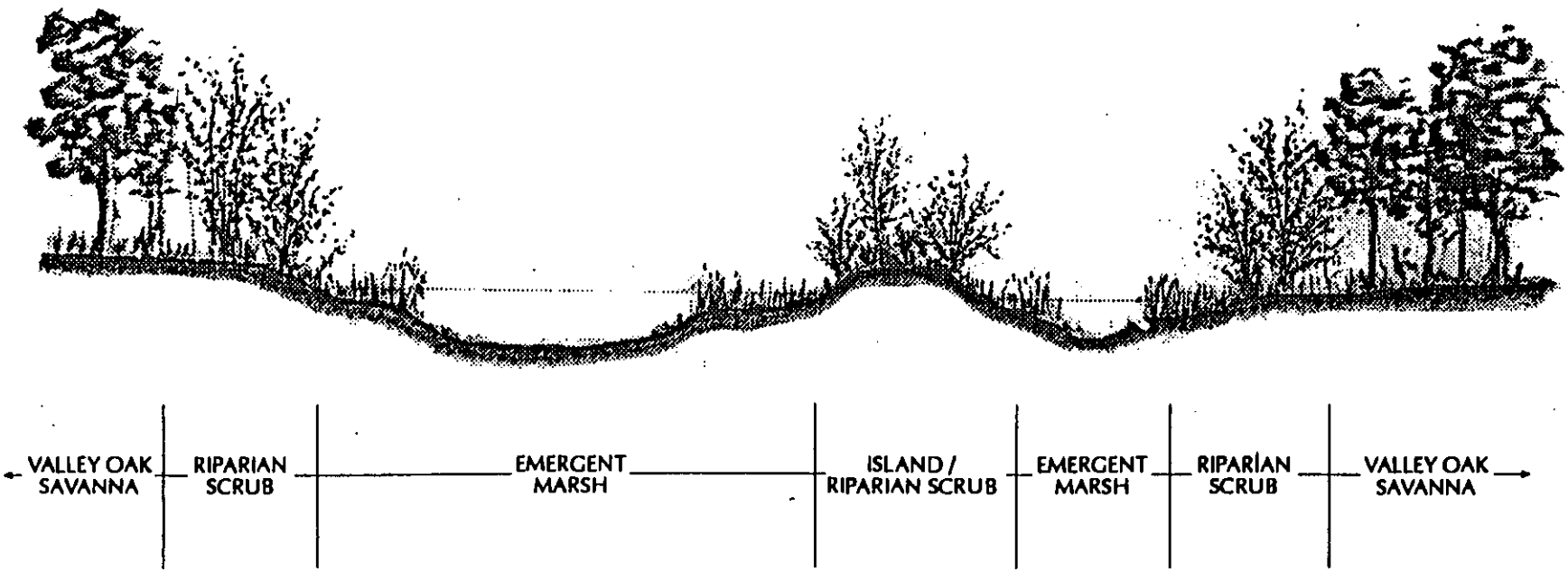
WETLAND MITIGATION PLAN

FIGURE 3-1

SCALE IN FEET 0 350 700



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CONCEPTUAL MITIGATION PLAN
HABITAT COMPONENTS

FIGURE 3-2

Not To Scale

- MITIGATION IMPLEMENTATION AND PROJECT PHASING

Implementation of the mitigation plan will begin with preliminary reclamation of the creek corridor, and complete at the end of mining operations. Flows of Morrison Creek will be contained within an at-grade bypass channel (Figure 3-1). This channel will be constructed at the onset of mining operations and will contain all flows of Morrison Creek at project completion, except for some low flow diversion to sustain habitat areas.

Emergent Marsh

These habitats will be inoculated with soil collected from on-site wetlands. Compensation emergent marsh areas will be located within the creek corridor. Marsh habitat will be filled by a combination of direct rainfall, runoff from adjacent areas, and from diversion of some low flows from the bypass channel. Based on historical rainfall data, sufficient water will be available every year (even during dry years) to support the wetland habitat. It is anticipated that initially the wetlands will be seasonal, since Morrison Creek is currently a seasonal creek. As the surrounding area develops, howerver, Morrison Creek will carry perennial flows, providing a year-round water source for wetland habitats.

Design specifications for compensation emergent marsh are presented in Figure 3-2. Performance standards are listed in Table 3-2.

Creek Corridors

A corridor on the pit floor (Figure 3-1) will extend from the northern boundary of the site to Mayhew Road. Most of this corridor will be unmanaged and allowed to develop natural plant and animal communities. A low flow channel (± 7' wide) will be provided initially, and this channel will be allowed to meander within the limits of the creek corridor (Figure 3-2).

Woodland Habitat Area

Natural revegetation of woody riparian species will be monitored in areas adjacent to the emergent marsh area within the creek corridor, and supplemental plantings of willows and cottonwoods will be made, based on the degree of colonization by volunteer native species. Plantings of valley oak acorns will be made in the woodland habitat area above the high-water mark of the compensation marsh habitat. The woodland habitat area will occupy approximately 6.25 acres (Figures 3-1, 3-2). Design specifications and performance standards for woodland habitat are listed in Table 3-3.

Table 3-2. Emergent Marsh Performance Standards and Success Criteria

Emergent Marsh Performance Standards

- Emergent marsh habitat will contain a predominance of wetland plant species (facultative, facultative wetland, or obligate wetland).

Emergent Marsh Success Criteria

- Prevalence Index will be less than or equal to 3.0 (see Appendix).
- Species richness of wetland plant species will equal or exceed 10 species.

Table 3-3. Woodland Habitat Design Specifications and Success Criteria

Design Specifications

Initial Actions: To allow for the establishment of a sound woodland community, no plantings will be made within the riparian zone (mean winter water level +2 feet) for two growing seasons following construction of the emergent marsh habitat areas. The purpose of this period is to allow volunteer woody riparian species to become established. During this period, the following actions will be taken:

1) **Hydroseeding:** Upon completion of the emergent marsh areas, all riparian zones surrounding the marsh habitat will be hydroseeded with a native/naturalized seed mixture.

2) **Weed Control:** During this period, weed control will be undertaken on an as-needed basis. The riparian areas will be evaluated twice each growing season to determine the need, if any, for weed control measures.

3) **Acorn Plantings:** Mass plantings of Valley Oak acorns will be made in the first year within shallow, excavated basins or trenches in the areas of the designated habitat area above the riparian zone.

Commencement of Monitoring: After two growing seasons have been completed, data will be collected to assess the success of the riparian zones and acorn plantings (see below for success criteria). Based on evaluation of this data, supplemental plantings of woody species will be made within the riparian zone in those areas which have not developed sufficient volunteer cover. Plantings will consist of one or more of the following:

Table 3-3. Riparian Design Specifications and Success Criteria (continued)

1) **Willow/Cottonwood Cuttings:** Cuttings of these species will be installed as needed in areas with low cover of volunteer woody vegetation. The number, density, and distribution of acorn planting sites will be determined by the pattern of volunteer woody vegetation.

2) **Other Plantings:** Seeds, cuttings, or container stock of other native woody riparian species will be made as needed to supplement woody riparian cover.

Success Criteria

Cover: Cover of native woody species within the woodland habitat area will equal or exceed 15% of the planting area at the end of the fifth year of monitoring.

Species Richness: Species richness of native woody species will equal or exceed five species.

CONSTRUCTION

Detailed grading plans will be prepared following approval of the proposed mitigation plan. The mitigation plan in this report is conceptual only and modifications may be warranted at the time of construction plan preparation based upon further evaluation of site-specific conditions.

Wetland seed-bearing soil will be collected from the existing wetlands to be impacted and placed at the bottom of the constructed wetlands. Suitable upland seed-bearing top soil, which is to be scraped from locations where wetlands are to be constructed, will be spread on the side slopes of the compensation wetlands, above the ponding elevation, to enhance adjacent upland revegetation. Revegetation of the side slopes shall be by hydroseeding and/or by spreading of upland seed bearing top soil.

FUNCTIONS OF COMPENSATION WETLANDS

Compensation wetlands have been designed to provide appropriate floristic and wildlife habitat functions. Inundation has been designed to promote the growth of obligate wetland species, inhibit the growth of upland plants, and encourage wildlife use, especially migratory waterfowl and shorebirds.

The wetland functions analysis presented in Section 2.0 identified the functions present in the existing wetlands to be affected by this project. Table 3-4 presents a comparative summary of the anticipated functions of project site wetlands after implementation of the proposed compensation plan.

Table 3-4. Summary of Functions of Compensation Wetlands

Function	Existing Conditions	Post- Project
Floodwater storage/conveyance	Slight	No significant change to creek capacity. Local direct rainfall retained in pit floor.
Ground-water recharge	Absent.	May increase following removal of aggregate substrates.
Streambank stabilization	Slight	No change.
Production export	Slight	No change.
Maintenance of Biodiversity	Present	Increase in wildlife value of compensation marsh. due to habitat mosaic.

All identified existing functions will continue at the present level or greater.

Disruption of the clay and hardpan soils, and the removal of the aggregate substrate could result in an increase in ground-water recharge in this area, depending upon the permeability of underlying materials. A regional clay layer underlies most of the mined area and limits the potential of ground-water recharge. An area just east of the site is identified in the Sacramento County General Plan EIR as having high to moderate recharge potential, indicating the potential presence of appropriate conditions.

MONITORING REQUIREMENTS

Newly developed wetland habitat will be monitored for a minimum period of five consecutive growing seasons from the date that construction is complete or until success criteria have been met. The woodland habitat area will be monitored for a minimum period of three consecutive growing seasons beginning two years after marsh construction, or until success criteria have been met. Monitoring reports will be prepared and submitted to the County of Sacramento and the U.S. Army Corps of Engineers annually for five years. Monitoring reports will include complete plant species lists, success rating per success criteria, assessment of data, and a report concerning any needed maintenance treatments. Should monitoring indicate that growing conditions are other than those anticipated, a modified plan which will assure successful development of new wetland habitat will be submitted to the county and the Corps of Engineers for approval.

In addition to habitat monitoring for Clean Water Act and CEQA compliance, the project—including habitat restoration areas—will be inspected annually by the Department of Public Works to ensure compliance with the Surface Mining and Reclamation Act. A report documenting the findings of these annual inspections will be submitted to the County of Sacramento and the State Office of Mine Reclamation Compliance.

SECTION 4.0

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SECTION 5.0

APPENDICES

Appendix A:	Plant Species List
Appendix B:	Animal Species List
Appendix C:	Delineation Verification Letter
Appendix D:	Prevalence Index Calculation
Appendix E:	Wetland Compensation Plan (1"=200')

Appendix A:

Plant Species List

APPENDIX A. Aspen IV South - Plant Species Observed During Wetland Delineation (July/August, 1994)

Abbr.	Scientific Name	Common Name	Indicator Status
AIR CAR	*Aira caryophyllea*	Hairgrass	N/L
ALI PLA	*Alisma plantago-aquatica*	Broad-leaf water plantain	OBL
AMA spe.	*Amaranthus* species	Amaranth	- -
ANA ARV	*Anagallis arvensis*	Scarlet pimpernel	FAC
ART DOU	*Artemisia douglasiana*	Mugwort	FACW
ARU DON	*Arundo donax*	Giant reed	FACW
ASC FAS	*Asclepias fascicularis*	Narrow-leaf milkweed	FAC
AVE spe.	*Avena* species	Wild oat	N/L
BRA NIG	*Brassica nigra*	Black mustard	N/L
BRO spe.	*Brodiaea* species	Brodiaea	N/L
BRO DIA	*Bromus diandrus*	Ripgut brome	N/L
BRO HOR	*Bromus hordeaceus*	Soft brome	FACU-
CEN SOL	*Centaurea solstitalis*	Yellow star-thistle	N/L
CEN spe.	*Centaurea* species	Star thistle	N/L
CHE ALB	*Chenopodium album*	White goosefoot	FAC
CIC INT	*Cichorium intybus*	Chicory	N/L
CON ARV	*Convolvulus arvensis*	Morning glory	N/L
CYN DAC	*Cynodon dactylon*	Bermuda grass	FAC
CYP ERA	*Cyperus eragrostis*	Tall flatsedge	FACW
ELE MAC	*Eleocharis macrostachya*	Creeping spikerush	OBL
EPI BRA	*Epilobium brachycarpum*	Panicked willow-herb	N/L
ERE SET	*Eremocarpus setigerus*	Turkey mullien	N/L
ERO BOT	*Erodium botrys*	Filaree	N/L
ERY VAS	*Eryngium vaseyi*	Vasey's coyote-thistle	FACW
EUC GLO	*Eucalyptus globulus*	Blue gum	N/L
HEM FIT	*Hemizonia fitchii*	Fitch's spikeweed	N/L
HOL VIR	*Holocarpha virgata*	Sticky tarweed	N/L
HOR MAR	*Hordeum marinum*	Mediterranean barley	NI
HOR MUR	*Hordeum murinum*	Barley	NI
JUG CAL	*Juglans californica*	California black walnut	FAC
JUN BAL	*Juncus balticus*	Baltic rush	OBL
LAC SER	*Lactuca serriola*	Prickly lettuce	FAC
LIM STR	*Limnanthes striata*	Foot-hill foam-meadow	OBL
LOL PER	*Lolium perenne*	Perennial ryegrass	FAC
LOT COR	*Lotus corniculatus*	Birdsfoot trefoil	FAC
LUD PEP	*Ludwigia peploides*	Water primrose	OBL
LYT HYS	*Lythrum hyssopifolia*	Hyssop loosestrife	FACW
MAR VUL	*Marrubium vulgare*	Common horehound	FAC
MEN PUL	*Mentha pulegium*	Pennyroyal	OBL
PHY NOD	*Phyla nodiflora*	Common frog-fruit	FACW
PLA STI	*Plagiobothrys stipitatus*	Slender popcorn-flower	OBL
PLA LAN	*Plantago lanceolata*	English plantain	FAC-
POA ANN	*Poa annua*	Annual bluegrass	FACW-
POL PUN	*Polygonum punctatum*	Dotted smartweed	OBL

APPENDIX A. Aspen IV South - Plant Species Observed During Wetland Delineation (July/August, 1994) - . continued.

Abbr.	Scientific Name	Common Name	Indicator Status
POL MON	*Polypogon monspeliensis*	Annual rabbit-foot grass	FACW+
POP FRE	*Populus fremontii*	Fremont's cotton-wood	FACW
PRU spe.	*Prunus* species	Plum	N/L
QUE LOB	*Quercus lobata*	Valley oak	FAC
RAP SAT	*Raphanus sativa*	Purple wild radish	N/L
ROB PSE	*Robinia pseudoacacia*	Black locust	FAC
RUB DIS	*Rubus discolor*	Himalaya blackberry	FAC
RUM CRI	*Rumex crispus*	Curly dock	FACW-
RUM PUL	*Rumex pulcher*	Fiddle dock	FAC+
SAG LAT	*Sagittaria latifolia*	Broad-leaf arrow-head	OBL
SAL GOO	*Salix gooddingii*	Goodding willow	OBL
STE MED	*Stellaria media*	Common chickweed	FACU
TAE CAP	*Taeniatherum caput-medusae*	Medusahead grass	N/L
TOX DIV	*Toxicodendron diversilobum*	Poison oak	N/L
TRI spe.	*Trifolium* species	Clover	N/L
TYP DOM	*Typha domingensis*	Southern cattail	OBL
VIC spe.	*Vicia* species	Vetch	--
VIT CAL	*Vitis californica*	California wild grape	FACW
XAN SPI	*Xanthium spinosum*	Spiny cockle-bur	FAC
XAN STR	*Xanthium strumarium*	Rough cockle-bur	FAC+

Indicator Status Key

OBL = Obligate; occurs almost always under natural conditions in wetlands (99%).
FACW = Facultative Wetland; usually occurs in wetlands (67-99%) but occasionally found in nonwetlands.
FAC = Facultative; equally likely to occur in wetlands or nonwetlands (33-66%).
FACU = Facultative Upland; usually occurs in nonwetlands (67-99%) but occasionally found in wetlands.
NI = No indicator assigned.
N/L = Not listed in *National List of Plant Species that Occur in Wetlands; California (Region 0)*. Most species listed as N/L are Obligate Upland species.
-- = Depending on species, may be any of the above categories.

Appendix B:

Animal Species List

APPENDIX B:

Animals Observed at Aspen IV South Site

Reptiles and Amphibians

Bullfrog	*Rana catesbeiana*
Western fence lizard	*Sceloporus occidentalis*

Birds

Mallard	*Ana platyrynchos*
Turkey vulture	*Cathartes aura*
Red-tailed hawk	*Buteo jamaicensis*
California quail	*Callipepla californica*
Ring-necked pheasant	*Phasianus colchichus*
Killdeer	*Charadrius vociferus*
Mourning dove	*Zenaida macroura*
Great horned owl	*Bubo virginianus*
Western kingbird	*Tyrannus verticalis*
Black phoebe	*Sayornis nigricans*
Yellow-billed magpie	*Pica nuttallii*
American Crow	*Corvus brachyrhynchos*
Plain titmouse	*Parus inornatus*
Mockingbird	*Mimus polyglottos*
Starling	*Sturnus vulgaris*
Yellow-rumped warbler	*Dendroica coronata*
House sparrow	*Passer domesticus*
Western meadowlark	*Sturnella neglecta*
Red-winged blackbird	*Agelaius phoeniceus*
Brewer's blackbird	*Euphagus cyanocephalus*
House finch	*Carpodacus mexicanus*
White-crowned sparrow	*Zonotrichia leucophyrs*

Mammals

Black-tailed jackrabbit	*Lepus californicus*
Coyote	*Canis latrans*

Appendix C:

Delineation Verification Letter

Appendix D:

Prevalence Index Calculation

Prevalence Index Calculation

The Prevalence Index is a method of wetland assessment used in the National Food Security Act Manual (1992). It is based on the relative abundance of a given species in a wetland, and each species is assigned a weighting (from 1 to 5) based on the species' wetland indicator status as published in the National Inventory of Plants that Occur in Wetlands (1988).

The weightings are applied as follows:

1 - Obligate Wetland Species (OBL)
2 - Facultative Wetland Species (FACW)
3 - Facultative Species (FAC)
4 - Facultative Upland Species (FACU)
5 - Upland Species (UPL)

The Prevalence Index (PI) is calculated as follows:

$$PI = \frac{1*f(OBL) + 2*f(FACW) + 3*f(FAC) + 4*f(FACU) + 5*f(UPL)}{f(OBL) + f(FACW) + f(FAC) + f(FACU) + F(UPL)}$$

where: f(OBL) = a measure of abundance of Obligate Species
f(FACW) = a measure of abundance of Facultative Wetland Species
and so on.

Values for the Prevalence Index range from 1 to 5. Based on the above formula, a wetland with all FAC species would have a PI value of three, a wetland with all OBL species would have a PI value of one, and combinations of species of various indicator status would yield PIs based on their relative abundance.

A Prevalence Index of three or less indicates that the area under study is a wetland, while a Prevalence Index of greater than three indicates that the area under study is not a wetland.

Appendix E:

Wetland Compensation Plan (1"=200')

BIOTIC RESOURCE ASSESSMENT
for
ASPEN V SOUTH

Sacramento County, California

Prepared for:

Teichert Aggregates

13 September 1994

SUGNET & ASSOCIATES
ENVIRONMENTAL CONSULTANTS
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D. Animal Species Observed at Aspen V South

BIOTIC RESOURCE ASSESSMENT
for
ASPEN V SOUTH

Sacramento County, California

EXECUTIVE SUMMARY

During June 1994, a biotic resource assessment was conducted for the 255± acre Aspen V South project site. This assessment involved review of available literature, including a draft Environmental Impact Report for two adjacent properties (EDAW, Inc., 1991), and reconnaissance field surveys to identify/verify habitats on-site. A detailed wetland delineation was also completed in conjunction with the assessment. The majority of the site is composed of agricultural fields and irrigated pasture, and is used to raise livestock. Other portions of the site support non-native grassland which is also used for livestock grazing. Morrison Creek flows across the west corner of the site and several other wetland habitats, including vernal pools, seasonal wetlands, irrigated seasonal wetlands, and artificial wetlands also occur on site.

The site may provide habitat elements (both seasonal and permanent) utilized by as many as thirty "special-status species," including wetland plants, aquatic invertebrates, the Valley elderberry longhorn beetle, wetland amphibians, nesting and/or foraging birds, and mammals. As defined for this report, the term "special-status" include elements with varying levels of legal status, both state and federal. During environmental review pursuant to the California Environmental Quality Act, the lead agency may discretionarily determine survey requirements and define thresholds of significance based upon these levels of legal status.

INTRODUCTION

During June 1994, a biotic resource assessment was conducted for the 255± acre Aspen V South Project Site, located south of Mather Air Force Base in Sacramento County, California (Figure 1). The site is located southeast of the intersection of Jackson Road (Highway 16) and Bradshaw Road. It constitutes an unsectioned portion of Township 8 North and Range 6 East, within the Carmichael Quadrangle, California USGS 7.5 minute quadrangle (U.S. Geological Survey 1980).

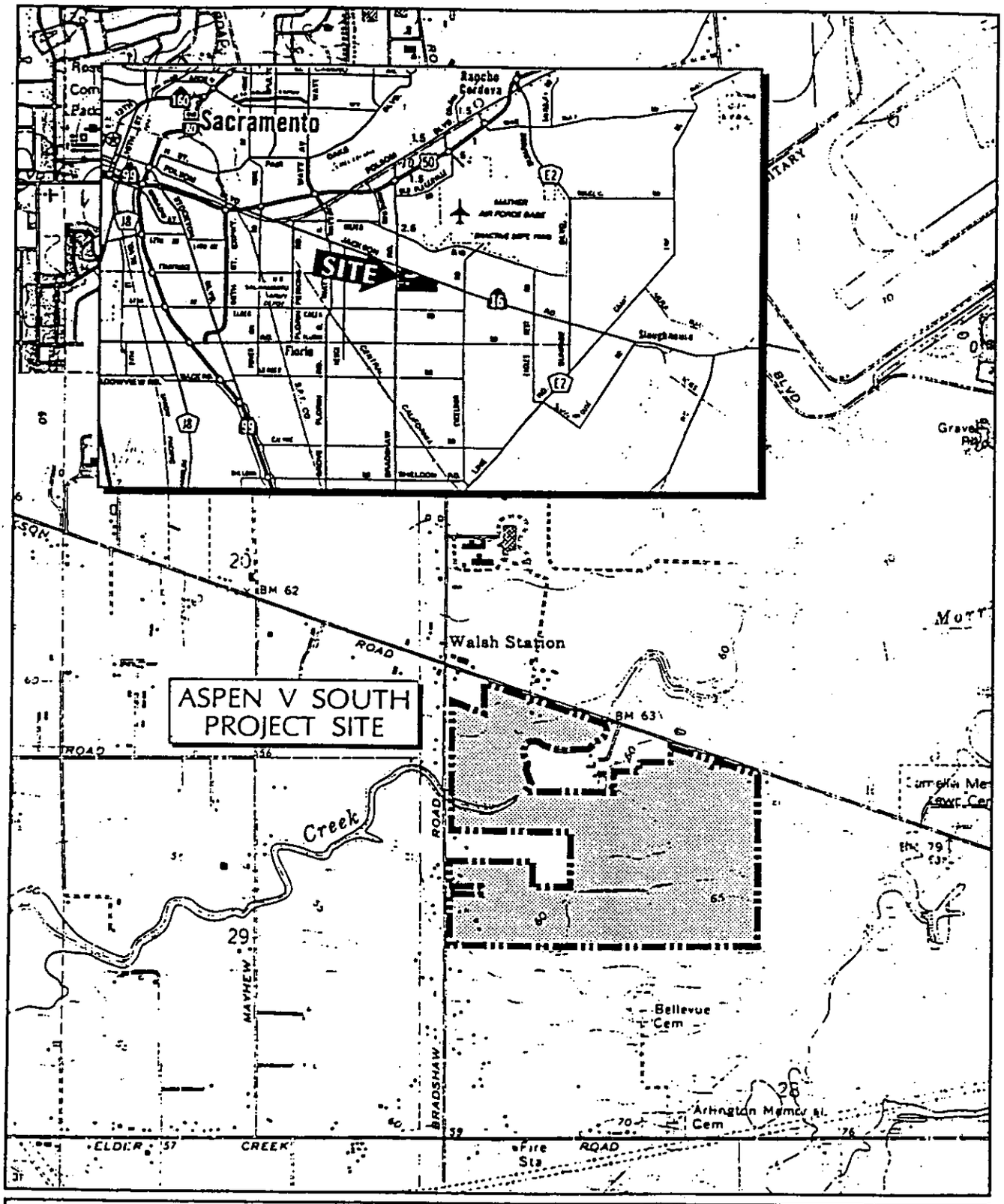
The project site is located on the eastern terraces of the Sacramento Valley at 57 to 90 feet above mean sea level, approximately 20 miles west of the Sierra Nevada and 40 miles east of the north Coast Range. Soils in this area are typically heavy clays with poor drainage characteristics (Figure 2). Potential natural vegetation along these eastern terraces is comprised primarily of annual grasslands with scattered riparian corridors. Scattered Valley oaks (*Quercus lobata*) may also occur in the grasslands.

The biotic resource assessment included characterizating habitat types and identifying wildlife species on site, and assessing the potential for the presence of "special-status" species within the project boundaries.

METHODS

This biotic resource assessment is based upon review of site-specific data to identify habitat type. Reconnaissance surveys were conducted to verify these habitats. Literature and distributive data were reviewed to assess the potential for presence of special-status species. The following data were reviewed for this assessment:

- The Natural Diversity Data Base (NDDB) (California Department of Fish and Game 1994) (Appendix A).
- Aerial photography, "false color" infrared, scale: 1"=12,000', date: 22 May 1989.
- Aerial photography, black and white, scale: 1"=200', date: 6 April 1994.



PROJECT SITE AND VICINITY

FIGURE 1

SCALE IN FEET 0 1000 2000

N

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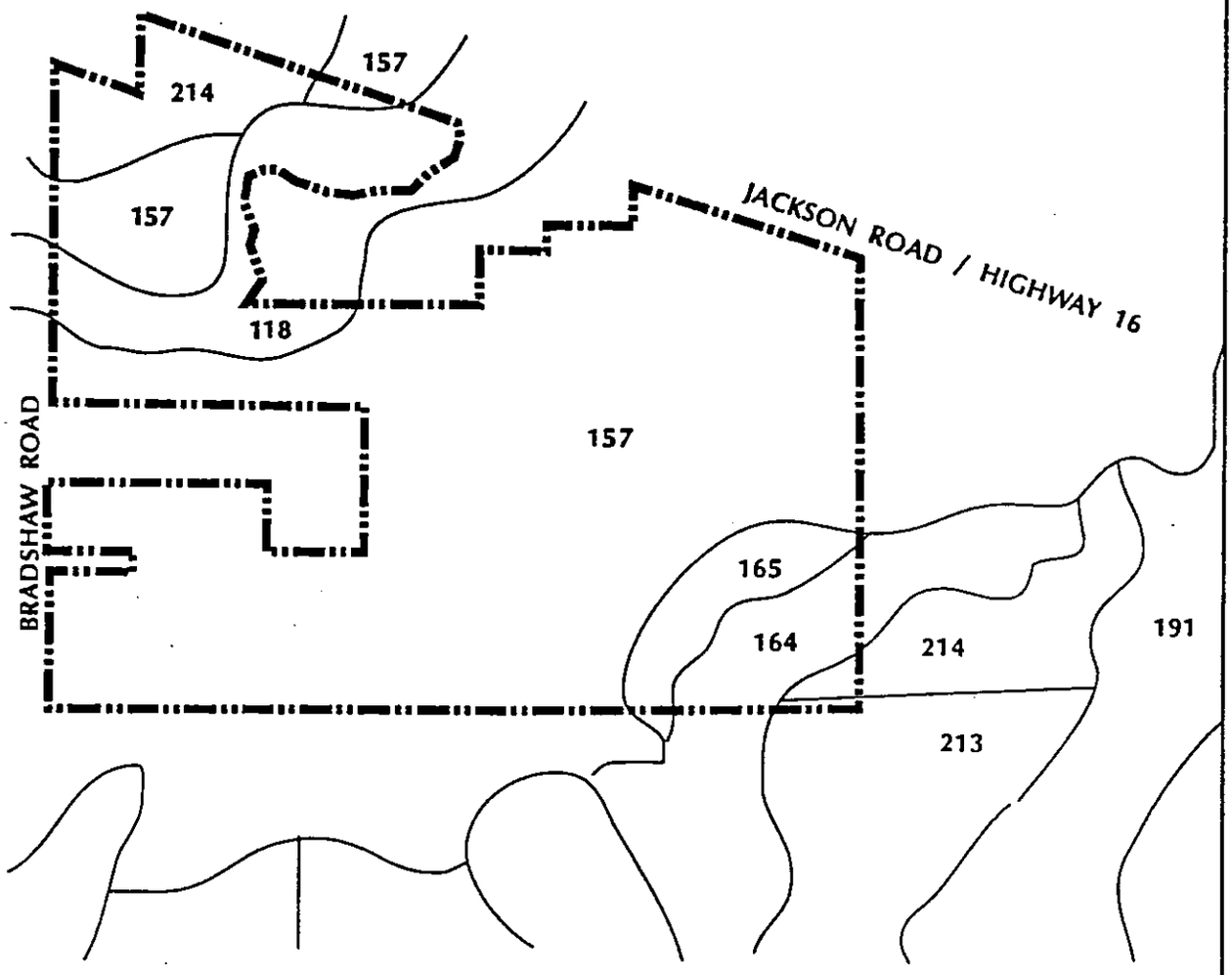
"Carmichael Quadrangle" USGS 7.5 minute topographic map.



118 Columbia sandy loam, drained, 0-2% slopes
157 Hedge loam, 0-2% slopes
164 Kimball silt loam, 0-2% slopes
165 Kimball silt loam, 2-8% slopes
191 Red Bluff loam, 0-2% slopes
213 San Joaquin silt loam, leveled, 0-1% slopes
214 San Joaquin silt loam, 0-3% slopes

SOIL CONSERVATION SERVICE
SOIL TYPES

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FIGURE 2

SCALE IN FEET 0 500 1000

SCS Soil Survey, Sacramento County

- "Carmichael, California" topographic quadrangle, scale: 1:24000, revised 1980 (U.S. Geological Survey 1980).
- Soil Survey of Sacramento County (U.S. Department of Agriculture, Soil Conservation Service 1991).
- Inventory of Rare and Endangered Vascular Plants of California (California Native Plant Society 1988)
- Draft Environmental Impact Report; Aspen VI Rezone and Use Permit and Granite I Rezone and Use Permit (EDAW, Inc., 1991)

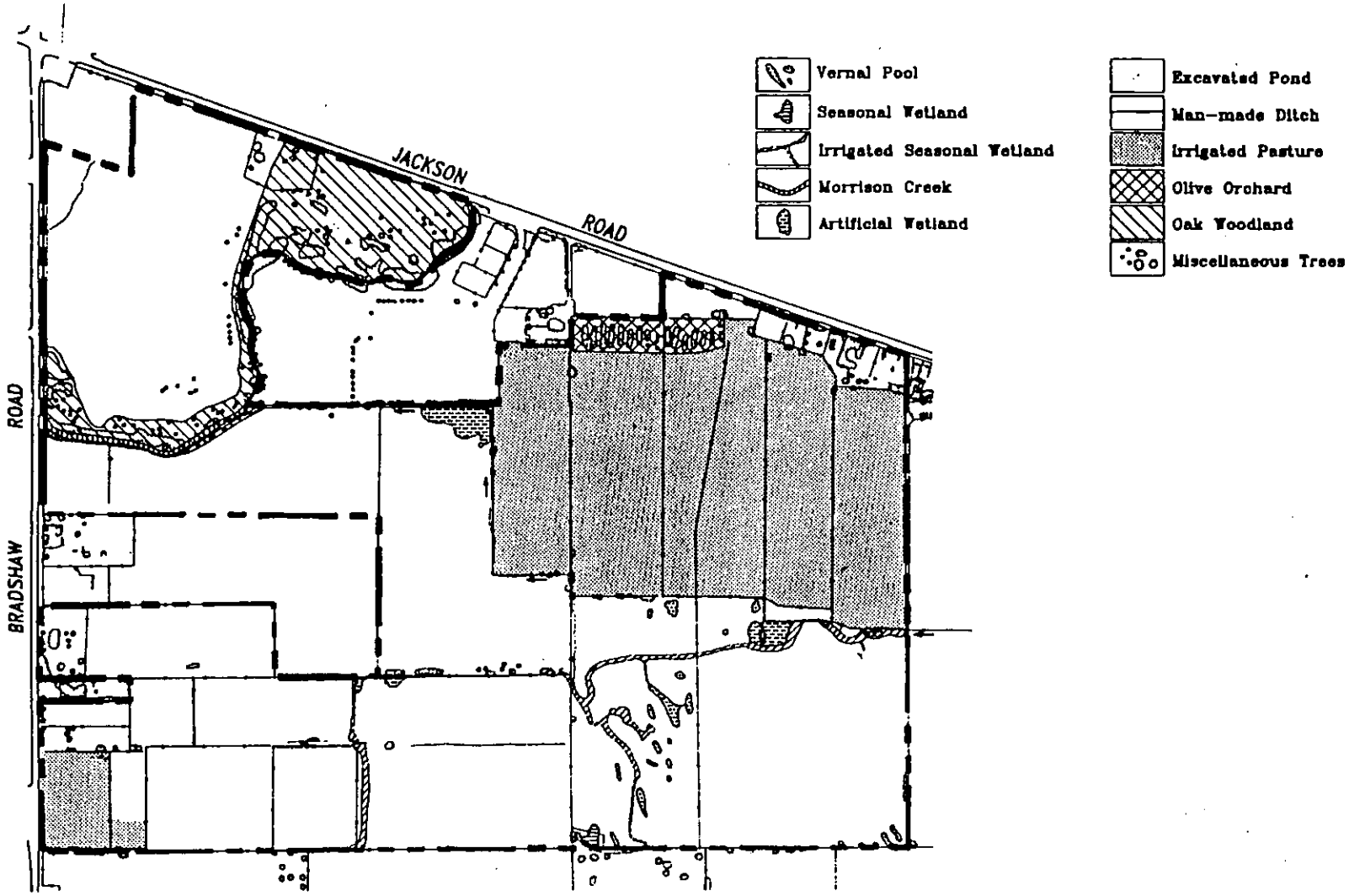
In addition, biologists walked meandering transects and collected reconnaissance-level survey data (i.e., habitat description and partial plant/animal inventory). A jurisdictional wetland delineation has been completed for the project site as well. All of these data, along with staff experience in the project vicinity, were also used to assess the occurrence potential for special-status species. "Special status" refers to those species which are:

- listed (or candidates for listing) as "threatened" or "endangered" under the federal Endangered Species Act;
- listed (or candidates for listing) as "threatened" or "endangered" under the California Endangered Species Act;
- designated as "fully protected" by the California Department of Fish and Game;
- designated as "species of special concern" by the California Department of Fish and Game.

RESULTS

- HABITATS

A majority of the Aspen V South project site is composed of agricultural fields or non-native grassland. Currently, most of the property is used for horse and cattle grazing. Within the grassland, there are a variety of wetlands including vernal pools, seasonal wetlands, irrigated seasonal wetlands, and artificial wetlands (e.g., man-made ditches). The following are descriptions of each of the habitats found on-site. Figure 3 provides a map of the on-site resources and Appendix C contains a list of the plant species observed during field surveys.



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PRELIMINARY RESOURCE ASSESSMENT

N

FIGURE 3

SCALE IN FEET
0 400 800

Annual Grassland

Typical annual grassland is characterized by non-native grasses and forbs. Dominant grassland species include soft chess (*Bromus hordeaceus*), ripgut brome (*Bromus diandrus*), medusa-head (*Taeniatherum caput-medusae*), filaree (*Erodium* spp.), wild oats (*Avena* spp.), star thistle (*Centaurea solstitalis*), tarweed (*Holocarpha virgata*), and Fitch's spikeweed (*Hemizonia fitchii*). The grassland habitat on this site is comprised of irrigated pasture, non-irrigated pasture, and fallow fields. All of the grassland on-site has been disturbed by recent or historic agricultural uses such as discing, livestock grazing, and/or farming. The area north of Morrison Creek has been used as a vineyard. A few trees, shrubs and vines occur within the annual grassland, usually along fence lines.

Wetlands

Vernal Pools

Within the annual grassland, the project site contains 0.85 acres of vernal pools. Vernal pools occur in poorly drained depressions, forming shallow, seasonally inundated wetlands. They are generally small, but can exist in a wide range of depths (up to two feet) and sizes (several square feet to several acres). Vernal pools can occur as isolated pools, or as depressions within swales. Vernal pool hydrology is characterized by a wetting period during winter months, a drying period in spring, and a dry period in the summer and fall. Flowering of wetland plant species begins during the period of inundation, peaks when the pool bottom is drying, and ends in the late spring.

Characteristic vegetation of the vernal pools within the project site include Vasey's coyote thistle (*Eryngium vaseyi*), slender popcorn flower (*Plagiobothrys stipitatus*), Fremont's goldfields (*Lasthenia fremontii*), white-head navarretia (*Navarretia leucocephala*), creeping spikerush (*Eleocharis macrostachya*), dwarf woolly-heads (*Psilocarphus brevissimus*).

Seasonal Wetlands

Freshwater seasonal wetlands (0.13 acres) also occur within the annual grassland of the project site. This plant community occurs primarily in association with swales and drainages but also occurs in isolated depressional wetlands. Freshwater seasonal wetlands and vernal pools have a similar hydrologic regime, but seasonal wetlands generally have a shorter duration of

inundation. Characteristic plant species within seasonal wetlands include Vasey's coyote thistle, Mediterranean barley (*Hordeum marinum*), toad rush (*Juncus bufonius*), and ryegrass (*Lolium perenne*).

Irrigated Seasonal Wetlands

Due to the current agricultural practices (summer irrigation) on and near the project site, some of the interconnected seasonal wetlands receive supplemental water throughout the summer. These wetlands are topographically similar to the seasonal wetlands described above but, due to this irrigation water, these "seasonal" wetlands have vegetation more characteristic of a marsh habitat. There are 2.44 acres of these irrigated seasonal wetlands on the project site. Typical species in these areas include creeping spikerush (*Eleocharis macrostachya*), broad-leafed water plantain (*Alisma plantago-aquatica*), annual rabbit-foot grass, Hyssop loosestrife (*Lythrum hyssopifolium*), Hairy water fern (*Marsilea vestita*), southern cattail (*Typha domingensis*), spearmint (*Mentha spicata*), and smartweed (*Polygonum* spp.).

Artificial Wetlands

The project site contains several types of artificial wetlands, most of which are associated with on-site irrigation practices. Several man made ditches have been created, primarily along fence lines, in order to facilitate irrigation of the pastures. The pastures are irrigated by flooding from these ditches or from pumped water. This irrigation water tends to pool at the lower end of each field, and overflow of this water into non-irrigated areas has created artificial wetlands. Vegetation in these artificial wetlands is very similar to the irrigated seasonal wetlands discussed above. Finally, the site contains one small excavated stock pond. This small basin is almost devoid of vegetation and is used primarily for watering livestock.

Morrison Creek

Morrison Creek cuts across the northwest corner of the project site. This seasonal creek is characterized by high cut banks, ranging from twenty to forty feet apart, and covers approximately 1.32 acres. The creek is lined by valley oaks (*Quercus lobata*), poison oak (*Toxicodendron diversilobum*), blackberry (*Rubus* spp), and various ornamentals. Along the edges of this riparian corridor, there are a number of vigorous seedling and sapling oaks.

- WILDLIFE RESOURCES

Both the grazed agricultural grassland and the wetland areas provide habitat for a variety of local wildlife species. Appendix D lists those species observed on-site during reconnaissance surveys.

Upland Habitats

The upland habitats on site consist primarily of pasture and non-native grassland. These habitats provide potential habitat for a variety of reptiles, birds, and mammals.

Reptiles which may forage on insects and seek refuge within burrows created by other mammals include western fence lizard (*Sceloporus occidentalis*) and western skink (*Eumeces skiltonianus*). Larger predators including gopher snake (*Pituophis melanoleucus*), and western rattlesnake (*Crotalus viridis*) may also occur on site. No reptiles were observed in the pasture/grassland habitat during field surveys.

In general, grassland and pastures provide nesting habitat for bird species which include western meadowlark (*Sturnella neglecta*), horned lark (*Eremophila alpestris*), and lark sparrow (*Chondestes grammacus*) in dense cover, and mourning dove (*Zenaida macroura*) in less dense areas. Bird species which do not nest, but may forage upon insects and seeds within the pasture/grassland, include Western kingbird (*Tyrannus verticalis*), American pipit (*Anthus rubescens*), and Brewer's blackbird (*Euphagus cynocephalus*). These birds which forage within the grassland are pursued by predators such as red-tailed hawk (*Buteo jamaicensis*), red-shouldered hawk (*B. lineatus*), American kestrel (*Falco sparverius*), and great horned owl (*Bubo virginianus*). The scattered trees within the pasture/grasslands provide potential nesting habitat for those bird species foraging over the grassland. During field visits, an american kestrel nest was located on the north side of the site, and a red-tailed hawk nest was located in a tree adjacent to the southern property boundary. Appendix D includes a complete list of the other birds observed on site.

Mammals which typically feed upon the grasses, seed, and forbs in the pasture/grassland include deer mouse (*Peromyscus maniculatus*), California ground squirrel (*Spermophilus beecheyi*), California vole (*Microtus californicus*), Botta's pocket gopher (*Thomomys bottae*), and black-tailed

jackrabbit (*Lepus californicus*). Predators such as coyote (*Canis latrans*) may be present in the pasture/grasslands. Several black-tailed jackrabbits were observed during field investigations.

Wetland Habitats

Wildlife may be supported by wetland/aquatic habitats, including vernal pools, irrigated and non-irrigated seasonal wetlands, and perennial pools within the intermittent creek.

Vernal Pools, Seasonal Wetlands, and Irrigated Seasonal Wetlands

Isolated seasonal wetlands and vernal pools occur scattered throughout the non-native annual grassland. They typically provide habitat for an assortment of aquatic invertebrates, amphibians, and a few bird species.

Typical aquatic invertebrates include crustaceans such as fairy shrimp, water fleas, and copepods, which complete their life cycle within the wetlands before they dry. Due to the timing of field surveys, no aquatic invertebrates were observed.

Amphibians, such as pacific tree frog (*Hyla regilla*), may breed and lay their eggs within these pools. Both pacific tree frogs and bullfrogs (*Rana catesbeiana*) were observed in the irrigated seasonal wetlands.

The irrigated seasonal wetlands, with their freshwater emergent marsh vegetation, may also provide nesting habitat for bird species such as song sparrow (*Melospiza melodia*) and red-winged blackbird (*Agelaius phoenicus*). Other species, including shorebirds such as greater yellow legs (*Tringa melanoleuca*) and killdeer (*Charadrius vociferus*), may forage in the wetlands (when they are holding water). Several types of birds were observed foraging in the wetlands including great egret (*Casmerodius albus*) and black-necked stilt (*Himantopus mexicanus*). Red-winged blackbirds were observed around these wetlands, but none were observed nesting during other field activities. Appendix D includes a complete list of the birds observed on site.

Morrison Creek

Morrison Creek, along with the woodland associated with the drainage, provides habitat for several amphibians, birds and mammals. During the summer, flows within the Morrison Creek become reduced, and perennial pools may form small pockets of habitat.

Amphibians including pacific tree frog (*Pseudacris regilla*), western toad (*Bufo boreas*), and bullfrog (*Rana catesbeiana*) may breed within these pools. No amphibians were observed in Morrison Creek during field surveys.

Bird species which may utilize these pools include mallard (*Anas platyrhynchos*) and wood duck (*Aix sponsa*), which may breed and raise broods there. Great egret (*Casmerodius albus*), great blue heron (*Ardea herodias*), and belted kingfisher (*Ceryle alcyon*) may feed upon invertebrates, fish, and amphibians that thrive in the creek.

The narrow woodland area associated with Morrison Creek provides additional wildlife habitat, primarily for birds and mammals.

Acorns, produced by the valley oak, are typically consumed by bird species, including acorn woodpecker (*Melanerpes formicivorus*), scrub jay (*Aphelocoma coerulescens*), yellow-billed magpie (*Pica nuttalli*), as well as mammals, such as western gray squirrel (*Scirius griseus*). Insects, which are attracted to acorns and other woodland elements, in turn, attract many nesting insectivorous birds species including plain titmouse (*Parus inornatus*), white-breasted nuthatch (*Sitta carolinensis*), and northern oriole (*Icterus galbula*).

Tree cavities within the oak woodland are important for nesting bird species including downy woodpecker (*Picoides pubescens*), tree swallow (*Tachycineta bicolor*), plain titmouse (*Parus inornatus*), house wren (*Troglodytes aedon*), Bewick's wren (*Thryomanes bewickii*), and western bluebird (*Sialia mexicana*). Other birds which may nest within the woodland include ash-throated flycatcher (*Myiarchus cinerescens*), American crow (*Corvus brachyrhyncos*), bushtit (*Psaltriparus minimus*), and house finch (*Carpodacus mexicanus*). Several red-shouldered hawks (*Buteo lineatus*), a barn owl (*Tyto alba*), a belted kingfisher (*Ceryle alcyon*), and several American crows (*Corvus brachyrhynchos*) were observed in this area. Appendix D includes a complete list of the birds observed on site.

Mammals which may occur in association with the Morrison Creek corridor include Virginia opossum (*Didelphis virginiana*), raccoon (*Procyon lotor*), and striped skunk (*Mephitis mephitis*). A striped skunk was observed along this creek corridor.

- POTENTIALLY OCCURRING SPECIAL-STATUS SPECIES

Appendix B presents a table of the special-status species associated with the northern region of the Central Valley. After the reconnaissance visit to the project site and evaluation of the habitats present, a list of those special-status species which could potentially occur on-site was developed. This list of species is presented in table 1, including their legal status and dates when determinate surveys may be performed.

Table 1. Potentially Occurring Special-Status Species

Plants	Scientific Name	Fed Status	State Status	Survey Dates
Ahart's dwarf rush	*Juncus leiospermus var. ahartii*	FC1	-	April - May
Boggs Lake hedge-hyssop	*Gratiola heterosepala*	FC3	CE	April 1 - May 15
Greene's legenere	*Legenere limosa*	FC2	-	April 15 - June 15
Sacramento Orcutt grass	*Orcuttia viscida*	FPE	CE	May - June
Sanford's arrowhead	*Sagittaria sanfordii*	FC2	-	April - November
Slender Orcutt grass	*Orcuttia tenuis*	FPT	CE	May - June
Invertebrates				
California linderiella	*Linderiella occidentalis*	FPE	-	January - March
Conservancy fairy shrimp	*Branchinecta conservatio*	FPE	-	January - March
Vernal pool fairy shrimp	*Branchinecta lynchi*	FPE	-	January - March
Vernal pool tadpole shrimp	*Lepidurus packardi*	FPE	-	January - March
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	FT	-	any season
Amphibian				
California tiger salamander	*Ambystoma californiense*	FC2	CSC	March - May
Western spadefoot toad	*Scaphiopus hammondi*	FC2R	CSC	March - May
Birds				
White-tailed kite (n/f)	*Elanus leucurus*	-	CFP	April - June
Northern harrier (n/f)	*Circus cyaneus*	-	CSC	April - June
Sharp-shinned hawk (f)	*Accipiter striatus*	-	CSC	November - January

Table 1. Potentially Occurring Special-Status Species (continued)

Birds (cont.)	Scientific Name	Fed Status	State Status	Survey Dates
Cooper's hawk (n/f)	*Accipiter cooperii*	-	CSC	April - June
Swainson's hawk (n/f)	*Buteo swainsoni*	FC3	CT	March - July
Ferruginous hawk (f)	*Buteo regalis*	FC2	CSC	November - January
Golden eagle (f)	*Aquila chrysaetos*	-	CFP, CSC	November - January
Merlin (f)	*Falco columbarius*	-	CSC	November - January
Prairie falcon (f)	*Falco mexicanus*	-	CSC	November - January
Mountain plover (f)	*Charadrius montanus*	FC2	CSC	November - January
Burrowing owl (n)	*Speotyto cunicularia*	-	CSC	April - July
Short-eared owl (f)	*Asio flammeus*	-	CSC	November - January
Loggerhead shrike (n/f)	*Lanius ludovicianus*	FC2	CSC	April - May
Tricolored blackbird (n/f)	*Agelaius tricolor*	FC2	CSC	April - June
Mammals				
Townsend's big-eared bat	*Plecotus townsendii townsendii*	FC2	CSC	any season
Pallid bat	*Antrozous pallidus*	-	CSC	any season
American badger	*Taxidea taxus*	-	CSC	any season

f = birds that may forage on-site
n/f = birds that may nest and forage on-site

Status:
- CCE - California candidate for listing as "Endangered."
- CE - California listed, "Endangered."
- CFP - California Department of Fish and Game "Fully Protected Species."
- CR - California listed, "Rare."
- CSC - California Department of Fish and game "Species of Special Concern."
- CT - California listed, "Threatened."
- FC1 - Federal Category 1 Candidate for listing as "Endangered" or "Threatened."
- FC2 - Federal Category 2 Candidate for listing as "Endangered" or "Threatened."
- FC2R - Recommend for inclusion on the next federal Candidate list "Category 2 Candidate."
- FC3 - Federal Category 3 Candidate for listing as "Endangered" or "Threatened."
- FE - Federally listed, "Endangered."
- FT - Federally listed, "Threatened."
- FPE - Formally Proposed for federal listing as "Endangered."
- FPT - Formally Proposed for federal listing as "Threatened."

The potentially occurring special-status species listed above have been identified from consideration of their geographic range and availability of on-site habitat. The list includes elements with different levels of legal status, ranging from formally listed species to "species of special concern." During environmental review pursuant to the California Environmental Quality Act, the lead agency may, at its discretion, determine survey requirements and define

thresholds of significance for impacts to special-status species. Should it be desired to conclusively determine presence/absence of a given species, field surveys should be undertaken during the identified survey period. Due to similarities in survey methodology and phasing, several of these surveys may be conducted simultaneously. Should it be desired, all currently-identified special-status species may be surveyed using the following generalized schedule:

- January-March, aquatic invertebrates
- March-May, wetland amphibians
- April-May, wetland plants, early season
- April-June, spring/summer birds
- May-August, wetland plants, late season
- November-January, winter birds

Surveys for mammals may be conducted during any season, and are often conducted simultaneously with other surveys. In addition, California Fish and Game Code, §3503.5 protects all raptors and their nests. For this reason, if construction activities are anticipated to occur in or near potential nesting habitat during the raptor nesting season (defined by CDFG as 1 March - 15 August), a preconstruction survey may be required.

The following is a discussion of the special-status species potentially occurring on this project site, as indicated by the habitats present.

- UPLAND HABITATS

The annual grassland and scattered trees provide habitat for several special-status invertebrate, bird, and mammal species.

The blue elderberry (*Sambucus mexicana*) is the host plant for the larvae of the Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) (VELB). Several blue elderberry shrubs were observed along the Morrison Creek corridor. The VELB is listed as "threatened" under the federal Endangered Species Act. The presence of emergence holes in elderberry stems is the accepted measure of VELB presence and habitat use, though all elderberries within the known range of the beetle are considered by the U.S. Fish and Wildlife Service to constitute potential

habitat. Surveys for elderberry shrubs, and for beetle evidence can be conducted any time of the year.

Several special-status birds including white-tailed kite (*Elanus leucurus*), northern harrier (*Circus cyaneus*), Cooper's hawk (*Accipiter cooperii*), Swainson's hawk (*Buteo swainsoni*), Golden eagle (*Aquila chrysaetos*), Burrowing owl (*Speotyto cunicularia*), Loggerhead shrike (*Lanius ludovicianus*) and the Tricolored blackbird (*Agelaius tricolor*) may utilize the on-site habitat for both nesting and foraging. Surveys for these potentially occurring birds can be conducted between April and July. A discussion of Swainson's hawk is included in the Draft Environmental Impact Report for adjacent properties Aspen VI and Granite I (EDAW, Inc., 1991).

Sharp-shinned hawk (*Accipiter striatus*), ferruginous hawk (*Buteo regalis*), merlin (*Falco columbarius*), prairie falcon (*F. mexicanus*), short-eared owl (*Asio flammeus*), and mountain plover (*Charadrius montanus*) are migratory birds (do not nest in this region), but may use the on-site grasslands for winter foraging.

In addition to these special status birds, CDFG protects all raptors (or birds of prey) from nesting disturbances. During the reconnaissance field surveys, an american kestrel (*Falco sparverius*) nest was located on-site, and a red-tailed hawk (*Buteo jamaicensis*) nest was located in a tree adjacent to the project site. Raptor surveys can be conducted during the breeding season, usually between March and August.

Three (3) special-status mammals may occur on the project site, including Townsend's big-eared bat (*Plecotus townsendii townsendii*), pallid bat (*Antrozous pallida*), and American badger (*Taxidea taxus*). Surveys for these species can be conducted during any season. The two bat species typically roost within abandoned buildings or woodlands, and forage over grasslands. American badger occurs in a wide variety of open habitats throughout California. All of the non-irrigated grassland on-site represents suitable American badger habitat, but no evidence of their presence was observed during the reconnaissance field surveys. Presence of these mammals may be determined during any season.

- WETLAND HABITATS

The vernal pools, seasonal wetlands, and ditches on the project site provide potential habitat for several special status plants, invertebrates, amphibians, and birds.

The special-status plants that may occur on-site in seasonally inundated wetlands include Boggs Lake hedge-hyssop (*Gratiola heterosepala*), Ahart's dwarf rush (*Juncus leiospermus* var. *ahartii*), Greene's legenere (*Legenere limosa*), Sacramento Orcutt grass (*Orcuttia viscida*), and slender Orcutt grass (*Orcuttia tenuis*). Optimal survey times for most of these species are during April and May, while optimal survey time for the Orcutt grasses is during May and June.

Sanford's arrowhead could potentially occur within the irrigated seasonal wetlands, creeks, and ditches found on-site. Surveys for this species can be conducted during April through November.

Four special-status invertebrate species may occur within the vernal pools and seasonal wetlands on-site including California linderiella (*Linderiella occidentalis*), Conservancy fairy shrimp (*Branchinecta conservatio*), vernal pool fairy shrimp (*B. lynchi*), and vernal pool tadpole shrimp (*Lepidurus packardi*). The optimal survey time for these species is during the rainy season, typically between January and March.

Two potentially occurring special-status amphibian species may occur within the wetlands on-site: the western spadefoot toad (*Scaphiopus hammondi*) and the California tiger salamander (*Ambystoma californiense*). Both typically occur in annual grasslands, where they breed and lay eggs in vernal pools and seasonal wetlands. Optimal survey times are between March and May.

CONCLUSION

The Aspen V South project site consists of primarily of agricultural lands, with some non-native grasslands. Several types of wetlands are scattered within these habitats, including vernal pools, seasonal wetlands, irrigated seasonal wetlands, artificial wetlands, and Morrison Creek. The habitat value on this site is reduced somewhat by the extent of human activity that currently takes place on and around the project site. Horse and cattle grazing occurs on almost all of the Aspen V South project site. In addition, the on site habitat is broken up by private residences and is bounded by several high traffic roads.

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APPENDIX A

California Natural Diversity Database for Aspen V South

Occurrence #: 158 Last Seen - Element: XXXX/XX/XX
Quality: Unknown Site: XXXX/XX/XX
Type: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Info Source: DEHAVEN, R.W. (OBS)
Quad Summary: Carmichael (3812153), Buffalo Creek (3812152), Elk Grove (3812143)
County(ies): Sacramento
Location: NEAR JCT OF JACKSON RD (HWY 16) AND EAGLES NEST RD, APPROX ONS MI S OF MATHER AFB.
Threats:
Comments: Ecological Notes - NESTING IN CATTAILS. General Notes - OBS BTWN 1969 AND 1974. Owner/Manager - UNKNOWN

Lat/Long: 38d 30m 50s / 121d 15m 48s
UTM: Zone-10 N4264056 E651413
Mapping Precision: NON-SPECIFIC (1 Mile)
Symbol Type: POINT
Group Number: 11720 More Information? N
Map Index Number: 11720 More Map Detail? N
Township: 08N
Range: 06E
Section: 25 SE Qt
Meridian: M
Acres: 0
Elevation: 140 ft

Occurrence #: 177 Last Seen - Element: 1990/05/20
Quality: Unknown Site: 1992/06/25
Type: Natural/Native occurrence
Presence: Presumed Extant
Trend: Fluctuating
Info Source: JOHNSON, D. 1990 (OBS)
Quad Summary: Elk Grove (3812143), Carmichael (3812153)
County(ies): Sacramento
Location: ALONG BOTH SIDES OF KNOX ROAD, JUST NORTH OF FLORIN ROAD, APPROXIMATELY 6 MI NNE OF ELK GROVE.
Threats: POSSIBLE HUMAN DISTURBANCE DUE TO BISECTION OF SITE BY KNOX ROAD.
Comments: Distribution Notes - NESTING OCCURS ON THE EAST AND WEST SIDES OF KNOX ROAD, OCCUPYING APPROXIMATELY 1/4 ACRE OF LAND. Ecological Notes - BREEDING SUBSTRATE CONSISTS OF BLACKBERRIES. ONE NEST WITH 3 EGGS AND 2 NEWLY-HATCHED YOUNG OBSERVED ON 9 MAY 1990. General Notes - APPROXIMATELY 1000 BREEDING PAIRS OBSERVED NESTIN IN 1990 BY JOHNSON. SEVERAL HUNDRED NAKED YOUNG FOUND DEAD ON THE ROAD ON 20 MAY 1990. SITE CHECKED BY SCHNEIDER AND BARTLETT ON 2 JUNE AND 25 JUNE, 1992; ONLY FORAGING BIRDS OBSERVED. Owner/Manager - UNKNOWN

Lat/Long: 38d 29m 53s / 121d 18m 55s
UTM: Zone-10 N4262223 E646907
Mapping Precision: NON-SPECIFIC (1/5 Mile)
Symbol Type: POINT
Group Number: 17176 More Information? N
Map Index Number: 17176 More Map Detail? N
Township: 08N
Range: 06E
Section: 34 SW Qt
Meridian: M
Acres: 0
Elevation: 75 ft

Occurrence #: 182 Last Seen - Element: 1989/06/04
Quality: Fair Site: 1989/06/04
Type: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Info Source: JOHNSON, D. 1989 (OBS)
Quad Summary: Carmichael (3812153)
County(ies): Sacramento
Location: ALONG THE WEST SIDE OF FOLSOM-SOUTH CANAL, 1 MI S OF THE JUNCTION OF SUNRISE BLVD AND WHITE ROCK ROAD, RANCH CORDOVA.
Threats: SITE IS UNDER AN IMMEDIATE THREAT DUE TO GRAVEL COMPANY ACTIVITY.
Comments: Distribution Notes - APPROXIMATELY 150 PAIRS OBSERVED; ADULTS SEEN CARRYING FOOD INTO NESTING AREA. Ecologica Notes - HABITAT IS COTTONWOOD-RIPARIAN, ENCLOSED WITHIN LEVEES. Owner/Manager - UNKNOWN

Lat/Long: 38d 34m 43s / 121d 15m 56s
UTM: Zone-10 N4271223 E651075
Mapping Precision: SPECIFIC (80m Mile)
Symbol Type: POINT
Group Number: 17307 More Information? N
Map Index Number: 17307 More Map Detail? N
Township: 08N
Range: 06E
Section: UN XX Qt
Meridian: M
Acres: 0
Elevation: 110 ft

** Element ID: CTT44110CA ********** * ******* List Status ******** ********* Other Lists *********
* NORTHERN HARDPAN VERNAL POOL
*
* NDDB Element Ranks - Global: G3; State: S3
* Habitat Associations -
* Not available at this time.
* Not available at this time.

Federal: None
State: None
CDFG:
Audubon:
CNPS List/Code: /

** California Department of Fish and Game *

Occurrence #: 31 Last Seen - Element: 1983/XX/XX
Quality: Unknown Site: 1983/XX/XX
Type: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Info Source: GRIGGS, T. 1980 (OBS)
Quad Summary: Carmichael (3812153), Elk Grove (3812143)
County(ies): Sacramento
Location: LARGE AREA BOUNDED BY JACKSON RD, EAGLES NEST, CALVINE, AND EXCELSIOR RD.
Threats: HOUSING DEVELOPMENT IN AREA. SOME CATTLE USE.
Comments: Distribution Notes - VAST AREA OF SPARSE VERNAL POOLS. EXTENDS N TO JACKSON RD. Ecological Notes - ON REDDING-CORNING ASSOCIATION SOILS.

Lat/Long: 38d 30m 15s / 121d 17m 02s
UTM: Zone-10 N4262944 E649641
Mapping Precision: NON-SPECIFIC (1 Mile)
Symbol Type: POINT
Group Number: 11687 More Information? N
Map Index Number: 11687 More Map Detail? N
Township: 08N
Range: 06E
Section: 35 SE Qt
Meridian: M
Acres: 0
Elevation: 120 ft

** Element ID: ABNSB10010 ********** * ******* List Status ******** ********* Other Lists *********
* ATHENE CUNICULARIA — Federal: None — CDFG: Special Concern
* Burrowing Owl — State: None — Audubon: Special Concern
* NDDB Element Ranks - Global: G4; State: S2 — CNPS List/Code: /
* Habitat Associations -
* FOUND IN OPEN, DRY ANNUAL OR PERENIAL GRASSLANDS, DESERTS & SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.
* SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.
** California Department of Fish and Game *

Occurrence #: 92 Last Seen - Element: 1989/07/15 Lat/Long: 38d 34m 08s / 121d 18m 19s Township: 08N
Quality: Fair Site: 1989/07/15 UTM: Zone-10 N4270079 E647639 Range: 06E
Type: Natural/Native occurrence Mapping Precision: SPECIFIC (80m Mile) Section: UN XX Q
Presence: Presumed Extant Symbol Type: POINT Meridian: M
Trend: Stable Group Number: 17159 More Information? N Acres: 0
Info Source: JOHNSON, D. L. 1989 (OBS) Map Index Number: 17159 More Map Detail? N Elevation: 80 f
Quad Summary: Carmichael (3812153)
County(ies): Sacramento
Location: ADJACENT TO WEST GATE, MATHER AFB, RANCHO CORDOVA.
Threats: NO OBVIOUS THREATS, UNLESS USE OF LOT AREA CHANGES.
Comments: Distribution Notes - 1 ADULT WITH FOUR YOUNG OBSERVED AT MID-DAY IN A VACANT LOT. Ecological Notes - HABITAT IS CLOSE-CROPPED, UNWATERED TURF. Owner/Manager - DOD-MATHER AFB

Occurrence #: 93 Last Seen - Element: 1989/04/28 Lat/Long: 38d 33m 35s / 121d 18m 51s Township: 08N
Quality: Good Site: 1989/04/28 UTM: Zone-10 N4269067 E646896 Range: 06E
Type: Natural/Native occurrence Mapping Precision: SPECIFIC (80m Mile) Section: UN XX Q
Presence: Presumed Extant Symbol Type: POINT Meridian: M
Trend: Stable Group Number: 17160 More Information? N Acres: 0
Info Source: HARRIS, S. 1989 (OBS) Map Index Number: 17160 More Map Detail? Y Elevation: 75 f
Quad Summary: Carmichael (3812153)
County(ies): Sacramento
Location: BLDG 7001, MATHER AFB, RANCHO CORDOVA.
Threats: FENCE OFFERS PROTECTION TO THE BURROW SITE; ANY CHANGE IN LAND USE WOULD DISTURB THE BURROW.
Comments: Distribution Notes - BURROW IS LOCATED INSIDE A TRANSFORMER FENCE, UNDER A CONCRETE SLAB, ON THE NE SIDE. General Notes - ONLY ONE ADULT OBSERVED. Owner/Manager - DOD-MATHER AFB

Occurrence #: 94 Last Seen - Element: 1989/04/28 Lat/Long: 38d 33m 42s / 121d 18m 32s Township: 08N
Quality: Fair Site: 1989/04/28 UTM: Zone-10 N4269287 E647355 Range: 06E
Type: Natural/Native occurrence Mapping Precision: SPECIFIC (80m Mile) Section: UN XX Q
Presence: Presumed Extant Symbol Type: POINT Meridian: M
Trend: Stable Group Number: 17161 More Information? N Acres: 0
Info Source: HARRIS, S. 1989 (OBS) Map Index Number: 17161 More Map Detail? N Elevation: 80 f
Quad Summary: Carmichael (3812153)
County(ies): Sacramento
Location: FLIGHT-LINE SIDE OF BLDG 7014, MATHER AFB, RANCHO CORDOVA.
Threats: CONSTRUCTION GOING ON NEARBY; NEW DEVELOPMENT COULD DISPLACE THE OWL.
Comments: Distribution Notes - BURROW LOCATED AT 940TH CURB, ON FIRST STREET, BETWEEN TELEPHONE POLES #7108 AND 7109, I AN OPEN FIELD BETWEEN FIRST STREET AND THE FLIGHT LINE. General Notes - ONLY ONE ADULT OBSERVED AT BURROW. Owner/Manager - DOD-MATHER AFB

Occurrence #: 95 Last Seen - Element: 1989/04/28 Lat/Long: 38d 33m 40s / 121d 18m 36s Township: 08N
Quality: Fair Site: 1989/04/28 UTM: Zone-10 N4269231 E647237 Range: 06E
Type: Natural/Native occurrence Mapping Precision: SPECIFIC (80m Mile) Section: UN XX Q
Presence: Presumed Extant Symbol Type: POINT Meridian: M
Trend: Stable Group Number: 17162 More Information? N Acres: 0
Info Source: HARRIS, S. 1989 (OBS) Map Index Number: 17162 More Map Detail? Y Elevation: 80 f
Quad Summary: Carmichael (3812153)
County(ies): Sacramento
Location: BLDG 7014, ON NEELY WAY, MATHER AFB, RANCHO CORDOVA.
Threats: POSSIBLE THREATS FROM SURROUNDING INDUSTRIAL AREA ACTIVITIES.
Comments: Distribution Notes - BURROW IS LOCATED SOUTH OF TELEPHONE POLE #7028, NEAR A PINE TREE AND ACROSS FROM A STOR DRAIN, NEAR THE STREET IN AN INDUSTRIAL AREA. General Notes - 2 ADULTS OBSERVED; A FAMILY OF BURROWING OWLS HAS BEEN OBSERVED HERE IN THE PAST. Owner/Manager - DOD-MATHER AFB

Occurrence #: 96 Last Seen - Element: 1989/04/28 Lat/Long: 38d 34m 08s / 121d 17m 41s Township: 08N
Quality: Fair Site: 1989/04/28 UTM: Zone-10 N4270103 E648558 Range: 06E
Type: Natural/Native occurrence Mapping Precision: SPECIFIC (80m Mile) Section: UN XX Qt:
Presence: Presumed Extant Symbol Type: POINT Meridian: M
Trend: Stable Group Number: 17163 More Information? N Acres: 0
Info Source: HARRIS, S. 1989 (OBS) Map Index Number: 17163 More Map Detail? N Elevation: 90 f
Quad Summary: Carmichael (3812153)
County(ies): Sacramento
Location: BX PARKING LOT, AT "B" AVE AND FRANCIS ST, MATHER AFB, RANCH O CORDOVA.
Threats: MAIN THREAT AT THIS LOCATION IS DISTURBANCE FROM TOO MUCH TRAFFIC; OWLS USUALLY MIGRATE TO OTHER AREAS LATER SPRING.
Comments: Distribution Notes - OWLS UTILIZE THE CEMENT STORM DRAIN AT THE NORTH END OF THE BX PARKING LOT AS A BURROW. General Notes - THERE IS ADJACENT OPEN SPACE WHICH PROVIDES FOOD AT THIS TIME. Owner/Manager - DOD-MATHER AFB

** Element ID: ABPBXB0020 ********** * ******* List Status ******** ********* Other Lists *********
* AGELAIUS TRICOLOR Federal: Category 2 CDFG: Special Concern
* Tricolored Blackbird State: None Audubon:
* NDDB Element Ranks - Global: G3; State: S2 CNPS List/Code: /
* Habitat Associations -
* NOMADIC RESIDENT OF SACRAMENTO-SAN JOAQUIN VALLEYS AND LOW FOOTHILLS OF SIERRA NEVADA; SEA LEVEL TO 3400 FT.
* NESTS COLONIALLY IN VICINITY OF FRESH WATER, MARSHY AREAS. COLONIES PREFER HEAVY GROWTHS OF CATTAILS AND TULES.
** California Department of Fish and Game *

Occurrence #: 13 Last Seen - Element: 1981/XX/XX Lat/Long: 38d 29m 51s / 121d 16m 07s Township: 08N
Quality: Unknown Site: 1992/06/16 UTM: Zone-10 N4262229 E650987 Range: 06E
Type: Natural/Native occurrence Mapping Precision: NON-SPECIFIC (1/5 Mile) Section: 36 S Qt:
Presence: Possibly Extirpated Symbol Type: POINT Meridian: M
Trend: Unknown Group Number: 11708 More Information? N Acres: 0
Info Source: HOSEA, R. C. 1986 (LIT) Map Index Number: 11708 More Map Detail? N Elevation: 100 f
Quad Summary: Elk Grove (3812143), Carmichael (3812153)
County(ies): Sacramento
Location: JUST NORTH OF FLORIN ROAD, 0.5 MI WEST OF EAGLES NEST ROAD, APPROXIMATELY 8 MI NE OF ELK GROVE.
Threats:
Comments: General Notes - NESTING COLONY OF 3000 ADULTS OBSERVED BY MATUS IN 1981. Owner/Manager - PVT

Occurrence #: 15 Last Seen - Element: 1982/06/05 Lat/Long: 38d 35m 28s / 121d 16m 05s Township: 09N
Quality: None Site: 1982/06/05 UTM: Zone-10 N4272618 E650840 Range: 06E
Type: Natural/Native occurrence Mapping Precision: NON-SPECIFIC (1/5 Mile) Section: 36 XX Qt:
Presence: Extirpated Symbol Type: POINT Meridian: M
Trend: Unknown Group Number: 11715 More Information? N Acres: 0
Info Source: HOSEA, R. C. 1986 (LIT) Map Index Number: 11715 More Map Detail? N Elevation: 115 f
Quad Summary: Carmichael (3812153)
County(ies): Sacramento
Location: WHITE ROCK RD AND FOLSOM SOUTH CANAL, 1.5 MI NE OF MATHER FIELD.
Threats: COLONY HAD BEEN AT THIS SITE FOR MANY YEARS BUT AREA WAS LEVELED & DISCED FOR DEVEL INTO A BUSINESS PARK.
Comments: Distribution Notes - COLONY OF APPROX 250 ADULTS W/FLEDGLING YOUNG OBSERVED NESTING IN THISTLE. Owner/Manage - PVT

Occurrence #: 157 Last Seen - Element: XXXX/XX/XX Lat/Long: 38d 29m 34s / 121d 15m 18s Township: 07N
Quality: Unknown Site: XXXX/XX/XX UTM: Zone-10 N4261727 E652184 Range: 07E
Type: Natural/Native occurrence Mapping Precision: NON-SPECIFIC (1 Mile) Section: 06 NW Q
Presence: Presumed Extant Symbol Type: POINT Meridian: M
Trend: Unknown Group Number: 11747 More Information? N Acres: 0
Info Source: DEHAVEN, R.W. (OBS) Map Index Number: 11747 More Map Detail? N Elevation: 110 f
Quad Summary: Elk Grove (3812143), Sloughhouse (3812142), Carmichael (3812153), Buffalo Creek (3812152)
County(ies): Sacramento
Location: NEAR EAGLES NEST RD AND FLORIN RD JCT, APPROX 5 MI NNE OF SHELDON.
Threats:
Comments: Ecological Notes - NESTING IN CATTAILS. General Notes - OBS BTWN 1969 AND 1974. Owner/Manager - UNKNOWN

Occurrence #: 158 Last Seen - Element: XXXX/XX/XX Lat/Long: 38d 30m 50s / 121d 15m 48s Township: 08N
Quality: Unknown Site: XXXX/XX/XX UTM: Zone-10 N4264056 E651413 Range: 06E
Type: Natural/Native occurrence Mapping Precision: NON-SPECIFIC (1 Mile) Section: 25 SE Qt
Presence: Presumed Extant Symbol Type: POINT Meridian: M
Trend: Unknown Group Number: 11720 More Information? N Acres: 0
Info Source: DEHAVEN, R.W. (OBS) Map Index Number: 11720 More Map Detail? N Elevation: 140 ft
Quad Summary: Carmichael (3812153), Buffalo Creek (3812152), Elk Grove (3812143)
County(ies): Sacramento
Location: NEAR JCT OF JACKSON RD (HWY 16) AND EAGLES NEST RD, APPROX ONS MI S OF MATHER AFB.
Threats:
Comments: Ecological Notes - NESTING IN CATTAILS. General Notes - OBS BTWN 1969 AND 1974. Owner/Manager - UNKNOWN

Occurrence #: 177 Last Seen - Element: 1990/05/20 Lat/Long: 38d 29m 53s / 121d 18m 55s Township: 08N
Quality: Unknown Site: 1992/06/25 UTM: Zone-10 N4262223 E646907 Range: 06E
Type: Natural/Native occurrence Mapping Precision: NON-SPECIFIC (1/5 Mile) Section: 34 SW Qt
Presence: Presumed Extant Symbol Type: POINT Meridian: M
Trend: Fluctuating Group Number: 17176 More Information? N Acres: 0
Info Source: JOHNSON, D. 1990 (OBS) Map Index Number: 17176 More Map Detail? N Elevation: 75 ft
Quad Summary: Elk Grove (3812143), Carmichael (3812153)
County(ies): Sacramento
Location: ALONG BOTH SIDES OF KNOX ROAD, JUST NORTH OF FLORIN ROAD, APPROXIMATELY 6 MI NNE OF ELK GROVE.
Threats: POSSIBLE HUMAN DISTURBANCE DUE TO BISECTION OF SITE BY KNOX ROAD.
Comments: Distribution Notes - NESTING OCCURS ON THE EAST AND WEST SIDES OF KNOX ROAD, OCCUPYING APPROXIMATELY 1/4 ACRE OF LAND. Ecological Notes - BREEDING SUBSTRATE CONSISTS OF BLACKBERRIES. ONE NEST WITH 3 EGGS AND 2 NEWLY-HATCHED YOUNG OBSERVED ON 9 MAY 1990. General Notes - APPROXIMATELY 1000 BREEDING PAIRS OBSERVED NESTIN IN 1990 BY JOHNSON. SEVERAL HUNDRED NAKED YOUNG FOUND DEAD ON THE ROAD ON 20 MAY 1990. SITE CHECKED BY SCHNEIDER AND BARTLETT ON 2 JUNE AND 25 JUNE, 1992; ONLY FORAGING BIRDS OBSERVED. Owner/Manager - UNKNOWN

Occurrence #: 182 Last Seen - Element: 1989/06/04 Lat/Long: 38d 34m 43s / 121d 15m 56s Township: 08N
Quality: Fair Site: 1989/06/04 UTM: Zone-10 N4271223 E651075 Range: 06E
Type: Natural/Native occurrence Mapping Precision: SPECIFIC (80m Mile) Section: UN XX Qt
Presence: Presumed Extant Symbol Type: POINT Meridian: M
Trend: Unknown Group Number: 17307 More Information? N Acres: 0
Info Source: JOHNSON, D. 1989 (OBS) Map Index Number: 17307 More Map Detail? N Elevation: 110 ft
Quad Summary: Carmichael (3812153)
County(ies): Sacramento
Location: ALONG THE WEST SIDE OF FOLSOM-SOUTH CANAL, 1 MI S OF THE JUNCTION OF SUNRISE BLVD AND WHITE ROCK ROAD, RANCH CORDOVA.
Threats: SITE IS UNDER AN IMMEDIATE THREAT DUE TO GRAVEL COMPANY ACTIVITY.
Comments: Distribution Notes - APPROXIMATELT 150 PAIRS OBSERVED; ADULTS SEEN CARRYING FOOD INTO NESTING AREA. Ecologica Notes - HABITAT IS COTTONWOOD-RIPARIAN, ENCLOSED WITHIN LEVEES. Owner/Manager - UNKNOWN

** Element ID: CTT44110CA ********** * ******* List Status ******** ********* Other Lists *********
* NORTHERN HARDPAN VERNAL POOL Federal: None CDFG:
* State: None Audubon:
* NDDB Element Ranks - Global: G3; State: S3 CNPS List/Code: /
* Habitat Associations -
* Not available at this time.
* Not available at this time.
** California Department of Fish and Game *

Occurrence #: 31 Last Seen - Element: 1983/XX/XX Lat/Long: 38d 30m 15s / 121d 17m 02s Township: 08N
Quality: Unknown Site: 1983/XX/XX UTM: Zone-10 N4262944 E649641 Range: 06E
Type: Natural/Native occurrence Mapping Precision: NON-SPECIFIC (1 Mile) Section: 35 SE Qt
Presence: Presumed Extant Symbol Type: POINT Meridian: M
Trend: Unknown Group Number: 11687 More Information? N Acres: 0
Info Source: GRIGGS, T. 1980 (OBS) Map Index Number: 11687 More Map Detail? N Elevation: 120 ft
Quad Summary: Carmichael (3812153), Elk Grove (3812143)
County(ies): Sacramento
Location: LARGE AREA BOUNDED BY JACKSON RD, EAGLES NEST, CALVINE, AND EXCELSIOR RD.
Threats: HOUSING DEVELOPMENT IN AREA. SOME CATTLE USE.
Comments: Distribution Notes - VAST AREA OF SPARSE VERNAL POOLS. EXTENDS N TO JACKSON RD. Ecological Notes - ON REDDING-CORNING ASSOCIATION SOILS.

Occurrence #: 80 Last Seen - Element: 1983/XX/XX
Quality: Unknown Site: 1983/XX/XX
Type: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Info Source: HOLLAND & DAINS, 1986 (MAP)
Quad Summary: Carmichael (3812153)
County(ies): Sacramento
Location: MATHER AIR FORCE BASE WEST OF KITTT HAWK SCHOOL.
Threats:
Comments: Distribution Notes - DENSE VERNAL POOLS IN WEST PORTION, SPARSE VERNAL POOLS IN EAST PORTION AS SEEN IN 1983 AERIAL PHOTOS. Owner/Manager - DOD-MATHER AFB

Lat/Long: 38d 32m 54s / 121d 17m 27s Township: 08N
UTM: Zone-10 N4267820 E648933 Range: 06E
Mapping Precision: SPECIFIC (0 Mile) Section: UN XX Qt
Symbol Type: POLYGON Meridian: M
Group Number: 11666 More Information? N Acres: 113.9
Map Index Number: 11666 More Map Detail? Y Elevation: 70 f

Occurrence #: 87 Last Seen - Element: 1983/XX/XX
Quality: Unknown Site: 1983/XX/XX
Type: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Info Source: HOLLAND & DAINS, 1986 (MAP)
Quad Summary: Carmichael (3812153)
County(ies): Sacramento
Location: BOTH SIDES OF JACKSON ROAD ABOUT 1 MI W OF EXCELSIOR ROAD, S OF MATHER AIR FORCE BASE.
Threats:
Comments: Distribution Notes - >80 ACRES OF DENSE VERNAL POOLS AS SEEN IN 1983 AERIAL PHOTOGRAPHS. PATCH OF SPARSE POOL S OF ELDER CREEK ROAD ALSO. Ecological Notes - ON REDDING-CORNING AND SAN JOAQUIN ASSOCIATION SOILS. Owner/Manager - UNKNOWN

Lat/Long: 38d 31m 28s / 121d 18m 56s Township: 08N
UTM: Zone-10 N4265143 E646838 Range: 06E
Mapping Precision: NON-SPECIFIC (1/5 Mile) Section: UN N Qt
Symbol Type: POINT Meridian: M
Group Number: 11625 More Information? N Acres: 0
Map Index Number: 11625 More Map Detail? N Elevation: 65 f

Occurrence #: 88 Last Seen - Element: 1983/XX/XX
Quality: Unknown Site: 1983/XX/XX
Type: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Info Source: HOLLAND & DAINS, 1986 (MAP)
Quad Summary: Carmichael (3812153), Elk Grove (3812143)
County(ies): Sacramento
Location: W OF BRADSHAW RD. S OF ELDER CR ROAD. ABOUT 3 MI SW OF MATHER AIR FORCE BASE.
Threats:
Comments: Distribution Notes - TWO SMALL AREAS OF DENSE VERNAL POOLS AS SEEN IN 1983 AERIAL PHOTOS. Owner/Manager - UNKNOWN

Lat/Long: 38d 30m 17s / 121d 20m 20s Township: 08N
UTM: Zone-10 N4262917 E644844 Range: 06E
Mapping Precision: NON-SPECIFIC (1 Mile) Section: 32 NE Qt
Symbol Type: POINT Meridian: M
Group Number: 11588 More Information? N Acres: 0
Map Index Number: 11588 More Map Detail? N Elevation: 60 f

Occurrence #: 89 Last Seen - Element: 1983/XX/XX
Quality: Unknown Site: 1983/XX/XX
Type: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Info Source: HOLLAND & DAINS, 1986 (MAP)
Quad Summary: Elk Grove (3812143), Carmichael (3812153)
County(ies): Sacramento
Location: E & W OF BRADSHAW ROAD, N OF GERBER ROAD. ABOUT 5 MI N OF ELK GROVE.
Threats:
Comments: Distribution Notes - EAST OF ROAD SPARSE VERNAL POOLS EXTEND FOR OVER 1 MILE. WEST OF ROAD SMALLER POOL AREA E SIDE OF CENTRAL CALIFORNIA TRECTION RAILROAD LINES. Owner/Manager - UNKNOWN

Lat/Long: 38d 29m 26s / 121d 19m 40s Township: 07N
UTM: Zone-10 N4261363 E645841 Range: 06E
Mapping Precision: NON-SPECIFIC (1 Mile) Section: 04 XX Qt
Symbol Type: POINT Meridian: M
Group Number: 11597 More Information? N Acres: 0
Map Index Number: 11597 More Map Detail? N Elevation: 60 f

Occurrence #: 95 Last Seen - Element: 1983/XX/XX
Quality: Unknown Site: 1983/XX/XX
Type: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Info Source: HOLLAND & DAINS, 1986 (MAP)
Quad Summary: Carmichael (3812153)
County(ies): Sacramento
Location: NORTH OF KIEFER BLVD W OF MATHER RD & SOUTH OF KIEFER BLVD E OF MATHER RD.
Threats:
Comments: Distribution Notes - AREAS OF SPARSE VERNAL POOLS AS SEEN IN 1983 AERIAL PHOTOS. Ecological Notes - PARTLY C REDDING-CORNING ASSOC SOILS. Owner/Manager - UNKNOWN

Lat/Long: 38d 31m 45s / 121d 16m 35s Township: ???
UTM: Zone-10 N4265730 E650243 Range: ???
Mapping Precision: NON-SPECIFIC (1 Mile) Section: UN XX C
Symbol Type: POINT Meridian: M
Group Number: 11698 More Information? N Acres: 0
Map Index Number: 11698 More Map Detail? N Elevation: 130 f

Occurrence #: 96 Last Seen - Element: 1983/XX/XX Lat/Long: 38d 32m 41s / 121d 19m 24s Township: 08N
Quality: Unknown Site: 1983/XX/XX UTM: Zone-10 N4267381 E646119 Range: 06E
Type: Natural/Native occurrence Mapping Precision: NON-SPECIFIC (1 Mile) Section: UN XX Qt
Presence: Presumed Extant Symbol Type: POINT Meridian: M
Trend: Unknown Group Number: 11612 More Information? N Acres: 0
Info Source: HOLLAND & DAINS, 1986 (MAP) Map Index Number: 11612 More Map Detail? N Elevation: 65 ft
Quad Summary: Carmichael (3812153)
County(ies): Sacramento
Location: WEST & SOUTH OF WEST END OF MATHER FIELD RUNWAYS & SMALL PATCH BETW RUNWAYS AT W END.
Threats:
Comments: Distribution Notes - PATCHES OF SPARSE VERNAL POOLS SEEN IN 1983 AERIAL PHOTOS. Ecological Notes - ON SAN JOAQUIN ASSOCIATION SOILS. Owner/Manager - UNKNOWN

** Element ID: IICOL48011 ********** * ******* List Status ******** ********* Other Lists *********
* DESMOCERUS CALIFORNICUS DIMORPHUS Federal: Threatened CDFG:
* Valley Elderberry Longhorn Beetle State: None Audubon:
* NDDB Element Ranks - Global: G3T2; State: S2 CNPS List/Code: /
* Habitat Associations -
* OCCURS ONLY IN THE CENTRAL VALLEY OF CALIFORNIA, IN ASSOCIATION WITH BLUE ELDERBERRY (SAMBUCUS MEXICANA).
* PREFERS TO LAY EGGS IN ELDERBERRRIES 2-8 INCHES IN DIAMETER; SOME PREFERENCE SHOWN FOR "STRESSED" ELDERBERRIES.
** California Department of Fish and Game *

Occurrence #: 1 Last Seen - Element: 1987/04/23 Lat/Long: 38d 37m 16s / 121d 16m 59s Township: 09N
Quality: Unknown Site: 1987/04/23 UTM: Zone-10 N4275926 E649469 Range: 06E
Type: Natural/Native occurrence Mapping Precision: SPECIFIC (0 Mile) Section: UN XX Qt
Presence: Presumed Extant Symbol Type: POLYGON Meridian: M
Trend: Unknown Group Number: 11640 More Information? Y Acres: 1351.9
Info Source: ARNOLD, R. A. 1985 (PERS) Map Index Number: 11640 More Map Detail? N Elevation: 60 ft
Quad Summary: Carmichael (3812153), Folsom (3812162), Citrus Heights (3812163)
County(ies): Sacramento
Location: ALONG AMERICAN RIVER, FROM NIMBUS FLAT AREA OF LAKE NATOMA S OUTH TO DOWNSTREAM END OF GOETHE PARK.
Threats: POPULATIONS OF VELB ARE REDUCED AS ELDERBERRY GROVES ARE REDUCED IN NUMBER.
Comments: Distribution Notes - FOUND ALONG THE AMERICAN RIVER PARKWAY TO THE LOWER SOUTHEAST SHORE OF LAKE NATOMA; INCLUDES CRITICAL AND ESSENTIAL HABITAT AREAS. Ecological Notes - LARVAE ARE STEM AND ROOT BORERS OF ELDERBERRY; EXIT HOLES ARE ROUND. BUPRESTID LARVAE ALSO BORE INTO ELDERBERRY; EXIT HOLES ARE OVAL. ADULTS FEED ON FOLIAGE AND FLOWERS. Owner/Manager - COUNTY OF SACRAMENTO, DPR

Occurrence #: 30 Last Seen - Element: 1985/05/31 Lat/Long: 38d 37m 27s / 121d 17m 06s Township: 09N
Quality: Unknown Site: 1985/05/31 UTM: Zone-10 N4276258 E649305 Range: 06E
Type: Natural/Native occurrence Mapping Precision: NON-SPECIFIC (1/5 Mile) Section: UN XX Qt
Presence: Presumed Extant Symbol Type: POINT Meridian: M
Trend: Unknown Group Number: 11691 More Information? N Acres: 0
Info Source: SEEMAN, L. 1985 (LIT) Map Index Number: 11691 More Map Detail? N Elevation: 80 ft
Quad Summary: Carmichael (3812153), Citrus Heights (3812163)
County(ies): Sacramento
Location: SACRAMENTO BAR, ON NW SIDE OF AMERICAN RIVER NEAR RIVER MI 18.
Threats: LOWERING OF THE WATER TABLE COULD ADVERSELY IMPACT ELDERBERRY ON DREDGE-TAILINGS.
Comments: Distribution Notes - VELB EXIT HOLES WERE FOUND IN ALL HABITATS EXCEPT LIVE OAK WOODLAND. Ecological Notes - DIFFERENT HABITATS EXAMINED: ELDERBERRY SAVANNAH, LIVE OAK WOODLAND, VALLEY OAK WOODLAND, OLD FIELD, DREDGE-TAILINGS/POND, AND DREDGE-TAILINGS/OLD FIELD. Owner/Manager - COUNTY OF SACRAMENTO

** Element ID: PMALI04000 ********** * ******* List Status ******** ********* Other Lists *********
* SAGITTARIA SANFORDII Federal: Category 2 CDFG:
* Sanford's Arrowhead State: None Audubon:
* NDDB Element Ranks - Global: G2; State: S2.2 CNPS List/Code: 1B/2-2-3
* Habitat Associations -
* MARSHES AND SWAMPS.
* IN STANDING OR SLOW-MOVING FRESHWATER (PONDS, MARSHES, AND DITCHES); 100-2000 FT.
** California Department of Fish and Game *

Occurrence #: 23 Last Seen - Element: 1993/07/31 Lat/Long: 38d 34m 34s / 121d 15m 45s Township: 08N
Quality: Good Site: 1993/07/31 UTM: Zone-10 N4270952 E651354 Range: 06E
Type: Natural/Native occurrence Mapping Precision: SPECIFIC (80m Mile) Section: UN XX Qt
Presence: Presumed Extant Symbol Type: POINT Meridian: M
Trend: Unknown Group Number: More Information? N Acres: 0
Info Source: NOSAL, T. 1993 (OBS) Map Index Number: 24525 More Map Detail? N Elevation: 130 ft
Quad Summary: Carmichael (3812153)
County(ies): Sacramento
Location: DRAINAGE ON THE EAST SIDE OF THE FOLSOM SOUTH CANAL, 1.5 KM (1 MI)SOUTH OF SUNRISE BLVD @ WHITE ROCK RD, EAST OF MATHER.
Threats:
Comments: Ecological Notes - GROWING IN STANDING WATER OF DRAINAGE CHANNEL WITHIN A FIELD OF ANNUAL WEEDS. ASSOCIATES :

CHANNEL INCLUDE TYPHA, POLYGONUM PERSICARIA, AND SAGITTARIA MONTEVIDENSIS SSP CALYCINA. General Notes - SOLID STAND OF PLANTS APPROX. 10' X 100' IN AREA. SITE IS BORDERED TO THE WEST BY CANAL LEVEE AND TO THE NORTH, SOUTH, AND EAST BY AUTO WRECKING YARDS. Owner/Manager - UNKNOWN

Occurrence #: 24 Last Seen - Element: 1992/07/25 Lat/Long: 38d 33m 38s / 121d 19m 51s Township: 08N
Quality: Fair Site: 1992/07/25 UTM: Zone-10 N4269155 E645452 Range: 06E
Type: Natural/Native occurrence Mapping Precision: SPECIFIC (0 Mile) Section: UN XX Qt
Presence: Presumed Extant Symbol Type: POLYGON Meridian: M
Trend: Unknown Group Number: More Information? N Acres: 15.2
Info Source: WYMER, N. 1992 (OBS) Map Index Number: 24527 More Map Detail? N Elevation: 60 ft
Quad Summary: Carmichael (3812153)
County(ies): Sacramento
Location: CHANNEL SOUTHEAST OF BRADSHAW RD AND LINCOLN VILLAGE RD, SACRAMENTO.
Threats: HERBICIDE APPLICATION AND VEGETATION CLEARING IN CHANNELIZED AREA.
Comments: Distribution Notes - FROM LINCOLN VILLAGE RD GO SOUTH ON DRACO TOWARDS MOBILE HOME PARK. POPULATION IS LOCATE EAST AND WEST OF DRACO IN THE CEMENT CHANNEL. Ecological Notes - GROWING IN SLOW MOVING WATER OF CEMENT LINED CHANNEL. ASSOCIATES INCLUDE CYPERUS DIFFORMIS, C. ERAGROSTIS, ECHINOCHLOA CRUSGALLI, ERAGROSTIS DIFFUSA, POLYGONUM LAPATHIFOLIUM, P. PERSICARIA, PASPALUM DILATATUM, & SORGHAM HALAPENSE. General Notes - POPULATION CONSISTS OF SCATTERED PLANTS ALONG THE CHANNEL IN AREAS WHERE SOIL HAS ACCUMULATED. Owner/Manager - SACRAMENTO CO. PUBLIC WORKS

Occurrence #: 25 Last Seen - Element: 1993/08/19 Lat/Long: 38d 32m 15s / 121d 20m 46s Township: 08N
Quality: Good Site: 1993/08/19 UTM: Zone-10 N4266557 E644105 Range: 06E
Type: Natural/Native occurrence Mapping Precision: NON-SPECIFIC (0 Mile) Section: 20 NW Qt
Presence: Presumed Extant Symbol Type: POLYGON Meridian: M
Trend: Unknown Group Number: More Information? N Acres: 79.9
Info Source: CLARK, G. 1992 (OBS) Map Index Number: 24526 More Map Detail? N Elevation: 60 ft
Quad Summary: Carmichael (3812153)
County(ies): Sacramento
Location: CODOVA GOLF COURSE, SACRAMENTO.
Threats: THE PLANT IS VIEWED AS A NUISANCE BY GOLF COURSE MANAGEMENT.
Comments: Distribution Notes - TWO PONDS ON GOLF COURSE TO THE NORTH OF JACKSON ROAD (HWY 16) AND WEST OF BRADSHAW ROAD. Ecological Notes - GOLF COURSE PONDS; ONE IS 100% COVERED WITH SAGITTARIA, THE SMALLER IS 70% COVERED. General Notes - TOTAL COVERAGE OF PLANT IS APPROX 0.4 ACRES. PLANTS WERE APPARENTLY FIRST OBSERVED AT THIS SITE IN 1989. Owner/Manager - CORDOVA PARKS AND RECREATION

Other Elements to Look for on CARMICHAEL Quad

DOWNINGIA PUSILLA
DWARF DOWNINGIA
PDCAM060C0. 4

Federal Staus: Category 3C
State Status.: None

Global Rank: G3
State Rank: S3.1

Habitat Association -
VALLEY AND FOOTHILL GRASSLAND (MESIC SITES), VERNAL POOLS.
ABOUT 150M AND BELOW.

Location.....: KEITHLY RANCH, RIO LINDA, N OF SACRAMENTO.
Source.....: CARTER, A. #3015 CAS, JEPS, UC (HERB)
Last Seen....: 1951-04-01

APPENDIX B

Regionally Occurring Special-Status Species

Appendix B. Regionally Occurring Special-Status Species

Plants	Scientific Name	Fed Status	State Status	Habitat Type
Ahart's dwarf rush	*Juncus leiospermus var. ahartii*	FC1	-	vernal wetland
Boggs Lake hedge-hyssop	*Gratiola heterosepala*	FC3	CE	vernal wetland
Greene's legenere	*Legenere limosa*	FC2	-	vernal wetland
Hispid bird's-beak	*Cordylanthus mollis hispidus*	FC2	-	saline marsh
Sacramento Orcutt grass	*Orcuttia viscida*	FPE	CE	vernal wetland
Sanford's arrowhead	*Sagittaria sanfordii*	FC2	-	creeks, ditches
Slender Orcutt grass	*Orcuttia tenuis*	FPT	CE	vernal wetland
Invertebrates				
California linderiella	*Linderiella occidentalis*	FPE	-	vernal wetland
Conservancy fairy shrimp	*Branchinecta conservatio*	FPE	-	vernal wetland
Longhorn fairy shrimp	*Branchinecta longiantenna*	FPE	-	vernal wetland
Vernal pool fairy shrimp	*Branchinecta lynchi*	FPE	-	vernal wetland
Vernal pool tadpole shrimp	*Lepidurus packardi*	FPE	-	vernal wetland
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	FT	-	elderberry shrubs
Amphibian				
California tiger salamander	*Ambystoma californiense*	FC2	CSC	vernal wetlands
Western spadefoot toad	*Scaphiopus hammondi*	FC2R	CSC	vernal wetlands
Reptiles				
Northwestern pond turtle	*Clemmys marmorata marmorata*	FC2	CSC	creeks, ponds
Giant garter snake	*Thamnophis gigas*	FT	CT	ditches,sloughs, marshes
Birds				
Double-crested cormorant	*Phalacrocorax auritus*	-	CSC	riparian
White-faced ibis	*Plegadis chihi*	FC2	CSC	marsh
White-tailed kite	*Elanus leucurus*	-	CFP	woodland, grassland
Bald eagle	*Haliaeetus leucocephalus*	FE	CE, CFP	lakes, reservoirs
Northern harrier	*Circus cyaneus*	-	CSC	marsh, grassland
Sharp-shinned hawk	*Accipiter striatus*	-	CSC	woodland
Cooper's hawk	*Accipiter cooperii*	-	CSC	woodland
Swainson's hawk	*Buteo swainsoni*	FC3	CT	grassland, agriculture
Ferruginous hawk	*Buteo regalis*	FC2	CSC	grassland
Golden eagle	*Aquila chrysaetos*	-	CFP, CSC	grassland
Merlin	*Falco columbarius*	-	CSC	grassland, woodland
Prairie falcon	*Falco mexicanus*	-	CSC	grassland
Mountain plover	*Charadrius montanus*	FC2	CSC	grassland, agricultural
Long-billed curlew	*Numenius amercanus*	-	CSC	grassland, marsh
Black tern	*Chlidonias niger*	FC2	CSC	marsh, rice pastures

Appendix B cont. Regionally Occurring Special-Status Species

Plants	Scientific Name	Fed Status	State Status	Habitat Type
Burrowing owl	*Speotyto cunicularia*	-	CSC	grassland
Long-eared owl	*Asio otus*	-	CSC	riparian
Short-eared owl	*Asio flammeus*	-	CSC	marsh, grassland
Purple martin	*Progne subis*	-	CSC	riparian, urban
Bank swallow	*Riparia riparia*	-	CT	stream banks
Loggerhead shrike	*Lanius ludovicianus*	FC2	CSC	grassland, woodland
Tricolored blackbird	*Agelaius tricolor*	FC2	CSC	grassland, marsh
Mammals				
Townsend's big-eared bat	*Plecotus townsendii towsendii*	FC2	CSC	structures, woodland
Pallid bat	*Antrozous pallidus*	-	CSC	structures, woodland
American badger	*Taxidea taxus*	-	CSC	annual grassland

Status:
CCE - California candidate for listing as "Endangered."
CE - California listed, "Endangered."
CFP - Californria Department of Fish and Game "Fully Protected Species."
CR - California listed, "Rare."
CSC - Californria Department of Fish and game "Species of Special Concern."
CT - California listed, "Threatened."
FC1 - Federal Category 1 Candidate for listing as "Endangered" or "Threatened."
FC2 - Federal Category 2 Candidate for listing as "Endangered" or "Threatened."
FC2R - Recommend for inclusion on the next federal Candidate list "Category 2 Candidate."
FC3 - Federal Category 3 Candidate for listing as "Endangered" or "Threatened."
FE - Federally listed, "Endangered."
FT - Federally listed, "Threatened."
FPE - Formally Proposed for federal listing as "Endangered."
FPT - Formally Proposed for federal listing as "Threatened."

APPENDIX C

Plant Species Observed at Aspen V South

Apendix C. Plant Species at Aspen V South

Common Name	Scientific Name
Goat grass	*Aegilops species*
Broad-leaf water plantain	*Alisma plantago-aquatica*
White alder	*Alnus rhombifolia*
Fiddle-neck	*Amsinckia species*
Mugwort	*Artemisia douglasiana*
Wild oat	*Avena species*
Black mustard	*Brassica nigra*
Ripgut brome	*Bromus diandrus*
Soft brome	*Bromus hordeaceus*
Yellow star-thistle	*Centaurea solstitalis*
Chickweed	*Cerastium species*
Goosefoot	*Chenopodium species*
Chicory	*Cichorium intybus*
Thistle	*Cirsium species*
Bull thistle	*Cirsium vulgare*
Morning glory	*Convolvulus arvensis*
Brassbuttons	*Cotula coronopifolia*
Water pygmy-weed	*Crassula aquatica*
Vernal pool dodder	*Cuscuta howelliania*
Bermuda grass	*Cynodon dactylon*
Tall flatsedge	*Cyperus eragrostis*
Annual hairgrass	*Deschampsia danthonioides*
Downingia	*Downingia species*
Barnyard grass	*Echinochloa crusgalli*
Creeping spikerush	*Eleocharis macrostachya*
Blue wild-rye	*Elymus glaucus*
Cleistogamous spike-primrose	*Epilobium cleistogamum*
Turkey mullien	*Eremocarpus setigerus*
Vasey's coyote-thistle	*Eryngium vaseyi*
Manna grass	*Glyceria species*
Fitch's spikeweed	*Hemizonia fitchii*
Mediterranean barley	*Hordeum marinum*
Smooth cat's-ear	*Hypochaeris glabra*
Baltic rush	*Juncus balticus*
Prickly lettuce	*Lactuca serriola*
Fremont's goldfields	*Lasthenia fremontii*
Perennial ryegrass	*Lolium perenne*
Bird's foot trefoil	*Lotus species*

Apendix C. Plant Species at Aspen V South

Common Name	Scientific Name
Water primrose	*Ludwigia peploides*
Hyssop loosestrife	*Lythrum hyssopifolia*
Loosestrife	*Lythrum spp.*
Common horehound	*Marrubium vulgare*
Hairy water fern	*Marsilea vestita*
Bur clover	*Medicago polymorpha*
Spearmint	*Mentha spicata*
White-head navarretia	*Navarretia leucocephala*
Dallisgrass	*Paspalum dilatatum*
Canary grass	*Phalaris species*
Slender popcorn-flower	*Plagiobothrys stipitatus*
English plantain	*Plantago lanceolata*
Sacramento mesamint	*Pogogyne zizyphoroides*
Smartweed	*Polygonum spp.*
Annual rabbit-foot grass	*Polypogon monspeliensis*
Fremont's cotton-wood	*Populus fremontii*
Almond	*Prunus spp.*
Dwarf woolly-heads	*Psilocarphus brevissimus*
Blue oak	*Quercus douglasii*
Black oak	*Quercus kelloggii*
Spiny-fruit butter-cup	*Ranunculus muricatus*
Yellow wild radish	*Raphanus raphanistrum*
Yellow cress	*Rorippa curvisiliqua*
Himalaya blackberry	*Rubus discolor*
Sheep sorrel	*Rumex acetosella*
Curly dock	*Rumex crispus*
Fiddle dock	*Rumex pulcher*
Arrow-head	*Sagittaria species*
Willow	*Salix species*
Mexican elderberry	*Sambucus mexicana*
Medusahead grass	*Taeniatherum caput-medusae*
Poison oak	*Toxicodendron diversilobum*
Clover	*Trifolium spp.*
Southern cattail	*Typha domingensis*
Broad-leaf cattail	*Typha latifolia*
Rough cockle-bur	*Xanthium strumarium*

APPENDIX D

Animal Species Observed at Aspen V South

Appendix D. Animal Species Observed at Aspen V South

Common Name	Scientific Name
Amphibians	
Pacific chorus frog	*Pseudacris regilla*
Bullfrog	*Rana catesbeiana*
Reptiles	
Western terrestrial garter snake	*Thamnophis elegans*
Birds	
Great blue heron	*Ardea herodias*
Great egret	*Casmerodius albus*
Cattle egret	*Bubulcus ibis*
Green heron	*Butorides virescens*
Mallard	*Anas platyrhynchos*
Turkey vulture	*Cathartes aura*
Red-shouldered hawk	*Buteo lineatus*
Red-tailed hawk	*Buteo jamaicensis*
American kestrel	*Falco sparverius*
Ring-necked pheasant	*Phasianus colchicus*
California quail	*Callipepla californica*
Killdeer	*Charadrius vociferus*
Black-necked stilt	*Himantopus mexicanus*
Mourning dove	*Zenaida macroura*
Barn owl	*Tyto alba*
Belted kingfisher	*Ceryle alcyon*
Western kingbird	*Tyrannus verticalis*
Cliff swallow	*Hirundo pyrrhonata*
Scrub jay	*Aphelocoma coerulescens*
Yellow-billed magpie	*Pica nuttalli*
American crow	*Corvus brachyrhynchos*
Northern mockingbird	*Mimus polyglottos*
European starling	*Sturnus vulgaris*
Red-winged blackbird	*Agelaius phoeniceus*
Western meadowlark	*Sturnella neglecta*
Brewer's blackbird	*Euphagus cyanocephalus*
Brown-headed cowbird	*Molothrus ater*
House finch	*Carpodacus mexicanus*
Desert cottontail	*Sylvilagus audubonii*
Mammals	
Desert Cottontail	*Sylvilagus audubonii*
Black-tailed hare	*Lepus californicus*
Striped skunk	*Mephitis mephitis*

WETLAND MITIGATION PLAN

Aspen V South

TEICHERT AGGREGATES

SACRAMENTO COUNTY

Prepared for:

U.S. Army Corps of Engineers
Sacramento District

Sacramento County

California Department of Fish and Game

14 October 1994

SUGNET & ASSOCIATES
ENVIRONMENTAL CONSULTANTS
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ASPEN V SOUTH

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SECTION 1.0 | *SUMMARY*

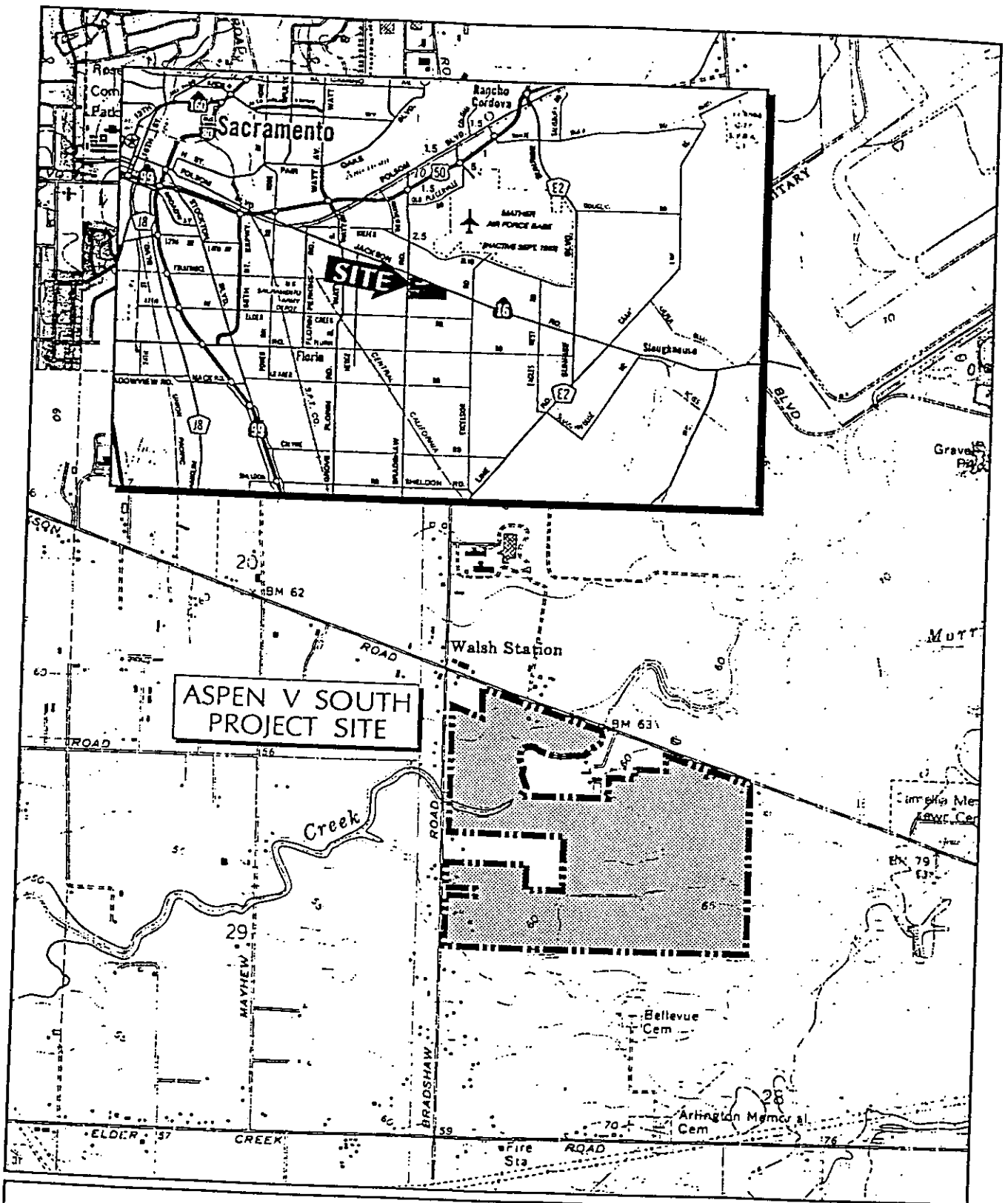
This wetland mitigation plan is submitted to address wetland impacts of mining the ±255- acre Aspen V South property (Figure 1-1). Wetland mitigation will take place within an unmined portion of the Aspen V South site, and approximately 5 acres of the site will be preserved as open space/wetlands compensation area. The project is designed to mitigate for impacts to wetlands by providing no net loss in wetland acreage and wetland functions consistent with Sacramento County policy. Table 1-1 summarizes impacts to waters of the U.S. and compensation acreages for those impacts.

Table 1-1. Waters of the U.S. -- Acreage, Impacts, and Compensation

Type	Acreage	Impact	Compensation
Morrison Creek	1.32	--	--
Wetlands			
Vernal Pool	0.85	--	--
Seasonal Wetland	0.13	--	--
Irrigated Seasonal Wetland	2.61	0.83	
Emergent Marsh	--	--	1.5
Total:	4.91	0.83	1.5

- A total of 1.5 acres of emergent marsh will be constructed within a preserve area near Morrison Creek. This emergent marsh is intended to compensate for impacts to 0.83 acres of irrigated seasonal wetlands.

This plan is illustrated in Figure 1-2.



PROJECT SITE AND VICINITY

FIGURE 1-1

SCALE IN FEET 0 1000 2000

"Carmichael Quadrangle" USGS 7.5 minute topographic map.

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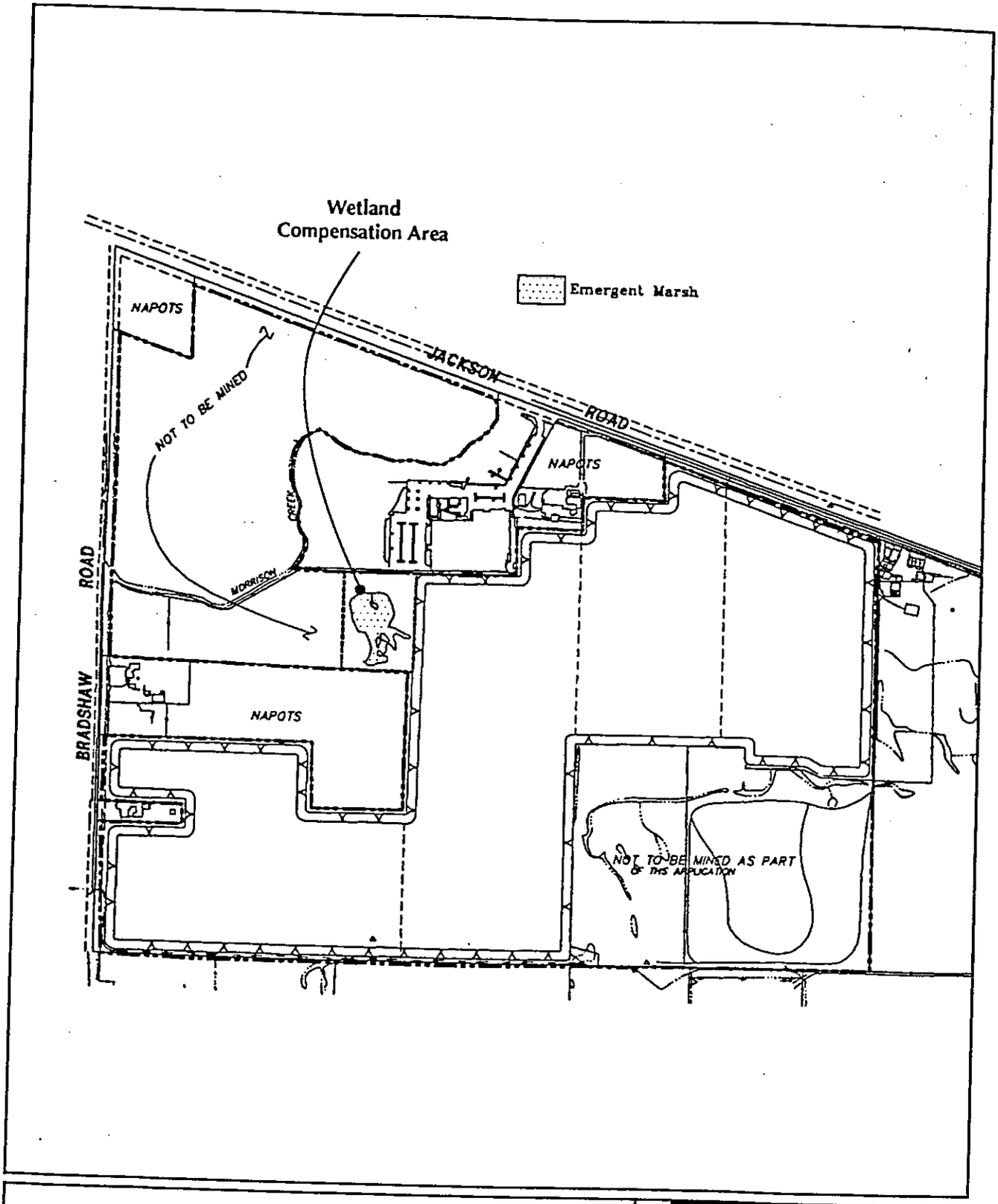
WMP: Aspen V South



WETLAND MITGATION PLAN

FIGURE 1-2

SCALE IN FEET 0 400 800

N

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File Name: ASSC8X11.DWG

WMP: Aspen V South

SECTION 2.0

INTRODUCTION

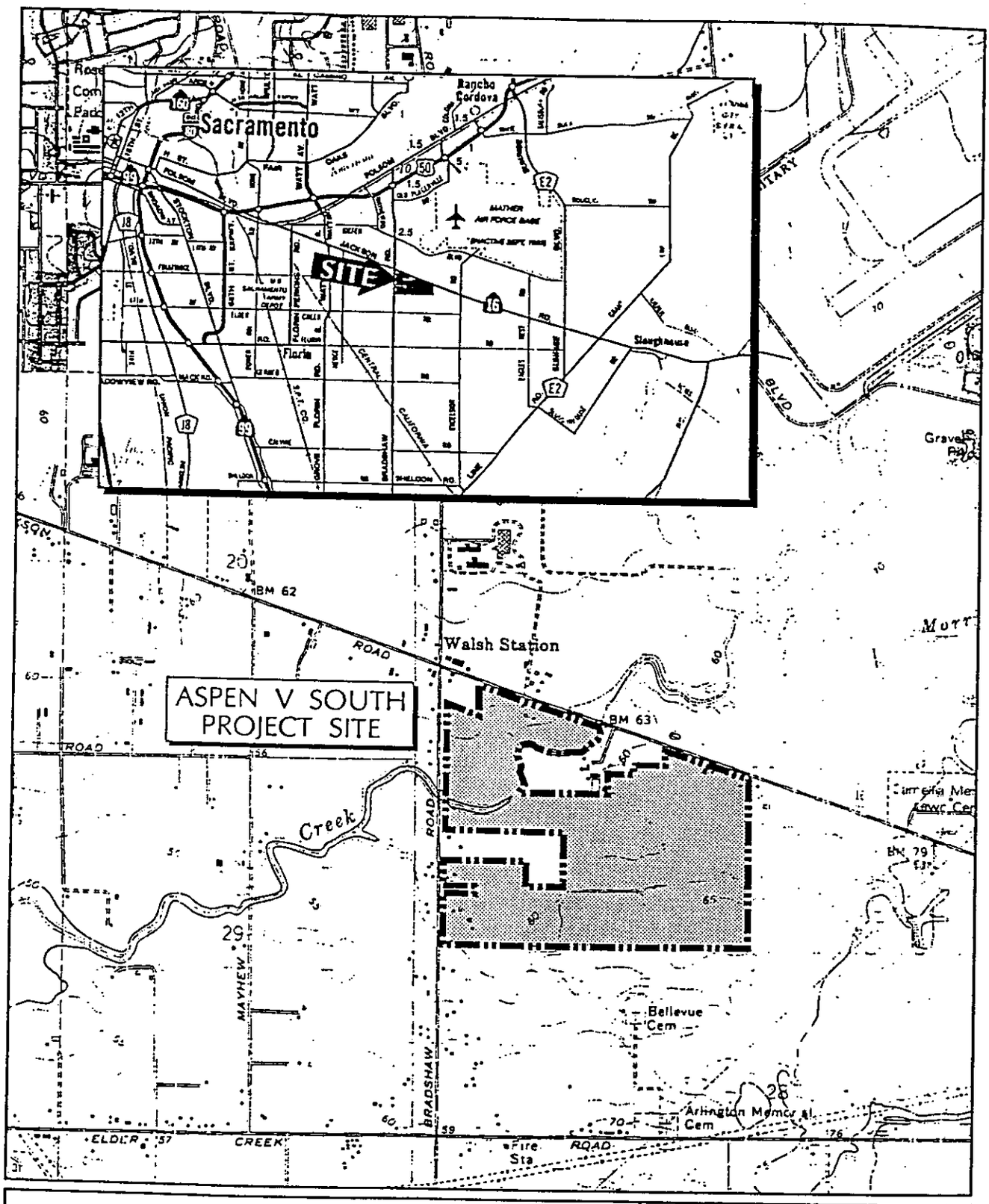
PROJECT DESCRIPTION

Teichert Aggregates intends to mine portions of Aspen V South, a ±255-acre site in Sacramento County, California. The subject property is an irregularly shaped parcel located southeast of the intersection of Bradshaw Road and Jackson Highway (Figure 2-1).

The purpose of the project is to mine aggregate resources to a depth of approximately 20 to 30 feet below existing site grade. At the completion of each phase of mining, the overburden (soils overlying the aggregate) will be replaced and the area reclaimed for agriculture. Mining will avoid Morrison Creek in the northwest portion of the site and a small group of vernal pools in the southeast portion of the site.

An assessment of wetland, hydrologic, and other sensitive biotic resources was conducted prior to the development of mining plans (Sugnet & Associates, 1994). The major wetland resources on the project site include vernal pools, seasonal wetlands, and Morrison Creek. Morrison Creek, because it only carries winter/spring flows, supports limited aquatic plant life. The on-site reach of Morrison Creek is flanked by a well-developed valley oak woodland, with typical riparian vegetation along the creek.

This mitigation plan is designed to compensate for unavoidable impacts to existing wetlands and Waters of the U.S. on the Aspen V South site with the goal of no net loss of total wetland habitat. Impacts to wetlands currently on site will be mitigated on unmined portions of the site prior to or concurrent with mining activities.



PROJECT SITE AND VICINITY

FIGURE 2-1

SCALE IN FEET 0 1000 2000

N

"Carmichael Quadrangle" USGS 7.5 minute topographic map.

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WMP: Aspen V South

The objectives of this wetland mitigation plan are:

- Compensation for project impacts to aquatic habitat.
- Long-term preservation of aquatic and riparian habitat.

EXISTING CONDITIONS

A wetland delineation of the project site was conducted in accordance with U.S. Army Corps of Engineers Methodology (U.S. Army Corps of Engineers, 1987). This delineation was field verified by Karen Shaffer of the Corps of Engineers on September 27, 1994. A letter of verification is pending.

A map of wetlands found on the project site is presented in Figure 2-2. Table 2-1 summarizes wetland type and acreage for the site.

- LAND USE

This rural site has primarily been used for grazing horses and cattle. Most of the site has been graded for use as irrigated pasture, and numerous small channels and pump locations direct the flow of irrigation water.

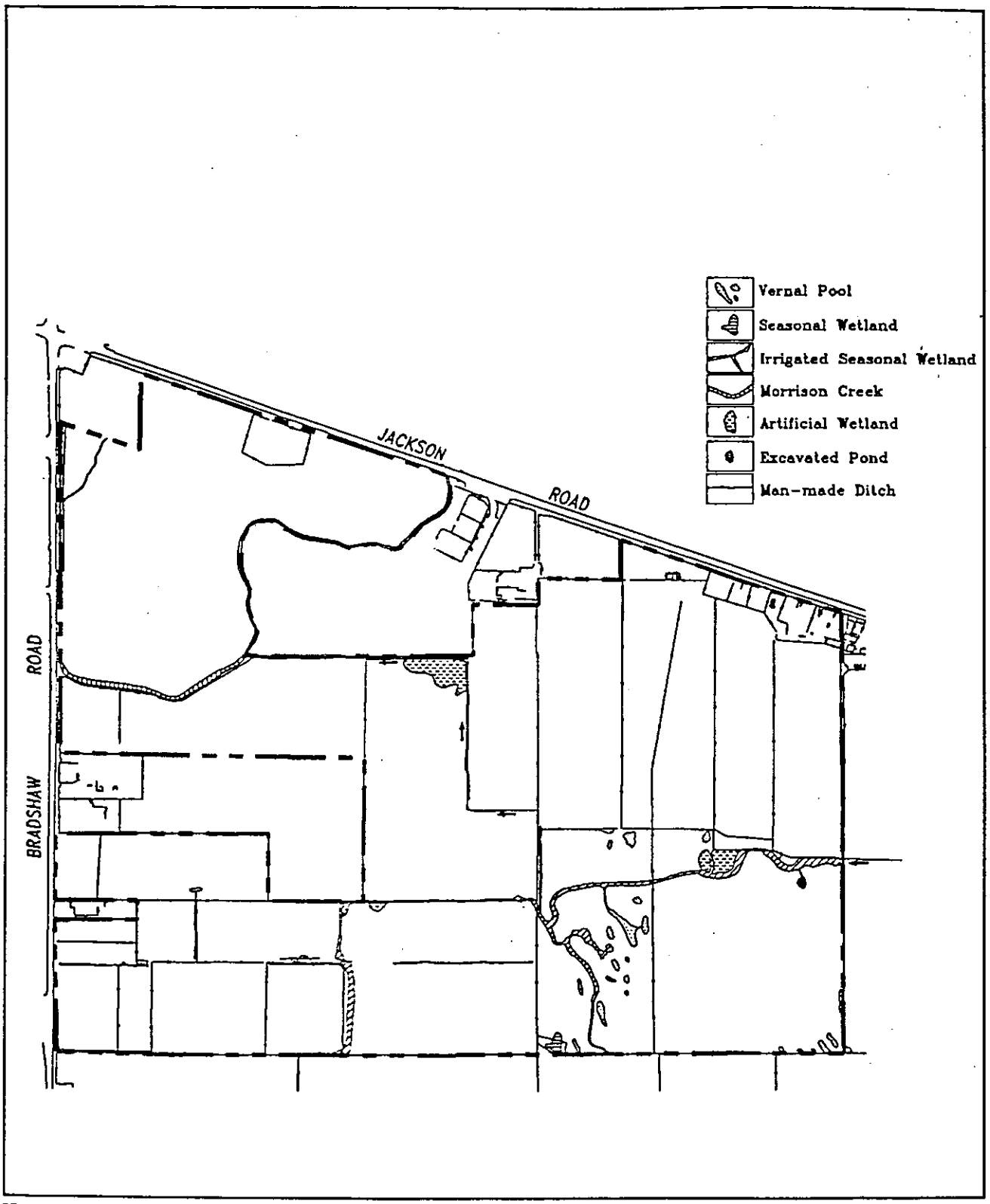
- HYDROLOGY

Morrison Creek

Entering from the middle of the northern boundary, Morrison Creek angles across the northwest corner of the site, draining off the property at Bradshaw Road. Morrison Creek is joined on site by a small man-made canal which carries irrigation runoff from nearby properties.

Groundwater

In the vicinity of the site, groundwater flows to the southwest. The direction of flow is caused by a large cone of depression southwest of the project site where ground water levels have been lowered due to intensive pumping. The water table occurs roughly from -30 to -10 feet (MSL) in the vicinity of the site. Since the elevation of the pit floor after excavation would be no lower than 6 to 12 feet (MSL), the mining operation would not intersect the water table.



WETLAND DELINEATION

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FIGURE 2-2

SCALE IN FEET
0 400 800

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File Name: A5WD8-2.DWG

WMP: Aspen V South

Table 2-1. Waters of the U.S. -- Existing Acreages

Type	Acres
Morrison Creek	1.32
Wetlands	
Vernal Pool	0.85
Seasonal Wetland	0.13
Irrigated Seasonal Wetland	2.61
Total:	4.91

Precipitation

Precipitation in this portion of Sacramento County averages approximately 18 inches annually, occurring as low to moderate-intensity rainfall primarily during the period from November through April.

- SOILS

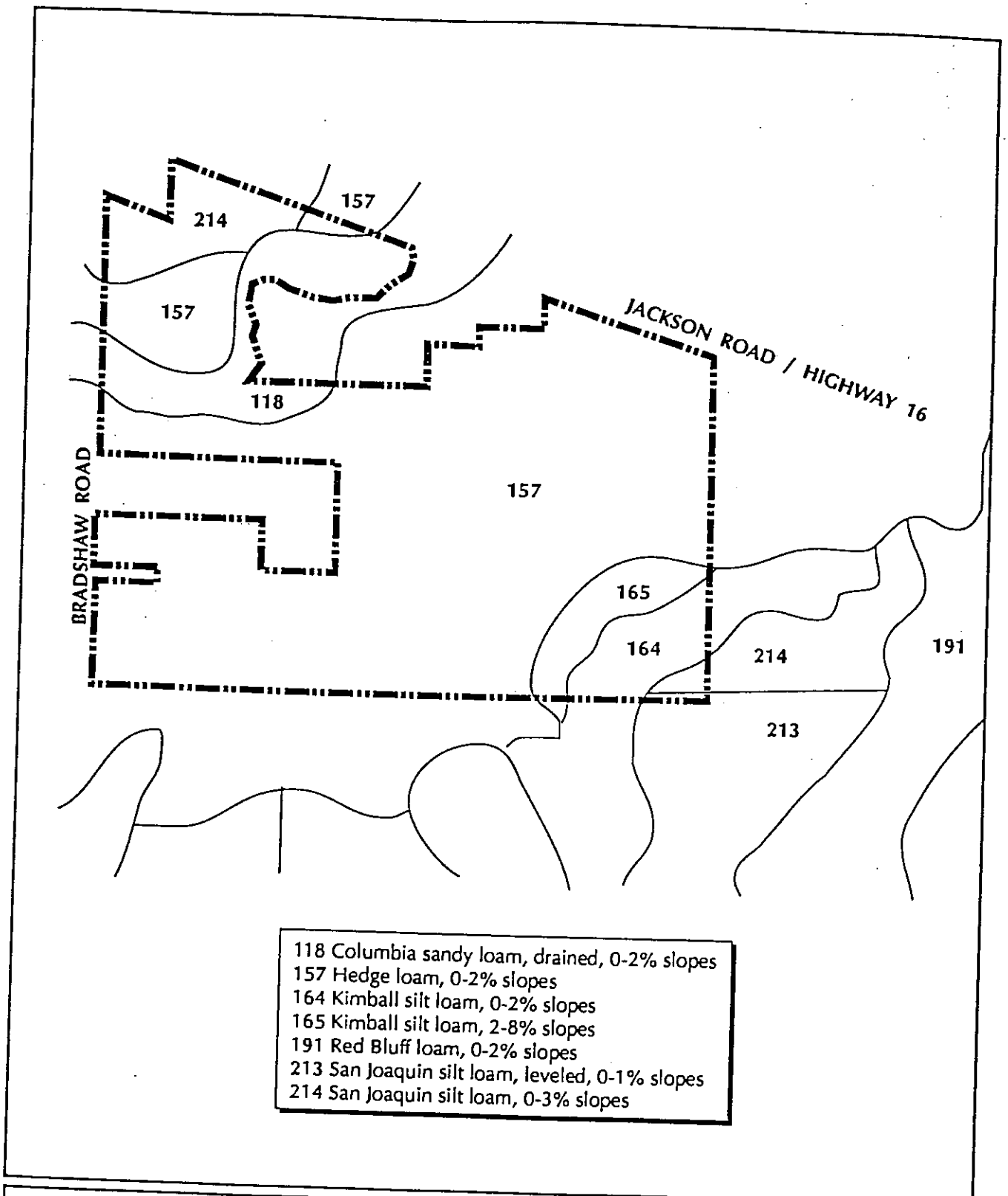
The project site is located on soils that formed in residuum from riverbank formation (alluvium). The soil survey of Sacramento County (USDA, Soil Conservation Service, 1990) maps five different soil types on the project site (Figure 2-3). Summary SCS descriptions follow:

118 Columbia sandy loam, drained, 0 to 2% slopes, occasionally flooded.

Drainage:	Poor
Permeability:	Moderately rapid
Water Capacity:	Moderate
Hydric Components:	Yes
Depth to hardpan:	Not Available
Uses:	Irrigated crops

157 Hedge loam, 0 to 2% slopes.

Drainage:	Moderately well-drained
Permeability:	Moderately slow
Water Capacity:	Low - moderate
Hydric Components:	No
Depth to hardpan:	20-40 inches
Uses:	Rangeland/Dryland crops



SOIL CONSERVATION SERVICE
SOIL TYPES

FIGURE 2-3

SCALE IN FEET 0 500 1000

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SCS Soil Survey, Sacramento County

WMP: Aspen V South

164 *Kimball silt loam, 0 to 2% slopes.*

Drainage:	Well-drained
Permeability:	Very slow
Water Capacity:	Moderate
Hydric Components:	No
Depth to hardpan:	40-60 inches
Uses:	Irrigated crops

165 *Kimball silt loam, 2 to 8% slopes.*

Drainage:	Well-drained
Permeability:	Very slow
Water Capacity:	Moderate
Hydric Components:	No
Depth to hardpan:	40-60 inches
Uses:	Irrigated hay/Pasture

191 *Red Bluff loam, 0 to 2% slopes.*

Drainage:	Well-drained
Permeability:	Moderately slow
Water Capacity:	High
Hydric Components:	Yes
Depth to hardpan:	Not Available
Uses:	Rangeland

213 *San Joaquin silt loam, leveled, 0 to 1% slopes.*

Drainage:	Moderately well-drained
Permeability:	Very slow
Water Capacity:	Low
Hydric Components:	No
Depth to hardpan:	23-40 inches
Uses:	Irrigated crops

214 *San Joaquin silt loam, 0 to 3% slopes.*

Drainage:	Moderately well-drained
Permeability:	Very slow
Water Capacity:	Low
Hydric Components:	Yes
Depth to hardpan:	23-40 inches
Uses:	Irrigated crops

- VEGETATION AND WILDLIFE

A majority of the Aspen V South project site is composed of agricultural fields or non-native grassland. Within the grassland, there are a variety of wetlands including vernal pools,

seasonal wetlands, irrigated seasonal wetlands, and artificial wetlands (e.g., man-made ditches). The following discussion is limited to the proposed mining area and the wetlands preservation and compensation area.

Annual Grassland/Pasture

Typical annual grassland in the Sacramento Region is characterized by non-native grasses and forbs. Dominant grassland species include soft chess (*Bromus hordeaceus*), ripgut brome (*Bromus diandrus*), medusa-head (*Taeniatherum caput-medusae*), filaree (*Erodium* spp.), wild oats (*Avena* spp.), star thistle (*Centaurea solstitalis*), tarweed (*Holocarpha virgata*), and Fitch's spikeweed (*Hemizonia fitchii*). Most of the mining area is comprised of irrigated pasture, non-irrigated pasture, and fallow fields. All of the grassland on-site has been disturbed by recent or historic agricultural uses such as discing, leveling, livestock grazing, and/or farming. A few trees, shrubs, and vines occur within the pasture areas, usually along fence lines. Many of these species are non-natives (e.g., Fig, Himalaya berry).

Irrigated Seasonal Wetlands

Due to summer irrigation on and near the project site, some of the interconnected seasonal wetlands receive supplemental water throughout the summer. These wetlands are topographically similar to the summer-dry seasonal wetlands and swales found in the project vicinity but, due to this irrigation water, these "seasonal" wetlands have vegetation more characteristic of emergent marsh habitat. There are 0.83 acres of irrigated seasonal wetlands within the mining area of the project site. Typical species in these areas include creeping spikerush (*Eleocharis macrostachya*), broad-leafed water plantain (*Alisma plantago-aquatica*), annual rabbit-foot grass, Hyssop loosestrife (*Lythrum hyssopifolium*), Hairy water fern (*Marsilea vestita*), southern cattail (*Typha domingensis*), spearmint (*Mentha spicata*), and smartweed (*Polygonum* spp.).

Special-Status Species

No special-status wetland species are known to occur in the proposed mining area.

WETLAND FUNCTIONS "IMPORTANT TO THE PUBLIC INTEREST"

The Corps of Engineers Regulatory Policy (33 C.F.R. parts 320-330) identifies wetland functions which are considered "important to the public interest" (33 C.F.R. Section 320.4(b)(2)). Realizing that "methods or determining the effects of a discharge," or "assessing

the functions of wetland," fail to satisfactorily address the administrative and technical requirements of the program, the Corps has recently published *A Conceptual Framework for Assessing the Functions of Wetlands* (TR WRP-DE-3) (Smith, 1993). The report outlines a conceptual framework and organizational structure for developing a method to assess the functions of wetlands which satisfies the administrative and technical requirements of the 404 Regulatory Program (Smith, 1993). The following functions and their associated benefits are outlined in Smith's publication. Sugnet & Associates has further observed that these functions can be further grouped based upon where and how the functions occur and the benefits are received, as follows:

1) **Functions which occur in wetlands, but are really features of the watershed as a whole:**
   - **Floodwater storage and/or conveyance**
   - **Groundwater recharge**

Any upland area within a watershed or adjacent to a waterway can potentially carry floodwater or infiltrate groundwater. Many wetlands fulfill these functions well, but jurisdictional wetland status is not a prerequisite to the function.

2) **Functions which occur at waterway margins, coincidentally by wetlands:**
   - **Storm surge buffer**
   - **Shoreline stabilization**
   - **Streambank stabilization**

These functions, by definition, occur at the margins of waterways. The presence of a wetland at the margin can be an effective means to fulfill these functions, but non-wetland features (such as non-erosive bedrock) could fulfill these functions as well.

3) **Functions which benefit downstream waterways:**
   - **Groundwater discharge**
   - **Nutrient removal / detention / transformation**
   - **Contaminant removal / detention / transformation**
   - **Sediment removal / detention**
   - **Production export and fisheries nursery**

These functions are normally specific to wetlands. Their primary benefits are realized not within the wetlands themselves, but within waterways adjacent to or downstream from the wetland. These functions result in improved downstream water quality, perennial flow during the dry season, and/or contribute to support of downstream food chains and biodiversity.

4) **Intrinsic Wetland Functions:**
   - **Maintenance of Biodiversity (including Special-Status Species)**
   - **Setting for Cultural Activities (including recreation, education, aesthetics, archeology, history)**

These functions are not only specific to wetlands, but can be quite specific to wetland type. The benefits of these functions are realized directly within the same wetland.

SITE-SPECIFIC ASSESSMENT OF WETLAND FUNCTIONS

The functions and benefits of the wetlands at the Aspen V South site have been identified using an evaluation of site-specific conditions. The indicators identified in *Wetland Evaluation Technique* (WET, Adamus, 1987), and *A Guide to Wetland Functional Design* (Marble, 1990) were utilized in conjunction with calculations of measurable features and the professional judgement of wetland biologists to perform this evaluation.

- **Floodwater storage and/or conveyance**

Flood control is a significant need in the Morrison Creek drainage basin. A flood control project is a high priority item for the County of Sacramento, in order to protect existing downstream developments. Future development, both up and down stream, will require floodwater storage, either on an individual project basis or in a regional planning context. The present creek configuration does not provide significant overbank storage or hydrologic delay.

- **Groundwater recharge**

Groundwater recharge is an important issue in the Sacramento area, where groundwater depletion and uncertainty of long-term supply are pressing concerns. The Aspen V South project site is located in an area where the groundwater elevation has been substantially depressed by years of pumping in excess of recharge. The presence of impervious layers at the surface, however, limits the potential for groundwater recharge in this area.

- **Storm surge buffer**

This is a function of wetlands located in coastal areas or on the margins of large lakes. It is not relevant to this site.

- **Shoreline stabilization**

This is a function of wetlands located in coastal areas or on the margins of large lakes. It is not relevant to this site.

- **Streambank stabilization**

Vegetation along the banks of Morrison Creek is generally sparse, providing little bank stabilization. Morrison Creek and its tributary drainage have distinctly incised channels in this reach, indicating long-term active erosion.

- **Groundwater discharge**

No evidence of groundwater discharge exists at this site.

- **Nutrient removal / detention / transformation**

This function results from the presence of broad, shallow, vegetated areas, preferably with a constricted outlet, resulting in extended hydraulic retention time and substantial contact between water and actively growing vegetation. This reach of Morrison Creek does not include any such configuration. Seasonal wetlands will tend to retain whatever nutrients they receive, but their very small watersheds limit the overall value of this function.

- **Contaminant removal / detention / transformation**

This function requires a similar wetland configuration as does nutrient removal, although the vegetation need not be actively growing. This project site does not include any such configuration.

- **Sediment removal / detention**

This function requires a either a similar wetland configuration as nutrient removal, or the presence of sufficiently deep pools to encourage physical settling. This project site does not include any such configuration.

- **Production export and fisheries nursery**

Morrison Creek is dry during summer and fall, greatly limiting its value as a fishery. Seasonal wetlands exhibit neither production export nor fisheries functions due to their lack of outlets and seasonal nature.

- **Maintenance of Biodiversity (including Special-Status Species)**

Morrison Creek contributes to local biodiversity as a seasonal water source for local wildlife, and also provides wildlife habitat in the riparian and woodland areas. Elderberry shrubs, providing potential habitat for the threatened VELB, are present along Morrison Creek. Some vernal pool habitat is present, supporting California endemic species and providing potential habitat for threatened vernal pool fairy shrimp (*Branchinecta lynchi*). The seasonal wetlands are typically dominated by non-native grasses and forbs.

- **Setting for Cultural Activities (including recreation, education, aesthetics, archeology, history)**

Public access to these wetlands is not presently allowed. No known cultural or historical resources are present.

These functions are summarized for the Aspen V South site in Table 2-2.

Table 2-2. **Summary of Wetland Functions**

Function	Extent	Measurement / Indicator
Floodwater storage/conveyance	Slight	Minimal spreading configuration
Groundwater recharge	Absent	Clay and hardpan soils
Storm surge buffer	Absent	Not relevant to this site
Shoreline stabilization	Absent	Not relevant to this site
Streambank stabilization	Slight	Sparse streambank vegetation
Groundwater discharge	Absent	No evidence
Nutrient removal	Absent	Lacks required configuration
Contaminant removal	Absent	Lacks required configuration
Sediment removal	Absent	Lacks required configuration
Production export	Slight	Morrison Creek
Maintenance of Biodiversity	Present	Woodland and VELB habitat along Morrison Creek. Vernal pool habitat.
Setting for Cultural Activities	Absent	No public use

SECTION 3.0

WETLAND MITIGATION PLAN

PROJECT IMPACTS

- WETLANDS TO BE EXCAVATED

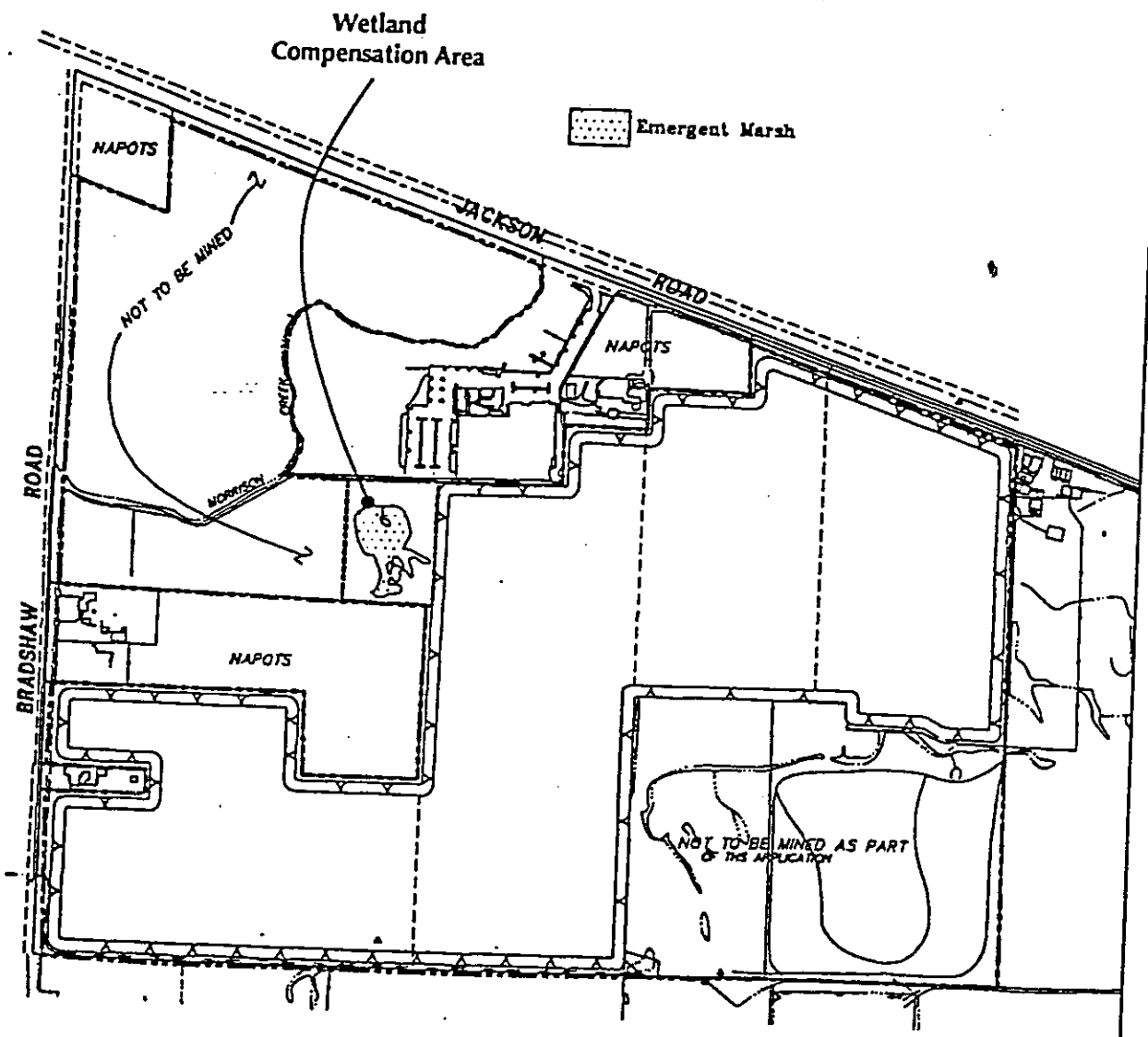
Proposed mining operations will result in the excavation 0.83 acres of irrigated seasonal wetland (Table 3-1). Impacts will occur over the 3-5 year life of the project, and mitigation for these impacts will preceed or be concurrent with wetland impacts.

MITIGATION PLAN

The conceptual wetland mitigation plan (Figure 3-1) is designed to result in no net loss of wetland acreage or function consistent with Sacramento County policy. Construction of 1.5 acres of emergent marsh on the reclaimed project site will ensure no net loss of wetland function. Figure 3-2 illustrates the components of the mitigation plan.

Table 3-1. Waters of the U.S. -- Acreage, Impacts, and Compensation

Type	Acreage	Impact	Compensation
Morrison Creek	1.32	--	--
Wetlands			
Vernal Pool	0.85	--	--
Seasonal Wetland	0.13	--	--
Irrigated Seasonal Wetland	2.61	0.83	
Emergent Marsh	--	--	1.5
Total:	4.91	0.83	1.5



WETLAND MITGATION PLAN

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FIGURE 3-1

SCALE IN FEET
0 400 800

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File Name: A5SC8X11.DWG

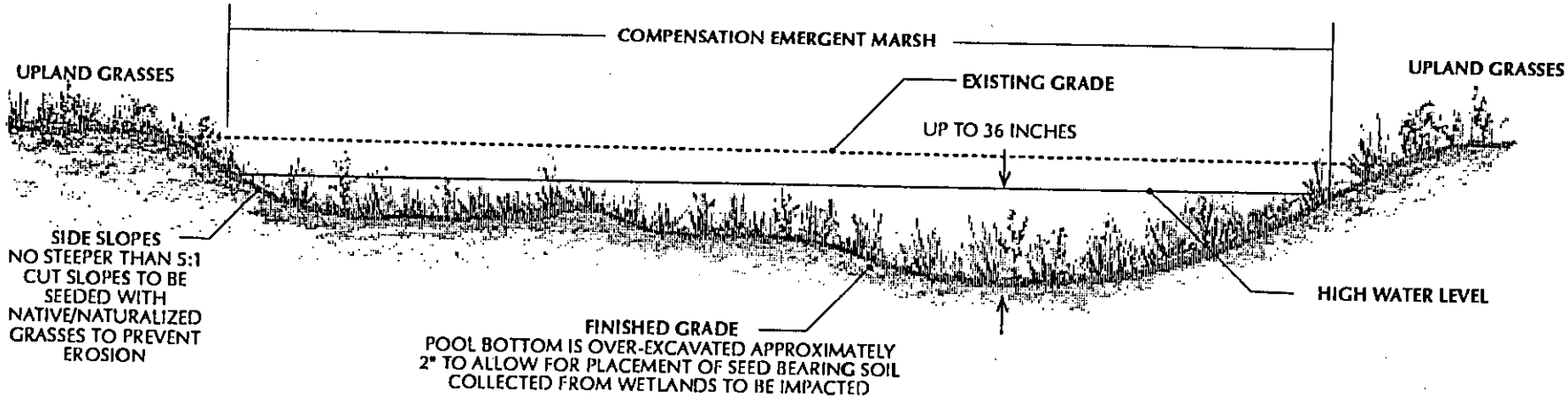
DESIGN SPECIFICATIONS

Wetland Depth: Up to 36"

Side Slopes: No steeper than 5:1; area to be ripped, inoculated with topsoil from the excavation of the compensation wetlands, and/or seeded.

Seed Source: Seed-bearing soil collected from wetlands to be impacted.

TYPICAL CROSS SECTION



SUGNET & ASSOCIATES ENVIRONMENTAL CONSULTANTS ©1994	DESIGN SPECIFICATIONS AND TYPICAL CROSS SECTION OF COMPENSATION EMERGENT MARSH	FIGURE 3-2 NOT TO SCALE

- MITIGATION IMPLEMENTATION AND PROJECT PHASING

Implementation of the mitigation plan will preceed or be concurrent with wetland impacts.

Emergent Marsh

These habitats will be inoculated with soil collected from on-site wetlands. Compensation emergent marsh will be located in an unmined wetland compensation area just south east of Morrison Creek.

Design specifications for compensation emergent marsh are presented in Figure 3-2. Performance standards are listed in Table 3-2.

Table 3-2. Emergent Marsh Performance Standards and Success Criteria

Emergent Marsh Performance Standards

- Emergent marsh habitat will contain a predominance of wetland plant species (facultative, facultative wetland, or obligate wetland).

Emergent Marsh Success Criteria

- Prevalence Index will be less than or equal to 3.0 (see Appendix).
- Species richness of wetland plant species will equal or exceed 10 species.

FUNCTIONS OF COMPENSATION WETLANDS

Compensation wetlands have been designed to provide appropriate floristic and wildlife habitat functions. Inundation has been designed to promote the growth of obligate wetland species, inhibit the growth of upland plants, and encourage wildlife use, especially migratory waterfowl and shorebirds.

The wetland functions analysis presented in Section 2.0 identified the functions present in the existing wetlands to be affected by this project. Table 3-3 presents a comparative summary of the anticipated functions of project site wetlands after implementation of the proposed compensation plan.

Table 3-3. Summary of Wetland Functions at Project Completion

Function	Existing Conditions	Post- Project
Floodwater storage/conveyance	Limited to existing floodplain/ floodway.	No significant change to creek capacity. Local direct rainfall retained in pit floor.
Ground-water recharge	Absent.	May increase following removal of aggregate substrates.
Streambank stabilization	Slight	No change.
Production export	Slight	No change.
Maintenance of Biodiversity	Present	All significant values preserved along Morrison Creek and in vernal pools.

All identified existing functions will continue at the present level or greater.

MONITORING REQUIREMENTS

Newly developed wetland habitat will be monitored for a minimum period of five consecutive growing seasons from the date that construction is complete or until success criteria have been met. Monitoring reports will be prepared and submitted to the County of Sacramento annually for five years. Monitoring reports will include complete plant species lists, success rating per success criteria, assessment of data, and a report concerning any needed maintenance treatments. Should monitoring indicate that growing conditions are other than those anticipated, a modified plan which will assure successful development of new wetland habitat will be submitted to Sacramento County for approval.

In addition to habitat monitoring for Clean Water Act and CEQA compliance, the project—including habitat restoration areas—will be inspected annually by the Department of Public Works to ensure compliance with the Surface Mining and Reclamation Act. A report documenting the findings of these annual inspections will be submitted to the County of Sacramento and the State Office of Mine Reclamation Compliance.

SECTION 4.0

REFERENCES

Adamus, P.R., Clairain, E.J., Jr. Smith, R.D., and Young, R.E. 1987. *"Wetland Evaluation Technique (WET): Volume II: Methodology"*, Operational Draft Technical Report Y-87, U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi.

Marble, A.D. 1990. *A Guide to Wetland Functional Design*. Report Number FHWA-IP-90-010. Federal Highway Administration, McLean, VA.

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SECTION 5.0

APPENDICES

Appendix A:	Plant Species List
Appendix B:	Animal Species List
Appendix C:	Delineation Verification Letter
Appendix D:	Prevalence Index Calculation
Appendix E:	Wetland Compensation Plan (1"=200')

Appendix A:

Plant Species List

Apendix A. Plant Species at Aspen V South

Common Name	Scientific Name
Goat grass	*Aegilops species*
Broad-leaf water plantain	*Alisma plantago-aquatica*
White alder	*Alnus rhombifolia*
Fiddle-neck	*Amsinckia species*
Mugwort	*Artemisia douglasiana*
Wild oat	*Avena species*
Black mustard	*Brassica nigra*
Ripgut brome	*Bromus diandrus*
Soft brome	*Bromus hordeaceus*
Yellow star-thistle	*Centaurea solstitalis*
Chickweed	*Cerastium species*
Goosefoot	*Chenopodium species*
Chicory	*Cichorium intybus*
Thistle	*Cirsium species*
Bull thistle	*Cirsium vulgare*
Morning glory	*Convolvulus arvensis*
Brassbuttons	*Cotula coronopifolia*
Water pygmy-weed	*Crassula aquatica*
Vernal pool dodder	*Cuscuta howelliania*
Bermuda grass	*Cynodon dactylon*
Tall flatsedge	*Cyperus eragrostis*
Annual hairgrass	*Deschampsia danthonioides*
Downingia	*Downingia species*
Barnyard grass	*Echinochloa crusgalli*
Creeping spikerush	*Eleocharis macrostachya*
Blue wild-rye	*Elymus glaucus*
Cleistogamous spike-primrose	*Epilobium cleistogamum*
Turkey mullien	*Eremocarpus setigerus*
Vasey's coyote-thistle	*Eryngium vaseyi*
Manna grass	*Glyceria species*
Fitch's spikeweed	*Hemizonia fitchii*
Mediterranean barley	*Hordeum marinum*
Smooth cat's-ear	*Hypochaeris glabra*
Baltic rush	*Juncus balticus*
Prickly lettuce	*Lactuca serriola*
Fremont's goldfields	*Lasthenia fremontii*
Perennial ryegrass	*Lolium perenne*
Bird's foot trefoil	*Lotus species*

Apendix A. Plant Species at Aspen V South (con't)

Common Name	Scientific Name
Water primrose	*Ludwigia peploides*
Hyssop loosestrife	*Lythrum hyssopifolia*
Loosestrife	*Lythrum spp.*
Common horehound	*Marrubium vulgare*
Hairy water fern	*Marsilea vestita*
Bur clover	*Medicago polymorpha*
Spearmint	*Mentha spicata*
White-head navarretia	*Navarretia leucocephala*
Dallisgrass	*Paspalum dilatatum*
Canary grass	*Phalaris species*
Slender popcorn-flower	*Plagiobothrys stipitatus*
English plantain	*Plantago lanceolata*
Sacramento mesamint	*Pogogyne zizyphoroides*
Smartweed	*Polygonum spp.*
Annual rabbit-foot grass	*Polypogon monspeliensis*
Fremont's cotton-wood	*Populus fremontii*
Almond	*Prunus spp.*
Dwarf woolly-heads	*Psilocarphus brevissimus*
Blue oak	*Quercus douglasii*
Black oak	*Quercus kelloggii*
Spiny-fruit butter-cup	*Ranunculus muricatus*
Yellow wild radish	*Raphanus raphanistrum*
Yellow cress	*Rorippa curvisiliqua*
Himalaya blackberry	*Rubus discolor*
Sheep sorrel	*Rumex acetosella*
Curly dock	*Rumex crispus*
Fiddle dock	*Rumex pulcher*
Arrow-head	*Sagittaria species*
Willow	*Salix species*
Mexican elderberry	*Sambucus mexicana*
Medusahead grass	*Taeniatherum caput-medusae*
Poison oak	*Toxicodendron diversilobum*
Clover	*Trifolium spp.*
Southern cattail	*Typha domingensis*
Broad-leaf cattail	*Typha latifolia*
Rough cockle-bur	*Xanthium strumarium*

Appendix B. Animal Species Observed at Aspen V South

Common Name	Scientific Name
Amphibians	
Pacific chorus frog	*Pseudacris regilla*
Bullfrog	*Rana catesbeiana*
Reptiles	
Western terrestrial garter snake	*Thamnophis elegans*
Birds	
Great blue heron	*Ardea herodias*
Great egret	*Casmerodius albus*
Cattle egret	*Bubulcus ibis*
Green heron	*Butorides virescens*
Mallard	*Anas platyrhynchos*
Turkey vulture	*Cathartes aura*
Red-shouldered hawk	*Buteo lineatus*
Red-tailed hawk	*Buteo jamaicensis*
American kestrel	*Falco sparverius*
Ring-necked pheasant	*Phasianus colchicus*
California quail	*Callipepla californica*
Killdeer	*Charadrius vociferus*
Black-necked stilt	*Himantopus mexicanus*
Mourning dove	*Zenaida macroura*
Barn owl	*Tyto alba*
Belted kingfisher	*Ceryle alcyon*
Western kingbird	*Tyrannus verticalis*
Cliff swallow	*Hirundo pyrrhonata*
Scrub jay	*Aphelocoma coerulescens*
Yellow-billed magpie	*Pica nuttalli*
American crow	*Corvus brachyrhynchos*
Northern mockingbird	*Mimus polyglottos*
European starling	*Sturnus vulgaris*
Red-winged blackbird	*Agelaius phoeniceus*
Western meadowlark	*Sturnella neglecta*
Brewer's blackbird	*Euphagus cyanocephalus*
Brown-headed cowbird	*Molothrus ater*
House finch	*Carpodacus mexicanus*
Desert cottontail	*Sylvilagus audubonii*
Mammals	
Desert Cottontail	*Sylvilagus audubonii*
Black-tailed hare	*Lepus californicus*
Striped skunk	*Mephitis mephitis*

Appendix C:

Delineation Verification Letter

PENDING

Appendix D:

Prevalence Index Calculation

Prevalence Index Calculation

The Prevalence Index is a method of wetland assessment used in the National Food Security Act Manual (1992). It is based on the relative abundance of a given species in a wetland, and each species is assigned a weighting (from 1 to 5) based on the species' wetland indicator status as published in the National Inventory of Plants that Occur in Wetlands (1988).

The weightings are applied as follows:

1 - Obligate Wetland Species (OBL)
2 - Facultative Wetland Species (FACW)
3 - Facultative Species (FAC)
4 - Facultative Upland Species (FACU)
5 - Upland Species (UPL)

The Prevalence Index (PI) is calculated as follows:

$$PI = \frac{1*f(OBL) + 2*f(FACW) + 3*f(FAC) + 4*f(FACU) + 5*f(UPL)}{f(OBL) + f(FACW) + f(FAC) + f(FACU) + F(UPL)}$$

where: f(OBL) = a measure of abundance of Obligate Species
f(FACW) = a measure of abundance of Facultative Wetland Species
and so on.

Values for the Prevalence Index range from 1 to 5. Based on the above formula, a wetland with all FAC species would have a PI value of three, a wetland with all OBL species would have a PI value of one, and combinations of species of various indicator status would yield PIs based on their relative abundance.

A Prevalence Index of three or less indicates that the area under study is a wetland, while a Prevalence Index of greater than three indicates that the area under study is not a wetland.

Appendix E:

Wetland Compensation Plan (1"=200')

APPENDIX C

TRAFFIC AND CIRCULATION - BACKGROUND INFORMATION

Morrison Creek Mining Reach Downstream (South) of Jackson Highway EIR/EIS

Traffic and Circulation Background Data

Prepared for:
Sacramento County
United States Army Corps of Engineers

Prepared by:
Dowling Associates

Table B-1
Intersection Levels of Service
Existing Conditions

Intersection	AM Peak Hour		PM Peak Hour	
	V/C	Level of Service	V/C	Level of Service
Elder Creek Rd at S. Watt Ave	0.84	C	1.26	F
Elder Creek Rd at Mayhew Rd	574[a]	A	606[a]	A
Elder Creek Rd at Bradshaw Rd	0.77	C	0.87	D
Bradshaw Rd at Jackson Rd	1.35	F	1.08	F
Bradshaw Rd at Kiefer Blvd	0.52	A	0.73	C
Jackson Rd at Mayhew Rd	243[a]	C	171[a]	D

[a] Unused capacity is shown for 2-way stop controlled intersections.

Table B-2
Roadway Segment Levels of Service
Existing Conditions

Roadway	Segment		AM Peak Hour		PM Peak Hour	
Name	From	To	V/C	Level of Service	V/C	Level of Service
Jackson Rd	S. Watt Ave	Mayhew Rd	0.77	C	0.95	E
	Mayhew Rd	Bradshaw Rd	0.77	C	0.95	E
Elder Creek Rd	S. Watt Ave	Hedge Ave	0.26	A	0.32	A
	Hedge Ave	Mayhew Rd	0.28	A	0.28	A
	Mayhew Rd	Bradshaw Rd	0.27	A	0.27	A
S. Watt Ave	Kiefer Blvd	Jackson Rd	0.83	D	0.80	D
	Jackson Rd	Fruitridge Rd	1.00	F	1.04	F
	Fruitridge Rd	Elder Creek Rd	0.73	C	0.79	C
	Elder Creek Rd	Florin Rd	0.61	B	0.64	B
Mayhew Rd	Jackson Rd	Fruitridge Rd	0.01	A	0.01	A
	Fruitridge Rd	Elder Creek Rd	0.00	A	0.00	A
Bradshaw Rd	Kiefer Blvd	Jackson Rd	0.75	C	0.83	D
	Jackson Rd	Elder Creek Rd	1.19	F	1.29	F
	Elder Creek Rd	Florin Rd	1.11	F	1.18	F

Table B-3
Intersection Levels of Service
For Project Alternatives (Existing Conditions)
AM Peak Hour (PM Peak Hour)

Intersection	No Project		Scenario 1		Scenario 2		Scenario 3		Scenario 4	
	V/C	Level of Service	V/C	Level of Service	V/C	Level of Service	V/C	Level of Service	V/C	Level of Service
Elder Creek Rd at S. Watt Ave (urban)	0.84 (1.26)	C (F)	0.86 (1.28[c])	C (F)	0.86 (1.28[c])	C (F)	0.86 (1.28[c])	C (F)	0.85 (1.27[c])	C (F)
Elder Creek Rd at Mayhew Rd (rural)	574[a] (606[a])	A (A)	441[a] (453[a])	A (A)	432[a] (444[a])	A (A)	441[a] (453[a])	A (A)	504[a] (520[a])	A (A)
Elder Creek Rd at Bradshaw Rd (rural)	0.77 (0.87)	C (D)	0.82 (0.93)	D (E[c])	0.82 (0.93)	D (E[c])	0.82 (0.93)	D (E[c])	0.80 (0.91)	D (E[c])
Bradshaw Rd at Jackson Rd[b] (urban)	0.82 (0.75)	D (C)	0.86 (0.79)	D (C)	0.86 (0.79)	D (C)	0.84 (0.80)	D (D)	0.85 (0.79)	D (C)
Bradshaw Rd at Kiefer Blvd (urban)	0.52 (0.73)	A (C)	0.54 (0.75)	A (C)	0.54 (0.75)	A (C)	0.54 (0.75)	A (C)	0.54 (0.75)	A (C)
Jackson Rd at Mayhew Rd (urban)	243[a] (171[a])	C (D)	210[a] (145[a])	C (D)	215[a] (151[a])	C (D)	235[a] (167[a])	C (D)	231[a] (163[a])	C (D)

[a] Unused capacity is shown for 2-way stop controlled intersections.

[b] Improvements planned for FY-95/96 are assumed to be in place.

[c] Potentially significant adverse impact.

Note: County LOS standards are LOS D for "Rural" roadways and LOS E for "Urban" roadways. Therefore, any reduction in LOS beyond the County Standards would be considered a potentially significant adverse impact.

Table B-4
Roadway Segment Levels of Service
For Project Alternatives (Existing Conditions)
AM Peak Hour (PM Peak Hour)

Roadway	Segment		No Project		Scenario 1		Scenario 2		Scenario 3		Scenario 4	
Name	From	To	V/C	Level of Service	V/C	Level of Service	V/C	Level of Service	V/C	Level of Service	V/C	Level of Service
Jackson Rd	S. Watt Ave (urban)	Mayhew Rd	0.77 (0.95)	C (E)	0.79 (0.97)	C (E)	0.79 (0.97)	C (E)	0.79 (0.97)	C (E)	0.79 (0.97)	C (E)
	Mayhew Rd (urban)	Bradshaw Rd	0.77 (0.95)	C (E)	0.83 (1.01)	D (F[a])	0.82 (1.00)	D (E)	0.79 (0.97)	D (E)	0.79 (0.97)	C (E)
Elder Creek Rd	S. Watt Ave (rural)	Hedge Ave	0.26 (0.32)	A (A)	0.28 (0.34)	A (A)	0.28 (0.34)	A (A)	0.28 (0.34)	A (A)	0.27 (0.33)	A (A)
	Hedge Ave (rural)	Mayhew Rd	0.28 (0.28)	A (A)	0.30 (0.30)	A (A)	0.30 (0.30)	A (A)	0.30 (0.30)	A (A)	0.29 (0.29)	A (A)
	Mayhew Rd (rural)	Bradshaw Rd	0.27 (0.27)	A (A)	0.40 (0.40)	A (A)	0.41 (0.40)	A (A)	0.40 (0.40)	A (A)	0.35 (0.34)	A (A)
S. Watt Ave	Kiefer Blvd (urban)	Jackson Rd	0.83 (0.80)	D (D)	0.83 (0.80)	D (D)	0.83 (0.80)	D (D)	0.83 (0.80)	D (D)	0.83 (0.80)	D (D)
	Jackson Rd (urban)	Fruitridge Rd	1.00 (1.04)	F (F)	1.01[a] (1.06[a])	F (F)	1.01[a] (1.06[a])	F (F)	1.01[a] (1.06[a])	F (F)	1.01[a] (1.05[a])	F (F)
	Fruitridge Rd (urban)	Elder Creek Rd	0.73 (0.79)	C (C)	0.75 (0.81)	C (D)	0.75 (0.81)	C (D)	0.75 (0.81)	C (D)	0.74 (0.80)	C (D)
	Elder Creek Rd (urban)	Florin Rd	0.61 (0.64)	B (B)	0.62 (0.65)	B (B)	0.62 (0.65)	B (B)	0.62 (0.65)	B (B)	0.61 (0.65)	B (B)
Mayhew Rd	Jackson Rd (rural)	Fruitridge Rd	0.01 (0.01)	A (A)	0.08 (0.08)	A (A)	0.07 (0.07)	A (A)	0.01 (0.01)	A (A)	0.01 (0.01)	A (A)
	Fruitridge Rd (rural)	Elder Creek Rd	0.00 (0.00)	A (A)	0.15 (0.15)	A (A)	0.16 (0.16)	A (A)	0.15 (0.15)	A (A)	0.09 (0.09)	A (A)
Bradshaw Rd	Kiefer Blvd (urban)	Jackson Rd	0.75 (0.83)	C (D)	0.79 (0.87)	C (D)	0.79 (0.87)	C (D)	0.79 (0.87)	C (D)	0.79 (0.87)	C (D)
	Jackson Rd (rural)	Elder Creek Rd	1.19 (1.29)	F (F)	1.30[a] (1.40[a])	F (F)	1.29[a] (1.39[a])	F (F)	1.30[a] (1.40[a])	F (F)	1.27[a] (1.37[a])	F (F)
	Elder Creek Rd (rural)	Florin Rd	1.11 (1.18)	F (F)	1.12[a] (1.19[a])	F (F)	1.12[a] (1.19[a])	F (F)	1.12[a] (1.19[a])	F (F)	1.13[a] (1.20[a])	F (F)

[a] Potentially significant adverse impact.

Note: County LOS standards are LOS D for "Rural" roadways and LOS E for "Urban" roadways. Therefore, any reduction in LOS beyond the County Standards would be considered a potentially significant adverse impact.

Table B-5
Intersection Levels of Service
Cumulative Conditions Without Project

Intersection	AM Peak Hour		PM Peak Hour	
	V/C	Level of Service	V/C	Level of Service
Elder Creek Rd at S. Watt Ave	0.86	D	.91	E
Elder Creek Rd at Mayhew Rd	204 [a]	C	209 [a]	C
Elder Creek Rd at Bradshaw Rd	0.91	E	1.04	F
Bradshaw Rd at Jackson Rd	0.95	E	0.95	E
Bradshaw Rd at Kiefer Blvd	1.06	F	0.98	E
Jackson Rd at Mayhew Rd	84 [a]	F	88 [a]	E

[a] Unused capacity is shown for 2-way stop controlled intersections.

Table B-6
Roadway Segment Levels of Service
Cumulative Conditions Without Project

Roadway	Segment		AM Peak Hour		PM Peak Hour	
Name	From	To	V/C	Level of Service	V/C	Level of Service
Jackson Rd	S. Watt Ave	Mayhew Rd	0.51	A	0.44	A
	Mayhew Rd	Bradshaw Rd	0.51	A	0.44	A
Elder Creek Rd	S. Watt Ave	Hedge Ave	0.87	D	1.08	F
	Hedge Ave	Mayhew Rd	0.93	E	0.95	E
	Mayhew Rd	Bradshaw Rd	0.90	E	0.89	D
S. Watt Ave	Kiefer Blvd	Jackson Rd	0.97	E	0.89	D
	Jackson Rd	Fruitridge Rd	0.85	D	0.78	C
	Fruitridge Rd	Elder Creek Rd	0.68	B	0.74	C
	Elder Creek Rd	Florin Rd	0.57	A	0.60	A
Mayhew Rd	Jackson Rd	Fruitridge Rd	0.01	A	0.02	A
	Fruitridge Rd	Elder Creek Rd	0.01	A	0.01	A
Bradshaw Rd	Kiefer Blvd	Jackson Rd	1.12	F	1.00	F
	Jackson Rd	Elder Creek Rd	1.15	F	1.21	F
	Elder Creek Rd	Florin Rd	1.04	F	1.10	F

Table B-7
Intersection Levels of Service
For Project Alternatives (Cumulative Conditions)
AM Peak Hour (PM Peak Hour)

Intersection	No Project		Project (Scenario 2)	
	V/C	Level of Service	V/C	Level of Service
Elder Creek Rd at S. Watt Ave (urban)	0.86 (0.91)	D (E)	0.87 (0.91)	D (E)
Elder Creek Rd at Mayhew Rd (rural)	204 [a] (209 [a])	C (C)	79 [a] (87 [a])	E [b] (E [b])
Elder Creek Rd at Bradshaw Rd (rural)	0.91 (1.04)	E (F)	0.94 [b] (1.06 [b])	E (F)
Bradshaw Rd at Jackson Rd (urban)	0.95 (0.95)	E (E)	0.96 (0.98)	E (E)
Bradshaw Rd at Kiefer Blvd (urban)	1.06 (0.98)	F (E)	1.07 [b] (0.99)	F (E)
Jackson Rd at Mayhew Rd (urban)	84 [a] (88 [a])	E (E)	64 [a] (79 [a])	E (E)

[a] Unused capacity is shown for 2-way stop controlled intersections.

[b] Potentially significant adverse impact.

Note: County LOS standards are LOS D for "Rural" roadways and LOS E for "Urban" roadways. Therefore, any reduction in LOS beyond the County Standards would be considered a potentially significant adverse impact.

Table B-8
Roadway Segment Levels of Service
For Project Alternatives (Cumulative Conditions)
AM Peak Hour (PM Peak Hour)

Roadway	Segment		No Project		Project (Scenario 2)	
Name	From	To	V/C	Level of Service	V/C	Level of Service
Jackson Rd	S. Watt Ave (urban)	Mayhew Rd	0.51 (0.44)	A (A)	0.52 (0.44)	A (A)
	Mayhew Rd (urban)	Bradshaw Rd	0.51 (0.44)	A (A)	0.53 (0.45)	A (A)
Elder Creek Rd	S. Watt Ave (rural)	Hedge Ave	0.87 (1.08)	D (F)	0.90 (1.10 [a])	D (F)
	Hedge Ave (rural)	Mayhew Rd	0.93 (0.95)	E (E)	0.95 [a] (0.97 [a])	E (E)
	Mayhew Rd (rural)	Bradshaw Rd	0.90 (0.89)	E (D)	1.07 (1.05)	F [a] (F [a])
S. Watt Ave	Kiefer Blvd (urban)	Jackson Rd	0.97 (0.89)	E (D)	0.97 (0.89)	E (D)
	Jackson Rd (urban)	Fruitridge Rd	0.85 (0.78)	D (C)	0.85 (0.79)	D (C)
	Fruitridge Rd (urban)	Elder Creek Rd	0.68 (0.74)	B (C)	0.69 (0.75)	B (C)
	Elder Creek Rd (urban)	Florin Rd	0.57 (0.60)	A (A)	0.57 (0.60)	A (A)
Mayhew Rd	Jackson Rd (rural)	Fruitridge Rd	0.01 (0.02)	A (A)	0.08 (0.09)	A (A)
	Fruitridge Rd (rural)	Elder Creek Rd	0.01 (0.01)	A (A)	0.20 (0.20)	A (A)
Bradshaw Rd	Kiefer Blvd (urban)	Jackson Rd	1.12 (1.00)	F (F)	1.15 [a] (1.02 [a])	F (F)
	Jackson Rd (rural)	Elder Creek Rd	1.15 (1.21)	F (F)	1.19 [a] (1.24 [a])	F (F)
	Elder Creek Rd (rural)	Florin Rd	1.04 (1.10)	F (F)	1.04 (1.11 [a])	F (F)

[a] Potentially significant adverse impact.

Note: County LOS standards are LOS D for "Rural" roadways and LOS E for "Urban" roadways. Therefore, any reduction in LOS beyond the County Standards would be considered a potentially significant adverse impact.

Table B-9
Peak Hour Percent of 24-Hour Traffic

Roadway	Segment		Existing Conditions			Cumulative Conditions		
Name	From	To	24-Hour Volume	Peak Hour Volume	Peak Hr/ 24-Hour	24-Hour Volume	Peak Hour Volume	Peak Hr/ 24-Hour
Jackson Rd	Watt Ave	Bradshaw Rd	12,200	1,160	9.5%	37,200	2,140	5.8%
	Bradshaw Rd	Excelsior Rd	9,900	1,040	10.5%	24,900	1,950	7.8%
Kiefer Blvd	Mayhew Rd	Bradshaw Rd	8,900	740	8.3%	25,400	1,950	7.7%
Elder Creek Rd	Elk Grove Florin Rd	Bradshaw Rd	3,400	340	10.0%	9,700	750	7.7%
Bradshaw Rd	Florin Rd	Elder Creek Rd	12,700	1,210	9.5%	51,100	3,930	7.7%
	Elder Creek Rd	Jackson Rd	15,400	1,490	9.7%	62,000	4,800	7.7%
	Jackson Rd	Kiefer Blvd	20,800	2,040	9.8%	51,300	4,680	9.1%
	Kiefer Blvd	Old Placerville Rd	28,400	2,000	7.0%	55,200	4,330	7.8%
Excelsior Rd	Elder Creek Rd	Jackson Rd	2,200	190	8.6%	N/A	N/A	N/A
System Totals			113,900	10,210	9.0%	316,800	24,530	7.7%

Table B-10
Peak Hour Traffic Capacities*

EXISTING CONDITIONS			
Roadway Classification	24-Hour	%	Peak Hr
Principal Arterial Expressway	20,000	9.0%	1,800
Principal Arterial Divided	18,000	9.0%	1,620
Principal Arterial Undivided	15,000	9.0%	1,350
CUMULATIVE CONDITIONS			
Roadway Classification	24-Hour	%	Peak Hr
Principal Arterial Expressway	20,000	7.7%	1,540
Principal Arterial Divided	18,000	7.7%	1,386
Principal Arterial Undivided	15,000	7.7%	1,155

* Two-lane roadway capacities; capacities for multi-lane roadways are proportional to the number of lanes.

ROADWAY SEGMENT LEVEL OF SERVICE
EXISTING TRAFFIC

Roadway	Segment		No.	Road	AM Peak Hour			PM Peak Hour		
Name	From	To	of Lanes	Class	Volume	V/C	Level of Service	Volume	V/C	Level of Service
Jackson Rd	Watt Ave	Mayhew Rd	2	PAU	1,040	0.77	C	1,285	0.95	E
	Mayhew Rd	Bradshaw Rd	2	PAU	1,040	0.77	C	1,285	0.95	E
Elder Creek Rd	Watt Ave	Hedge Ave	2	PAU	349	0.26	A	433	0.32	A
	Hedge Ave	Mayhew Rd	2	PAU	372	0.28	A	379	0.28	A
	Mayhew Rd	Bradshaw Rd	2	PAU	363	0.27	A	358	0.27	A
Watt Ave	Kiefer Blvd	Jackson Rd	4	PAU	2,240	0.83	D	2,170	0.80	D
	Jackson Rd	Fruitridge Rd	2	PAU	1,350	1.00	F	1,410	1.04	F
	Fruitridge Rd	Elder Creek Rd	2	PAU	989	0.73	C	1,072	0.79	C
	Elder Creek Rd	Florin Rd	2	PAU	822	0.61	B	865	0.64	B
Mayhew Rd	Jackson Rd	Fruitridge Rd	2	PAU	12	0.01	A	12	0.01	A
	Fruitridge Rd	Elder Creek Rd	2	PAU	3	0.00	A	6	0.00	A
Bradshaw Rd	Kiefer Blvd	Jackson Rd	4	PAU	2,038	0.75	C	2,237	0.83	D
	Jackson Rd	Elder Creek Rd	2	PAU	1,609	1.19	F	1,742	1.29	F
	Elder Creek Rd	Florin Rd	2	PAU	1,495	1.11	F	1,592	1.18	F

2-LANE TRAFFIC CAPACITIES FOR EXISTING CONDITIONS

Roadway Classification		24-Hour	%	Peak Hr
Principal Arterial Expressway	PAE	20,000	9.0%	1,800
Principal Arterial Divided	PAD	18,000	9.0%	1,620
Principal Arterial Undivided	PAU	15,000	9.0%	1,350

ROADWAY SEGMENT LEVEL OF SERVICE
PROJECT TRAFFIC (Vineyard I - Opt.1 & Aspen III)

Roadway	Segment		AM Peak Hour	PM Peak Hour
Name	From	To		
Jackson Rd	Watt Ave	Mayhew Rd	20	20
	Mayhew Rd	Bradshaw Rd	78	78
Elder Creek Rd	Watt Ave	Hedge Ave	29	29
	Hedge Ave	Mayhew Rd	29	29
	Mayhew Rd	Bradshaw Rd	177	177
Watt Ave	Kiefer Blvd	Jackson Rd	0	0
	Jackson Rd	Fruitridge Rd	20	20
	Fruitridge Rd	Elder Creek Rd	20	20
	Elder Creek Rd	Florin Rd	9	9
Mayhew Rd	Jackson Rd	Fruitridge Rd	96	96
	Fruitridge Rd	Elder Creek Rd	200	200
Bradshaw Rd	Kiefer Blvd	Jackson Rd	100	100
	Jackson Rd	Elder Creek Rd	150	150
	Elder Creek Rd	Florin Rd	21	21

ROADWAY SEGMENT LEVEL OF SERVICE
EXISTING PLUS PROJECT TRAFFIC

Roadway	Segment		No.	Road	AM Peak Hour			PM Peak Hour		
Name	From	To	of Lanes	Class	Volume	V/C	Level of Service	Volume	V/C	Level of Service
Jackson Rd	Watt Ave	Mayhew Rd	2	PAU	1,060	0.79	C	1,305	0.97	E
	Mayhew Rd	Bradshaw Rd	2	PAU	1,118	0.83	D	1,363	1.01	F
Elder Creek Rd	Watt Ave	Hedge Ave	2	PAU	378	0.28	A	462	0.34	A
	Hedge Ave	Mayhew Rd	2	PAU	401	0.30	A	408	0.30	A
	Mayhew Rd	Bradshaw Rd	2	PAU	540	0.40	A	535	0.40	A
Watt Ave	Kiefer Blvd	Jackson Rd	4	PAU	2,240	0.83	D	2,170	0.80	D
	Jackson Rd	Fruitridge Rd	2	PAU	1,370	1.01	F	1,430	1.06	F
	Fruitridge Rd	Elder Creek Rd	2	PAU	1,009	0.75	C	1,092	0.81	D
	Elder Creek Rd	Florin Rd	2	PAU	831	0.62	B	874	0.65	B
Mayhew Rd	Jackson Rd	Fruitridge Rd	2	PAU	108	0.08	A	108	0.08	A
—	Fruitridge Rd	Elder Creek Rd	2	PAU	203	0.15	A	206	0.15	A
Bradshaw Rd	Kiefer Blvd	Jackson Rd	4	PAU	2,138	0.79	C	2,337	0.87	D
	Jackson Rd	Elder Creek Rd	2	PAU	1,759	1.30	F	1,892	1.40	F
	Elder Creek Rd	Florin Rd	2	PAU	1,516	1.12	F	1,613	1.19	F

ROADWAY SEGMENT LEVEL OF SERVICE
PROJECT TRAFFIC (Vineyard I - Opt.1 & Aspen IV)

Roadway	Segment		AM Peak Hour	PM Peak Hour
Name	From	To		
Jackson Rd	Watt Ave	Mayhew Rd	20	20
	Mayhew Rd	Bradshaw Rd	63	63
Elder Creek Rd	Watt Ave	Hedge Ave	29	29
	Hedge Ave	Mayhew Rd	29	29
	Mayhew Rd	Bradshaw Rd	186	186
Watt Ave	Kiefer Blvd	Jackson Rd	0	0
	Jackson Rd	Fruitridge Rd	20	20
	Fruitridge Rd	Elder Creek Rd	20	20
	Elder Creek Rd	Florin Rd	9	9
Mayhew Rd	Jackson Rd	Fruitridge Rd	82	82
	Fruitridge Rd	Elder Creek Rd	214	214
Bradshaw Rd	Kiefer Blvd	Jackson Rd	100	100
	Jackson Rd	Elder Creek Rd	136	136
	Elder Creek Rd	Florin Rd	21	21

ROADWAY SEGMENT LEVEL OF SERVICE
EXISTING PLUS PROJECT TRAFFIC

Roadway	Segment		No.	Road	AM Peak Hour			PM Peak Hour		
Name	From	To	of Lanes	Class	Volume	V/C	Level of Service	Volume	V/C	Level of Service
Jackson Rd	Watt Ave	Mayhew Rd	2	PAU	1,060	0.79	C	1,305	0.97	E
	Mayhew Rd	Bradshaw Rd	2	PAU	1,103	0.82	D	1,348	1.00	E
Elder Creek Rd	Watt Ave	Hedge Ave	2	PAU	378	0.28	A	462	0.34	A
	Hedge Ave	Mayhew Rd	2	PAU	401	0.30	A	408	0.30	A
	Mayhew Rd	Bradshaw Rd	2	PAU	549	0.41	A	544	0.40	A
Watt Ave	Kiefer Blvd	Jackson Rd	4	PAU	2,240	0.83	D	2,170	0.80	D
	Jackson Rd	Fruitridge Rd	2	PAU	1,370	1.01	F	1,430	1.06	F
	Fruitridge Rd	Elder Creek Rd	2	PAU	1,009	0.75	C	1,092	0.81	D
	Elder Creek Rd	Florin Rd	2	PAU	831	0.62	B	874	0.65	B
Mayhew Rd	Jackson Rd	Fruitridge Rd	2	PAU	94	0.07	A	94	0.07	A
	Fruitridge Rd	Elder Creek Rd	2	PAU	217	0.16	A	220	0.16	A
Bradshaw Rd	Kiefer Blvd	Jackson Rd	4	PAU	2,138	0.79	C	2,337	0.87	D
	Jackson Rd	Elder Creek Rd	2	PAU	1,745	1.29	F	1,878	1.39	F
	Elder Creek Rd	Florin Rd	2	PAU	1,516	1.12	F	1,613	1.19	F

ROADWAY SEGMENT LEVEL OF SERVICE
PROJECT TRAFFIC (Vineyard I - Opt.1 & Aspen V)

Roadway	Segment		AM Peak Hour	PM Peak Hour
Name	From	To		
Jackson Rd	Watt Ave	Mayhew Rd	20	20
	Mayhew Rd	Bradshaw Rd	20	20
Elder Creek Rd	Watt Ave	Hedge Ave	29	29
	Hedge Ave	Mayhew Rd	29	29
	Mayhew Rd	Bradshaw Rd	177	177
Watt Ave	Kiefer Blvd	Jackson Rd	0	0
	Jackson Rd	Fruitridge Rd	20	20
	Fruitridge Rd	Elder Creek Rd	20	20
	Elder Creek Rd	Florin Rd	9	9
Mayhew Rd	Jackson Rd	Fruitridge Rd	0	0
	Fruitridge Rd	Elder Creek Rd	200	200
Bradshaw Rd	Kiefer Blvd	Jackson Rd	100	100
	Jackson Rd	Elder Creek Rd	150	150
	Elder Creek Rd	Florin Rd	21	21

ROADWAY SEGMENT LEVEL OF SERVICE
EXISTING PLUS PROJECT TRAFFIC

Roadway	Segment		No.	Road	AM Peak Hour			PM Peak Hour		
Name	From	To	of Lanes	Class	Volume	V/C	Level of Service	Volume	V/C	Level of Service
Jackson Rd	Watt Ave	Mayhew Rd	2	PAU	1,060	0.79	C	1,305	0.97	E
	Mayhew Rd	Bradshaw Rd	2	PAU	1,060	0.79	C	1,305	0.97	E
Elder Creek Rd	Watt Ave	Hedge Ave	2	PAU	378	0.28	A	462	0.34	A
	Hedge Ave	Mayhew Rd	2	PAU	401	0.30	A	408	0.30	A
	Mayhew Rd	Bradshaw Rd	2	PAU	540	0.40	A	535	0.40	A
Watt Ave	Kiefer Blvd	Jackson Rd	4	PAU	2,240	0.83	D	2,170	0.80	D
	Jackson Rd	Fruitridge Rd	2	PAU	1,370	1.01	F	1,430	1.06	F
	Fruitridge Rd	Elder Creek Rd	2	PAU	1,009	0.75	C	1,092	0.81	D
	Elder Creek Rd	Florin Rd	2	PAU	831	0.62	B	874	0.65	B
Mayhew Rd	Jackson Rd	Fruitridge Rd	2	PAU	12	0.01	A	12	0.01	A
	Fruitridge Rd	Elder Creek Rd	2	PAU	203	0.15	A	206	0.15	A
Bradshaw Rd	Kiefer Blvd	Jackson Rd	4	PAU	2,138	0.79	C	2,337	0.87	D
	Jackson Rd	Elder Creek Rd	2	PAU	1,759	1.30	F	1,892	1.40	F
	Elder Creek Rd	Florin Rd	2	PAU	1,516	1.12	F	1,613	1.19	F

ROADWAY SEGMENT LEVEL OF SERVICE
PROJECT TRAFFIC (Vineyard I - Opt. 2 & Aspen V)

Roadway	Segment		AM Peak Hour	PM Peak Hour
Name	From	To		
Jackson Rd	Watt Ave	Mayhew Rd	31	31
	Mayhew Rd	Bradshaw Rd	31	31
Elder Creek Rd	Watt Ave	Hedge Ave	18	18
	Hedge Ave	Mayhew Rd	18	18
	Mayhew Rd	Bradshaw Rd	107	107
Watt Ave	Kiefer Blvd	Jackson Rd	0	0
	Jackson Rd	Fruitridge Rd	12	12
	Fruitridge Rd	Elder Creek Rd	12	12
	Elder Creek Rd	Florin Rd	6	6
Mayhew Rd	Jackson Rd	Fruitridge Rd	0	0
	Fruitridge Rd	Elder Creek Rd	120	120
Bradshaw Rd	Kiefer Blvd	Jackson Rd	108	108
	Jackson Rd	Elder Creek Rd	104	104
	Elder Creek Rd	Florin Rd	26	26

ROADWAY SEGMENT LEVEL OF SERVICE
EXISTING PLUS PROJECT TRAFFIC

Roadway	Segment		No.	Road	AM Peak Hour			PM Peak Hour		
Name	From	To	of Lanes	Class	Volume	V/C	Level of Service	Volume	V/C	Level of Service
Jackson Rd	Watt Ave	Mayhew Rd	2	PAU	1,071	0.79	C	1,316	0.97	E
	Mayhew Rd	Bradshaw Rd	2	PAU	1,071	0.79	C	1,316	0.97	E
Elder Creek Rd	Watt Ave	Hedge Ave	2	PAU	367	0.27	A	451	0.33	A
	Hedge Ave	Mayhew Rd	2	PAU	390	0.29	A	397	0.29	A
	Mayhew Rd	Bradshaw Rd	2	PAU	470	0.35	A	465	0.34	A
Watt Ave	Kiefer Blvd	Jackson Rd	4	PAU	2,240	0.83	D	2,170	0.80	D
	Jackson Rd	Fruitridge Rd	2	PAU	1,362	1.01	F	1,422	1.05	F
	Fruitridge Rd	Elder Creek Rd	2	PAU	1,001	0.74	C	1,084	0.80	D
	Elder Creek Rd	Florin Rd	2	PAU	828	0.61	B	871	0.65	B
Mayhew Rd	Jackson Rd	Fruitridge Rd	2	PAU	12	0.01	A	12	0.01	A
	Fruitridge Rd	Elder Creek Rd	2	PAU	123	0.09	A	126	0.09	A
Bradshaw Rd	Kiefer Blvd	Jackson Rd	4	PAU	2,146	0.79	C	2,345	0.87	D
	Jackson Rd	Elder Creek Rd	2	PAU	1,713	1.27	F	1,846	1.37	F
	Elder Creek Rd	Florin Rd	2	PAU	1,521	1.13	F	1,618	1.20	F

ROADWAY SEGMENT LEVEL OF SERVICE
CUMULATIVE TRAFFIC

Roadway	Segment		No.	Road	AM Peak Hour			PM Peak Hour		
Name	From	To	of Lanes	Class	Volume	V/C	Level of Service	Volume	V/C	Level of Service
Jackson Rd	Watt Ave	Mayhew Rd	6	PAD	2,138	0.51	A	1,826	0.44	A
	Mayhew Rd	Bradshaw Rd	6	PAD	2,138	0.51	A	1,826	0.44	A
Elder Creek Rd	Watt Ave	Hedge Ave	2	PAU	1,005	0.87	D	1,247	1.08	F
	Hedge Ave	Mayhew Rd	2	PAU	1,071	0.93	E	1,093	0.95	E
	Mayhew Rd	Bradshaw Rd	2	PAU	1,045	0.90	E	1,032	0.89	D
Watt Ave	Kiefer Blvd	Jackson Rd	6	PAD	4,030	0.97	E	3,720	0.89	D
	Jackson Rd	Fruitridge Rd	6	PAD	3,530	0.85	D	3,250	0.78	C
	Fruitridge Rd	Elder Creek Rd	6	PAD	2,847	0.68	B	3,087	0.74	C
	Elder Creek Rd	Florin Rd	6	PAD	2,367	0.57	A	2,492	0.60	A
Mayhew Rd	Jackson Rd	Fruitridge Rd	2	PAU	9	0.01	A	18	0.02	A
	Fruitridge Rd	Elder Creek Rd	2	PAU	12	0.01	A	12	0.01	A
Bradshaw Rd	Kiefer Blvd	Jackson Rd	6	PAD	4,676	1.12	F	4,145	1.00	E
	Jackson Rd	Elder Creek Rd	6	PAD	4,799	1.15	F	5,017	1.21	F
	Elder Creek Rd	Florin Rd	6	PAD	4,306	1.04	F	4,585	1.10	F

2-LANE TRAFFIC CAPACITIES FOR EXISTING CONDITIONS

Roadway Classification		24-Hour	%	Peak Hr
Principal Arterial Expressway	PAE	20,000	7.7%	1,540
Principal Arterial Divided	PAD	18,000	7.7%	1,386
Principal Arterial Undivided	PAU	15,000	7.7%	1,155

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ROADWAY SEGMENT LEVEL OF SERVICE
PROJECT TRAFFIC (Vineyard I - Opt. 1 & Aspen IV)

Roadway	Segment		AM Peak Hour	PM Peak Hour
Name	From	To		
Jackson Rd	Watt Ave	Mayhew Rd	20	20
	Mayhew Rd	Bradshaw Rd	63	63
Elder Creek Rd	Watt Ave	Hedge Ave	29	29
	Hedge Ave	Mayhew Rd	29	29
	Mayhew Rd	Bradshaw Rd	186	186
Watt Ave	Kiefer Blvd	Jackson Rd	0	0
	Jackson Rd	Fruitridge Rd	20	20
	Fruitridge Rd	Elder Creek Rd	20	20
	Elder Creek Rd	Florin Rd	9	9
Mayhew Rd	Jackson Rd	Fruitridge Rd	82	82
	Fruitridge Rd	Elder Creek Rd	214	214
Bradshaw Rd	Kiefer Blvd	Jackson Rd	100	100
	Jackson Rd	Elder Creek Rd	136	136
	Elder Creek Rd	Florin Rd	21	21

ROADWAY SEGMENT LEVEL OF SERVICE
EXISTING PLUS PROJECT TRAFFIC

Roadway	Segment		No.	Road	AM Peak Hour			PM Peak Hour		
Name	From	To	of Lanes	Class	Volume	V/C	Level of Service	Volume	V/C	Level of Service
Jackson Rd	Watt Ave	Mayhew Rd	6	PAD	2,158	0.52	A	1,846	0.44	A
	Mayhew Rd	Bradshaw Rd	6	PAD	2,201	0.53	A	1,889	0.45	A
Elder Creek Rd	Watt Ave	Hedge Ave	2	PAU	1,034	0.90	D	1,276	1.10	F
	Hedge Ave	Mayhew Rd	2	PAU	1,100	0.95	E	1,122	0.97	E
	Mayhew Rd	Bradshaw Rd	2	PAU	1,231	1.07	F	1,218	1.05	F
Watt Ave	Kiefer Blvd	Jackson Rd	6	PAD	4,030	0.97	E	3,720	0.89	D
	Jackson Rd	Fruitridge Rd	6	PAD	3,550	0.85	D	3,270	0.79	C
	Fruitridge Rd	Elder Creek Rd	6	PAD	2,867	0.69	B	3,107	0.75	C
	Elder Creek Rd	Florin Rd	6	PAD	2,376	0.57	A	2,501	0.60	B
Mayhew Rd	Jackson Rd	Fruitridge Rd	2	PAU	91	0.08	A	100	0.09	A
	Fruitridge Rd	Elder Creek Rd	2	PAU	226	0.20	A	226	0.20	A
Bradshaw Rd	Kiefer Blvd	Jackson Rd	6	PAD	4,776	1.15	F	4,245	1.02	F
	Jackson Rd	Elder Creek Rd	6	PAD	4,935	1.19	F	5,153	1.24	F
	Elder Creek Rd	Florin Rd	6	PAD	4,327	1.04	F	4,606	1.11	F

Morrison Creek Mining (South)
Existing Conditions - AM Peak Hour
No Project

Level Of Service Computation Report
1994 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #1 Elder Creek Rd / S. Watt Ave

Cycle (sec):	1	Critical Vol./Cap. (X):	0.839
Loss Time (sec):	0	Average Delay (sec/veh):	17.8
Optimal Cycle:	0	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 1 0 0 1			0 0 1! 0 0			0 1 0 0 1		
Volume Module:												
Base Vol:	37	472	11	23	272	115	72	80	17	13	187	35
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	37	472	11	23	272	115	72	80	17	13	187	35
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	37	472	11	23	272	115	72	80	17	13	187	35
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	37	472	11	23	272	115	72	80	17	13	187	35
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	37	472	11	23	272	115	72	80	17	13	187	35
Saturation Flow Module:												
Sat/Lane:	620	620	620	419	419	419	284	284	284	239	239	239
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.07	0.91	0.02	0.08	0.92	1.00	0.43	0.47	0.10	0.07	0.93	1.00
Final Sat.:	44	563	13	33	386	419	121	134	29	16	223	239
Capacity Analysis Module:												
Vol/Sat:	0.84	0.84	0.84	0.70	0.70	0.27	0.60	0.60	0.60	0.84	0.84	0.15
Crit Moves:		****		****					****		****	
Level Of Service Module:												
Delay/Veh:	24.2	24.2	24.2	14.5	14.5	2.8	9.6	9.6	9.6	24.0	24.0	1.7
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	24.2	24.2	24.2	14.5	14.5	2.8	9.6	9.6	9.6	24.0	24.0	1.7
LOS by Move:	D	D	D	C	C	A	B	B	B	D	D	A

Morrison Creek Mining (South)
Existing Conditions - AM Peak Hour
No Project

Level Of Service Computation Report
1985 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Elder Creek Rd / Mayhew Rd

Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	1 0 0 0 0			0 0 1! 0 0			0 0 1! 0 0			0 1 0 0 0		
Volume Module:												
Base Vol:	4	0	0	1	0	1	1	89	6	2	271	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	4	0	0	1	0	1	1	89	6	2	271	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	4	0	0	1	0	1	1	89	6	2	271	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	4	0	0	1	0	1	1	89	6	2	271	0
Adjusted Volume Module:												
Grade:	0%			0%			0%			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.00	1.00	1.10	1.00	1.00
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	4	0	0	1	0	1	1	89	6	2	271	0
Critical Gap Module: >> Population: 0 << >> Run Speed(E/W): 30 MPH <<												
RT Rad/Ang:	20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg		
Critical Gp:	6.5	xxxx	xxxxx	6.5	xxxx	5.5	5.0	xxxx	xxxxx	5.0	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	367	xxxx	xxxxx	369	xxxx	271	271	xxxx	xxxxx	95	xxxx	xxxxx
Potent Cap.:	578	xxxx	xxxxx	577	xxxx	817	919	xxxx	xxxxx	1000	xxxx	xxxxx
% Used Cap.:	0.8	xxxx	xxxxx	0.2	xxxx	0.1	0.1	xxxx	xxxxx	0.2	xxxx	xxxxx
Impedance:	xxxx	xxxx	xxxxx	xxxx	xxxx	1.00	1.00	xxxx	xxxxx	1.00	xxxx	xxxxx
Actual Cap.:	578	xxxx	xxxxx	577	xxxx	817	919	xxxx	xxxxx	1000	xxxx	xxxxx
Level Of Service Module:												
Unused Cap.:	574	xxxx	xxxxx	576	xxxx	816	918	xxxx	xxxxx	998	xxxx	xxxxx
LOS by Move:	A	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	676	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Unused Cap.:	xxxx	xxxx	xxxxx	xxxx	674	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	A	*	*	*	*	*	*	*

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Morrison Creek Mining (South)
Existing Conditions - AM Peak Hour
No Project

Level Of Service Computation Report
Circular 212 Planning Method (Base Volume Alternative)

Intersection #3 Elder Creek Rd / Bradshaw Rd

Cycle (sec):	100	Critical Vol./Cap. (X):	0.766
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	80	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 0 1 0			1 0 1 0 1			1 0 0 1 0			0 1 0 0 1		
Volume Module:												
Base Vol:	59	955	2	3	468	131	38	22	10	1	93	14
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	59	955	2	3	468	131	38	22	10	1	93	14
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	59	955	2	3	468	131	38	22	10	1	93	14
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	59	955	2	3	468	131	38	22	10	1	93	14
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.07	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	59	955	2	3	468	131	38	22	10	1	93	14
Saturation Flow Module:												
Sat/Lane:	1425	1425	1425	1425	1425	1425	1425	1425	1425	1425	1425	1425
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.99	0.01	1.00	1.00	1.00	1.00	0.69	0.31	0.01	0.99	1.00
Final Sat.:	1425	1422	3	1425	1425	1425	1425	980	445	14	1411	1425
Capacity Analysis Module:												
Vol/Sat:	0.04	0.67	0.67	0.00	0.33	0.09	0.03	0.02	0.02	0.07	0.07	0.01
Crit Moves:		****		****			****				****	

Morrison Creek Mining (South)
Existing Conditions - AM Peak Hour
No Project

Level Of Service Computation Report
Circular 212 Planning Method (Base Volume Alternative)

Intersection #4 Bradshaw Rd / Jackson Rd

Cycle (sec):	100	Critical Vol./Cap. (X):	1.135
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	180	Level Of Service:	F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	1 0	1	1 0	1 0	1	1 0	1 0	1	1 0	1 0	1
Volume Module:												
Base Vol:	51	856	1	69	523	157	184	157	40	13	451	149
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	51	856	1	69	523	157	184	157	40	13	451	149
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	51	856	1	69	523	157	184	157	40	13	451	149
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	51	856	1	69	523	157	184	157	40	13	451	149
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	51	856	1	69	523	157	184	157	40	13	451	149
Saturation Flow Module:												
Sat/Lane:	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375
Capacity Analysis Module:												
Vol/Sat:	0.04	0.62	0.00	0.05	0.38	0.11	0.13	0.11	0.03	0.01	0.33	0.11
Crit Moves:		****		****			****				****	

Morrison Creek Mining (South)
Existing Conditions - AM Peak Hour
No Project

Level Of Service Computation Report
Circular 212 Planning Method (Base Volume Alternative)

Intersection #5 Bradshaw Rd / Kiefer Blvd

Cycle (sec):	100	Critical Vol./Cap. (X):	0.524
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	48	Level Of Service:	A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	1 1	0	1 0	2 0	1	1 0	1 1	0	1 0	1 1	0
Volume Module:												
Base Vol:	132	986	90	2	648	117	170	60	93	89	16	6
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	132	986	90	2	648	117	170	60	93	89	16	6
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	132	986	90	2	648	117	170	60	93	89	16	6
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	132	986	90	2	648	117	170	60	93	89	16	6
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	132	986	90	2	648	117	170	60	93	89	16	6
Saturation Flow Module:												
Sat/Lane:	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.83	0.17	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.45	0.55
Final Sat.:	1375	2520	230	1375	2750	1375	1375	1375	1375	1375	2000	750
Capacity Analysis Module:												
Vol/Sat:	0.10	0.39	0.39	0.00	0.24	0.09	0.12	0.04	0.07	0.06	0.01	0.01
Crit Moves:		****		****			****				****	

Morrison Creek Mining (South)
Existing Conditions - AM Peak Hour
No Project

Level Of Service Computation Report
1985 HCM Unsignalized Method (Base Volume Alternative)

Intersection #6 Jackson Rd / Mayhew Rd

Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1!	0	0	0 0 1!	0	0	1 0	1	0 1	1 0	0 1	0
Volume Module:												
Base Vol:	2	2	2	2	2	2	2	380	2	2	650	2
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	2	2	2	2	2	2	2	380	2	2	650	2
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	2	2	2	2	2	2	2	380	2	2	650	2
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	2	2	2	2	2	2	2	380	2	2	650	2
Adjusted Volume Module:												
Grade:	0%			0%			0%			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.00	1.00	1.10	1.00	1.00
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	2	2	2	2	2	2	2	380	2	2	650	2
Critical Gap Module: >> Population: 0 << >> Run Speed(E/W): 30 MPH <<												
RT Rad/Ang:	20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg		
Critical Gp:	7.0	6.5	5.5	7.0	6.5	5.5	5.5	xxxx	xxxxx	5.5	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1040	1036	380	1039	1037	651	652	xxxx	xxxxx	382	xxxx	xxxxx
Potent Cap.:	178	224	716	178	224	519	519	xxxx	xxxxx	714	xxxx	xxxxx
% Used Cap.:	1.2	1.0	0.3	1.2	1.0	0.4	0.4	xxxx	xxxxx	0.3	xxxx	xxxxx
Impedance:	xxxx	1.00	1.00	xxxx	1.00	1.00	1.00	xxxx	xxxxx	1.00	xxxx	xxxxx
Actual Cap.:	178	224	716	178	224	519	519	xxxx	xxxxx	714	xxxx	xxxxx
Level Of Service Module:												
Unused Cap.:	176	222	714	176	222	517	516	xxxx	xxxxx	712	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	261	xxxxx	xxxx	250	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Unused Cap.:	xxxx	255	xxxxx	xxxx	243	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shared LOS:	*	C	*	*	C	*	*	*	*	*	*	*

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Morrison Creek Mining (South)
Existing Conditions - PM Peak Hour
No Project

Level Of Service Computation Report
1994 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #1 Elder Creek Rd / S. Watt Ave

Cycle (sec):	1	Critical Vol./Cap. (X):	1.259
Loss Time (sec):	0	Average Delay (sec/veh):	61.4
Optimal Cycle:	0	Level Of Service:	F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 1 0 0 1			0 0 1! 0 0			0 1 0 0 1		
Volume Module:												
Base Vol:	19	333	11	33	467	80	136	223	23	12	131	23
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	19	333	11	33	467	80	136	223	23	12	131	23
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	19	333	11	33	467	80	136	223	23	12	131	23
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	19	333	11	33	467	80	136	223	23	12	131	23
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	19	333	11	33	467	80	136	223	23	12	131	23
Saturation Flow Module:												
Sat/Lane:	470	470	470	397	397	397	353	353	353	254	254	254
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.05	0.92	0.03	0.07	0.93	1.00	0.36	0.58	0.06	0.08	0.92	1.00
Final Sat.:	25	431	14	26	371	397	126	206	21	21	233	254
Capacity Analysis Module:												
Vol/Sat:	0.77	0.77	0.77	1.26	1.26	0.20	1.08	1.08	1.08	0.56	0.56	0.09
Crit Moves:		****		****					****		****	
Level Of Service Module:												
Delay/Veh:	18.8	18.8	18.8	119.8	120	2.2	61.1	61.1	61.1	8.5	8.5	1.4
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	18.8	18.8	18.8	119.8	120	2.2	61.1	61.1	61.1	8.5	8.5	1.4
LOS by Move:	C	C	C	F	F	A	F	F	F	B	B	A

Morrison Creek Mining (South)
Existing Conditions - PM Peak Hour
No Project

Level Of Service Computation Report
1985 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Elder Creek Rd / Mayhew Rd

Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 0 0 1			0 0 1! 0 0			0 1 0 0 0		
Volume Module:												
Base Vol:	8	0	2	0	0	3	3	245	10	1	110	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	8	0	2	0	0	3	3	245	10	1	110	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	8	0	2	0	0	3	3	245	10	1	110	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	8	0	2	0	0	3	3	245	10	1	110	0
Adjusted Volume Module:												
Grade:	0%			0%			0%			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.00	1.00	1.10	1.00	1.00
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	9	0	2	0	0	3	3	245	10	1	110	0

Critical Gap Module: >> Population: 0 << >> Run Speed(E/W): 30 MPH <<

RT Rad/Ang:	20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg		
Critical Gp:	6.5	xxxx	5.5	xxxxx	xxxx	5.5	5.0	xxxx	xxxxx	5.0	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	367	xxxx	250	xxxx	xxxx	110	110	xxxx	xxxxx	255	xxxx	xxxxx
Potent Cap.:	578	xxxx	840	xxxx	xxxx	988	1000	xxxx	xxxxx	935	xxxx	xxxxx
% Used Cap.:	1.5	xxxx	0.3	xxxxx	xxxx	0.3	0.3	xxxx	xxxxx	0.1	xxxx	xxxxx
Impedance:	xxxx	xxxx	1.00	xxxx	xxxx	1.00	1.00	xxxx	xxxxx	1.00	xxxx	xxxxx
Actual Cap.:	578	xxxx	840	xxxx	xxxx	988	1000	xxxx	xxxxx	935	xxxx	xxxxx
Level Of Service Module:												
Unused Cap.:	569	xxxx	838	xxxx	xxxx	985	997	xxxx	xxxxx	934	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	A	A	*	*	A	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	617	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Unused Cap.:	xxxx	606	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shared LOS:	*	A	*	*	*	*	*	*	*	*	*	*

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Morrison Creek Mining (South)
Existing Conditions - PM Peak Hour
No Project

Level Of Service Computation Report
Circular 212 Planning Method (Base Volume Alternative)

Intersection #3 Elder Creek Rd / Bradshaw Rd

Cycle (sec):	100	Critical Vol./Cap. (X):	0.874
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	147	Level Of Service:	D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Protected			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 0 1 0			1 0 1 0 1			1 0 0 1 0			0 1 0 0 1		
Volume Module:												
Base Vol:	15	464	2	12	1075	79	107	87	32	4	31	5
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	15	464	2	12	1075	79	107	87	32	4	31	5
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	15	464	2	12	1075	79	107	87	32	4	31	5
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	15	464	2	12	1075	79	107	87	32	4	31	5
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.29	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	15	464	2	12	1075	79	107	87	32	5	31	5
Saturation Flow Module:												
Sat/Lane:	1425	1425	1425	1425	1425	1425	1425	1425	1425	1425	1425	1425
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.99	0.01	1.00	1.00	1.00	1.00	0.73	0.27	0.11	0.89	1.00
Final Sat.:	1425	1419	6	1425	1425	1425	1425	1042	383	158	1267	1425
Capacity Analysis Module:												
Vol/Sat:	0.01	0.33	0.33	0.01	0.75	0.06	0.08	0.08	0.08	0.03	0.02	0.00
Crit Moves:	****				****			****		****		

Morrison Creek Mining (South)
Existing Conditions - PM Peak Hour
No Project

Level Of Service Computation Report
Circular 212 Planning Method (Base Volume Alternative)

Intersection #4 Bradshaw Rd / Jackson Rd

Cycle (sec):	100	Critical Vol./Cap. (X):	1.083
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	180	Level Of Service:	F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 1 0 1			1 0 1 0 1			1 0 1 0 1			1 0 1 0 1		
Volume Module:												
Base Vol:	50	587	10	174	922	224	183	481	110	36	237	70
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	50	587	10	174	922	224	183	481	110	36	237	70
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	50	587	10	174	922	224	183	481	110	36	237	70
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	50	587	10	174	922	224	183	481	110	36	237	70
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	50	587	10	174	922	224	183	481	110	36	237	70
Saturation Flow Module:												
Sat/Lane:	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375
Capacity Analysis Module:												
Vol/Sat:	0.04	0.43	0.01	0.13	0.67	0.16	0.13	0.35	0.08	0.03	0.17	0.05
Crit Moves:	****				****			****		****		

Morrison Creek Mining (South)
Existing Conditions - PM Peak Hour
No Project

Level Of Service Computation Report
Circular 212 Planning Method (Base Volume Alternative)

Intersection #5 Bradshaw Rd / Kiefer Blvd

Cycle (sec):	100	Critical Vol./Cap. (X):	0.729
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	84	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	1 1	0	1 0	2 0	1	1 0	1 1	0	1 0	1 1	0
Volume Module:												
Base Vol:	72	594	79	4	1123	201	220	53	239	130	60	4
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	72	594	79	4	1123	201	220	53	239	130	60	4
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	72	594	79	4	1123	201	220	53	239	130	60	4
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	72	594	79	4	1123	201	220	53	239	130	60	4
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	72	594	79	4	1123	201	220	53	239	130	60	4
Saturation Flow Module:												
Sat/Lane:	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.77	0.23	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.88	0.12
Final Sat.:	1375	2427	323	1375	2750	1375	1375	1375	1375	1375	2578	172
Capacity Analysis Module:												
Vol/Sat:	0.05	0.24	0.24	0.00	0.41	0.15	0.16	0.04	0.17	0.09	0.02	0.02
Crit Moves:	****				****				****	****		

Morrison Creek Mining (South)
Existing Conditions - PM Peak Hour
No Project

Level Of Service Computation Report
1985 HCM Unsignalized Method (Base Volume Alternative)

Intersection #6 Jackson Rd / Mayhew Rd

Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0	1! 0	0	0 0	1! 0	0	1 0	1 0	1	1 0	0 1	0
Volume Module:												
Base Vol:	2	2	2	2	2	2	2	770	2	2	510	2
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	2	2	2	2	2	2	2	770	2	2	510	2
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	2	2	2	2	2	2	2	770	2	2	510	2
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	2	2	2	2	2	2	2	770	2	2	510	2
Adjusted Volume Module:												
Grade:	0%			0%			0%			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.00	1.00	1.10	1.00	1.00
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	2	2	2	2	2	2	2	770	2	2	510	2
Critical Gap Module: >> Population: 0 << >> Run Speed(E/W): 30 MPH <<												
RT Rad/Ang:	20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg		
Critical Gp:	7.0	6.5	5.5	7.0	6.5	5.5	5.5	xxxx	xxxxx	5.5	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1290	1286	770	1289	1287	511	512	xxxx	xxxxx	772	xxxx	xxxxx
Potent Cap.:	126	151	442	126	151	620	619	xxxx	xxxxx	441	xxxx	xxxxx
% Used Cap.:	1.7	1.5	0.5	1.7	1.5	0.4	0.4	xxxx	xxxxx	0.5	xxxx	xxxxx
Impedance:	xxxx	0.99	1.00	xxxx	0.99	1.00	1.00	xxxx	xxxxx	1.00	xxxx	xxxxx
Actual Cap.:	125	151	442	125	151	620	619	xxxx	xxxxx	441	xxxx	xxxxx
Level Of Service Module:												
Unused Cap.:	123	149	440	123	149	618	617	xxxx	xxxxx	439	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	178	xxxxx	xxxx	185	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Unused Cap.:	xxxx	171	xxxxx	xxxx	178	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shared LOS:	*	D	*	*	D	*	*	*	*	*	*	*

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Morrison Creek Mining (South)
Existing Conditions - AM Peak Hour
No Project - With Planned Improvements for Jackson / Bradshaw

Level Of Service Computation Report
Circular 212 Planning Method (Base Volume Alternative)

Intersection #4 Bradshaw Rd / Jackson Rd

Cycle (sec):	100	Critical Vol./Cap. (X):	0.824
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	129	Level Of Service:	D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	1 1	0	1 0	2 0	1	1 0	1 0	1	1 0	1 0	1
Volume Module:												
Base Vol:	51	856	1	69	523	157	184	157	40	13	451	149
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	51	856	1	69	523	157	184	157	40	13	451	149
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	51	856	1	69	523	157	184	157	40	13	451	149
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	51	856	1	69	523	157	184	157	40	13	451	149
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	51	856	1	69	523	157	184	157	40	13	451	149
Saturation Flow Module:												
Sat/Lane:	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.99	0.01	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1375	2747	3	1375	2750	1375	1375	1375	1375	1375	1375	1375
Capacity Analysis Module:												
Vol/Sat:	0.04	0.31	0.31	0.05	0.19	0.11	0.13	0.11	0.03	0.01	0.33	0.11
Crit Moves:		****		****			****				****	

Morrison Creek Mining (South)
Existing Conditions - PM Peak Hour
No Project - Planned Improvements at Jackson / Bradshaw

Level Of Service Computation Report
Circular 212 Planning Method (Base Volume Alternative)

Intersection #4 Bradshaw Rd / Jackson Rd

Cycle (sec):	100	Critical Vol./Cap. (X):	0.748
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	90	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 1	1 0		1 0 2	0 1		1 0 1	0 1		1 0 1	0 1	
Volume Module:												
Base Vol:	50	587	10	174	922	224	183	481	110	36	237	70
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	50	587	10	174	922	224	183	481	110	36	237	70
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	50	587	10	174	922	224	183	481	110	36	237	70
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	50	587	10	174	922	224	183	481	110	36	237	70
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	50	587	10	174	922	224	183	481	110	36	237	70
Saturation Flow Module:												
Sat/Lane:	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.97	0.03	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1375	2704	46	1375	2750	1375	1375	1375	1375	1375	1375	1375
Capacity Analysis Module:												
Vol/Sat:	0.04	0.22	0.22	0.13	0.34	0.16	0.13	0.35	0.08	0.03	0.17	0.05
Crit Moves:	****				****			****		****		

Morrison Creek Mining (South)
Existing Conditions - AM Peak Hour
Vineyard I - Opt. 1 & Aspen III South

Level Of Service Computation Report
1994 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #1 Elder Creek Rd / S. Watt Ave

Cycle (sec):	1	Critical Vol./Cap. (X):	0.856
Loss Time (sec):	0	Average Delay (sec/veh):	18.7
Optimal Cycle:	0	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0	1! 0	0	0 1	0 0	1	0 0	1! 0	0	0 1	0 0	1
Volume Module:												
Base Vol:	37	472	11	23	272	115	72	80	17	13	187	35
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	37	472	11	23	272	115	72	80	17	13	187	35
Added Vol:	0	0	4	10	0	0	0	0	0	4	0	10
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	37	472	15	33	272	115	72	80	17	17	187	45
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	37	472	15	33	272	115	72	80	17	17	187	45
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	37	472	15	33	272	115	72	80	17	17	187	45
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	37	472	15	33	272	115	72	80	17	17	187	45
Saturation Flow Module:												
Sat/Lane:	612	612	612	421	421	421	286	286	286	241	241	241
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.07	0.90	0.03	0.11	0.89	1.00	0.43	0.47	0.10	0.08	0.92	1.00
Final Sat.:	43	551	18	46	375	421	122	135	29	20	221	241
Capacity Analysis Module:												
Vol/Sat:	0.86	0.86	0.86	0.72	0.72	0.27	0.59	0.59	0.59	0.85	0.85	0.19
Crit Moves:			****	****					****		****	
Level Of Service Module:												
Delay/Veh:	25.9	25.9	25.9	15.7	15.7	2.8	9.4	9.4	9.4	24.9	24.9	2.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	25.9	25.9	25.9	15.7	15.7	2.8	9.4	9.4	9.4	24.9	24.9	2.0
LOS by Move:	D	D	D	C	C	A	B	B	B	D	D	A

Morrison Creek Mining (South)
Existing Conditions - AM Peak Hour
Vineyard I - Opt. 1 & Aspen III South

Level Of Service Computation Report
1985 HCM Unsignalized Method (Future Volume Alternative)

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Intersection #2 Elder Creek Rd / Mayhew Rd

****

Level Of Service: A

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	1 0 0 0 0			0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	4	0	0	1	0	1	1	89	6	2	271	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	4	0	0	1	0	1	1	89	6	2	271	0
Added Vol:	0	0	0	87	0	13	13	1	0	0	1	87
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	4	0	0	88	0	14	14	90	6	2	272	87
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	4	0	0	88	0	14	14	90	6	2	272	87
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	4	0	0	88	0	14	14	90	6	2	272	87
Adjusted Volume Module:												
Grade:	0%			0%			0%			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.00	1.00	1.10	1.00	1.00
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	4	0	0	97	0	15	15	90	6	2	272	87
Critical Gap Module: >> Population: 0 << >> Run Speed(E/W): 30 MPH <<												
RT Rad/Ang:	20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg		
Critical Gp:	6.5	xxxx	xxxxx	6.5	xxxx	5.5	5.0	xxxx	xxxxx	5.0	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	483	xxxx	xxxxx	428	xxxx	316	359	xxxx	xxxxx	96	xxxx	xxxxx
Potent Cap.:	500	xxxx	xxxxx	535	xxxx	771	837	xxxx	xxxxx	1000	xxxx	xxxxx
% Used Cap.:	0.9	xxxx	xxxxx	18.1	xxxx	2.0	1.8	xxxx	xxxxx	0.2	xxxx	xxxxx
Impedance:	xxxx	xxxx	xxxxx	xxxx	xxxx	0.99	0.99	xxxx	xxxxx	1.00	xxxx	xxxxx
Actual Cap.:	489	xxxx	xxxxx	529	xxxx	771	837	xxxx	xxxxx	1000	xxxx	xxxxx
Level Of Service Module:												
Unused Cap.:	484	xxxx	xxxxx	432	xxxx	755	821	xxxx	xxxxx	998	xxxx	xxxxx
LOS by Move:	A	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	553	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Unused Cap.:	xxxx	xxxx	xxxxx	xxxx	441	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	A	*	*	*	*	*	*	*

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Morrison Creek Mining (South)
Existing Conditions - AM Peak Hour
Vineyard I - Opt. 1 & Aspen III South

Level Of Service Computation Report
Circular 212 Planning Method (Future Volume Alternative)

Intersection #3 Elder Creek Rd / Bradshaw Rd

Cycle (sec):	100	Critical Vol./Cap. (X):	0.819
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	103	Level Of Service:	D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 0 1 0			1 0 1 0 1			1 0 0 1 0			0 1 0 0 1		
Volume Module:												
Base Vol:	59	955	2	3	468	131	38	22	10	1	93	14
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	59	955	2	3	468	131	38	22	10	1	93	14
Added Vol:	12	-1	0	0	-1	76	76	0	12	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	71	954	2	3	467	207	114	22	22	1	93	14
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	71	954	2	3	467	207	114	22	22	1	93	14
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	71	954	2	3	467	207	114	22	22	1	93	14
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.07	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	71	954	2	3	467	207	114	22	22	1	93	14
Saturation Flow Module:												
Sat/Lane:	1425	1425	1425	1425	1425	1425	1425	1425	1425	1425	1425	1425
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.99	0.01	1.00	1.00	1.00	1.00	0.50	0.50	0.01	0.99	1.00
Final Sat.:	1425	1422	3	1425	1425	1425	1425	713	713	14	1411	1425
Capacity Analysis Module:												
Vol/Sat:	0.05	0.67	0.67	0.00	0.33	0.15	0.08	0.03	0.03	0.07	0.07	0.01
Crit Moves:		****		****			****				****	

Morrison Creek Mining (South)
Existing Conditions - AM Peak Hour
Vineyard I - Opt. 1 & Aspen III South

Level Of Service Computation Report
Circular 212 Planning Method (Future Volume Alternative)

Intersection #4 Bradshaw Rd / Jackson Rd

Cycle (sec):	100	Critical Vol./Cap. (X):	0.855
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	157	Level Of Service:	D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	1 1	0	1 0	2 0	1	1 0	1 0	1	1 0	1 0	1
Volume Module:												
Base Vol:	51	856	1	69	523	157	184	157	40	13	451	149
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	51	856	1	69	523	157	184	157	40	13	451	149
Added Vol:	17	43	15	-7	43	14	14	7	17	15	7	-7
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	68	899	16	62	566	171	198	164	57	28	458	142
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	68	899	16	62	566	171	198	164	57	28	458	142
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	68	899	16	62	566	171	198	164	57	28	458	142
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	68	899	16	62	566	171	198	164	57	28	458	142
Saturation Flow Module:												
Sat/Lane:	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.97	0.03	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1375	2702	48	1375	2750	1375	1375	1375	1375	1375	1375	1375
Capacity Analysis Module:												
Vol/Sat:	0.05	0.33	0.33	0.05	0.21	0.12	0.14	0.12	0.04	0.02	0.33	0.10
Crit Moves:		****		****			****				****	

Morrison Creek Mining (South)
Existing Conditions - AM Peak Hour
Vineyard I - Opt. 1 & Aspen III South

Level Of Service Computation Report
Circular 212 Planning Method (Future Volume Alternative)

Intersection #5 Bradshaw Rd / Kiefer Blvd

Cycle (sec):	100	Critical Vol./Cap. (X):	0.543
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	50	Level Of Service:	A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	1 1	0	1 0	2 0	1	1 0	1 1	0	1 0	1 1	0
Volume Module:												
Base Vol:	132	986	90	2	648	117	170	60	93	89	16	6
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	132	986	90	2	648	117	170	60	93	89	16	6
Added Vol:	0	50	0	0	50	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	132	1036	90	2	698	117	170	60	93	89	16	6
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	132	1036	90	2	698	117	170	60	93	89	16	6
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	132	1036	90	2	698	117	170	60	93	89	16	6
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	132	1036	90	2	698	117	170	60	93	89	16	6
Saturation Flow Module:												
Sat/Lane:	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.84	0.16	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.45	0.55
Final Sat.:	1375	2530	220	1375	2750	1375	1375	1375	1375	1375	2000	750
Capacity Analysis Module:												
Vol/Sat:	0.10	0.41	0.41	0.00	0.25	0.09	0.12	0.04	0.07	0.06	0.01	0.01
Crit Moves:		****		****			****				****	

Morrison Creek Mining (South)
Existing Conditions - AM Peak Hour
Vineyard I - Opt. 1 & Aspen III South

Level Of Service Computation Report
1985 HCM Unsignalized Method (Future Volume Alternative)

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Intersection #6 Jackson Rd / Mayhew Rd

****

Level Of Service: C

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0	1! 0	0	0 0	1! 0	0	1 0	1 0	1	1 0	0 1	0
Volume Module:												
Base Vol:	2	2	2	2	2	2	2	380	2	2	650	2
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	2	2	2	2	2	2	2	380	2	2	650	2
Added Vol:	10	0	38	0	0	0	0	0	10	38	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	12	2	40	2	2	2	2	380	12	40	650	2
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	12	2	40	2	2	2	2	380	12	40	650	2
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	12	2	40	2	2	2	2	380	12	40	650	2
Adjusted Volume Module:												
Grade:	0%			0%			0%			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.00	1.00	1.10	1.00	1.00
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	13	2	44	2	2	2	2	380	12	44	650	2
Critical Gap Module: >> Population: 0 << >> Run Speed(E/W): 30 MPH <<												
RT Rad/Ang:	20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg		
Critical Gp:	7.0	6.5	5.5	7.0	6.5	5.5	5.5	xxxx	xxxxx	5.5	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1079	1075	380	1117	1086	651	652	xxxx	xxxxx	392	xxxx	xxxxx
Potent Cap.:	166	210	716	158	206	519	518	xxxx	xxxxx	706	xxxx	xxxxx
% Used Cap.:	7.7	1.0	6.2	1.4	1.1	0.4	0.4	xxxx	xxxxx	6.3	xxxx	xxxxx
Impedance:	xxxx	0.99	0.96	xxxx	0.99	1.00	1.00	xxxx	xxxxx	0.96	xxxx	xxxxx
Actual Cap.:	159	202	716	146	198	519	518	xxxx	xxxxx	706	xxxx	xxxxx
Level Of Service Module:												
Unused Cap.:	146	200	671	144	196	517	516	xxxx	xxxxx	662	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	388	xxxxx	xxxx	217	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Unused Cap.:	xxxx	328	xxxxx	xxxx	210	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shared LOS:	*	B	*	*	C	*	*	*	*	*	*	*

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Morrison Creek Mining (South)
Existing Conditions - PM Peak Hour
Vineyard I - Opt. 1 & Aspen III South

Level Of Service Computation Report
1994 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #1 Elder Creek Rd / S. Watt Ave

Cycle (sec):	1	Critical Vol./Cap. (X):	1.278
Loss Time (sec):	0	Average Delay (sec/veh):	64.2
Optimal Cycle:	0	Level Of Service:	F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0	1! 0	0	0 1	0 0	1	0 0	1! 0	0	0 1	0 0	1
Volume Module:												
Base Vol:	19	333	11	33	467	80	136	223	23	12	131	23
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	19	333	11	33	467	80	136	223	23	12	131	23
Added Vol:	0	0	4	10	0	0	0	0	0	4	0	10
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	19	333	15	43	467	80	136	223	23	16	131	33
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	19	333	15	43	467	80	136	223	23	16	131	33
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	19	333	15	43	467	80	136	223	23	16	131	33
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	19	333	15	43	467	80	136	223	23	16	131	33
Saturation Flow Module:												
Sat/Lane:	467	467	467	399	399	399	354	354	354	255	255	255
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.05	0.91	0.04	0.08	0.92	1.00	0.36	0.58	0.06	0.11	0.89	1.00
Final Sat.:	24	424	19	34	365	399	126	207	21	28	227	255
Capacity Analysis Module:												
Vol/Sat:	0.79	0.79	0.79	1.28	1.28	0.20	1.08	1.08	1.08	0.58	0.58	0.13
Crit Moves:		****			****			****			****	
Level Of Service Module:												
Delay/Veh:	19.8	19.8	19.8	128.7	129	2.1	60.4	60.4	60.4	8.9	8.9	1.6
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	19.8	19.8	19.8	128.7	129	2.1	60.4	60.4	60.4	8.9	8.9	1.6
LOS by Move:	C	C	C	F	F	A	F	F	F	B	B	A

Morrison Creek Mining (South)
Existing Conditions - PM Peak Hour
Vineyard I - Opt. 1 & Aspen III South

Level Of Service Computation Report
1985 HCM Unsignalized Method (Future Volume Alternative)

****

Intersection #2 Elder Creek Rd / Mayhew Rd

****

Level Of Service: A

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	8	0	2	0	0	3	3	245	10	1	110	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	8	0	2	0	0	3	3	245	10	1	110	0
Added Vol:	0	0	0	87	0	13	13	1	0	0	1	87
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	8	0	2	87	0	16	16	246	10	1	111	87
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	8	0	2	87	0	16	16	246	10	1	111	87
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	8	0	2	87	0	16	16	246	10	1	111	87
Adjusted Volume Module:												
Grade:	0%			0%			0%			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.00	1.00	1.10	1.00	1.00
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	9	0	2	96	0	18	18	246	10	1	111	87
Critical Gap Module: >> Population: 0 << >> Run Speed(E/W): 30 MPH <<												
RT Rad/Ang:	20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg		
Critical Gp:	6.5	xxxx	5.5	6.5	xxxx	5.5	5.0	xxxx	xxxxx	5.0	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	483	xxxx	251	430	xxxx	155	198	xxxx	xxxxx	256	xxxx	xxxxx
Potent Cap.:	500	xxxx	838	534	xxxx	935	981	xxxx	xxxxx	934	xxxx	xxxxx
% Used Cap.:	1.8	xxxx	0.3	17.9	xxxx	1.9	1.8	xxxx	xxxxx	0.1	xxxx	xxxxx
Impedance:	xxxx	xxxx	1.00	xxxx	xxxx	0.99	0.99	xxxx	xxxxx	1.00	xxxx	xxxxx
Actual Cap.:	489	xxxx	838	528	xxxx	935	981	xxxx	xxxxx	934	xxxx	xxxxx
Level Of Service Module:												
Unused Cap.:	480	xxxx	836	432	xxxx	917	963	xxxx	xxxxx	932	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	534	xxxxx	xxxx	566	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Unused Cap.:	xxxx	523	xxxxx	xxxx	453	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shared LOS:	*	A	*	*	A	*	*	*	*	*	*	*

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Morrison Creek Mining (South)
Existing Conditions - PM Peak Hour
Vineyard I - Opt. 1 & Aspen III South

Level Of Service Computation Report
Circular 212 Planning Method (Future Volume Alternative)

Intersection #3 Elder Creek Rd / Bradshaw Rd

Cycle (sec):	100	Critical Vol./Cap. (X):	0.926
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	180	Level Of Service:	E

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 0 1 0			1 0 1 0 1			1 0 0 1 0			0 1 0 0 1		
Volume Module:												
Base Vol:	15	464	2	12	1075	79	107	87	32	4	31	5
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	15	464	2	12	1075	79	107	87	32	4	31	5
Added Vol:	12	-1	0	0	-1	76	76	0	12	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	27	463	2	12	1074	155	183	87	44	4	31	5
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	27	463	2	12	1074	155	183	87	44	4	31	5
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	27	463	2	12	1074	155	183	87	44	4	31	5
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.29	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	27	463	2	12	1074	155	183	87	44	5	31	5
Saturation Flow Module:												
Sat/Lane:	1425	1425	1425	1425	1425	1425	1425	1425	1425	1425	1425	1425
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.99	0.01	1.00	1.00	1.00	1.00	0.66	0.34	0.11	0.89	1.00
Final Sat.:	1425	1419	6	1425	1425	1425	1425	946	479	158	1267	1425
Capacity Analysis Module:												
Vol/Sat:	0.02	0.33	0.33	0.01	0.75	0.11	0.13	0.09	0.09	0.03	0.02	0.00
Crit Moves:	****				****		****				****	

Morrison Creek Mining (South)
Existing Conditions - PM Peak Hour
Vineyard I - Opt. 1 & Aspen III South

Level Of Service Computation Report
Circular 212 Planning Method (Future Volume Alternative)

Intersection #4 Bradshaw Rd / Jackson Rd

Cycle (sec):	100	Critical Vol./Cap. (X):	0.792
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	109	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 1	1 0		1 0 2	0 1		1 0 1	0 1		1 0 1	0 1	
Volume Module:												
Base Vol:	50	587	10	174	922	224	183	481	110	36	237	70
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	50	587	10	174	922	224	183	481	110	36	237	70
Added Vol:	17	43	15	-7	43	14	14	7	17	15	7	-7
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	67	630	25	167	965	238	197	488	127	51	244	63
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	67	630	25	167	965	238	197	488	127	51	244	63
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	67	630	25	167	965	238	197	488	127	51	244	63
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	67	630	25	167	965	238	197	488	127	51	244	63
Saturation Flow Module:												
Sat/Lane:	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.92	0.08	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1375	2645	105	1375	2750	1375	1375	1375	1375	1375	1375	1375
Capacity Analysis Module:												
Vol/Sat:	0.05	0.24	0.24	0.12	0.35	0.17	0.14	0.35	0.09	0.04	0.18	0.05
Crit Moves:	****				****			****		****		

Morrison Creek Mining (South)
Existing Conditions - PM Peak Hour
Vineyard I - Opt. 1 & Aspen III South

Level Of Service Computation Report
Circular 212 Planning Method (Future Volume Alternative)

Intersection #5 Bradshaw Rd / Kiefer Blvd

Cycle (sec):	100	Critical Vol./Cap. (X):	0.747
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	90	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	1 1	0	1 0	2 0	1	1 0	1 1	0	1 0	1 1	0
Volume Module:												
Base Vol:	72	594	79	4	1123	201	220	53	239	130	60	4
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	72	594	79	4	1123	201	220	53	239	130	60	4
Added Vol:	0	50	0	0	50	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	72	644	79	4	1173	201	220	53	239	130	60	4
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	72	644	79	4	1173	201	220	53	239	130	60	4
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	72	644	79	4	1173	201	220	53	239	130	60	4
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	72	644	79	4	1173	201	220	53	239	130	60	4
Saturation Flow Module:												
Sat/Lane:	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.78	0.22	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.88	0.12
Final Sat.:	1375	2450	300	1375	2750	1375	1375	1375	1375	1375	2578	172
Capacity Analysis Module:												
Vol/Sat:	0.05	0.26	0.26	0.00	0.43	0.15	0.16	0.04	0.17	0.09	0.02	0.02
Crit Moves:	****				****				****	****		

Morrison Creek Mining (South)
Existing Conditions - PM Peak Hour
Vineyard I - Opt. 1 & Aspen III South

Level Of Service Computation Report
1985 HCM Unsignalized Method (Future Volume Alternative)

Intersection #6 Jackson Rd / Mayhew Rd

Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0	1! 0	0	0 0	1! 0	0	1 0	1 0	1	1 0	0 1	0
Volume Module:												
Base Vol:	2	2	2	2	2	2	2	770	2	2	510	2
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	2	2	2	2	2	2	2	770	2	2	510	2
Added Vol:	10	0	38	0	0	0	0	0	10	38	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	12	2	40	2	2	2	2	770	12	40	510	2
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	12	2	40	2	2	2	2	770	12	40	510	2
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	12	2	40	2	2	2	2	770	12	40	510	2
Adjusted Volume Module:												
Grade:	0%			0%			0%			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.00	1.00	1.10	1.00	1.00
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	13	2	44	2	2	2	2	770	12	44	510	2
Critical Gap Module: >> Population: 0 << >> Run Speed(E/W): 30 MPH <<												
RT Rad/Ang:	20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg		
Critical Gp:	7.0	6.5	5.5	7.0	6.5	5.5	5.5	xxxx	xxxxx	5.5	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1329	1325	770	1367	1336	511	512	xxxx	xxxxx	782	xxxx	xxxxx
Potent Cap.:	117	142	442	108	139	620	619	xxxx	xxxxx	437	xxxx	xxxxx
% Used Cap.:	10.9	1.5	10.1	2.0	1.6	0.4	0.4	xxxx	xxxxx	10.2	xxxx	xxxxx
Impedance:	xxxx	0.99	0.94	xxxx	0.99	1.00	1.00	xxxx	xxxxx	0.94	xxxx	xxxxx
Actual Cap.:	109	134	442	95	131	620	619	xxxx	xxxxx	437	xxxx	xxxxx
Level Of Service Module:												
Unused Cap.:	97	132	397	92	129	618	617	xxxx	xxxxx	393	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	B	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	254	xxxxx	xxxx	151	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Unused Cap.:	xxxx	195	xxxxx	xxxx	145	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shared LOS:	*	D	*	*	D	*	*	*	*	*	*	*

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Morrison Creek Mining (South)
Existing Conditions - AM Peak Hour
Vineyard I - Opt. 1 & Aspen IV South

Level Of Service Computation Report
1994 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #1 Elder Creek Rd / S. Watt Ave

Cycle (sec):	1	Critical Vol./Cap. (X):	0.856
Loss Time (sec):	0	Average Delay (sec/veh):	18.7
Optimal Cycle:	0	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 1 0 0 1			0 0 1! 0 0			0 1 0 0 1		
Volume Module:												
Base Vol:	37	472	11	23	272	115	72	80	17	13	187	35
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	37	472	11	23	272	115	72	80	17	13	187	35
Added Vol:	0	0	4	10	0	0	0	0	0	4	0	10
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	37	472	15	33	272	115	72	80	17	17	187	45
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	37	472	15	33	272	115	72	80	17	17	187	45
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	37	472	15	33	272	115	72	80	17	17	187	45
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	37	472	15	33	272	115	72	80	17	17	187	45
Saturation Flow Module:												
Sat/Lane:	612	612	612	421	421	421	286	286	286	241	241	241
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.07	0.90	0.03	0.11	0.89	1.00	0.43	0.47	0.10	0.08	0.92	1.00
Final Sat.:	43	551	18	46	375	421	122	135	29	20	221	241
Capacity Analysis Module:												
Vol/Sat:	0.86	0.86	0.86	0.72	0.72	0.27	0.59	0.59	0.59	0.85	0.85	0.19
Crit Moves:			****	****					****		****	
Level Of Service Module:												
Delay/Veh:	25.9	25.9	25.9	15.7	15.7	2.8	9.4	9.4	9.4	24.9	24.9	2.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	25.9	25.9	25.9	15.7	15.7	2.8	9.4	9.4	9.4	24.9	24.9	2.0
LOS by Move:	D	D	D	C	C	A	B	B	B	D	D	A

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Morrison Creek Mining (South)
Existing Conditions - AM Peak Hour
Vineyard I - Opt. 1 & Aspen IV South

Level Of Service Computation Report
1985 HCM Unsignalized Method (Future Volume Alternative)

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Intersection #2 Elder Creek Rd / Mayhew Rd

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Level Of Service: A

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Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	1 0 0 0 0			0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	4	0	0	1	0	1	1	89	6	2	271	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	4	0	0	1	0	1	1	89	6	2	271	0
Added Vol:	0	0	0	93	0	14	14	0	0	0	0	93
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	4	0	0	94	0	15	15	89	6	2	271	93
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	4	0	0	94	0	15	15	89	6	2	271	93
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	4	0	0	94	0	15	15	89	6	2	271	93
Adjusted Volume Module:												
Grade:	0%			0%			0%			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.00	1.00	1.10	1.00	1.00
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	4	0	0	103	0	17	17	89	6	2	271	93

Critical Gap Module: >> Population: 0 << >> Run Speed(E/W): 30 MPH <<

RT Rad/Ang:	20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg		
Critical Gp:	6.5	xxxx	xxxxx	6.5	xxxx	5.5	5.0	xxxx	xxxxx	5.0	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	489	xxxx	xxxxx	430	xxxx	317	364	xxxx	xxxxx	95	xxxx	xxxxx
Potent Cap.:	497	xxxx	xxxxx	534	xxxx	769	833	xxxx	xxxxx	1000	xxxx	xxxxx
% Used Cap.:	0.9	xxxx	xxxxx	19.3	xxxx	2.2	2.0	xxxx	xxxxx	0.2	xxxx	xxxxx
Impedance:	xxxx	xxxx	xxxxx	xxxx	xxxx	0.99	0.99	xxxx	xxxxx	1.00	xxxx	xxxxx
Actual Cap.:	484	xxxx	xxxxx	528	xxxx	769	833	xxxx	xxxxx	1000	xxxx	xxxxx
Level Of Service Module:												
Unused Cap.:	480	xxxx	xxxxx	424	xxxx	752	816	xxxx	xxxxx	998	xxxx	xxxxx
LOS by Move:	A	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	552	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Unused Cap.:	xxxx	xxxx	xxxxx	xxxx	432	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	A	*	*	*.	*	*	*	*

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Morrison Creek Mining (South)
Existing Conditions - AM Peak Hour
Vineyard I - Opt. 1 & Aspen IV South

Level Of Service Computation Report
Circular 212 Planning Method (Future Volume Alternative)

Intersection #3 Elder Creek Rd / Bradshaw Rd

Cycle (sec):	100	Critical Vol./Cap. (X):	0.814
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	100	Level Of Service:	D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Protected			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	0 1	0	1 0	1	0 1	1 0	0 1	0	0 1	0 0	1
Volume Module:												
Base Vol:	59	955	2	3	468	131	38	22	10	1	93	14
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	59	955	2	3	468	131	38	22	10	1	93	14
Added Vol:	18	-7	0	0	-7	75	75	0	18	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	77	948	2	3	461	206	113	22	28	1	93	14
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	77	948	2	3	461	206	113	22	28	1	93	14
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	77	948	2	3	461	206	113	22	28	1	93	14
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.07	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	77	948	2	3	461	206	113	22	28	1	93	14
Saturation Flow Module:												
Sat/Lane:	1425	1425	1425	1425	1425	1425	1425	1425	1425	1425	1425	1425
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.99	0.01	1.00	1.00	1.00	1.00	0.44	0.56	0.01	0.99	1.00
Final Sat.:	1425	1422	3	1425	1425	1425	1425	627	798	14	1411	1425
Capacity Analysis Module:												
Vol/Sat:	0.05	0.67	0.67	0.00	0.32	0.14	0.08	0.04	0.04	0.07	0.07	0.01
Crit Moves:		****		****			****				****	

Morrison Creek Mining (South)
Existing Conditions - AM Peak Hour
Vineyard I - Opt. 1 & Aspen IV South

Level Of Service Computation Report
Circular 212 Planning Method (Future Volume Alternative)

Intersection #4 Bradshaw Rd / Jackson Rd

Cycle (sec):	100	Critical Vol./Cap. (X):	0.855
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	157	Level Of Service:	D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	1 1	0	1 0	2 0	1	1 0	1 0	1	1 0	1 0	1
Volume Module:												
Base Vol:	51	856	1	69	523	157	184	157	40	13	451	149
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	51	856	1	69	523	157	184	157	40	13	451	149
Added Vol:	10	43	15	-7	43	14	14	7	10	15	7	-7
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	61	899	16	62	566	171	198	164	50	28	458	142
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	61	899	16	62	566	171	198	164	50	28	458	142
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	61	899	16	62	566	171	198	164	50	28	458	142
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	61	899	16	62	566	171	198	164	50	28	458	142
Saturation Flow Module:												
Sat/Lane:	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.97	0.03	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1375	2702	48	1375	2750	1375	1375	1375	1375	1375	1375	1375
Capacity Analysis Module:												
Vol/Sat:	0.04	0.33	0.33	0.05	0.21	0.12	0.14	0.12	0.04	0.02	0.33	0.10
Crit Moves:		****		****			****				****	

Morrison Creek Mining (South)
Existing Conditions - AM Peak Hour
Vineyard I - Opt. 1 & Aspen IV South

Level Of Service Computation Report
Circular 212 Planning Method (Future Volume Alternative)

Intersection #5 Bradshaw Rd / Kiefer Blvd

Cycle (sec):	100	Critical Vol./Cap. (X):	0.543
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	50	Level Of Service:	A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	1 1	0	1 0	2 0	1	1 0	1 1	0	1 0	1 1	0
Volume Module:												
Base Vol:	132	986	90	2	648	117	170	60	93	89	16	6
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	132	986	90	2	648	117	170	60	93	89	16	6
Added Vol:	0	50	0	0	50	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	132	1036	90	2	698	117	170	60	93	89	16	6
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	132	1036	90	2	698	117	170	60	93	89	16	6
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	132	1036	90	2	698	117	170	60	93	89	16	6
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	132	1036	90	2	698	117	170	60	93	89	16	6
Saturation Flow Module:												
Sat/Lane:	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.84	0.16	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.45	0.55
Final Sat.:	1375	2530	220	1375	2750	1375	1375	1375	1375	1375	2000	750
Capacity Analysis Module:												
Vol/Sat:	0.10	0.41	0.41	0.00	0.25	0.09	0.12	0.04	0.07	0.06	0.01	0.01
Crit Moves:		****		****			****				****	

Morrison Creek Mining (South)
Existing Conditions - AM Peak Hour
Vineyard I - Opt. 1 & Aspen IV South

Level Of Service Computation Report
1985 HCM Unsignalized Method (Future Volume Alternative)

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Intersection #6 Jackson Rd / Mayhew Rd

****

Level Of Service: C

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0	1! 0	0	0 0	1! 0	0	1 0	1 0	1	1 0	0 1	0
Volume Module:												
Base Vol:	2	2	2	2	2	2	2	380	2	2	650	2
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	2	2	2	2	2	2	2	380	2	2	650	2
Added Vol:	10	0	31	0	0	0	0	0	10	31	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	12	2	33	2	2	2	2	380	12	33	650	2
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	12	2	33	2	2	2	2	380	12	33	650	2
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	12	2	33	2	2	2	2	380	12	33	650	2
Adjusted Volume Module:												
Grade:	0%			0%			0%			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.00	1.00	1.10	1.00	1.00
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	13	2	37	2	2	2	2	380	12	37	650	2
Critical Gap Module: >> Population: 0 << >> Run Speed(E/W): 30 MPH <<												
RT Rad/Ang:	20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg		
Critical Gp:	7.0	6.5	5.5	7.0	6.5	5.5	5.5	xxxx	xxxxx	5.5	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1072	1068	380	1102	1079	651	652	xxxx	xxxxx	392	xxxx	xxxxx
Potent Cap.:	168	213	716	160	209	519	518	xxxx	xxxxx	706	xxxx	xxxxx
% Used Cap.:	7.6	1.0	5.1	1.4	1.1	0.4	0.4	xxxx	xxxxx	5.2	xxxx	xxxxx
Impedance:	xxxx	0.99	0.97	xxxx	0.99	1.00	1.00	xxxx	xxxxx	0.97	xxxx	xxxxx
Actual Cap.:	162	206	716	149	202	519	518	xxxx	xxxxx	706	xxxx	xxxxx
Level Of Service Module:												
Unused Cap.:	150	204	679	147	200	517	516	xxxx	xxxxx	670	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	367	xxxxx	xxxx	221	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Unused Cap.:	xxxx	315	xxxxx	xxxx	215	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shared LOS:	*	B	*	*	C	*	*	*	*	*	*	*

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Morrison Creek Mining (South)
Existing Conditions - PM Peak Hour
Vineyard I - Opt. 1 & Aspen IV South

Level Of Service Computation Report
1994 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #1 Elder Creek Rd / S. Watt Ave

Cycle (sec):	1	Critical Vol./Cap. (X):	1.278
Loss Time (sec):	0	Average Delay (sec/veh):	64.2
Optimal Cycle:	0	Level Of Service:	F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0	1! 0	0	0 1	0 0	1	0 0	1! 0	0	0 1	0 0	1
Volume Module:												
Base Vol:	19	333	11	33	467	80	136	223	23	12	131	23
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	19	333	11	33	467	80	136	223	23	12	131	23
Added Vol:	0	0	4	10	0	0	0	0	0	4	0	10
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	19	333	15	43	467	80	136	223	23	16	131	33
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	19	333	15	43	467	80	136	223	23	16	131	33
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	19	333	15	43	467	80	136	223	23	16	131	33
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	19	333	15	43	467	80	136	223	23	16	131	33
Saturation Flow Module:												
Sat/Lane:	467	467	467	399	399	399	354	354	354	255	255	255
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.05	0.91	0.04	0.08	0.92	1.00	0.36	0.58	0.06	0.11	0.89	1.00
Final Sat.:	24	424	19	34	365	399	126	207	21	28	227	255
Capacity Analysis Module:												
Vol/Sat:	0.79	0.79	0.79	1.28	1.28	0.20	1.08	1.08	1.08	0.58	0.58	0.13
Crit Moves:		****			****			****			****	
Level Of Service Module:												
Delay/Veh:	19.8	19.8	19.8	128.7	129	2.1	60.4	60.4	60.4	8.9	8.9	1.6
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	19.8	19.8	19.8	128.7	129	2.1	60.4	60.4	60.4	8.9	8.9	1.6
LOS by Move:	C	C	C	F	F	A	F	F	F	B	B	A

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Morrison Creek Mining (South)
Existing Conditions - PM Peak Hour
Vineyard I - Opt. 1 & Aspen IV South

Level Of Service Computation Report
1985 HCM Unsignalized Method (Future Volume Alternative)

Intersection #2 Elder Creek Rd / Mayhew Rd

Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	8	0	2	0	0	3	3	245	10	1	110	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	8	0	2	0	0	3	3	245	10	1	110	0
Added Vol:	0	0	0	93	0	14	14	0	0	0	0	93
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	8	0	2	93	0	17	17	245	10	1	110	93
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	8	0	2	93	0	17	17	245	10	1	110	93
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	8	0	2	93	0	17	17	245	10	1	110	93
Adjusted Volume Module:												
Grade:	0%			0%			0%			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.00	1.00	1.10	1.00	1.00
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	9	0	2	102	0	19	19	245	10	1	110	93
Critical Gap Module: >> Population: 0 << >> Run Speed(E/W): 30 MPH <<												
RT Rad/Ang:	20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg		
Critical Gp:	6.5	xxxx	5.5	6.5	xxxx	5.5	5.0	xxxx	xxxxx	5.0	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	489	xxxx	250	432	xxxx	156	203	xxxx	xxxxx	255	xxxx	xxxxx
Potent Cap.:	497	xxxx	840	533	xxxx	934	978	xxxx	xxxxx	935	xxxx	xxxxx
% Used Cap.:	1.8	xxxx	0.3	19.2	xxxx	2.1	2.0	xxxx	xxxxx	0.1	xxxx	xxxxx
Impedance:	xxxx	xxxx	1.00	xxxx	xxxx	0.99	0.99	xxxx	xxxxx	1.00	xxxx	xxxxx
Actual Cap.:	485	xxxx	840	526	xxxx	934	978	xxxx	xxxxx	935	xxxx	xxxxx
Level Of Service Module:												
Unused Cap.:	476	xxxx	838	424	xxxx	914	959	xxxx	xxxxx	934	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	530	xxxxx	xxxx	565	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Unused Cap.:	xxxx	519	xxxxx	xxxx	444	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shared LOS:	*	A	*	*	A	*	*	*	*	*	*	*

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Morrison Creek Mining (South)
Existing Conditions - PM Peak Hour
Vineyard I - Opt. 1 & Aspen IV South

Level Of Service Computation Report
Circular 212 Planning Method (Future Volume Alternative)

Intersection #3 Elder Creek Rd / Bradshaw Rd

Cycle (sec):	100	Critical Vol./Cap. (X):	0.925
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	180	Level Of Service:	E

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Protected			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 0	1 0		1 0 1	0 1		1 0 0	1 0		0 1 0	0 1	
Volume Module:												
Base Vol:	15	464	2	12	1075	79	107	87	32	4	31	5
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	15	464	2	12	1075	79	107	87	32	4	31	5
Added Vol:	18	-7	0	0	-7	75	75	0	18	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	33	457	2	12	1068	154	182	87	50	4	31	5
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	33	457	2	12	1068	154	182	87	50	4	31	5
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	33	457	2	12	1068	154	182	87	50	4	31	5
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.29	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	33	457	2	12	1068	154	182	87	50	5	31	5
Saturation Flow Module:												
Sat/Lane:	1425	1425	1425	1425	1425	1425	1425	1425	1425	1425	1425	1425
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.99	0.01	1.00	1.00	1.00	1.00	0.64	0.36	0.11	0.89	1.00
Final Sat.:	1425	1419	6	1425	1425	1425	1425	905	520	158	1267	1425
Capacity Analysis Module:												
Vol/Sat:	0.02	0.32	0.32	0.01	0.75	0.11	0.13	0.10	0.10	0.03	0.02	0.00
Crit Moves:	****				****		****				****	

Morrison Creek Mining (South)
Existing Conditions - PM Peak Hour
Vineyard I - Opt. 1 & Aspen IV South

Level Of Service Computation Report
Circular 212 Planning Method (Future Volume Alternative)

Intersection #4 Bradshaw Rd / Jackson Rd

Cycle (sec):	100	Critical Vol./Cap. (X):	0.787
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	107	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 1	1 0		1 0 2	0 1		1 0 1	0 1		1 0 1	0 1	
Volume Module:												
Base Vol:	50	587	10	174	922	224	183	481	110	36	237	70
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	50	587	10	174	922	224	183	481	110	36	237	70
Added Vol:	10	43	15	-7	43	14	14	7	10	15	7	-7
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	60	630	25	167	965	238	197	488	120	51	244	63
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	60	630	25	167	965	238	197	488	120	51	244	63
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	60	630	25	167	965	238	197	488	120	51	244	63
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	60	630	25	167	965	238	197	488	120	51	244	63
Saturation Flow Module:												
Sat/Lane:	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.92	0.08	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1375	2645	105	1375	2750	1375	1375	1375	1375	1375	1375	1375
Capacity Analysis Module:												
Vol/Sat:	0.04	0.24	0.24	0.12	0.35	0.17	0.14	0.35	0.09	0.04	0.18	0.05
Crit Moves:	****				****			****		****		

Morrison Creek Mining (South)
Existing Conditions - PM Peak Hour
Vineyard I - Opt. 1 & Aspen IV South

Level Of Service Computation Report
Circular 212 Planning Method (Future Volume Alternative)

Intersection #5 Bradshaw Rd / Kiefer Blvd

Cycle (sec):	100	Critical Vol./Cap. (X):	0.747
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	90	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	1 1	0	1 0	2 0	1	1 0	1 1	0	1 0	1 1	0
Volume Module:												
Base Vol:	72	594	79	4	1123	201	220	53	239	130	60	4
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	72	594	79	4	1123	201	220	53	239	130	60	4
Added Vol:	0	50	0	0	50	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	72	644	79	4	1173	201	220	53	239	130	60	4
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	72	644	79	4	1173	201	220	53	239	130	60	4
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	72	644	79	4	1173	201	220	53	239	130	60	4
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	72	644	79	4	1173	201	220	53	239	130	60	4
Saturation Flow Module:												
Sat/Lane:	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.78	0.22	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.88	0.12
Final Sat.:	1375	2450	300	1375	2750	1375	1375	1375	1375	1375	2578	172
Capacity Analysis Module:												
Vol/Sat:	0.05	0.26	0.26	0.00	0.43	0.15	0.16	0.04	0.17	0.09	0.02	0.02
Crit Moves:	****				****				****	****		

Morrison Creek Mining (South)
Existing Conditions - PM Peak Hour
Vineyard I - Opt. 1 & Aspen IV South

Level Of Service Computation Report
1985 HCM Unsignalized Method (Future Volume Alternative)

Intersection #6 Jackson Rd. / Mayhew Rd

Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			1 0 1 0 1			1 0 0 1 0		
Volume Module:												
Base Vol:	2	2	2	2	2	2	2	770	2	2	510	2
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	2	2	2	2	2	2	2	770	2	2	510	2
Added Vol:	10	0	31	0	0	0	0	0	10	31	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	12	2	33	2	2	2	2	770	12	33	510	2
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	12	2	33	2	2	2	2	770	12	33	510	2
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	12	2	33	2	2	2	2	770	12	33	510	2
Adjusted Volume Module:												
Grade:	0%			0%			0%			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.00	1.00	1.10	1.00	1.00
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	13	2	37	2	2	2	2	770	12	37	510	2
Critical Gap Module: >> Population: 0 << >> Run Speed(E/W): 30 MPH <<												
RT Rad/Ang:	20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg		
Critical Gp:	7.0	6.5	5.5	7.0	6.5	5.5	5.5	xxxx	xxxxx	5.5	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1322	1318	770	1352	1329	511	512	xxxx	xxxxx	782	xxxx	xxxxx
Potent Cap.:	119	145	442	111	141	620	619	xxxx	xxxxx	437	xxxx	xxxxx
% Used Cap.:	10.7	1.5	8.3	2.0	1.6	0.4	0.4	xxxx	xxxxx	8.4	xxxx	xxxxx
Impedance:	xxxx	0.99	0.95	xxxx	0.99	1.00	1.00	xxxx	xxxxx	0.95	xxxx	xxxxx
Actual Cap.:	112	137	442	100	134	620	619	xxxx	xxxxx	437	xxxx	xxxxx
Level Of Service Module:												
Unused Cap.:	99	135	405	98	132	618	617	xxxx	xxxxx	401	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	242	xxxxx	xxxx	157	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Unused Cap.:	xxxx	191	xxxxx	xxxx	151	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shared LOS:	*	D	*	*	D	*	*	*	*	*	*	*

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Morrison Creek Mining (South)
Existing Conditions - AM Peak Hour
Vineyard I - Opt. 1 & Aspen V South

Level Of Service Computation Report
1994 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #1 Elder Creek Rd / S. Watt Ave

Cycle (sec):	1	Critical Vol./Cap. (X):	0.856
Loss Time (sec):	0	Average Delay (sec/veh):	18.7
Optimal Cycle:	0	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 1 0 0 1			0 0 1! 0 0			0 1 0 0 1		
Volume Module:												
Base Vol:	37	472	11	23	272	115	72	80	17	13	187	35
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	37	472	11	23	272	115	72	80	17	13	187	35
Added Vol:	0	0	4	10	0	0	0	0	0	4	0	10
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	37	472	15	33	272	115	72	80	17	17	187	45
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	37	472	15	33	272	115	72	80	17	17	187	45
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	37	472	15	33	272	115	72	80	17	17	187	45
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	37	472	15	33	272	115	72	80	17	17	187	45
Saturation Flow Module:												
Sat/Lane:	612	612	612	421	421	421	286	286	286	241	241	241
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.07	0.90	0.03	0.11	0.89	1.00	0.43	0.47	0.10	0.08	0.92	1.00
Final Sat.:	43	551	18	46	375	421	122	135	29	20	221	241
Capacity Analysis Module:												
Vol/Sat:	0.86	0.86	0.86	0.72	0.72	0.27	0.59	0.59	0.59	0.85	0.85	0.19
Crit Moves:			****	****					****		****	
Level Of Service Module:												
Delay/Veh:	25.9	25.9	25.9	15.7	15.7	2.8	9.4	9.4	9.4	24.9	24.9	2.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	25.9	25.9	25.9	15.7	15.7	2.8	9.4	9.4	9.4	24.9	24.9	2.0
LOS by Move:	D	D	D	C	C	A	B	B	B	D	D	A

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Morrison Creek Mining (South)
Existing Conditions - AM Peak Hour
Vineyard I - Opt. 1 & Aspen V South

Level Of Service Computation Report
1985 HCM Unsignalized Method (Future Volume Alternative)

Intersection #2 Elder Creek Rd / Mayhew Rd

Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	1 0 0	0 0		0 0	1! 0	0	0 0	1! 0	0	0 0	1! 0	0
Volume Module:												
Base Vol:	4	0	0	1	0	1	1	89	6	2	271	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	4	0	0	1	0	1	1	89	6	2	271	0
Added Vol:	0	0	0	87	0	13	13	1	0	0	1	87
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	4	0	0	88	0	14	14	90	6	2	272	87
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	4	0	0	88	0	14	14	90	6	2	272	87
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	4	0	0	88	0	14	14	90	6	2	272	87
Adjusted Volume Module:												
Grade:	0%			0%			0%			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.00	1.00	1.10	1.00	1.00
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	4	0	0	97	0	15	15	90	6	2	272	87
Critical Gap Module: >> Population: 0 << >> Run Speed(E/W): 30 MPH <<												
RT Rad/Ang:	20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg		
Critical Gp:	6.5	xxxx	xxxxx	6.5	xxxx	5.5	5.0	xxxx	xxxxx	5.0	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	483	xxxx	xxxxx	428	xxxx	316	359	xxxx	xxxxx	96	xxxx	xxxxx
Potent Cap.:	500	xxxx	xxxxx	535	xxxx	771	837	xxxx	xxxxx	1000	xxxx	xxxxx
% Used Cap.:	0.9	xxxx	xxxxx	18.1	xxxx	2.0	1.8	xxxx	xxxxx	0.2	xxxx	xxxxx
Impedance:	xxxx	xxxx	xxxxx	xxxx	xxxx	0.99	0.99	xxxx	xxxxx	1.00	xxxx	xxxxx
Actual Cap.:	489	xxxx	xxxxx	529	xxxx	771	837	xxxx	xxxxx	1000	xxxx	xxxxx
Level Of Service Module:												
Unused Cap.:	484	xxxx	xxxxx	432	xxxx	755	821	xxxx	xxxxx	998	xxxx	xxxxx
LOS by Move:	A	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	553	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Unused Cap.:	xxxx	xxxx	xxxxx	xxxx	441	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	A	*	*	*	*	*	*	*

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Morrison Creek Mining (South)
Existing Conditions - AM Peak Hour
Vineyard I - Opt. 1 & Aspen V South

Level Of Service Computation Report
Circular 212 Planning Method (Future Volume Alternative)

Intersection #3 Elder Creek Rd / Bradshaw Rd

Cycle (sec):	100	Critical Vol./Cap. (X):	0.819
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	103	Level Of Service:	D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	0 1	0	1 0	1 0	1	1 0	0 1	0	0 1	0 0	1
Volume Module:												
Base Vol:	59	955	2	3	468	131	38	22	10	1	93	14
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	59	955	2	3	468	131	38	22	10	1	93	14
Added Vol:	12	-1	0	0	-1	76	76	0	12	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	71	954	2	3	467	207	114	22	22	1	93	14
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	71	954	2	3	467	207	114	22	22	1	93	14
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	71	954	2	3	467	207	114	22	22	1	93	14
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.07	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	71	954	2	3	467	207	114	22	22	1	93	14
Saturation Flow Module:												
Sat/Lane:	1425	1425	1425	1425	1425	1425	1425	1425	1425	1425	1425	1425
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.99	0.01	1.00	1.00	1.00	1.00	0.50	0.50	0.01	0.99	1.00
Final Sat.:	1425	1422	3	1425	1425	1425	1425	713	713	14	1411	1425
Capacity Analysis Module:												
Vol/Sat:	0.05	0.67	0.67	0.00	0.33	0.15	0.08	0.03	0.03	0.07	0.07	0.01
Crit Moves:		****		****			****				****	

Morrison Creek Mining (South)
Existing Conditions - AM Peak Hour
Vineyard I - Opt. 1 & Aspen V South

Level Of Service Computation Report
Circular 212 Planning Method (Future Volume Alternative)

Intersection #4 Bradshaw Rd / Jackson Rd

Cycle (sec):	100	Critical Vol./Cap. (X):	0.844
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	146	Level Of Service:	D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 1	1 0		1 0 2	0 1		1 0 1	0 1		1 0 1	0 1	
Volume Module:												
Base Vol:	51	856	1	69	523	157	184	157	40	13	451	149
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	51	856	1	69	523	157	184	157	40	13	451	149
Added Vol:	20	67	22	-7	67	-10	-10	0	20	22	0	-7
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	71	923	23	62	590	147	174	157	60	35	451	142
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	71	923	23	62	590	147	174	157	60	35	451	142
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	71	923	23	62	590	147	174	157	60	35	451	142
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	71	923	23	62	590	147	174	157	60	35	451	142
Saturation Flow Module:												
Sat/Lane:	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.95	0.05	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1375	2683	67	1375	2750	1375	1375	1375	1375	1375	1375	1375
Capacity Analysis Module:												
Vol/Sat:	0.05	0.34	0.34	0.05	0.21	0.11	0.13	0.11	0.04	0.03	0.33	0.10
Crit Moves:		****		****			****				****	

Morrison Creek Mining (South)
Existing Conditions - AM Peak Hour
Vineyard I - Opt. 1 & Aspen V South

Level Of Service Computation Report
Circular 212 Planning Method (Future Volume Alternative)

Intersection #5 Bradshaw Rd / Kiefer Blvd

Cycle (sec):	100	Critical Vol./Cap. (X):	0.543
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	50	Level Of Service:	A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 1	1 0		1 0 2	0 1		1 0 1	1 0		1 0 1	1 0	
Volume Module:												
Base Vol:	132	986	90	2	648	117	170	60	93	89	16	6
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	132	986	90	2	648	117	170	60	93	89	16	6
Added Vol:	0	50	0	0	50	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	132	1036	90	2	698	117	170	60	93	89	16	6
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	132	1036	90	2	698	117	170	60	93	89	16	6
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	132	1036	90	2	698	117	170	60	93	89	16	6
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	132	1036	90	2	698	117	170	60	93	89	16	6
Saturation Flow Module:												
Sat/Lane:	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.84	0.16	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.45	0.55
Final Sat.:	1375	2530	220	1375	2750	1375	1375	1375	1375	1375	2000	750
Capacity Analysis Module:												
Vol/Sat:	0.10	0.41	0.41	0.00	0.25	0.09	0.12	0.04	0.07	0.06	0.01	0.01
Crit Moves:		****		****			****				****	

Morrison Creek Mining (South)
Existing Conditions - AM Peak Hour
Vineyard I - Opt. 1 & Aspen V South

Level Of Service Computation Report
1985 HCM Unsignalized Method (Future Volume Alternative)

Intersection #6 Jackson Rd / Mayhew Rd

Level Of Service: C

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Stop Sign						Stop Sign						Uncontrolled						Uncontrolled					
Rights:	Include						Include						Include						Include					
Lanes:	0	0	1!	0	0		0	0	1!	0	0		1	0	1	0	1		1	0	0	1	0	
Volume Module:																								
Base Vol:	2		2		2		2		2		2		2	380		2			2	650		2		
Growth Adj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
Initial Bse:	2		2		2		2		2		2		2	380		2			2	650		2		
Added Vol:	0		0		0		0		0		0		0	10		0			0	10		0		
PasserByVol:	0		0		0		0		0		0		0	0		0			0	0		0		
Initial Fut:	2		2		2		2		2		2		2	390		2			2	660		2		
User Adj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
PHF Adj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
PHF Volume:	2		2		2		2		2		2		2	390		2			2	660		2		
Reduct Vol:	0		0		0		0		0		0		0	0		0			0	0		0		
Final Vol.:	2		2		2		2		2		2		2	390		2			2	660		2		
Adjusted Volume Module:																								
Grade:	0%						0%						0%						0%					
% Cycle/Cars:	xxxx	xxxx					xxxx	xxxx					xxxx	xxxx					xxxx	xxxx				
% Truck/Comb:	xxxx	xxxx					xxxx	xxxx					xxxx	xxxx					xxxx	xxxx				
PCE Adj:	1.10	1.10		1.10			1.10	1.10		1.10			1.10	1.00		1.00			1.10	1.00		1.00		
Cycl/Car PCE:	xxxx	xxxx					xxxx	xxxx					xxxx	xxxx					xxxx	xxxx				
Trck/Cmb PCE:	xxxx	xxxx					xxxx	xxxx					xxxx	xxxx					xxxx	xxxx				
Adj Vol.:	2		2		2		2		2		2		2	390		2			2	660		2		
Critical Gap Module: >> Population: 0 << >> Run Speed(E/W): 30 MPH <<																								
RT Rad/Ang:	20.0 ft/90.0 deg						20.0 ft/90.0 deg						20.0 ft/90.0 deg						20.0 ft/90.0 deg					
Critical Gp:	7.0	6.5		5.5			7.0	6.5		5.5			5.5	xxxx	xxxxx				5.5	xxxx	xxxxx			
Capacity Module:																								
Cnflict Vol:	1060	1056		390			1059	1057		661			662	xxxx	xxxxx				392	xxxx	xxxxx			
Potent Cap.:	172	218		708			172	217		512			512	xxxx	xxxxx				706	xxxx	xxxxx			
% Used Cap.:	1.3	1.0		0.3			1.3	1.0		0.4			0.4	xxxx	xxxxx				0.3	xxxx	xxxxx			
Impedance:	xxxx	0.99		1.00			xxxx	0.99		1.00			1.00	xxxx	xxxxx				1.00	xxxx	xxxxx			
Actual Cap.:	171	218		708			171	217		512			512	xxxx	xxxxx				706	xxxx	xxxxx			
Level Of Service Module:																								
Unused Cap.:	169	215		706			169	215		510			509	xxxx	xxxxx				704	xxxx	xxxxx			
LOS by Move:	*	*		*			*	*		*			A	*		*			A	*		*		
Movement:	LT	-	LTR	-	RT		LT	-	LTR	-	RT		LT	-	LTR	-	RT		LT	-	LTR	-	RT	
Shared Cap.:	xxxx	253		xxxxx			xxxx	242		xxxxx			xxxx	xxxx		xxxxx			xxxx	xxxx		xxxxx		
Unused Cap.:	xxxx	246		xxxxx			xxxx	235		xxxxx			xxxx	xxxx		xxxxx			xxxx	xxxx		xxxxx		
Shared LOS:	*	C		*			*	C		*			*	*		*			*	*		*		

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Morrison Creek Mining (South)
Existing Conditions - PM Peak Hour
Vineyard I - Opt. 1 & Aspen V South

Level Of Service Computation Report
1994 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #1 Elder Creek Rd / S. Watt Ave

Cycle (sec):	1	Critical Vol./Cap. (X):	1.278
Loss Time (sec):	0	Average Delay (sec/veh):	64.2
Optimal Cycle:	0	Level Of Service:	F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 1 0 0 1			0 0 1! 0 0			0 1 0 0 1		
Volume Module:												
Base Vol:	19	333	11	33	467	80	136	223	23	12	131	23
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	19	333	11	33	467	80	136	223	23	12	131	23
Added Vol:	0	0	4	10	0	0	0	0	0	4	0	10
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	19	333	15	43	467	80	136	223	23	16	131	33
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	19	333	15	43	467	80	136	223	23	16	131	33
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	19	333	15	43	467	80	136	223	23	16	131	33
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	19	333	15	43	467	80	136	223	23	16	131	33
Saturation Flow Module:												
Sat/Lane:	467	467	467	399	399	399	354	354	354	255	255	255
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.05	0.91	0.04	0.08	0.92	1.00	0.36	0.58	0.06	0.11	0.89	1.00
Final Sat.:	24	424	19	34	365	399	126	207	21	28	227	255
Capacity Analysis Module:												
Vol/Sat:	0.79	0.79	0.79	1.28	1.28	0.20	1.08	1.08	1.08	0.58	0.58	0.13
Crit Moves:		****			****			****			****	
Level Of Service Module:												
Delay/Veh:	19.8	19.8	19.8	128.7	129	2.1	60.4	60.4	60.4	8.9	8.9	1.6
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	19.8	19.8	19.8	128.7	129	2.1	60.4	60.4	60.4	8.9	8.9	1.6
LOS by Move:	C	C	C	F	F	A	F	F	F	B	B	A

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Morrison Creek Mining (South)
Existing Conditions - PM Peak Hour
Vineyard I - Opt. 1 & Aspen V South

Level Of Service Computation Report
1985 HCM Unsignalized Method (Future Volume Alternative)

Intersection #2 Elder Creek Rd / Mayhew Rd

Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	8	0	2	0	0	3	3	245	10	1	110	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	8	0	2	0	0	3	3	245	10	1	110	0
Added Vol:	0	0	0	87	0	13	13	1	0	0	1	87
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	8	0	2	87	0	16	16	246	10	1	111	87
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	8	0	2	87	0	16	16	246	10	1	111	87
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	8	0	2	87	0	16	16	246	10	1	111	87
Adjusted Volume Module:												
Grade:	0%			0%			0%			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.00	1.00	1.10	1.00	1.00
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	9	0	2	96	0	18	18	246	10	1	111	87
Critical Gap Module: >> Population: 0 << >> Run Speed(E/W): 30 MPH <<												
RT Rad/Ang:	20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg		
Critical Gp:	6.5	xxxx	5.5	6.5	xxxx	5.5	5.0	xxxx	xxxxx	5.0	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	483	xxxx	251	430	xxxx	155	198	xxxx	xxxxx	256	xxxx	xxxxx
Potent Cap.:	500	xxxx	838	534	xxxx	935	981	xxxx	xxxxx	934	xxxx	xxxxx
% Used Cap.:	1.8	xxxx	0.3	17.9	xxxx	1.9	1.8	xxxx	xxxxx	0.1	xxxx	xxxxx
Impedance:	xxxx	xxxx	1.00	xxxx	xxxx	0.99	0.99	xxxx	xxxxx	1.00	xxxx	xxxxx
Actual Cap.:	489	xxxx	838	528	xxxx	935	981	xxxx	xxxxx	934	xxxx	xxxxx
Level Of Service Module:												
Unused Cap.:	480	xxxx	836	432	xxxx	917	963	xxxx	xxxxx	932	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	534	xxxxx	xxxx	566	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Unused Cap.:	xxxx	523	xxxxx	xxxx	453	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shared LOS:	*	A	*	*	A	*	*	*	*	*	*	*

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Morrison Creek Mining (South)
Existing Conditions - PM Peak Hour
Vineyard I - Opt. 1 & Aspen V South

Level Of Service Computation Report
Circular 212 Planning Method (Future Volume Alternative)

Intersection #3 Elder Creek Rd / Bradshaw Rd

Cycle (sec):	100	Critical Vol./Cap. (X):	0.926
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	180	Level Of Service:	E

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 0 1 0			1 0 1 0 1			1 0 0 1 0			0 1 0 0 1		
Volume Module:												
Base Vol:	15	464	2	12	1075	79	107	87	32	4	31	5
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	15	464	2	12	1075	79	107	87	32	4	31	5
Added Vol:	12	-1	0	0	-1	76	76	0	12	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	27	463	2	12	1074	155	183	87	44	4	31	5
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	27	463	2	12	1074	155	183	87	44	4	31	5
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	27	463	2	12	1074	155	183	87	44	4	31	5
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.29	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	27	463	2	12	1074	155	183	87	44	5	31	5
Saturation Flow Module:												
Sat/Lane:	1425	1425	1425	1425	1425	1425	1425	1425	1425	1425	1425	1425
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.99	0.01	1.00	1.00	1.00	1.00	0.66	0.34	0.11	0.89	1.00
Final Sat.:	1425	1419	6	1425	1425	1425	1425	946	479	158	1267	1425
Capacity Analysis Module:												
Vol/Sat:	0.02	0.33	0.33	0.01	0.75	0.11	0.13	0.09	0.09	0.03	0.02	0.00
Crit Moves:	****				****		****				****	

Morrison Creek Mining (South)
Existing Conditions - PM Peak Hour
Vineyard I - Opt. 1 & Aspen V South

Level Of Service Computation Report
Circular 212 Planning Method (Future Volume Alternative)

Intersection #4 Bradshaw Rd / Jackson Rd

Cycle (sec):	100	Critical Vol./Cap. (X):	0.803
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	115	Level Of Service:	D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	1 1	0	1 0	2 0	1	1 0	1 0	1	1 0	1 0	1
Volume Module:												
Base Vol:	50	587	10	174	922	224	183	481	110	36	237	70
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	50	587	10	174	922	224	183	481	110	36	237	70
Added Vol:	20	67	22	-7	67	-10	-10	0	20	22	0	-7
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	70	654	32	167	989	214	173	481	130	58	237	63
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	70	654	32	167	989	214	173	481	130	58	237	63
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	70	654	32	167	989	214	173	481	130	58	237	63
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	70	654	32	167	989	214	173	481	130	58	237	63
Saturation Flow Module:												
Sat/Lane:	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.91	0.09	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1375	2622	128	1375	2750	1375	1375	1375	1375	1375	1375	1375
Capacity Analysis Module:												
Vol/Sat:	0.05	0.25	0.25	0.12	0.36	0.16	0.13	0.35	0.09	0.04	0.17	0.05
Crit Moves:	****				****			****		****		

Morrison Creek Mining (South)
Existing Conditions - PM Peak Hour
Vineyard I - Opt. 1 & Aspen V South

Level Of Service Computation Report
Circular 212 Planning Method (Future Volume Alternative)

Intersection #5 Bradshaw Rd / Kiefer Blvd

Cycle (sec):	100	Critical Vol./Cap. (X):	0.747
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	90	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	1 1	0	1 0	2 0	1	1 0	1 1	0	1 0	1 1	0
Volume Module:												
Base Vol:	72	594	79	4	1123	201	220	53	239	130	60	4
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	72	594	79	4	1123	201	220	53	239	130	60	4
Added Vol:	0	50	0	0	50	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	72	644	79	4	1173	201	220	53	239	130	60	4
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	72	644	79	4	1173	201	220	53	239	130	60	4
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	72	644	79	4	1173	201	220	53	239	130	60	4
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	72	644	79	4	1173	201	220	53	239	130	60	4
Saturation Flow Module:												
Sat/Lane:	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.78	0.22	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.88	0.12
Final Sat.:	1375	2450	300	1375	2750	1375	1375	1375	1375	1375	2578	172
Capacity Analysis Module:												
Vol/Sat:	0.05	0.26	0.26	0.00	0.43	0.15	0.16	0.04	0.17	0.09	0.02	0.02
Crit Moves:	****				****				****	****		

Morrison Creek Mining (South)
Existing Conditions - PM Peak Hour
Vineyard I - Opt. 1 & Aspen V South

Level Of Service Computation Report
1985 HCM Unsignalized Method (Future Volume Alternative)

Intersection #6 Jackson Rd / Mayhew Rd

Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0	1! 0	0	0 0	1! 0	0	1 0	1 0	1	1 0	0 1	0
Volume Module:												
Base Vol:	2	2	2	2	2	2	2	770	2	2	510	2
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	2	2	2	2	2	2	2	770	2	2	510	2
Added Vol:	0	0	0	0	0	0	0	10	0	0	10	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	2	2	2	2	2	2	2	780	2	2	520	2
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	2	2	2	2	2	2	2	780	2	2	520	2
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	2	2	2	2	2	2	2	780	2	2	520	2
Adjusted Volume Module:												
Grade:	0%			0%			0%			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.00	1.00	1.10	1.00	1.00
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	2	2	2	2	2	2	2	780	2	2	520	2
Critical Gap Module: >> Population: 0 << >> Run Speed(E/W): 30 MPH <<												
RT Rad/Ang:	20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg		
Critical Gp:	7.0	6.5	5.5	7.0	6.5	5.5	5.5	xxxx	xxxxx	5.5	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1310	1306	780	1309	1307	521	522	xxxx	xxxxx	782	xxxx	xxxxx
Potent Cap.:	122	148	438	123	148	611	610	xxxx	xxxxx	437	xxxx	xxxxx
% Used Cap.:	1.8	1.5	0.5	1.8	1.5	0.4	0.4	xxxx	xxxxx	0.5	xxxx	xxxxx
Impedance:	xxxx	0.99	1.00	xxxx	0.99	1.00	1.00	xxxx	xxxxx	1.00	xxxx	xxxxx
Actual Cap.:	121	148	438	122	148	611	610	xxxx	xxxxx	437	xxxx	xxxxx
Level Of Service Module:												
Unused Cap.:	119	146	436	119	146	609	608	xxxx	xxxxx	435	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	174	xxxxx	xxxx	180	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Unused Cap.:	xxxx	167	xxxxx	xxxx	174	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shared LOS:	*	D	*	*	D	*	*	*	*	*	*	*

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Morrison Creek Mining (South)
Existing Conditions - AM Peak Hour
Vineyard I - Opt. 2 & Aspen V South

Level Of Service Computation Report
1994 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #1 Elder Creek Rd / S. Watt Ave

Cycle (sec):	1	Critical Vol./Cap. (X):	0.850
Loss Time (sec):	0	Average Delay (sec/veh):	18.4
Optimal Cycle:	0	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0	1! 0	0	0 1	0 0	1	0 0	1! 0	0	0 1	0 0	1
Volume Module:												
Base Vol:	37	472	11	23	272	115	72	80	17	13	187	35
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	37	472	11	23	272	115	72	80	17	13	187	35
Added Vol:	0	0	3	6	0	0	0	0	0	3	0	6
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	37	472	14	29	272	115	72	80	17	16	187	41
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	37	472	14	29	272	115	72	80	17	16	187	41
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	37	472	14	29	272	115	72	80	17	16	187	41
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	37	472	14	29	272	115	72	80	17	16	187	41
Saturation Flow Module:												
Sat/Lane:	615	615	615	420	420	420	285	285	285	240	240	240
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.07	0.90	0.03	0.10	0.90	1.00	0.43	0.47	0.10	0.08	0.92	1.00
Final Sat.:	44	555	16	40	380	420	121	135	29	19	221	240
Capacity Analysis Module:												
Vol/Sat:	0.85	0.85	0.85	0.72	0.72	0.27	0.59	0.59	0.59	0.85	0.85	0.17
Crit Moves:		****		****				****			****	
Level Of Service Module:												
Delay/Veh:	25.3	25.3	25.3	15.2	15.2	2.8	9.5	9.5	9.5	24.9	24.9	1.9
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	25.3	25.3	25.3	15.2	15.2	2.8	9.5	9.5	9.5	24.9	24.9	1.9
LOS by Move:	D	D	D	C	C	A	B	B	B	D	D	A

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Morrison Creek Mining (South)
Existing Conditions - AM Peak Hour
Vineyard I - Opt. 2 & Aspen V South

Level Of Service Computation Report
1985 HCM Unsignalized Method (Future Volume Alternative)

Intersection #2 Elder Creek Rd / Mayhew Rd

Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	1 0 0 0 0			0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	4	0	0	1	0	1	1	89	6	2	271	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	4	0	0	1	0	1	1	89	6	2	271	0
Added Vol:	0	0	0	52	0	8	8	1	0	0	1	52
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	4	0	0	53	0	9	9	90	6	2	272	52
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	4	0	0	53	0	9	9	90	6	2	272	52
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	4	0	0	53	0	9	9	90	6	2	272	52
Adjusted Volume Module:												
Grade:	0%			0%			0%			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.00	1.00	1.10	1.00	1.00
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	4	0	0	59	0	10	10	90	6	2	272	52
Critical Gap Module: >> Population: 0 << >> Run Speed(E/W): 30 MPH <<												
RT Rad/Ang:	20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg		
Critical Gp:	6.5	xxxx	xxxxx	6.5	xxxx	5.5	5.0	xxxx	xxxxx	5.0	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	438	xxxx	xxxxx	406	xxxx	299	325	xxxx	xxxxx	96	xxxx	xxxxx
Potent Cap.:	529	xxxx	xxxxx	551	xxxx	787	868	xxxx	xxxxx	1000	xxxx	xxxxx
% Used Cap.:	0.8	xxxx	xxxxx	10.6	xxxx	1.2	1.1	xxxx	xxxxx	0.2	xxxx	xxxxx
Impedance:	xxxx	xxxx	xxxxx	xxxx	xxxx	0.99	0.99	xxxx	xxxxx	1.00	xxxx	xxxxx
Actual Cap.:	521	xxxx	xxxxx	547	xxxx	787	868	xxxx	xxxxx	1000	xxxx	xxxxx
Level Of Service Module:												
Unused Cap.:	517	xxxx	xxxxx	489	xxxx	777	858	xxxx	xxxxx	998	xxxx	xxxxx
LOS by Move:	A	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	572	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Unused Cap.:	xxxx	xxxx	xxxxx	xxxx	504	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	A	*	*	*	*	*	*	*

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Morrison Creek Mining (South)
Existing Conditions - AM Peak Hour
Vineyard I - Opt. 2 & Aspen V South

Level Of Service Computation Report
Circular 212 Planning Method (Future Volume Alternative)

Intersection #3 Elder Creek Rd / Bradshaw Rd

Cycle (sec):	100	Critical Vol./Cap. (X):	0.803
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	94	Level Of Service:	D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 0 1 0			1 0 1 0 1			1 0 0 1 0			0 1 0 0 1		
Volume Module:												
Base Vol:	59	955	2	3	468	131	38	22	10	1	93	14
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	59	955	2	3	468	131	38	22	10	1	93	14
Added Vol:	7	6	0	0	6	46	46	0	7	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	66	961	2	3	474	177	84	22	17	1	93	14
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	66	961	2	3	474	177	84	22	17	1	93	14
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	66	961	2	3	474	177	84	22	17	1	93	14
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.07	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	66	961	2	3	474	177	84	22	17	1	93	14
Saturation Flow Module:												
Sat/Lane:	1425	1425	1425	1425	1425	1425	1425	1425	1425	1425	1425	1425
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.99	0.01	1.00	1.00	1.00	1.00	0.56	0.44	0.01	0.99	1.00
Final Sat.:	1425	1422	3	1425	1425	1425	1425	804	621	14	1411	1425
Capacity Analysis Module:												
Vol/Sat:	0.05	0.68	0.68	0.00	0.33	0.12	0.06	0.03	0.03	0.07	0.07	0.01
Crit Moves:		****		****			****				****	

Morrison Creek Mining (South)
Existing Conditions - AM Peak Hour
Vineyard I - Opt. 2 & Aspen V South

Level Of Service Computation Report
Circular 212 Planning Method (Future Volume Alternative)

Intersection #4 Bradshaw Rd / Jackson Rd

Cycle (sec):	100	Critical Vol./Cap. (X):	0.849
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	151	Level Of Service:	D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	1 1	0	1 0	2 0	1	1 0	1 0	1	1 0	1 0	1
Volume Module:												
Base Vol:	51	856	1	69	523	157	184	157	40	13	451	149
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	51	856	1	69	523	157	184	157	40	13	451	149
Added Vol:	16	54	16	0	54	0	0	0	16	16	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	67	910	17	69	577	157	184	157	56	29	451	149
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	67	910	17	69	577	157	184	157	56	29	451	149
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	67	910	17	69	577	157	184	157	56	29	451	149
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	67	910	17	69	577	157	184	157	56	29	451	149
Saturation Flow Module:												
Sat/Lane:	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.96	0.04	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1375	2700	50	1375	2750	1375	1375	1375	1375	1375	1375	1375
Capacity Analysis Module:												
Vol/Sat:	0.05	0.34	0.34	0.05	0.21	0.11	0.13	0.11	0.04	0.02	0.33	0.11
Crit Moves:		****		****			****				****	

Morrison Creek Mining (South)
Existing Conditions - AM Peak Hour
Vineyard I - Opt. 2 & Aspen V South

Level Of Service Computation Report
Circular 212 Planning Method (Future Volume Alternative)

Intersection #5 Bradshaw Rd / Kiefer Blvd

Cycle (sec):	100	Critical Vol./Cap. (X):	0.544
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	50	Level Of Service:	A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 1	1 0		1 0 2	0 1		1 0 1	1 0		1 0 1	1 0	
Volume Module:												
Base Vol:	132	986	90	2	648	117	170	60	93	89	16	6
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	132	986	90	2	648	117	170	60	93	89	16	6
Added Vol:	0	54	0	0	54	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	132	1040	90	2	702	117	170	60	93	89	16	6
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	132	1040	90	2	702	117	170	60	93	89	16	6
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	132	1040	90	2	702	117	170	60	93	89	16	6
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	132	1040	90	2	702	117	170	60	93	89	16	6
Saturation Flow Module:												
Sat/Lane:	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.84	0.16	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.45	0.55
Final Sat.:	1375	2531	219	1375	2750	1375	1375	1375	1375	1375	2000	750
Capacity Analysis Module:												
Vol/Sat:	0.10	0.41	0.41	0.00	0.26	0.09	0.12	0.04	0.07	0.06	0.01	0.01
Crit Moves:		****		****			****				****	

Morrison Creek Mining (South)
Existing Conditions - AM Peak Hour
Vineyard I - Opt. 2 & Aspen V South

Level Of Service Computation Report
1985 HCM Unsignalized Method (Future Volume Alternative)

Intersection #6 Jackson Rd / Mayhew Rd

Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0	1! 0	0	0 0	1! 0	0	1 0	1 0	1	1 0	0 1	0
Volume Module:												
Base Vol:	2	2	2	2	2	2	2	380	2	2	650	2
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	2	2	2	2	2	2	2	380	2	2	650	2
Added Vol:	0	0	0	0	0	0	0	16	0	0	16	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	2	2	2	2	2	2	2	396	2	2	666	2
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	2	2	2	2	2	2	2	396	2	2	666	2
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	2	2	2	2	2	2	2	396	2	2	666	2
Adjusted Volume Module:												
Grade:		0%			0%			0%			0%	
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.00	1.00	1.10	1.00	1.00
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	2	2	2	2	2	2	2	396	2	2	666	2
Critical Gap Module: >> Population: 0 << >> Run Speed(E/W): 30 MPH <<												
RT Rad/Ang:	20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg		
Critical Gp:	7.0	6.5	5.5	7.0	6.5	5.5	5.5	xxxx	xxxxx	5.5	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1071	1067	396	1070	1068	667	668	xxxx	xxxxx	398	xxxx	xxxxx
Potent Cap.:	169	213	704	169	213	508	508	xxxx	xxxxx	702	xxxx	xxxxx
% Used Cap.:	1.3	1.0	0.3	1.3	1.0	0.4	0.4	xxxx	xxxxx	0.3	xxxx	xxxxx
Impedance:	xxxx	0.99	1.00	xxxx	0.99	1.00	1.00	xxxx	xxxxx	1.00	xxxx	xxxxx
Actual Cap.:	168	213	704	168	213	508	508	xxxx	xxxxx	702	xxxx	xxxxx
Level Of Service Module:												
Unused Cap.:	165	211	701	166	211	506	505	xxxx	xxxxx	700	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	248	xxxxx	xxxx	238	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Unused Cap.:	xxxx	242	xxxxx	xxxx	231	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shared LOS:	*	C	*	*	C	*	*	*	*	*	*	*

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Morrison Creek Mining (South)
Existing Conditions - PM Peak Hour
Vineyard I - Opt. 2 & Aspen V South

Level Of Service Computation Report
1994 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #1 Elder Creek Rd / S. Watt Ave

Cycle (sec):	1	Critical Vol./Cap. (X):	1.271
Loss Time (sec):	0	Average Delay (sec/veh):	63.2
Optimal Cycle:	0	Level Of Service:	F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 1 0 0 1			0 0 1! 0 0			0 1 0 0 1		
Volume Module:												
Base Vol:	19	333	11	33	467	80	136	223	23	12	131	23
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	19	333	11	33	467	80	136	223	23	12	131	23
Added Vol:	0	0	3	6	0	0	0	0	0	3	0	6
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	19	333	14	39	467	80	136	223	23	15	131	29
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	19	333	14	39	467	80	136	223	23	15	131	29
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	19	333	14	39	467	80	136	223	23	15	131	29
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	19	333	14	39	467	80	136	223	23	15	131	29
Saturation Flow Module:												
Sat/Lane:	468	468	468	398	398	398	353	353	353	255	255	255
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.05	0.91	0.04	0.08	0.92	1.00	0.36	0.58	0.06	0.10	0.90	1.00
Final Sat.:	24	426	18	31	367	398	126	206	21	26	229	255
Capacity Analysis Module:												
Vol/Sat:	0.78	0.78	0.78	1.27	1.27	0.20	1.08	1.08	1.08	0.57	0.57	0.11
Crit Moves:			****		****				****	****		
Level Of Service Module:												
Delay/Veh:	19.5	19.5	19.5	125.4	125	2.1	61.1	61.1	61.1	8.8	8.8	1.5
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	19.5	19.5	19.5	125.4	125	2.1	61.1	61.1	61.1	8.8	8.8	1.5
LOS by Move:	C	C	C	F	F	A	F	F	F	B	B	A

Morrison Creek Mining (South)
Existing Conditions - PM Peak Hour
Vineyard I - Opt. 2 & Aspen V South

Level Of Service Computation Report
1985 HCM Unsignalized Method (Future Volume Alternative)

Intersection #2 Elder Creek Rd / Mayhew Rd

Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0	1! 0	0	0 0	1! 0	0	0 0	1! 0	0	0 0	1! 0	0
Volume Module:												
Base Vol:	8	0	2	0	0	3	3	245	10	1	110	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	8	0	2	0	0	3	3	245	10	1	110	0
Added Vol:	0	0	0	52	0	8	8	1	0	0	1	52
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	8	0	2	52	0	11	11	246	10	1	111	52
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	8	0	2	52	0	11	11	246	10	1	111	52
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	8	0	2	52	0	11	11	246	10	1	111	52
Adjusted Volume Module:												
Grade:	0%			0%			0%			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.00	1.00	1.10	1.00	1.00
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	9	0	2	57	0	12	12	246	10	1	111	52
Critical Gap Module: >> Population: 0 << >> Run Speed(E/W): 30 MPH <<												
RT Rad/Ang:	20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg		
Critical Gp:	6.5	xxxx	5.5	6.5	xxxx	5.5	5.0	xxxx	xxxxx	5.0	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	438	xxxx	251	408	xxxx	138	164	xxxx	xxxxx	256	xxxx	xxxxx
Potent Cap.:	529	xxxx	838	550	xxxx	955	995	xxxx	xxxxx	934	xxxx	xxxxx
% Used Cap.:	1.7	xxxx	0.3	10.4	xxxx	1.2	1.2	xxxx	xxxxx	0.1	xxxx	xxxxx
Impedance:	xxxx	xxxx	1.00	xxxx	xxxx	0.99	0.99	xxxx	xxxxx	1.00	xxxx	xxxxx
Actual Cap.:	521	xxxx	838	546	xxxx	955	995	xxxx	xxxxx	934	xxxx	xxxxx
Level Of Service Module:												
Unused Cap.:	512	xxxx	836	488	xxxx	943	983	xxxx	xxxxx	932	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	564	xxxxx	xxxx	589	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Unused Cap.:	xxxx	553	xxxxx	xxxx	520	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shared LOS:	*	A	*	*	A	*	*	*	*	*	*	*

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Morrison Creek Mining (South)
Existing Conditions - PM Peak Hour
Vineyard I - Opt. 2 & Aspen V South

Level Of Service Computation Report
Circular 212 Planning Method (Future Volume Alternative)

Intersection #3 Elder Creek Rd / Bradshaw Rd

Cycle (sec):	100	Critical Vol./Cap. (X):	0.906
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	180	Level Of Service:	E

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 0 1 0			1 0 1 0 1			1 0 0 1 0			0 1 0 0 1		
Volume Module:												
Base Vol:	15	464	2	12	1075	79	107	87	32	4	31	5
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	15	464	2	12	1075	79	107	87	32	4	31	5
Added Vol:	7	6	0	0	6	46	46	0	7	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	22	470	2	12	1081	125	153	87	39	4	31	5
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	22	470	2	12	1081	125	153	87	39	4	31	5
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	22	470	2	12	1081	125	153	87	39	4	31	5
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.29	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	22	470	2	12	1081	125	153	87	39	5	31	5
Saturation Flow Module:												
Sat/Lane:	1425	1425	1425	1425	1425	1425	1425	1425	1425	1425	1425	1425
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.99	0.01	1.00	1.00	1.00	1.00	0.69	0.31	0.11	0.89	1.00
Final Sat.:	1425	1419	6	1425	1425	1425	1425	984	441	158	1267	1425
Capacity Analysis Module:												
Vol/Sat:	0.02	0.33	0.33	0.01	0.76	0.09	0.11	0.09	0.09	0.03	0.02	0.00
Crit Moves:	****				****		****				****	

Morrison Creek Mining (South)
Existing Conditions - PM Peak Hour
Vineyard I - Opt. 2 & Aspen V South

Level Of Service Computation Report
Circular 212 Planning Method (Future Volume Alternative)

Intersection #4 Bradshaw Rd / Jackson Rd

Cycle (sec):	100	Critical Vol./Cap. (X):	0.791
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	109	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	1 1 0		1 0	2 0 1		1 0	1 0 1		1 0	1 0 1	
Volume Module:												
Base Vol:	50	587	10	174	922	224	183	481	110	36	237	70
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	50	587	10	174	922	224	183	481	110	36	237	70
Added Vol:	16	54	16	0	54	0	0	0	16	16	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	66	641	26	174	976	224	183	481	126	52	237	70
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	66	641	26	174	976	224	183	481	126	52	237	70
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	66	641	26	174	976	224	183	481	126	52	237	70
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	66	641	26	174	976	224	183	481	126	52	237	70
Saturation Flow Module:												
Sat/Lane:	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.92	0.08	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1375	2643	107	1375	2750	1375	1375	1375	1375	1375	1375	1375
Capacity Analysis Module:												
Vol/Sat:	0.05	0.24	0.24	0.13	0.35	0.16	0.13	0.35	0.09	0.04	0.17	0.05
Crit Moves:	****				****			****			****	

Morrison Creek Mining (South)
Existing Conditions - PM Peak Hour
Vineyard I - Opt. 2 & Aspen V South

Level Of Service Computation Report
Circular 212 Planning Method (Future Volume Alternative)

Intersection #5 Bradshaw Rd / Kiefer Blvd

Cycle (sec):	100	Critical Vol./Cap. (X):	0.749
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	91	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	1 1	0	1 0	2 0	1	1 0	1 1	0	1 0	1 1	0
Volume Module:												
Base Vol:	72	594	79	4	1123	201	220	53	239	130	60	4
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	72	594	79	4	1123	201	220	53	239	130	60	4
Added Vol:	0	54	0	0	54	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	72	648	79	4	1177	201	220	53	239	130	60	4
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	72	648	79	4	1177	201	220	53	239	130	60	4
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	72	648	79	4	1177	201	220	53	239	130	60	4
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	72	648	79	4	1177	201	220	53	239	130	60	4
Saturation Flow Module:												
Sat/Lane:	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.78	0.22	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.88	0.12
Final Sat.:	1375	2451	299	1375	2750	1375	1375	1375	1375	1375	2578	172
Capacity Analysis Module:												
Vol/Sat:	0.05	0.26	0.26	0.00	0.43	0.15	0.16	0.04	0.17	0.09	0.02	0.02
Crit Moves:	****				****				****	****		

Morrison Creek Mining (South)
Existing Conditions - PM Peak Hour
Vineyard I - Opt. 2 & Aspen V South

Level Of Service Computation Report
1985 HCM Unsignalized Method (Future Volume Alternative)

Intersection #6 Jackson Rd / Mayhew Rd

Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			1 0 1 0 1			1 0 0 1 0		
Volume Module:												
Base Vol:	2	2	2	2	2	2	2	770	2	2	510	2
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	2	2	2	2	2	2	2	770	2	2	510	2
Added Vol:	0	0	0	0	0	0	0	16	0	0	16	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	2	2	2	2	2	2	2	786	2	2	526	2
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	2	2	2	2	2	2	2	786	2	2	526	2
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	2	2	2	2	2	2	2	786	2	2	526	2
Adjusted Volume Module:												
Grade:	0%			0%			0%			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.00	1.00	1.10	1.00	1.00
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	2	2	2	2	2	2	2	786	2	2	526	2
Critical Gap Module: >> Population: 0 << >> Run Speed(E/W): 30 MPH <<												
RT Rad/Ang:	20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg		
Critical Gp:	7.0	6.5	5.5	7.0	6.5	5.5	5.5	xxxx	xxxxx	5.5	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1321	1317	786	1320	1318	527	528	xxxx	xxxxx	788	xxxx	xxxxx
Potent Cap.:	119	145	436	120	145	606	605	xxxx	xxxxx	435	xxxx	xxxxx
% Used Cap.:	1.8	1.5	0.5	1.8	1.5	0.4	0.4	xxxx	xxxxx	0.5	xxxx	xxxxx
Impedance:	xxxx	0.99	1.00	xxxx	0.99	1.00	1.00	xxxx	xxxxx	1.00	xxxx	xxxxx
Actual Cap.:	118	145	436	119	145	606	605	xxxx	xxxxx	435	xxxx	xxxxx
Level Of Service Module:												
Unused Cap.:	116	143	434	116	142	604	603	xxxx	xxxxx	433	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	170	xxxxx	xxxx	177	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Unused Cap.:	xxxx	163	xxxxx	xxxx	170	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shared LOS:	*	D	*	*	D	*	*	*	*	*	*	*

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Morrison Creek Mining (South)
Existing Conditions - PM Peak Hour
Vineyard I - Opt. 1 & Aspen IV South - Mitigated

Level Of Service Computation Report
Circular 212 Planning Method (Future Volume Alternative)

Intersection #1 Elder Creek Rd / S. Watt Ave

Cycle (sec):	1	Critical Vol./Cap. (X):	0.938
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	180	Level Of Service:	E

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1! 0	0	0 1	0 0	1	0 0	1! 0	0	0 1	0 0	1
Volume Module:												
Base Vol:	19	333	11	33	467	80	136	223	23	12	131	23
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	19	333	11	33	467	80	136	223	23	12	131	23
Added Vol:	0	0	4	10	0	0	0	0	0	4	0	10
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	19	333	15	43	467	80	136	223	23	16	131	33
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	19	333	15	43	467	80	136	223	23	16	131	33
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	19	333	15	43	467	80	136	223	23	16	131	33
PCE Adj:	1.00	1.00	1.00	2.22	1.00	1.00	1.00	1.00	1.00	1.74	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	19	333	15	95	467	80	136	223	23	29	131	33
Saturation Flow Module:												
Sat/Lane:	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.05	0.91	0.04	0.08	0.92	1.00	0.36	0.58	0.06	0.11	0.89	1.00
Final Sat.:	78	1361	61	126	1374	1500	534	876	90	169	1331	1500
Capacity Analysis Module:												
Vol/Sat:	0.24	0.24	0.24	0.34	0.34	0.05	0.25	0.25	0.25	0.09	0.10	0.02
Crit Moves:	****				****		****				****	

Morrison Creek Mining (South)
Existing Conditions - PM Peak Hour
Vineyard I - Opt. 1 & Aspen IV South - Mitigated

Level Of Service Computation Report
Circular 212 Planning Method (Future Volume Alternative)

Intersection #3 Elder Creek Rd / Bradshaw Rd

Cycle (sec):	100	Critical Vol./Cap. (X):	0.894
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	176	Level Of Service:	D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	0 1	0	1 0	1 0	1	2 0	0 1	0	0 1	0 0	1
Volume Module:												
Base Vol:	15	464	2	12	1075	79	107	87	32	4	31	5
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	15	464	2	12	1075	79	107	87	32	4	31	5
Added Vol:	18	-7	0	0	-7	75	75	0	18	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	33	457	2	12	1068	154	182	87	50	4	31	5
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	33	457	2	12	1068	154	182	87	50	4	31	5
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	33	457	2	12	1068	154	182	87	50	4	31	5
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.29	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.10	1.00	1.00	1.00	1.00	1.00
Final Vol.:	33	457	2	12	1068	154	200	87	50	5	31	5
Saturation Flow Module:												
Sat/Lane:	1425	1425	1425	1425	1425	1425	1425	1425	1425	1425	1425	1425
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.99	0.01	1.00	1.00	1.00	2.00	0.64	0.36	0.11	0.89	1.00
Final Sat.:	1425	1419	6	1425	1425	1425	2850	905	520	158	1267	1425
Capacity Analysis Module:												
Vol/Sat:	0.02	0.32	0.32	0.01	0.75	0.11	0.07	0.10	0.10	0.03	0.02	0.00
Crit Moves:	****				****			****		****		

Morrison Creek Mining (South)
Cumulative Conditions - AM Peak Hour
Vineyard I - Opt. 1 & Aspen IV South

Level Of Service Computation Report
Circular 212 Planning Method (Base Volume Alternative)

Intersection #1 Elder Creek Rd / S. Watt Ave

Cycle (sec):	1	Critical Vol./Cap. (X):	0.860
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	163	Level Of Service:	D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Ovl			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 2 1 0			1 0 3 0 1			2 0 0 1 0			1 0 1 0 1		
Volume Module:												
Base Vol:	107	1359	32	66	783	331	207	230	49	37	539	101
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	107	1359	32	66	783	331	207	230	49	37	539	101
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	107	1359	32	66	783	331	207	230	49	37	539	101
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	107	1359	32	66	783	331	207	230	49	37	539	101
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.10	1.00	1.00	1.00	1.00	1.00
Final Vol.:	107	1359	32	66	783	331	228	230	49	37	539	101
Saturation Flow Module:												
Sat/Lane:	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.93	0.07	1.00	3.00	1.00	2.00	0.82	0.18	1.00	1.00	1.00
Final Sat.:	1375	4030	95	1375	4125	1375	2750	1134	241	1375	1375	1375
Capacity Analysis Module:												
Vol/Sat:	0.08	0.34	0.34	0.05	0.19	0.24	0.08	0.20	0.20	0.03	0.39	0.07
Crit Moves:		****		****			****				****	

Morrison Creek Mining (South)
Cumulative Conditions - AM Peak Hour
Vineyard I - Opt. 1 & Aspen IV South

Level Of Service Computation Report
1985 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Elder Creek Rd / Mayhew Rd

Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	1 0 0 0 0			0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	12	0	0	3	0	3	3	256	17	6	780	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	12	0	0	3	0	3	3	256	17	6	780	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	12	0	0	3	0	3	3	256	17	6	780	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	12	0	0	3	0	3	3	256	17	6	780	0
Adjusted Volume Module:												
Grade:	0%			0%			0%			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.00	1.00	1.10	1.00	1.00
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	13	0	0	3	0	3	3	256	17	7	780	0

Critical Gap Module: >> Population: 0 << >> Run Speed(E/W): 30 MPH <<

RT Rad/Ang:	20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg		
Critical Gp:	6.5	xxxx	xxxxx	6.5	xxxx	5.5	5.0	xxxx	xxxxx	5.0	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1057	xxxx	xxxxx	1062	xxxx	780	780	xxxx	xxxxx	273	xxxx	xxxxx
Potent Cap.:	217	xxxx	xxxxx	215	xxxx	438	512	xxxx	xxxxx	917	xxxx	xxxxx
% Used Cap.:	6.1	xxxx	xxxxx	1.5	xxxx	0.8	0.6	xxxx	xxxxx	0.7	xxxx	xxxxx
Impedance:	xxxx	xxxx	xxxxx	xxxx	xxxx	1.00	1.00	xxxx	xxxxx	1.00	xxxx	xxxxx
Actual Cap.:	217	xxxx	xxxxx	215	xxxx	438	512	xxxx	xxxxx	917	xxxx	xxxxx
Level Of Service Module:												
Unused Cap.:	204	xxxx	xxxxx	212	xxxx	435	509	xxxx	xxxxx	910	xxxx	xxxxx
LOS by Move:	C	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	289	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Unused Cap.:	xxxx	xxxx	xxxxx	xxxx	282	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	C	*	*	*	*	*	*	*

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Morrison Creek Mining (South)
Cumulative Conditions - AM Peak Hour
Vineyard I - Opt. 1 & Aspen IV South

Level Of Service Computation Report
Circular 212 Planning Method (Base Volume Alternative)

Intersection #3 Elder Creek Rd / Bradshaw Rd

Cycle (sec):	100	Critical Vol./Cap. (X):	0.913
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	180	Level Of Service:	E

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Ignore			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 2	1 0		1 0 3	0 1		2 0 0	1 0		1 0 1	0 1	
Volume Module:												
Base Vol:	170	2750	6	9	1348	377	109	63	29	3	268	40
Growth Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	170	2750	6	9	1348	0	109	63	29	3	268	40
User Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	170	2750	6	9	1348	0	109	63	29	3	268	40
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	170	2750	6	9	1348	0	109	63	29	3	268	40
PCE Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.10	1.00	1.00	1.00	1.00	1.00
Final Vol.:	170	2750	6	9	1348	0	120	63	29	3	268	40
Saturation Flow Module:												
Sat/Lane:	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.99	0.01	1.00	3.00	1.00	2.00	0.68	0.32	1.00	1.00	1.00
Final Sat.:	1375	4116	9	1375	4125	1375	2750	942	433	1375	1375	1375
Capacity Analysis Module:												
Vol/Sat:	0.12	0.67	0.67	0.01	0.33	0.00	0.04	0.07	0.07	0.00	0.19	0.03
Crit Moves:		****		****			****				****	

Morrison Creek Mining (South)
Cumulative Conditions - AM Peak Hour
Vineyard I - Opt. 1 & Aspen IV South

Level Of Service Computation Report
Circular 212 Planning Method (Base Volume Alternative)

Intersection #4 Bradshaw Rd / Jackson Rd

Cycle (sec):	100	Critical Vol./Cap. (X):	0.951
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	180	Level Of Service:	E

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	2 0	3 0	1	2 0	3 0	1	2 0	2 1	0	2 0	2 1	0
Volume Module:												
Base Vol:	145	2218	61	34	1809	90	142	244	371	195	1146	270
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	145	2218	61	34	1809	90	142	244	371	195	1146	270
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	145	2218	61	34	1809	90	142	244	371	195	1146	270
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	145	2218	61	34	1809	90	142	244	371	195	1146	270
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.10	1.00	1.00	1.10	1.00	1.00	1.10	1.00	1.00	1.10	1.00	1.00
Final Vol.:	160	2218	61	37	1809	90	156	244	371	215	1146	270
Saturation Flow Module:												
Sat/Lane:	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	3.00	1.00	2.00	3.00	1.00	2.00	2.00	1.00	2.00	2.43	0.57
Final Sat.:	2750	4125	1375	2750	4125	1375	2750	2750	1375	2750	3338	787
Capacity Analysis Module:												
Vol/Sat:	0.06	0.54	0.04	0.01	0.44	0.07	0.06	0.09	0.27	0.08	0.34	0.34
Crit Moves:		****		****			****				****	

Morrison Creek Mining (South)
Cumulative Conditions - AM Peak Hour
Vineyard I - Opt. 1 & Aspen IV South

Level Of Service Computation Report
Circular 212 Planning Method (Base Volume Alternative)

Intersection #5 Bradshaw Rd / Kiefer Blvd

Cycle (sec):	100	Critical Vol./Cap. (X):	1.056
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	180	Level Of Service:	F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	2 0	3 0	1	2 0	3 0	1	2 0	2 0	1	2 0	2 0	1
Volume Module:												
Base Vol:	58	2568	494	53	1222	84	134	677	10	324	987	266
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	58	2568	494	53	1222	84	134	677	10	324	987	266
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	58	2568	494	53	1222	84	134	677	10	324	987	266
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	58	2568	494	53	1222	84	134	677	10	324	987	266
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.10	1.00	1.00	1.10	1.00	1.00	1.10	1.00	1.00	1.10	1.00	1.00
Final Vol.:	64	2568	494	58	1222	84	147	677	10	356	987	266
Saturation Flow Module:												
Sat/Lane:	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	3.00	1.00	2.00	3.00	1.00	2.00	2.00	1.00	2.00	2.00	1.00
Final Sat.:	2750	4125	1375	2750	4125	1375	2750	2750	1375	2750	2750	1375
Capacity Analysis Module:												
Vol/Sat:	0.02	0.62	0.36	0.02	0.30	0.06	0.05	0.25	0.01	0.13	0.36	0.19
Crit Moves:		****		****			****				****	

Morrison Creek Mining (South)
Cumulative Conditions - AM Peak Hour
Vineyard I - Opt. 1 & Aspen IV South

Level Of Service Computation Report
1985 HCM Unsignalized Method (Base Volume Alternative)

Intersection #6 Jackson Rd / Mayhew Rd

Level Of Service: E

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0	1! 0	0	0 0	1! 0	0	1 0	1 0	1	1 0	0 1	0
Volume Module:												
Base Vol:	2	2	2	2	2	2	2	1380	2	2	760	2
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	2	2	2	2	2	2	2	1380	2	2	760	2
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	2	2	2	2	2	2	2	1380	2	2	760	2
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	2	2	2	2	2	2	2	1380	2	2	760	2
Adjusted Volume Module:												
Grade:	0%			0%			0%			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.00	1.00	1.10	1.00	1.00
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	2	2	2	2	2	2	2	1380	2	2	760	2
Critical Gap Module: >> Population: 0 << >> Run Speed(E/W): 30 MPH <<												
RT Rad/Ang:	20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg		
Critical Gp:	7.0	6.5	5.5	7.0	6.5	5.5	5.5	xxxx	xxxxx	5.5	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	2150	2146	1380	2149	2147	761	762	xxxx	xxxxx	1382	xxxx	xxxxx
Potent Cap.:	65	82	196	65	82	446	445	xxxx	xxxxx	195	xxxx	xxxxx
% Used Cap.:	3.4	2.7	1.1	3.4	2.7	0.5	0.5	xxxx	xxxxx	1.1	xxxx	xxxxx
Impedance:	xxxx	0.98	0.99	xxxx	0.98	1.00	1.00	xxxx	xxxxx	0.99	xxxx	xxxxx
Actual Cap.:	64	81	196	63	81	446	445	xxxx	xxxxx	195	xxxx	xxxxx
Level Of Service Module:												
Unused Cap.:	61	79	194	61	79	443	443	xxxx	xxxxx	193	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	D	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	91	xxxxx	xxxx	99	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Unused Cap.:	xxxx	84	xxxxx	xxxx	92	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shared LOS:	*	E	*	*	E	*	*	*	*	*	*	*

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Morrison Creek Mining (South)
Cumulative Conditions - PM Peak Hour
Vineyard I - Opt. 1 & Aspen IV South

Level Of Service Computation Report
Circular 212 Planning Method (Base Volume Alternative)

Intersection #1 Elder Creek Rd / S. Watt Ave

Cycle (sec):	1	Critical Vol./Cap. (X):	0.906
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	180	Level Of Service:	E

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Ovl			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 2	1 0		1 0 3	0 1		2 0 0	1 0		1 0 1	0 1	
Volume Module:												
Base Vol:	55	959	32	95	1345	230	392	642	66	35	377	66
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	55	959	32	95	1345	230	392	642	66	35	377	66
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	55	959	32	95	1345	230	392	642	66	35	377	66
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	55	959	32	95	1345	230	392	642	66	35	377	66
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.10	1.00	1.00	1.00	1.00	1.00
Final Vol.:	55	959	32	95	1345	230	431	642	66	35	377	66
Saturation Flow Module:												
Sat/Lane:	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.90	0.10	1.00	3.00	1.00	2.00	0.91	0.09	1.00	1.00	1.00
Final Sat.:	1375	3992	133	1375	4125	1375	2750	1247	128	1375	1375	1375
Capacity Analysis Module:												
Vol/Sat:	0.04	0.24	0.24	0.07	0.33	0.17	0.16	0.51	0.51	0.03	0.27	0.05
Crit Moves:	****				****			****		****		

Morrison Creek Mining (South)
Cumulative Conditions - PM Peak Hour
Vineyard I - Opt. 1 & Aspen IV South

Level Of Service Computation Report
1985 HCM Unsignalized Method (Base Volume Alternative)

****
Intersection #2 Elder Creek Rd / Mayhew Rd
****

Level Of Service: C

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0	1! 0	0	0 0	1! 0	0	0 0	1! 0	0	0 0	1! 0	0
Volume Module:												
Base Vol:	23	0	6	0	0	9	9	706	29	3	317	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	23	0	6	0	0	9	9	706	29	3	317	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	23	0	6	0	0	9	9	706	29	3	317	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	23	0	6	0	0	9	9	706	29	3	317	0
Adjusted Volume Module:												
Grade:	0%			0%			0%			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.00	1.00	1.10	1.00	1.00
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	25	0	7	0	0	10	10	706	29	3	317	0

Critical Gap Module: >> Population: 0 << >> Run Speed(E/W): 30 MPH <<

RT Rad/Ang:	20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg		
Critical Gp:	6.5	xxxx	5.5	xxxxx	xxxx	5.5	5.0	xxxx	xxxxx	5.0	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1059	xxxx	721	xxxx	xxxx	317	317	xxxx	xxxxx	735	xxxx	xxxxx
Potent Cap.:	217	xxxx	471	xxxx	xxxx	770	875	xxxx	xxxxx	539	xxxx	xxxxx
% Used Cap.:	11.7	xxxx	1.4	xxxxx	xxxx	1.3	1.1	xxxx	xxxxx	0.6	xxxx	xxxxx
Impedance:	xxxx	xxxx	0.99	xxxx	xxxx	0.99	0.99	xxxx	xxxxx	1.00	xxxx	xxxxx
Actual Cap.:	213	xxxx	471	xxxx	xxxx	770	875	xxxx	xxxxx	539	xxxx	xxxxx
Level Of Service Module:												
Unused Cap.:	188	xxxx	464	xxxx	xxxx	760	865	xxxx	xxxxx	536	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	A	A	*	*	A	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	241	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Unused Cap.:	xxxx	209	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shared LOS:	*	C	*	*	*	*	*	*	*	*	*	*

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Morrison Creek Mining (South)
Cumulative Conditions - PM Peak Hour
Vineyard I - Opt. 1 & Aspen IV South

Level Of Service Computation Report
Circular 212 Planning Method (Base Volume Alternative)

Intersection #3 Elder Creek Rd / Bradshaw Rd

Cycle (sec):	100	Critical Vol./Cap. (X):	1.040
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	180	Level Of Service:	F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Ignore			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 2	1 0		1 0 3	0 1		2 0 0	1 0		1 0 1	0 1	
Volume Module:												
Base Vol:	43	1336	6	35	3096	228	308	251	92	12	89	14
Growth Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	43	1336	6	35	3096	0	308	251	92	12	89	14
User Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	43	1336	6	35	3096	0	308	251	92	12	89	14
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	43	1336	6	35	3096	0	308	251	92	12	89	14
PCE Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.10	1.00	1.00	1.00	1.00	1.00
Final Vol.:	43	1336	6	35	3096	0	339	251	92	12	89	14
Saturation Flow Module:												
Sat/Lane:	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.99	0.01	1.00	3.00	1.00	2.00	0.73	0.27	1.00	1.00	1.00
Final Sat.:	1375	4107	18	1375	4125	1375	2750	1006	369	1375	1375	1375
Capacity Analysis Module:												
Vol/Sat:	0.03	0.33	0.33	0.03	0.75	0.00	0.12	0.25	0.25	0.01	0.06	0.01
Crit Moves:	****				****			****		****		

Morrison Creek Mining (South)
Cumulative Conditions - PM Peak Hour
Vineyard I - Opt. 1 & Aspen IV South

Level Of Service Computation Report
Circular 212 Planning Method (Base Volume Alternative)

Intersection #4 Bradshaw Rd / Jackson Rd

Cycle (sec):	100	Critical Vol./Cap. (X):	0.950
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	180	Level Of Service:	E

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	2 0	3 0	1	2 0	3 0	1	2 0	2 1	0	2 0	2 1	0
Volume Module:												
Base Vol:	245	1842	188	156	2200	39	103	939	161	130	339	99
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	245	1842	188	156	2200	39	103	939	161	130	339	99
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	245	1842	188	156	2200	39	103	939	161	130	339	99
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	245	1842	188	156	2200	39	103	939	161	130	339	99
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.10	1.00	1.00	1.10	1.00	1.00	1.10	1.00	1.00	1.10	1.00	1.00
Final Vol.:	270	1842	188	172	2200	39	113	939	161	143	339	99
Saturation Flow Module:												
Sat/Lane:	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	3.00	1.00	2.00	3.00	1.00	2.00	2.56	0.44	2.00	2.32	0.68
Final Sat.:	2750	4125	1375	2750	4125	1375	2750	3521	604	2750	3193	932
Capacity Analysis Module:												
Vol/Sat:	0.10	0.45	0.14	0.06	0.53	0.03	0.04	0.27	0.27	0.05	0.11	0.11
Crit Moves:	****				****			****		****		

Morrison Creek Mining (South)
Cumulative Conditions - PM Peak Hour
Vineyard I - Opt. 1 & Aspen IV South

Level Of Service Computation Report
Circular 212 Planning Method (Base Volume Alternative)

Intersection #5 Bradshaw Rd / Kiefer Blvd

Cycle (sec):	100	Critical Vol./Cap. (X):	0.976
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	180	Level Of Service:	E

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	2 0	3 0	1	2 0	3 0	1	2 0	2 0	1	2 0	2 0	1
Volume Module:												
Base Vol:	160	1339	397	379	1602	95	124	723	56	591	476	189
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	160	1339	397	379	1602	95	124	723	56	591	476	189
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	160	1339	397	379	1602	95	124	723	56	591	476	189
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	160	1339	397	379	1602	95	124	723	56	591	476	189
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.10	1.00	1.00	1.10	1.00	1.00	1.10	1.00	1.00	1.10	1.00	1.00
Final Vol.:	176	1339	397	417	1602	95	136	723	56	650	476	189
Saturation Flow Module:												
Sat/Lane:	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	3.00	1.00	2.00	3.00	1.00	2.00	2.00	1.00	2.00	2.00	1.00
Final Sat.:	2750	4125	1375	2750	4125	1375	2750	2750	1375	2750	2750	1375
Capacity Analysis Module:												
Vol/Sat:	0.06	0.32	0.29	0.15	0.39	0.07	0.05	0.26	0.04	0.24	0.17	0.14
Crit Moves:		****		****				****		****		

Morrison Creek Mining (South)
Cumulative Conditions - PM Peak Hour
Vineyard I - Opt. 1 & Aspen IV South

Level Of Service Computation Report
1985 HCM Unsignalized Method (Base Volume Alternative)

****

Intersection #6 Jackson Rd / Mayhew Rd

****

Level Of Service: E

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0	1! 0	0	0 0	1! 0	0	1 0	1 0	1	1 0	0 1	0
Volume Module:												
Base Vol:	2	2	2	2	2	2	2	1200	2	2	620	2
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	2	2	2	2	2	2	2	1200	2	2	620	2
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	2	2	2	2	2	2	2	1200	2	2	620	2
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	2	2	2	2	2	2	2	1200	2	2	620	2
Adjusted Volume Module:												
Grade:	0%			0%			0%			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.00	1.00	1.10	1.00	1.00
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	2	2	2	2	2	2	2	1200	2	2	620	2
Critical Gap Module: >> Population: 0 << >> Run Speed(E/W): 30 MPH <<												
RT Rad/Ang:	20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg		
Critical Gp:	7.0	6.5	5.5	7.0	6.5	5.5	5.5	xxxx	xxxxx	5.5	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1830	1826	1200	1829	1827	621	622	xxxx	xxxxx	1202	xxxx	xxxxx
Potent Cap.:	65	82	255	65	82	537	537	xxxx	xxxxx	254	xxxx	xxxxx
% Used Cap.:	3.4	2.7	0.9	3.4	2.7	0.4	0.4	xxxx	xxxxx	0.9	xxxx	xxxxx
Impedance:	xxxx	0.98	1.00	xxxx	0.98	1.00	1.00	xxxx	xxxxx	1.00	xxxx	xxxxx
Actual Cap.:	64	82	255	64	82	537	537	xxxx	xxxxx	254	xxxx	xxxxx
Level Of Service Module:												
Unused Cap.:	62	80	253	62	80	535	535	xxxx	xxxxx	252	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	C	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	94	xxxxx	xxxx	101	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Unused Cap.:	xxxx	88	xxxxx	xxxx	94	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shared LOS:	*	E	*	*	E	*	*	*	*	*	*	*

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Morrison Creek Mining (South)
Cumulative Conditions - AM Peak Hour
Vineyard I - Opt. 1 & Aspen IV South

Level Of Service Computation Report
Circular 212 Planning Method (Future Volume Alternative)

Intersection #1 Elder Creek Rd / S. Watt Ave

Cycle (sec):	1	Critical Vol./Cap. (X):	0.868
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	173	Level Of Service:	D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Ovl			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 2	1 0		1 0 3	0 1		2 0 0	1 0		1 0 1	0 1	
Volume Module:												
Base Vol:	107	1359	32	66	783	331	207	230	49	37	539	101
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	107	1359	32	66	783	331	207	230	49	37	539	101
Added Vol:	0	0	4	10	0	0	0	0	0	4	0	10
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	107	1359	36	76	783	331	207	230	49	41	539	111
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	107	1359	36	76	783	331	207	230	49	41	539	111
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	107	1359	36	76	783	331	207	230	49	41	539	111
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.10	1.00	1.00	1.00	1.00	1.00
Final Vol.:	107	1359	36	76	783	331	228	230	49	41	539	111
Saturation Flow Module:												
Sat/Lane:	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.92	0.08	1.00	3.00	1.00	2.00	0.82	0.18	1.00	1.00	1.00
Final Sat.:	1375	4019	106	1375	4125	1375	2750	1134	241	1375	1375	1375
Capacity Analysis Module:												
Vol/Sat:	0.08	0.34	0.34	0.06	0.19	0.24	0.08	0.20	0.20	0.03	0.39	0.08
Crit Moves:		****		****			****				****	

Morrison Creek Mining (South)
Cumulative Conditions - AM Peak Hour
Vineyard I - Opt. 1 & Aspen IV South

Level Of Service Computation Report
1985 HCM Unsignalized Method (Future Volume Alternative)

Intersection #2 Elder Creek Rd / Mayhew Rd

Level Of Service: E

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	1 0 0 0 0			0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	.12	0	0	3	0	3	3	256	17	6	780	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	12	0	0	3	0	3	3	256	17	6	780	0
Added Vol:	0	0	0	93	0	14	14	0	0	0	0	93
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	12	0	0	96	0	17	17	256	17	6	780	93
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	12	0	0	96	0	17	17	256	17	6	780	93
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	12	0	0	96	0	17	17	256	17	6	780	93
Adjusted Volume Module:												
Grade:	0%			0%			0%			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.00	1.00	1.10	1.00	1.00
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	13	0	0	105	0	19	19	256	17	7	780	93
Critical Gap Module: >> Population: 0 << >> Run Speed(E/W): 30 MPH <<												
RT Rad/Ang:	20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg		
Critical Gp:	6.5	xxxx	xxxxx	6.5	xxxx	5.5	5.0	xxxx	xxxxx	5.0	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1178	xxxx	xxxxx	1123	xxxx	826	873	xxxx	xxxxx	273	xxxx	xxxxx
Potent Cap.:	174	xxxx	xxxxx	191	xxxx	414	461	xxxx	xxxxx	917	xxxx	xxxxx
% Used Cap.:	7.6	xxxx	xxxxx	55.2	xxxx	4.6	4.2	xxxx	xxxxx	0.7	xxxx	xxxxx
Impedance:	xxxx	xxxx	xxxxx	xxxx	xxxx	0.97	0.98	xxxx	xxxxx	1.00	xxxx	xxxxx
Actual Cap.:	165	xxxx	xxxxx	186	xxxx	414	461	xxxx	xxxxx	917	xxxx	xxxxx
Level Of Service Module:												
Unused Cap.:	152	xxxx	xxxxx	81	xxxx	395	442	xxxx	xxxxx	910	xxxx	xxxxx
LOS by Move:	D	*	*	—*	*	*	A	*	*	A	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	203	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Unused Cap.:	xxxx	xxxx	xxxxx	xxxx	79	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	E	*	*	*	*	*	*	*

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Morrison Creek Mining (South)
Cumulative Conditions - AM Peak Hour
Vineyard I - Opt. 1 & Aspen IV South

Level Of Service Computation Report
Circular 212 Planning Method (Future Volume Alternative)

Intersection #3 Elder Creek Rd / Bradshaw Rd

Cycle (sec):	100	Critical Vol./Cap. (X):	0.941
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	180	Level Of Service:	E

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Ignore			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 2 1 0			1 0 3 0 1			2 0 0 1 0			1 0 1 0 1		
Volume Module:												
Base Vol:	170	2750	6	9	1348	377	109	63	29	3	268	40
Growth Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	170	2750	6	9	1348	0	109	63	29	3	268	40
Added Vol:	18	-7	0	0	-7	75	75	0	18	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	188	2743	6	9	1341	0	184	63	47	3	268	40
User Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	188	2743	6	9	1341	0	184	63	47	3	268	40
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	188	2743	6	9	1341	0	184	63	47	3	268	40
PCE Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.10	1.00	1.00	1.00	1.00	1.00
Final Vol.:	188	2743	6	9	1341	0	202	63	47	3	268	40
Saturation Flow Module:												
Sat/Lane:	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.99	0.01	1.00	3.00	1.00	2.00	0.57	0.43	1.00	1.00	1.00
Final Sat.:	1375	4116	9	1375	4125	1375	2750	788	588	1375	1375	1375
Capacity Analysis Module:												
Vol/Sat:	0.14	0.67	0.67	0.01	0.33	0.00	0.07	0.08	0.08	0.00	0.19	0.03
Crit Moves:		****		****			****				****	

Morrison Creek Mining (South)
Cumulative Conditions - AM Peak Hour
Vineyard I - Opt. 1 & Aspen IV South

Level Of Service Computation Report
Circular 212 Planning Method (Future Volume Alternative)

Intersection #4 Bradshaw Rd / Jackson Rd

Cycle (sec):	100	Critical Vol./Cap. (X):	0.964
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	180	Level Of Service:	E

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	2 0	3 0	1	2 0	3 0	1	2 0	2 1	0	2 0	2 1	0
Volume Module:												
Base Vol:	145	2218	61	34	1809	90	142	244	371	195	1146	270
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	145	2218	61	34	1809	90	142	244	371	195	1146	270
Added Vol:	10	43	15	-7	43	14	14	7	10	15	7	-7
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	155	2261	76	27	1852	104	156	251	381	210	1153	263
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	155	2261	76	27	1852	104	156	251	381	210	1153	263
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	155	2261	76	27	1852	104	156	251	381	210	1153	263
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.10	1.00	1.00	1.10	1.00	1.00	1.10	1.00	1.00	1.10	1.00	1.00
Final Vol.:	171	2261	76	29	1852	104	172	251	381	231	1153	263
Saturation Flow Module:												
Sat/Lane:	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	3.00	1.00	2.00	3.00	1.00	2.00	2.00	1.00	2.00	2.44	0.56
Final Sat.:	2750	4125	1375	2750	4125	1375	2750	2750	1375	2750	3359	766
Capacity Analysis Module:												
Vol/Sat:	0.06	0.55	0.06	0.01	0.45	0.08	0.06	0.09	0.28	0.08	0.34	0.34
Crit Moves:		****		****			****				****	

Morrison Creek Mining (South)
Cumulative Conditions - AM Peak Hour
Vineyard I - Opt. 1 & Aspen IV South

Level Of Service Computation Report
Circular 212 Planning Method (Future Volume Alternative)

Intersection #5 Bradshaw Rd / Kiefer Blvd

Cycle (sec):	100	Critical Vol./Cap. (X):	1.068
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	180	Level Of Service:	F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	2 0	3 0	1	2 0	3 0	1	2 0	2 0	1	2 0	2 0.	1
Volume Module:												
Base Vol:	58	2568	494	53	1222	84	134	677	10	324	987	266
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	58	2568	494	53	1222	84	134	677	10	324	987	266
Added Vol:	0	50	0	0	50	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	58	2618	494	53	1272	84	134	677	10	324	987	266
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	58	2618	494	53	1272	84	134	677	10	324	987	266
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	58	2618	494	53	1272	84	134	677	10	324	987	266
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.10	1.00	1.00	1.10	1.00	1.00	1.10	1.00	1.00	1.10	1.00	1.00
Final Vol.:	64	2618	494	58	1272	84	147	677	10	356	987	266
Saturation Flow Module:												
Sat/Lane:	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	3.00	1.00	2.00	3.00	1.00	2.00	2.00	1.00	2.00	2.00	1.00
Final Sat.:	2750	4125	1375	2750	4125	1375	2750	2750	1375	2750	2750	1375
Capacity Analysis Module:												
Vol/Sat:	0.02	0.63	0.36	0.02	0.31	0.06	0.05	0.25	0.01	0.13	0.36	0.19
Crit Moves:		****		****			****				****	

Morrison Creek Mining (South)
Cumulative Conditions - AM Peak Hour
Vineyard I - Opt. 1 & Aspen IV South

Level Of Service Computation Report
1985 HCM Unsignalized Method (Future Volume Alternative)

Intersection #6 Jackson Rd / Mayhew Rd

Level Of Service: E

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			1 0 1 0 1			1 0 0 1 0		
Volume Module:												
Base Vol:	2	2	2	2	2	2	2	1380	2	2	760	2
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	2	2	2	2	2	2	2	1380	2	2	760	2
Added Vol:	10	0	31	0	0	0	0	0	10	31	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	12	2	33	2	2	2	2	1380	12	33	760	2
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	12	2	33	2	2	2	2	1380	12	33	760	2
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	12	2	33	2	2	2	2	1380	12	33	760	2
Adjusted Volume Module:												
Grade:	0%			0%			0%			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.00	1.00	1.10	1.00	1.00
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	13	2	37	2	2	2	2	1380	12	37	760	2
Critical Gap Module: >> Population: 0 << >> Run Speed(E/W): 30 MPH <<												
RT Rad/Ang:	20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg		
Critical Gp:	7.0	6.5	5.5	7.0	6.5	5.5	5.5	xxxx	xxxxx	5.5	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	2182	2178	1380	2212	2189	761	762	xxxx	xxxxx	1392	xxxx	xxxxx
Potent Cap.:	65	82	196	65	82	445	445	xxxx	xxxxx	192	xxxx	xxxxx
% Used Cap.:	19.6	2.7	18.6	3.4	2.7	0.5	0.5	xxxx	xxxxx	19.0	xxxx	xxxxx
Impedance:	xxxx	0.98	0.87	xxxx	0.98	1.00	1.00	xxxx	xxxxx	0.87	xxxx	xxxxx
Actual Cap.:	56	71	196	48	71	445	445	xxxx	xxxxx	192	xxxx	xxxxx
Level Of Service Module:												
Unused Cap.:	43	69	159	46	69	443	443	xxxx	xxxxx	156	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	D	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	115	xxxxx	xxxx	81	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Unused Cap.:	xxxx	64	xxxxx	xxxx	75	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shared LOS:	*	E	*	*	E	*	*	*	*	*	*	*

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Morrison Creek Mining (South)
Cumulative Conditions - PM Peak Hour
Vineyard I - Opt. 1 & Aspen IV South

Level Of Service Computation Report
Circular 212 Planning Method (Future Volume Alternative)

Intersection #1 Elder Creek Rd / S. Watt Ave

Cycle (sec):	1	Critical Vol./Cap. (X):	0.909
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	180	Level Of Service:	E

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Ovl			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 2	1 0		1 0 3	0 1		2 0 0	1 0		1 0 1	0 1	
Volume Module:												
Base Vol:	55	959	32	95	1345	230	392	642	66	35	377	66
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	55	959	32	95	1345	230	392	642	66	35	377	66
Added Vol:	0	0	4	10	0	0	0	0	0	4	0	10
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	55	959	36	105	1345	230	392	642	66	39	377	76
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	55	959	36	105	1345	230	392	642	66	39	377	76
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	55	959	36	105	1345	230	392	642	66	39	377	76
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.10	1.00	1.00	1.00	1.00	1.00
Final Vol.:	55	959	36	105	1345	230	431	642	66	39	377	76
Saturation Flow Module:												
Sat/Lane:	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.89	0.11	1.00	3.00	1.00	2.00	0.91	0.09	1.00	1.00	1.00
Final Sat.:	1375	3976	149	1375	4125	1375	2750	1247	128	1375	1375	1375
Capacity Analysis Module:												
Vol/Sat:	0.04	0.24	0.24	0.08	0.33	0.17	0.16	0.51	0.51	0.03	0.27	0.06
Crit Moves:	****				****			****		****		

Morrison Creek Mining (South)
Cumulative Conditions - PM Peak Hour
Vineyard I - Opt. 1 & Aspen IV South

Level Of Service Computation Report
1985 HCM Unsignalized Method (Future Volume Alternative)

Intersection #2 Elder Creek Rd / Mayhew Rd

Level Of Service: E

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0	1! 0	0	0 0	1! 0	0	0 0	1! 0	0	0 0	1! 0	0
Volume Module:												
Base Vol:	23	0	6	0	0	9	9	706	29	3	317	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	23	0	6	0	0	9	9	706	29	3	317	0
Added Vol:	0	0	0	93	0	14	14	0	0	0	0	93
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	23	0	6	93	0	23	23	706	29	3	317	93
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	23	0	6	93	0	23	23	706	29	3	317	93
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	23	0	6	93	0	23	23	706	29	3	317	93
Adjusted Volume Module:												
Grade:	0%			0%			0%			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.00	1.00	1.10	1.00	1.00
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	25	0	7	102	0	26	26	706	29	3	317	93
Critical Gap Module: >> Population: 0 << >> Run Speed(E/W): 30 MPH <<												
RT Rad/Ang:	20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg		
Critical Gp:	6.5	xxxx	5.5	6.5	xxxx	5.5	5.0	xxxx	xxxxx	5.0	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1180	xxxx	721	1131	xxxx	363	410	xxxx	xxxxx	735	xxxx	xxxxx
Potent Cap.:	174	xxxx	471	188	xxxx	729	790	xxxx	xxxxx	539	xxxx	xxxxx
% Used Cap.:	14.5	xxxx	1.4	54.4	xxxx	3.5	3.3	xxxx	xxxxx	0.6	xxxx	xxxxx
Impedance:	xxxx	xxxx	0.99	xxxx	xxxx	0.98	0.98	xxxx	xxxxx	1.00	xxxx	xxxxx
Actual Cap.:	167	xxxx	471	182	xxxx	729	790	xxxx	xxxxx	539	xxxx	xxxxx
Level Of Service Module:												
Unused Cap.:	142	xxxx	464	80	xxxx	704	764	xxxx	xxxxx	536	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	193	xxxxx	xxxx	215	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Unused Cap.:	xxxx	161	xxxxx	xxxx	87	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shared LOS:	*	D	*	*	E	*	*	*	*	*	*	*

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Morrison Creek Mining (South)
Cumulative Conditions - PM Peak Hour
Vineyard I - Opt. 1 & Aspen IV South

Level Of Service Computation Report
Circular 212 Planning Method (Future Volume Alternative)

Intersection #3 Elder Creek Rd / Bradshaw Rd

Cycle (sec):	100	Critical Vol./Cap. (X):	1.064
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	180	Level Of Service:	F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T	- R		L - T	- R		L - T	- R		L - T	- R	
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Ignore			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	2 1	0	1 0	3 0	1	2 0	0 1	0	1 0	1 0	1
Volume Module:												
Base Vol:	43	1336	6	35	3096	228	308	251	92	12	89	14
Growth Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	43	1336	6	35	3096	0	308	251	92	12	89	14
Added Vol:	18	-7	0	0	-7	75	75	0	18	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	61	1329	6	35	3089	0	383	251	110	12	89	14
User Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	61	1329	6	35	3089	0	383	251	110	12	89	14
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	61	1329	6	35	3089	0	383	251	110	12	89	14
PCE Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.10	1.00	1.00	1.00	1.00	1.00
Final Vol.:	61	1329	6	35	3089	0	421	251	110	12	89	14
Saturation Flow Module:												
Sat/Lane:	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.99	0.01	1.00	3.00	1.00	2.00	0.70	0.30	1.00	1.00	1.00
Final Sat.:	1375	4106	19	1375	4125	1375	2750	956	419	1375	1375	1375
Capacity Analysis Module:												
Vol/Sat:	0.04	0.32	0.32	0.03	0.75	0.00	0.15	0.26	0.26	0.01	0.06	0.01
Crit Moves:	****				****			****		****		

Morrison Creek Mining (South)
Cumulative Conditions - PM Peak Hour
Vineyard I - Opt. 1 & Aspen IV South

Level Of Service Computation Report
Circular 212 Planning Method (Future Volume Alternative)

Intersection #4 Bradshaw Rd / Jackson Rd

Cycle (sec):	100	Critical Vol./Cap. (X):	0.975
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	180	Level Of Service:	E

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	2 0	3 0	1	2 0	3 0	1	2 0	2 1	0	2 0	2 1	0
Volume Module:												
Base Vol:	245	1842	188	156	2200	39	103	939	161	130	339	99
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	245	1842	188	156	2200	39	103	939	161	130	339	99
Added Vol:	10	43	15	-7	43	14	14	7	10	15	7	-7
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	255	1885	203	149	2243	53	117	946	171	145	346	92
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	255	1885	203	149	2243	53	117	946	171	145	346	92
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	255	1885	203	149	2243	53	117	946	171	145	346	92
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.10	1.00	1.00	1.10	1.00	1.00	1.10	1.00	1.00	1.10	1.00	1.00
Final Vol.:	281	1885	203	164	2243	53	129	946	171	160	346	92
Saturation Flow Module:												
Sat/Lane:	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	3.00	1.00	2.00	3.00	1.00	2.00	2.54	0.46	2.00	2.37	0.63
Final Sat.:	2750	4125	1375	2750	4125	1375	2750	3494	631	2750	3259	866
Capacity Analysis Module:												
Vol/Sat:	0.10	0.46	0.15	0.06	0.54	0.04	0.05	0.27	0.27	0.06	0.11	0.11
Crit Moves:	****				****			****		****		

Morrison Creek Mining (South)
Cumulative Conditions - PM Peak Hour
Vineyard I - Opt. 1 & Aspen IV South

Level Of Service Computation Report
Circular 212 Planning Method (Future Volume Alternative)

Intersection #5 Bradshaw Rd / Kiefer Blvd

Cycle (sec):	100	Critical Vol./Cap. (X):	0.988
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	180	Level Of Service:	E

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	2 0	3 0	1	2 0	3 0	1	2 0	2 0	1	2 0	2 0	1
Volume Module:												
Base Vol:	160	1339	397	379	1602	95	124	723	56	591	476	189
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	160	1339	397	379	1602	95	124	723	56	591	476	189
Added Vol:	0	50	0	0	50	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	160	1389	397	379	1652	95	124	723	56	591	476	189
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	160	1389	397	379	1652	95	124	723	56	591	476	189
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	160	1389	397	379	1652	95	124	723	56	591	476	189
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.10	1.00	1.00	1.10	1.00	1.00	1.10	1.00	1.00	1.10	1.00	1.00
Final Vol.:	176	1389	397	417	1652	95	136	723	56	650	476	189
Saturation Flow Module:												
Sat/Lane:	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	3.00	1.00	2.00	3.00	1.00	2.00	2.00	1.00	2.00	2.00	1.00
Final Sat.:	2750	4125	1375	2750	4125	1375	2750	2750	1375	2750	2750	1375
Capacity Analysis Module:												
Vol/Sat:	0.06	0.34	0.29	0.15	0.40	0.07	0.05	0.26	0.04	0.24	0.17	0.14
Crit Moves:		****		****				****		****		

Morrison Creek Mining (South)
Cumulative Conditions - PM Peak Hour
Vineyard I - Opt. 1 & Aspen IV South

Level Of Service Computation Report
1985 HCM Unsignalized Method (Future Volume Alternative)

Intersection #6 Jackson Rd / Mayhew Rd

Level Of Service: E

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			1 0 1 0 1			1 0 0 1 0		
Volume Module:												
Base Vol:	2	2	2	2	2	2	2	1200	2	2	620	2
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	2	2	2	2	2	2	2	1200	2	2	620	2
Added Vol:	10	0	31	0	0	0	0	0	10	31	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	12	2	33	2	2	2	2	1200	12	33	620	2
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	12	2	33	2	2	2	2	1200	12	33	620	2
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	12	2	33	2	2	2	2	1200	12	33	620	2
Adjusted Volume Module:												
Grade:	0%			0%			0%			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.00	1.00	1.10	1.00	1.00
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	13	2	37	2	2	2	2	1200	12	37	620	2
Critical Gap Module: >> Population: 0 << >> Run Speed(E/W): 30 MPH <<												
RT Rad/Ang:	20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg			20.0 ft/90.0 deg		
Critical Gp:	7.0	6.5	5.5	7.0	6.5	5.5	5.5	xxxx	xxxxx	5.5	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1862	1858	1200	1892	1869	621	622	xxxx	xxxxx	1212	xxxx	xxxxx
Potent Cap.:	65	82	255	65	82	537	537	xxxx	xxxxx	250	xxxx	xxxxx
% Used Cap.:	19.6	2.7	14.3	3.4	2.7	0.4	0.4	xxxx	xxxxx	14.6	xxxx	xxxxx
Impedance:	xxxx	0.98	0.91	xxxx	0.98	1.00	1.00	xxxx	xxxxx	0.90	xxxx	xxxxx
Actual Cap.:	58	74	255	52	74	537	537	xxxx	xxxxx	250	xxxx	xxxxx
Level Of Service Module:												
Unused Cap.:	45	72	218	50	72	535	534	xxxx	xxxxx	214	xxxx	xxxxx
LOS_by Move:	*	*	*	*	*	*	A	*	*	C	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	131	xxxxx	xxxx	87	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Unused Cap.:	xxxx	79	xxxxx	xxxx	80	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shared LOS:	*	E	*	*	E	*	*	*	*	*	*	*

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Morrison Creek Mining (South)
Cumulative Conditions - AM Peak Hour
Vineyard I - Opt. 1 & Aspen IV South - Mitigated

Level Of Service Computation Report
Circular 212 Planning Method (Future Volume Alternative)

Intersection #5 Bradshaw Rd / Kiefer Blvd

Cycle (sec):	100	Critical Vol./Cap. (X):	0.952
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	180	Level Of Service:	E

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	2 0	3 0	1	2 0	3 0	1	2 0	2 1	0	2 0	3 0	1
Volume Module:												
Base Vol:	58	2568	494	53	1222	84	134	677	10	324	987	266
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	58	2568	494	53	1222	84	134	677	10	324	987	266
Added Vol:	0	50	0	0	50	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	58	2618	494	53	1272	84	134	677	10	324	987	266
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	58	2618	494	53	1272	84	134	677	10	324	987	266
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	58	2618	494	53	1272	84	134	677	10	324	987	266
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.10	1.00	1.00	1.10	1.00	1.00	1.10	1.00	1.00	1.10	1.00	1.00
Final Vol.:	64	2618	494	58	1272	84	147	677	10	356	987	266
Saturation Flow Module:												
Sat/Lane:	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	3.00	1.00	2.00	3.00	1.00	2.00	2.96	0.04	2.00	3.00	1.00
Final Sat.:	2750	4125	1375	2750	4125	1375	2750	4065	60	2750	4125	1375
Capacity Analysis Module:												
Vol/Sat:	0.02	0.63	0.36	0.02	0.31	0.06	0.05	0.17	0.17	0.13	0.24	0.19
Crit Moves:		****		****				****		****		

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REVISED TRAFFIC MODEL DATA
SCENARIO 4A

(Proposed Project Without Vineyard I Processing Plant, with new conditions)

Morrison Creek Mining (South)
Existing Conditions - AM Peak Hour
Vineyard I No Plant & Aspen IV - Access via Mayhew North

Trip Generation Report

Forecast for

Zone #	Trips In	Trips Out	Subzone	Total Trips	% Of Amount Total	Units	Rate In	Rate Out
1	60	60	Vineyard I	120	55.6	Overburden	60.00	60.00
			Zone 1 Subtotal					
	60	60		120	55.6			
4	48	48	Aspen IV Sou	96	44.4	Overburden	48.00	48.00
			Zone 4 Subtotal					
	48	48		96	44.4			
TOTAL	108	108		216	100.0			

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Morrison Creek Mining (South)
Existing Conditions - AM Peak Hour
Vineyard I No Plant & Aspen IV - Access via Mayhew North

Trip Distribution Report

Percent Of Trips

Zone	To Gates 1	2	3	4	5
1	50.0	20.0	15.0	12.0	3.0
4	50.0	20.0	15.0	12.0	3.0

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Morrison Creek Mining (South)
Existing Conditions - AM Peak Hour
Vineyard I No Plant & Aspen IV - Access via Mayhew North

Link Volume Report

Volume Type	NB Link In	NB Link Out	NB Link Total	SB Link In	SB Link Out	SB Link Total	EB Link In	EB Link Out	EB Link Total	WB Link In	WB Link Out	WB Link Total	Volume
#1 Elder Creek Rd / S. Watt Ave													
Base	520	302	822	410	579	989	169	339	508	235	114	349	2668
Added	3	3	6	3	3	6	0	0	0	0	0	0	12
Total	523	305	828	413	582	995	169	339	508	235	114	349	2680
#2 Elder Creek Rd / Mayhew Rd													
Base	4	8	12	2	1	3	96	276	372	273	90	363	750
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	4	8	12	2	1	3	96	276	372	273	90	363	750
#3 Elder Creek Rd / Bradshaw Rd													
Base	1016	479	1495	602	1007	1609	70	283	353	108	27	135	3592
Added	13	13	26	13	13	26	0	0	0	0	0	0	52
Total	1029	492	1521	615	1020	1635	70	283	353	108	27	135	3644
#4 Bradshaw Rd / Jackson Rd													
Base	908	576	1484	749	1189	1938	381	659	1040	613	227	840	5302
Added	13	13	26	54	54	108	83	83	166	16	16	32	332
Total	921	589	1510	803	1243	2046	464	742	1206	629	243	872	5634
#5 Bradshaw Rd / Kiefer Blvd													
Base	1208	830	2038	767	1162	1929	323	265	588	111	152	263	4818
Added	54	54	108	54	54	108	0	0	0	0	0	0	216
Total	1262	884	2146	821	1216	2037	323	265	588	111	152	263	5034
#6 Jackson Rd / Mayhew Rd													
Base	6	6	12	6	6	12	384	654	1038	654	384	1038	2100
Added	108	108	216	0	0	0	25	25	50	83	83	166	432
Total	114	114	228	6	6	12	409	679	1088	737	467	1204	2532

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Morrison Creek Mining (South)
Existing Conditions - AM Peak Hour
Vineyard I No Plant & Aspen IV - Access via Mayhew North

Impact Analysis Report
Level Of Service

Intersection	Base Del/ Veh	Base V/ C	Base LOS	Future Del/ Veh	Future V/ C	Future LOS	Change in V/C
# 1 Elder Creek Rd / S. Watt Ave	C	13.8	0.839	C	13.9	0.842	+ 0.003
# 2 Elder Creek Rd / Mayhew Rd	A	xxxxx	0.000	A	xxxxx	0.000	+ 0.000
# 3 Elder Creek Rd / Bradshaw Rd	C	xxxxx	0.766	C	xxxxx	0.775	+ 0.009
# 4 Bradshaw Rd / Jackson Rd	D	xxxxx	0.824	D	xxxxx	0.875	+ 0.051
# 5 Bradshaw Rd / Kiefer Blvd	A	xxxxx	0.524	A	xxxxx	0.544	+ 0.020
# 6 Jackson Rd / Mayhew Rd	C	xxxxx	0.000	D	xxxxx	0.000	+ 0.000

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                        Morrison Creek Mining (South)
                      Existing Conditions - AM Peak Hour
            Vineyard I No Plant & Aspen IV - Access via
Mayhew North
-------------------------------------------------------------
----------------------
                      Level Of Service Computation Report
             1994 HCM 4-Way Stop Method (Future Volume
Alternative)
*************************************************************
***********************
Intersection #1 Elder Creek Rd / S. Watt Ave
*************************************************************
***********************
Cycle (sec):          1                 Critical Vol./Cap.
(X):        0.842
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay
(sec/veh):        13.9
Optimal Cycle:        0                 Level Of Service:
C
*************************************************************
***********************
Approach:      North Bound      South Bound       East
Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T
-  R    L  -  T  -  R
------------|---------------||---------------||----------
-----||---------------|
Control:        Stop Sign        Stop Sign        Stop
Sign        Stop Sign
Rights:           Include          Include
Include           Include
Lanes:        0  0  1! 0  0    0  1  0  0  1    0  0  1!
0  0    0  1  0  0  1
------------|---------------||---------------||----------
-----||---------------|
Volume Module:
Base Vol:      37  472    11    23  272   115    72   80
17    13  187    35
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
Initial Bse:   37  472    11    23  272   115    72   80
17    13  187    35
Added Vol:      0    3     0     0    3     0     0    0
0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0
0     0    0     0
Initial Fut:   37  475    11    23  275   115    72   80
17    13  187    35
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
PHF Volume:    37  475    11    23  275   115    72   80
17    13  187    35
Reduct Vol:     0    0     0     0    0     0     0    0
0     0    0     0
Reduced Vol:   37  475    11    23  275   115    72   80
17    13  187    35
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
Final Vol.:    37  475    11    23  275   115    72   80
17    13  187    35
------------|---------------||---------------||----------
-----||---------------|
Saturation Flow Module:
Sat/Lane:     621  621   621   420  420   420   283  283
283   239  239   239
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
Lanes:       0.07 0.91  0.02  0.08 0.92  1.00  0.43 0.47
0.10  0.07 0.93  1.00
Final Sat.:    44  564    13    32  388   420   121  134
28    16  223   239
------------|---------------||---------------||----------
-----||---------------|
Capacity Analysis Module:
Vol/Sat:     0.84 0.84  0.84  0.71 0.71  0.27  0.60 0.60
0.60  0.84 0.84  0.15
Crit Moves:             ****        ****
****        ****
ApproachV/S:      0.84              0.49              0.60
0.49
------------|---------------||---------------||----------
-----||---------------|
Level Of Service Module:
Delay/Veh:   24.5 24.5  24.5  14.8 14.8   2.8   9.7  9.7
9.7  24.0 24.0   1.7
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
AdjDel/Veh:  24.5 24.5  24.5  14.8 14.8   2.8   9.7  9.7
9.7  24.0 24.0   1.7
LOS by Move:   D    D     D     C    C     A     B    B
B     D    D     A
ApproachDel:      24.5              6.5               9.7
6.5
LOS by Appr:        D                 B                 B
B
*************************************************************
***********************

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                        Morrison Creek Mining (South)
                     Existing Conditions - AM Peak Hour
          Vineyard I No Plant & Aspen IV - Access via
Mayhew North
-------------------------------------------------------------
----------------------
                     Level Of Service Computation Report
          1985 HCM Unsignalized Method (Future Volume
Alternative)
*************************************************************
***********************
Intersection #2 Elder Creek Rd / Mayhew Rd
*************************************************************
***********************
                                        Level Of Service:
A
*************************************************************
***********************
Approach:      North Bound      South Bound       East
Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T
-  R    L  -  T  -  R
------------|---------------||---------------||----------
-----||---------------|
Control:        Stop Sign        Stop Sign
Uncontrolled     Uncontrolled
Rights:          Include          Include
Include          Include
Lanes:        1  0  0  0  0    0  0  1! 0  0    0  0  1!
0  0    0  1  0  0  0
------------|---------------||---------------||----------
-----||---------------|
Volume Module:
Base Vol:       4    0    0    1    0    1    1   89
6    2  271    0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
Initial Bse:    4    0    0    1    0    1    1   89
6    2  271    0
Added Vol:      0    0    0    0    0    0    0    0
0    0    0    0
PasserByVol:    0    0    0    0    0    0    0    0
0    0    0    0
Initial Fut:    4    0    0    1    0    1    1   89
6    2  271    0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
PHF Volume:     4    0    0    1    0    1    1   89
6    2  271    0
Reduct Vol:     0    0    0    0    0    0    0    0
0    0    0    0
Final Vol.:     4    0    0    1    0    1    1   89
6    2  271    0
Adjusted Volume Module:
Grade:             0%              0%              0%
0%
% Cycle/Cars:   xxxx  xxxx       xxxx  xxxx       xxxx
xxxx       xxxx  xxxx
% Truck/Comb:   xxxx  xxxx       xxxx  xxxx       xxxx
xxxx       xxxx  xxxx
PCE Adj:     1.10 1.10  1.10  1.10 1.10  1.10  1.10 1.00
1.00  1.10 1.00  1.00
Cycl/Car PCE:   xxxx  xxxx       xxxx  xxxx       xxxx
xxxx       xxxx  xxxx
Trck/Cmb PCE:   xxxx  xxxx       xxxx  xxxx       xxxx
xxxx       xxxx  xxxx
Adj Vol.:       4    0    0    1    0    1    1   89
6    2  271    0
Critical Gap Module: >> Population: 0 << >> Run
Speed(E/W): 30 MPH <<
RT Rad/Ang:  20.0 ft/90.0 deg 20.0 ft/90.0 deg 20.0
ft/90.0 deg 20.0 ft/90.0 deg
Critical Gp:  6.5 xxxx xxxxx   6.5 xxxx   5.5   5.0 xxxx
xxxxx   5.0 xxxx xxxxx
------------|---------------||---------------||----------
-----||---------------|
Capacity Module:
Cnflict Vol:  367 xxxx xxxxx   369 xxxx   271   271 xxxx
xxxxx    95 xxxx xxxxx
Potent Cap.:  578 xxxx xxxxx   577 xxxx   817   919 xxxx
xxxxx  1000 xxxx xxxxx
% Used Cap.:  0.8 xxxx xxxxx   0.2 xxxx   0.1   0.1 xxxx
xxxxx   0.2 xxxx xxxxx
Impedance:   xxxx xxxx xxxxx  xxxx xxxx  1.00  1.00 xxxx
xxxxx  1.00 xxxx xxxxx
Actual Cap.:  578 xxxx xxxxx   577 xxxx   817   919 xxxx
xxxxx  1000 xxxx xxxxx
------------|---------------||---------------||----------
-----||---------------|
Level Of Service Module:
Unused Cap.:  574 xxxx xxxxx   576 xxxx   816   918 xxxx
xxxxx   998 xxxx xxxxx
LOS by Move:   A    *    *    *    *    *    A    *
*    A    *    *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR
- RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx  676 xxxxx  xxxx xxxx
xxxxx  xxxx xxxx xxxxx
Unused Cap.: xxxx xxxx xxxxx  xxxx  674 xxxxx  xxxx xxxx
xxxxx  xxxx xxxx xxxxx
Shared LOS:    *    *    *    *    A    *    *    *
*    *    *    *
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                         Morrison Creek Mining (South)
                      Existing Conditions - AM Peak Hour
          Vineyard I No Plant & Aspen IV - Access via
Mayhew North
-------------------------------------------------------
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                      Level Of Service Computation Report
          Circular 212 Planning Method (Future Volume
Alternative)
*******************************************************
***********************
Intersection #3 Elder Creek Rd / Bradshaw Rd
*******************************************************
***********************
Cycle (sec):        100                 Critical Vol./Cap.
(X):        0.775
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay
(sec/veh):      xxxxxx
Optimal Cycle:       83                 Level Of Service:
C
*******************************************************
***********************
Approach:      North Bound      South Bound       East
Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T
-  R    L  -  T  -  R
------------|---------------||---------------||----------
-----||---------------|
Control:        Protected        Protected
Permitted        Permitted
Rights:           Include          Include
Include          Include
Min. Green:     0    0    0     0    0    0     0    0
0    0    0     0
Lanes:         1  0  0  1  0    1  0  1  0  1    1  0  0
1  0    0  1  0  0  1
------------|---------------||---------------||----------
-----||---------------|
Volume Module:
Base Vol:      59  955     2     3  468   131    38   22
10     1   93    14
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
Initial Bse:   59  955     2     3  468   131    38   22
10     1   93    14
Added Vol:      0   13     0     0   13     0     0    0
0    0    0     0
PasserByVol:    0    0     0     0    0     0     0    0
0    0    0     0
Initial Fut:   59  968     2     3  481   131    38   22
10     1   93    14
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
PHF Volume:    59  968     2     3  481   131    38   22
10     1   93    14
Reduct Vol:     0    0     0     0    0     0     0    0
0    0    0     0
Reduced Vol:   59  968     2     3  481   131    38   22
10     1   93    14
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
Final Vol.:    59  968     2     3  481   131    38   22
10     1   93    14
------------|---------------||---------------||----------
-----||---------------|
Saturation Flow Module:
Sat/Lane:    1425 1425  1425  1425 1425  1425  1425 1425
1425  1425 1425  1425
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
Lanes:       1.00 0.99  0.01  1.00 1.00  1.00  1.00 0.69
0.31  0.01 0.99  1.00
Final Sat.:  1425 1422     3  1425 1425  1425  1425  980
445    15 1410  1425
------------|---------------||---------------||----------
-----||---------------|
Capacity Analysis Module:
Vol/Sat:     0.04 0.68  0.68  0.00 0.34  0.09  0.03 0.02
0.02  0.07 0.07  0.01
Crit Vol:          970           3                38
94
Crit Moves:       ****        ****             ****
****
*******************************************************
***********************
```

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                        Morrison Creek Mining (South)
                      Existing Conditions - AM Peak Hour
          Vineyard I No Plant & Aspen IV - Access via
Mayhew North
-------------------------------------------------------
----------------------
                      Level Of Service Computation Report
          Circular 212 Planning Method (Future Volume
Alternative)
*******************************************************
***********************
Intersection #4 Bradshaw Rd / Jackson Rd
*******************************************************
***********************
Cycle (sec):        100                 Critical Vol./Cap.
(X):        0.875
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay
(sec/veh):      xxxxxx
Optimal Cycle:      180                 Level Of Service:
D
*******************************************************
***********************
Approach:      North Bound      South Bound       East
Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T
-  R    L  -  T  -  R
------------|---------------||---------------||----------
-----||---------------|
Control:        Protected        Protected
Protected        Protected
Rights:           Include          Include
Include          Include
Min. Green:     0    0     0     0    0     0     0    0
0     0    0     0
Lanes:        1  0  1  1  0    1  0  2  0  1    1  0  1
0  1    1  0  1  0  1
------------|---------------||---------------||----------
-----||---------------|
Volume Module:
Base Vol:      51  856     1    69  523   157   184  157
40    13  451   149
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
Initial Bse:   51  856     1    69  523   157   184  157
40    13  451   149
Added Vol:     13    0     0     0    0    54    54   16
13     0   16     0
PasserByVol:    0    0     0     0    0     0     0    0
0     0    0     0
Initial Fut:   64  856     1    69  523   211   238  173
53    13  467   149
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
PHF Volume:    64  856     1    69  523   211   238  173
53    13  467   149
Reduct Vol:     0    0     0     0    0     0     0    0
0     0    0     0
Reduced Vol:   64  856     1    69  523   211   238  173
53    13  467   149
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
Final Vol.:    64  856     1    69  523   211   238  173
53    13  467   149
------------|---------------||---------------||----------
-----||---------------|
Saturation Flow Module:
Sat/Lane:    1375 1375  1375  1375 1375  1375  1375 1375
1375  1375 1375  1375
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
Lanes:       1.00 1.99  0.01  1.00 2.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
Final Sat.:  1375 2747     3  1375 2750  1375  1375 1375
1375  1375 1375  1375
------------|---------------||---------------||----------
-----||---------------|
Capacity Analysis Module:
Vol/Sat:     0.05 0.31  0.31  0.05 0.19  0.15  0.17 0.13
0.04  0.01 0.34  0.11
Crit Vol:          429          69              238
467
Crit Moves:       ****        ****             ****
****
*******************************************************
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                          Morrison Creek Mining (South)
                       Existing Conditions - AM Peak Hour
           Vineyard I No Plant & Aspen IV - Access via
Mayhew North
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                       Level Of Service Computation Report
           Circular 212 Planning Method (Future Volume
Alternative)
************************************************************
************************
Intersection #5 Bradshaw Rd / Kiefer Blvd
************************************************************
************************
Cycle (sec):        100                 Critical Vol./Cap.
(X):        0.544
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay
(sec/veh):      xxxxxx
Optimal Cycle:       50                 Level Of Service:
A
************************************************************
************************
Approach:      North Bound      South Bound       East
Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T
-  R    L  -  T  -  R
------------|---------------||---------------||----------
-----||---------------|
Control:        Protected        Protected
Protected        Protected
Rights:           Include          Include
Include          Include
Min. Green:     0    0     0     0    0     0     0    0
0     0    0     0
Lanes:         1  0  1  1  0    1  0  2  0  1    1  0  1
1  0    1  0  1  1  0
------------|---------------||---------------||----------
-----||---------------|
Volume Module:
Base Vol:     132  986    90     2  648   117   170   60
93    89   16     6
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
Initial Bse:  132  986    90     2  648   117   170   60
93    89   16     6
Added Vol:      0   54     0     0   54     0     0    0
0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0
0     0    0     0
Initial Fut:  132 1040    90     2  702   117   170   60
93    89   16     6
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
PHF Volume:   132 1040    90     2  702   117   170   60
93    89   16     6
Reduct Vol:     0    0     0     0    0     0     0    0
0     0    0     0
Reduced Vol:  132 1040    90     2  702   117   170   60
93    89   16     6
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
Final Vol.:   132 1040    90     2  702   117   170   60
93    89   16     6
------------|---------------||---------------||----------
-----||---------------|
Saturation Flow Module:
Sat/Lane:    1375 1375  1375  1375 1375  1375  1375 1375
1375  1375 1375  1375
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
Lanes:       1.00 1.84  0.16  1.00 2.00  1.00  1.00 1.00
1.00  1.00 1.45  0.55
Final Sat.:  1375 2531   219  1375 2750  1375  1375 1375
1375  1375 2000   750
------------|---------------||---------------||----------
-----||---------------|
Capacity Analysis Module:
Vol/Sat:     0.10 0.41  0.41  0.00 0.26  0.09  0.12 0.04
0.07  0.06 0.01  0.01
Crit Vol:          565          2              170
11
Crit Moves:       ****       ****              ****
****
************************************************************
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                         Morrison Creek Mining (South)
                      Existing Conditions - AM Peak Hour
           Vineyard I No Plant & Aspen IV - Access via
Mayhew North
-------------------------------------------------------------
----------------------
                      Level Of Service Computation Report
           1985 HCM Unsignalized Method (Future Volume
Alternative)
*************************************************************
***********************
Intersection #6 Jackson Rd / Mayhew Rd
*************************************************************
***********************
                                          Level Of Service:
D
*************************************************************
***********************
Approach:       North Bound       South Bound        East
Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T
-  R    L  -  T  -  R
------------|---------------||---------------||----------
-----||---------------|
Control:         Stop Sign         Stop Sign
Uncontrolled      Uncontrolled
Rights:           Include           Include
Include           Include
Lanes:         0  0  1! 0  0    0  0  1! 0  0    1  0  1
0  1    1  0  0  1  0
------------|---------------||---------------||----------
-----||---------------|
Volume Module:
Base Vol:        2    2     2     2    2     2     2  380
2     2  650     2
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
Initial Bse:     2    2     2     2    2     2     2  380
2     2  650     2
Added Vol:      25    0    83     0    0     0     0    0
25    83    0     0
PasserByVol:     0    0     0     0    0     0     0    0
0     0    0     0
Initial Fut:    27    2    85     2    2     2     2  380
27    85  650     2
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
PHF Volume:     27    2    85     2    2     2     2  380
27    85  650     2
Reduct Vol:      0    0     0     0    0     0     0    0
0     0    0     0
Final Vol.:     27    2    85     2    2     2     2  380
27    85  650     2
Adjusted Volume Module:
Grade:              0%                0%                0%
0%
% Cycle/Cars:   xxxx  xxxx       xxxx  xxxx       xxxx
xxxx       xxxx  xxxx
% Truck/Comb:   xxxx  xxxx       xxxx  xxxx       xxxx
xxxx       xxxx  xxxx
PCE Adj:     1.10 1.10  1.10  1.10 1.10  1.10  1.10 1.00
1.00  1.10 1.00  1.00
Cycl/Car PCE:   xxxx  xxxx       xxxx  xxxx       xxxx
xxxx       xxxx  xxxx
Trck/Cmb PCE:   xxxx  xxxx       xxxx  xxxx       xxxx
xxxx       xxxx  xxxx
Adj Vol.:       30    2    94     2    2     2     2  380
27    94  650     2
Critical Gap Module: >> Population: 0 << >> Run
Speed(E/W): 30 MPH <<
RT Rad/Ang:  20.0 ft/90.0 deg 20.0 ft/90.0 deg 20.0
ft/90.0 deg 20.0 ft/90.0 deg
Critical Gp:  7.0  6.5   5.5   7.0  6.5   5.5   5.5 xxxx
xxxxx   5.5 xxxx xxxxx
------------|---------------||---------------||----------
-----||---------------|
Capacity Module:
Cnflict Vol: 1123 1119   380  1205 1145   651   652 xxxx
xxxxx   407 xxxx xxxxx
Potent Cap.:  158  192   716   144  182   519   519 xxxx
xxxxx   695 xxxx xxxxx
% Used Cap.: 18.8  1.1  13.1   1.5  1.2   0.4   0.4 xxxx
xxxxx  13.5 xxxx xxxxx
Impedance:    xxxx 0.99  0.92  xxxx 0.99  1.00  1.00 xxxx
xxxxx  0.91 xxxx xxxxx
Actual Cap.:  143  176   716   119  166   519   519 xxxx
xxxxx   695 xxxx xxxxx
------------|---------------||---------------||----------
-----||---------------|
Level Of Service Module:
Unused Cap.:  113  173   623   117  164   517   516 xxxx
xxxxx   602 xxxx xxxxx
LOS by Move:   *    *     *     *    *     *     A    *
*     A    *     *
Movement:      LT - LTR - RT    LT - LTR - RT    LT - LTR
- RT    LT - LTR - RT
Shared Cap.: xxxx  357 xxxxx  xxxx  184 xxxxx  xxxx xxxx
xxxxx  xxxx xxxx xxxxx
Unused Cap.: xxxx  232 xxxxx  xxxx  177 xxxxx  xxxx xxxx
xxxxx  xxxx xxxx xxxxx
Shared LOS:    *    C     *     *    D     *     *    *
*     *    *     *
```

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Morrison Creek Mining (South)
Existing Conditions - PM Peak Hour
Vineyard I No Plant & Aspen IV - Access via Mayhew North

Trip Generation Report

Forecast for

Zone In	Trips Out	Subzone	Trips	Total	% Of Amount	Units	Rate In	Rate Out
1		Vineyard I			1.00	Overburden	60.00	60.00
60	60		120	55.6				
		Zone 1 Subtotal						
60	60		120	55.6				
4		Aspen IV Sou			1.00	Overburden	48.00	48.00
48	48		96	44.4				
		Zone 4 Subtotal						
48	48		96	44.4				
TOTAL								
108	108		216	100.0				

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Morrison Creek Mining (South)
Existing Conditions - PM Peak Hour
Vineyard I No Plant & Aspen IV - Access via Mayhew North

Trip Distribution Report

Percent Of Trips

Zone	To Gates 1	2	3	4	5
1	50.0	20.0	15.0	12.0	3.0
4	50.0	20.0	15.0	12.0	3.0

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Morrison Creek Mining (South)
Existing Conditions - PM Peak Hour
Vineyard I No Plant & Aspen IV - Access via Mayhew North

Link Volume Report

Volume WB Link Type	NB Link In	NB Link Out	NB Link Total	SB Link In	SB Link Out	SB Link Total	EB Link In	EB Link Out	EB Link Total	WB Link In	WB Link Out	WB Link Total	Total Volume
#1 Elder Creek Rd / S. Watt Ave													
Base	363	502	865	580	492	1072	382	230	612	166	267	433	2982
Added	3	3	6	3	3	6	0	0	0	0	0	0	12
Total	366	505	871	583	495	1078	382	230	612	166	267	433	2994
#2 Elder Creek Rd / Mayhew Rd													
Base	10	11	21	3	3	6	258	121	379	111	247	358	764
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	10	11	21	3	3	6	258	121	379	111	247	358	764
#3 Elder Creek Rd / Bradshaw Rd													
Base	481	1111	1592	1166	576	1742	226	125	351	40	101	141	3826
Added	13	13	26	13	13	26	0	0	0	0	0	0	52
Total	494	1124	1618	1179	589	1768	226	125	351	40	101	141	3878
#4 Bradshaw Rd / Jackson Rd													
Base	647	1068	1715	1320	840	2160	774	511	1285	343	665	1008	6168
Added	13	13	26	54	54	108	83	83	166	16	16	32	332
Total	660	1081	1741	1374	894	2268	857	594	1451	359	681	1040	6500
#5 Bradshaw Rd / Kiefer Blvd													
Base	745	1492	2237	1328	818	2146	512	333	845	194	136	330	5558
Added	54	54	108	54	54	108	0	0	0	0	0	0	216
Total	799	1546	2345	1382	872	2254	512	333	845	194	136	330	5774
#6 Jackson Rd / Mayhew Rd													
Base	6	6	12	6	6	12	774	514	1288	514	774	1288	2600
Added	108	108	216	0	0	0	25	25	50	83	83	166	432
Total	114	114	228	6	6	12	799	539	1338	597	857	1454	3032

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Morrison Creek Mining (South)
Existing Conditions - PM Peak Hour
Vineyard I No Plant & Aspen IV - Access via Mayhew North

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Change in Del/ Veh	Change in V/ C	Future LOS
# 1 Elder Creek Rd / S. Watt Ave	D	26.9	1.259	27.3	1.264	D
# 2 Elder Creek Rd / Mayhew Rd	A	xxxxx	0.000	xxxxx	0.000	A
# 3 Elder Creek Rd / Bradshaw Rd	D	xxxxx	0.865	xxxxx	0.874	D
# 4 Bradshaw Rd / Jackson Rd	C	xxxxx	0.748	xxxxx	0.769	C
# 5 Bradshaw Rd / Kiefer Blvd	C	xxxxx	0.729	xxxxx	0.749	C
# 6 Jackson Rd / Mayhew Rd	D	xxxxx	0.000	xxxxx	0.000	E

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                        Morrison Creek Mining (South)
                     Existing Conditions - PM Peak Hour
          Vineyard I No Plant & Aspen IV - Access via
Mayhew North
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                     Level Of Service Computation Report
           1994 HCM 4-Way Stop Method (Future Volume
Alternative)
*************************************************************
***********************
Intersection #1 Elder Creek Rd / S. Watt Ave
*************************************************************
***********************
Cycle (sec):          1                  Critical Vol./Cap.
(X):        1.264
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay
(sec/veh):        27.3
Optimal Cycle:        0                  Level Of Service:
D
*************************************************************
***********************
Approach:      North Bound      South Bound       East
Bound       West Bound
Movement:      L  -  T  -  R    L  -  T  -  R    L  -  T
-  R    L  -  T  -  R
------------|---------------||---------------||----------
-----||---------------|
Control:        Stop Sign        Stop Sign        Stop
Sign        Stop Sign
Rights:           Include          Include
Include          Include
Lanes:         0  0  1! 0  0    0  1  0  0  1    0  0  1!
0  0    0  1  0  0  1
------------|---------------||---------------||----------
-----||---------------|
Volume Module:
Base Vol:      19  333    11    33  467    80   136  223
23    12  131    23
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
Initial Bse:   19  333    11    33  467    80   136  223
23    12  131    23
Added Vol:      0    3     0     0    3     0     0    0
0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0
0     0    0     0
Initial Fut:   19  336    11    33  470    80   136  223
23    12  131    23
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
PHF Volume:    19  336    11    33  470    80   136  223
23    12  131    23
Reduct Vol:     0    0     0     0    0     0     0    0
0     0    0     0
Reduced Vol:   19  336    11    33  470    80   136  223
23    12  131    23
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
Final Vol.:    19  336    11    33  470    80   136  223
23    12  131    23
------------|---------------||---------------||----------
-----||---------------|
Saturation Flow Module:
Sat/Lane:     472  472   472   398  398   398   351  351
351   254  254   254
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
Lanes:       0.05 0.92  0.03  0.07 0.93  1.00  0.36 0.58
0.06  0.08 0.92  1.00
Final Sat.:    25  433    14    26  372   398   125  205
21    21  233   254
------------|---------------||---------------||----------
-----||---------------|
Capacity Analysis Module:
Vol/Sat:     0.78 0.78  0.78  1.26 1.26  0.20  1.09 1.09
1.09  0.56 0.56  0.09
Crit Moves:             ****        ****              ****
****
ApproachV/S:      0.78              0.73              1.09
0.33
------------|---------------||---------------||----------
-----||---------------|
Level Of Service Module:
Delay/Veh:    19.0 19.0  19.0 121.8  122   2.1  62.5 62.5
62.5   8.5  8.5   1.4
Delay Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
AdjDel/Veh:   19.0 19.0  19.0 121.8  122   2.1  62.5 62.5
62.5   8.5  8.5   1.4
LOS by Move:   C    C     C     F    F     A     F    F
F     B    B     A
ApproachDel:      19.0              16.2              62.5
3.5
LOS by Appr:       C                 C                 F
A
*************************************************************
***********************
```

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                        Morrison Creek Mining (South)
                      Existing Conditions - PM Peak Hour
          Vineyard I No Plant & Aspen IV - Access via
Mayhew North
-------------------------------------------------------------
----------------------
                      Level Of Service Computation Report
          1985 HCM Unsignalized Method (Future Volume
Alternative)
*************************************************************
***********************
Intersection #2 Elder Creek Rd / Mayhew Rd
*************************************************************
***********************
                                        Level Of Service:
A
*************************************************************
***********************
Approach:       North Bound       South Bound       East
Bound        West Bound
Movement:       L  -  T  -  R    L  -  T  -  R    L  -  T
-  R    L  -  T  -  R
------------|---------------||---------------||----------
-----||---------------|
Control:         Stop Sign         Stop Sign
Uncontrolled      Uncontrolled
Rights:           Include           Include
Include           Include
Lanes:          0  0  1! 0  0    0  0  0  0  1    0  0  1!
0  0    0  1  0  0  0
------------|---------------||---------------||----------
-----||---------------|
Volume Module:
Base Vol:        8    0     2     0    0     3     3  245
10     1  110     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
Initial Bse:     8    0     2     0    0     3     3  245
10     1  110     0
Added Vol:       0    0     0     0    0     0     0    0
0     0    0     0
PasserByVol:     0    0     0     0    0     0     0    0
0     0    0     0
Initial Fut:     8    0     2     0    0     3     3  245
10     1  110     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
PHF Volume:      8    0     2     0    0     3     3  245
10     1  110     0
Reduct Vol:      0    0     0     0    0     0     0    0
0     0    0     0
Final Vol.:      8    0     2     0    0     3     3  245
10     1  110     0
Adjusted Volume Module:
Grade:              0%                0%                0%
0%
% Cycle/Cars:   xxxx  xxxx       xxxx  xxxx       xxxx
xxxx       xxxx  xxxx
% Truck/Comb:   xxxx  xxxx       xxxx  xxxx       xxxx
xxxx       xxxx  xxxx
PCE Adj:     1.10 1.10  1.10  1.10 1.10  1.10  1.10 1.00
1.00  1.10 1.00  1.00
Cycl/Car PCE:   xxxx  xxxx       xxxx  xxxx       xxxx
xxxx       xxxx  xxxx
Trck/Cmb PCE:   xxxx  xxxx       xxxx  xxxx       xxxx
xxxx       xxxx  xxxx
Adj Vol.:        9    0     2     0    0     3     3  245
10     1  110     0
Critical Gap Module: >> Population: 0 << >> Run
Speed(E/W): 30 MPH <<
RT Rad/Ang:  20.0 ft/90.0 deg 20.0 ft/90.0 deg 20.0
ft/90.0 deg 20.0 ft/90.0 deg
Critical Gp:  6.5 xxxx   5.5 xxxxx xxxx   5.5   5.0 xxxx
xxxxx   5.0 xxxx xxxxx
------------|---------------||---------------||----------
-----||---------------|
Capacity Module:
Cnflict Vol:  367 xxxx   250  xxxx xxxx   110   110 xxxx
xxxxx   255 xxxx xxxxx
Potent Cap.:  578 xxxx   840  xxxx xxxx   988  1000 xxxx
xxxxx   935 xxxx xxxxx
% Used Cap.:  1.5 xxxx   0.3 xxxxx xxxx   0.3   0.3 xxxx
xxxxx   0.1 xxxx xxxxx
Impedance:   xxxx xxxx  1.00  xxxx xxxx  1.00  1.00 xxxx
xxxxx  1.00 xxxx xxxxx
Actual Cap.:  578 xxxx   840  xxxx xxxx   988  1000 xxxx
xxxxx   935 xxxx xxxxx
------------|---------------||---------------||----------
-----||---------------|
Level Of Service Module:
Unused Cap.:  569 xxxx   838  xxxx xxxx   985   997 xxxx
xxxxx   934 xxxx xxxxx
LOS by Move:   *    *     *     *    *     A     A    *
*     A    *     *
Movement:      LT - LTR - RT    LT - LTR - RT    LT - LTR
- RT    LT - LTR - RT
Shared Cap.: xxxx  617 xxxxx  xxxx xxxx xxxxx  xxxx xxxx
xxxxx  xxxx xxxx xxxxx
Unused Cap.: xxxx  606 xxxxx  xxxx xxxx xxxxx  xxxx xxxx
xxxxx  xxxx xxxx xxxxx
Shared LOS:    *    A     *     *    *     *     *    *
*     *    *     *
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                        Morrison Creek Mining (South)
                     Existing Conditions - PM Peak Hour
          Vineyard I No Plant & Aspen IV - Access via
Mayhew North
-------------------------------------------------------
----------------------
                     Level Of Service Computation Report
          Circular 212 Planning Method (Future Volume
Alternative)
*******************************************************
***********************
Intersection #3 Elder Creek Rd / Bradshaw Rd
*******************************************************
***********************
Cycle (sec):        100                 Critical Vol./Cap.
(X):        0.874
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay
(sec/veh):      xxxxxx
Optimal Cycle:      147                 Level Of Service:
D
*******************************************************
***********************
Approach:      North Bound      South Bound       East
Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T
-  R    L  -  T  -  R
------------|---------------||---------------||----------
-----||---------------|
Control:        Protected        Protected
Permitted        Permitted
Rights:           Include          Include
Include          Include
Min. Green:     0    0    0    0    0    0    0    0
0    0    0    0
Lanes:        1  0  0  1  0    1  0  1  0  1    1  0  0
1  0    0  1  0  0  1
------------|---------------||---------------||----------
-----||---------------|
Volume Module:
Base Vol:      15  464     2    12 1075    79   107    87
32     4   31     5
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
Initial Bse:   15  464     2    12 1075    79   107    87
32     4   31     5
Added Vol:      0   13     0     0   13     0     0    0
0    0    0    0
PasserByVol:    0    0     0     0    0     0     0    0
0    0    0    0
Initial Fut:   15  477     2    12 1088    79   107    87
32     4   31     5
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
PHF Volume:    15  477     2    12 1088    79   107    87
32     4   31     5
Reduct Vol:     0    0     0     0    0     0     0    0
0    0    0    0
Reduced Vol:   15  477     2    12 1088    79   107    87
32     4   31     5
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
Final Vol.:    15  477     2    12 1088    79   107    87
32     4   31     5
------------|---------------||---------------||----------
-----||---------------|
Saturation Flow Module:
Sat/Lane:    1425 1425  1425  1425 1425  1425  1425 1425
1425  1425 1425  1425
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
Lanes:       1.00 0.99  0.01  1.00 1.00  1.00  1.00 0.73
0.27  0.11 0.89  1.00
Final Sat.:  1425 1419     6  1425 1425  1425  1425 1042
383   163 1262  1425
------------|---------------||---------------||----------
-----||---------------|
Capacity Analysis Module:
Vol/Sat:     0.01 0.34  0.34  0.01 0.76  0.06  0.08 0.08
0.08  0.02 0.02  0.00
Crit Vol:      15                  1088         107
35
Crit Moves:  ****                  ****         ****
****
*******************************************************
***********************
```

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Morrison Creek Mining (South)
Existing Conditions - PM Peak Hour
Vineyard I No Plant & Aspen IV - Access via Mayhew North

Level Of Service Computation Report
Circular 212 Planning Method (Future Volume Alternative)

Intersection #4 Bradshaw Rd / Jackson.Rd

Cycle (sec): 100 Critical Vol./Cap. (X): 0.769
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): xxxxxx
Optimal Cycle: 99 Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Protected				Protected				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	1	1 0	1	0	2	0 1	1	0	1	0	1	0	1	1
Volume Module:																
Base Vol:	50	587	10	174	922	224	183	481	110	36	237	70				
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Initial Bse:	50	587	10	174	922	224	183	481	110	36	237	70				
Added Vol:	13	0	0	0	0	54	54	16	13	0	16	0				
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0				
Initial Fut:	63	587	10	174	922	278	237	497	123	36	253	70				
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
PHF Volume:	63	587	10	174	922	278	237	497	123	36	253	70				
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0				
Reduced Vol:	63	587	10	174	922	278	237	497	123	36	253	70				
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Final Vol.:	63	587	10	174	922	278	237	497	123	36	253	70				
Saturation Flow Module:																
Sat/Lane:	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375				
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Lanes:	1.00	1.97	0.03	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Final Sat.:	1375	2704	46	1375	2750	1375	1375	1375	1375	1375	1375	1375				
Capacity Analysis Module:																
Vol/Sat:	0.05	0.22	0.22	0.13	0.34	0.20	0.17	0.36	0.09	0.03	0.18	0.05				
Crit Vol:	63				461				497							
Crit Moves:	****				****				****							

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                         Morrison Creek Mining (South)
                       Existing Conditions - PM Peak Hour
          Vineyard I No Plant & Aspen IV - Access via
Mayhew North
-------------------------------------------------------------
-----------------------
                       Level Of Service Computation Report
          Circular 212 Planning Method (Future Volume
Alternative)
*************************************************************
************************
Intersection #5 Bradshaw Rd / Kiefer Blvd
*************************************************************
************************
Cycle (sec):        100                 Critical Vol./Cap.
(X):        0.749
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay
(sec/veh):      xxxxxx
Optimal Cycle:       91                 Level Of Service:
C
*************************************************************
************************
Approach:      North Bound      South Bound       East
Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T
-  R    L  -  T  -  R
------------|---------------||---------------||----------
-----||---------------|
Control:        Protected        Protected
Protected        Protected
Rights:           Include          Include
Include          Include
Min. Green:     0    0     0     0    0     0     0    0
0     0    0     0
Lanes:        1  0  1  1  0    1  0  2  0  1    1  0  1
1  0    1  0  1  1  0
------------|---------------||---------------||----------
-----||---------------|
Volume Module:
Base Vol:      72  594    79     4 1123   201   220   53
239   130   60     4
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
Initial Bse:   72  594    79     4 1123   201   220   53
239   130   60     4
Added Vol:      0   54     0     0   54     0     0    0
0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0
0     0    0     0
Initial Fut:   72  648    79     4 1177   201   220   53
239   130   60     4
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
PHF Volume:    72  648    79     4 1177   201   220   53
239   130   60     4
Reduct Vol:     0    0     0     0    0     0     0    0
0     0    0     0
Reduced Vol:   72  648    79     4 1177   201   220   53
239   130   60     4
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
Final Vol.:    72  648    79     4 1177   201   220   53
239   130   60     4
------------|---------------||---------------||----------
-----||---------------|
Saturation Flow Module:
Sat/Lane:    1375 1375  1375  1375 1375  1375  1375 1375
1375  1375 1375  1375
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
Lanes:       1.00 1.78  0.22  1.00 2.00  1.00  1.00 1.00
1.00  1.00 1.88  0.12
Final Sat.:  1375 2451   299  1375 2750  1375  1375 1375
1375  1375 2578   172
------------|---------------||---------------||----------
-----||---------------|
Capacity Analysis Module:
Vol/Sat:     0.05 0.26  0.26  0.00 0.43  0.15  0.16 0.04
0.17  0.09 0.02  0.02
Crit Vol:      72                   589
239   130
Crit Moves:  ****                 ****
****  ****
*************************************************************
************************
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                        Morrison Creek Mining (South)
                     Existing Conditions - PM Peak Hour
          Vineyard I No Plant & Aspen IV - Access via
Mayhew North
-------------------------------------------------------------
-----------------------
                     Level Of Service Computation Report
          1985 HCM Unsignalized Method (Future Volume
Alternative)
*************************************************************
************************
Intersection #6 Jackson Rd / Mayhew Rd
*************************************************************
************************
                                        Level Of Service:
E
*************************************************************
************************
Approach:       North Bound       South Bound       East
Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T
-  R    L  -  T  -  R
------------|---------------||---------------||----------
-----||---------------|
Control:         Stop Sign         Stop Sign
Uncontrolled     Uncontrolled
Rights:           Include           Include
Include          Include
Lanes:        0  0  1! 0  0    0  0  1! 0  0    1  0  1
0  1    1  0  0  1  0
------------|---------------||---------------||----------
-----||---------------|
Volume Module:
Base Vol:       2    2     2     2    2     2     2  770
2     2  510     2
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
Initial Bse:    2    2     2     2    2     2     2  770
2     2  510     2
Added Vol:     25    0    83     0    0     0     0    0
25    83    0     0
PasserByVol:    0    0     0     0    0     0     0    0
0     0    0     0
Initial Fut:   27    2    85     2    2     2     2  770
27    85  510     2
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
PHF Volume:    27    2    85     2    2     2     2  770
27    85  510     2
Reduct Vol:     0    0     0     0    0     0     0    0
0     0    0     0
Final Vol.:    27    2    85     2    2     2     2  770
27    85  510     2
Adjusted Volume Module:
Grade:              0%                0%                0%
0%
% Cycle/Cars:   xxxx  xxxx       xxxx  xxxx       xxxx
xxxx       xxxx  xxxx
% Truck/Comb:   xxxx  xxxx       xxxx  xxxx       xxxx
xxxx       xxxx  xxxx
PCE Adj:     1.10 1.10  1.10  1.10 1.10  1.10  1.10 1.00
1.00  1.10 1.00  1.00
Cycl/Car PCE:   xxxx  xxxx       xxxx  xxxx       xxxx
xxxx       xxxx  xxxx
Trck/Cmb PCE:   xxxx  xxxx       xxxx  xxxx       xxxx
xxxx       xxxx  xxxx
Adj Vol.:      30    2    94     2    2     2     2  770
27    94  510     2
Critical Gap Module: >> Population: 0 << >> Run
Speed(E/W): 30 MPH <<
RT Rad/Ang:  20.0 ft/90.0 deg 20.0 ft/90.0 deg 20.0
ft/90.0 deg 20.0 ft/90.0 deg
Critical Gp:  7.0  6.5   5.5   7.0  6.5   5.5   5.5 xxxx
xxxxx   5.5 xxxx xxxxx
------------|---------------||---------------||----------
-----||---------------|
Capacity Module:
Cnflict Vol: 1373 1369   770  1455 1395   511   512 xxxx
xxxxx   797 xxxx xxxxx
Potent Cap.:  106  131   442    91  126   620   619 xxxx
xxxxx   431 xxxx xxxxx
% Used Cap.: 27.9  1.7  21.2   2.4  1.7   0.4   0.4 xxxx
xxxxx  21.7 xxxx xxxxx
Impedance:   xxxx 0.99  0.85  xxxx 0.99  1.00  1.00 xxxx
xxxxx  0.85 xxxx xxxxx
Actual Cap.:   89  111   442    65  107   620   619 xxxx
xxxxx   431 xxxx xxxxx
------------|---------------||---------------||----------
-----||---------------|
Level Of Service Module:
Unused Cap.:   59  109   349    63  104   618   617 xxxx
xxxxx   338 xxxx xxxxx
LOS by Move:    *    *     *     *    *     *     A    *
*     B    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR
- RT    LT - LTR - RT
Shared Cap.: xxxx  222 xxxxx  xxxx  114 xxxxx  xxxx xxxx
xxxxx  xxxx xxxx xxxxx
Unused Cap.: xxxx   97 xxxxx  xxxx  107 xxxxx  xxxx xxxx
xxxxx  xxxx xxxx xxxxx
Shared LOS:     *    E     *     *    D     *     *    *
*     *    *     *

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Morrison Creek Mining (South)
Cumulative Conditions - AM Peak Hour
Vineyard I No Plant & Aspen IV - Access via Mayhew North

Trip Generation Report

Forecast for

Zone #	Subzone	Amount	Units	Rate In	Rate Out	Trips In	Trips Out	Total Trips	% Of Total
1	Vineyard I	1.00	Overburden	60.00	60.00	60	60	120	55.6
	Zone 1 Subtotal					60	60	120	55.6
4	Aspen IV Sou	1.00	Overburden	48.00	48.00	48	48	96	44.4
	Zone 4 Subtotal					48	48	96	44.4
TOTAL						108	108	216	100.0

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Morrison Creek Mining (South)
Cumulative Conditions - AM Peak Hour
Vineyard I No Plant & Aspen IV - Access via Mayhew North

Trip Distribution Report

Percent Of Trips

Zone	To Gates 1	2	3	4	5
1	50.0	20.0	15.0	12.0	3.0
4	50.0	20.0	15.0	12.0	3.0

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Morrison Creek Mining (South)
Cumulative Conditions - AM Peak Hour
Vineyard I No Plant & Aspen IV - Access via Mayhew North

Link Volume Report

Volume Type	NB Link In	NB Link Out	NB Link Total	SB Link In	SB Link Out	SB Link Total	EB Link In	EB Link Out	EB Link Total	WB Link In	WB Link Out	WB Link Total	Volume
#1 Elder Creek Rd / S. Watt Ave													
Base	1498	869	2367	1180	1667	2847	486	977	1463	677	328	1005	7682
Added	3	3	6	3	3	6	0	0	0	0	0	0	12
Total	1501	872	2373	1183	1670	2853	486	977	1463	677	328	1005	7694
#2 Elder Creek Rd / Mayhew Rd													
Base	12	23	35	6	3	9	276	795	1071	786	259	1045	2160
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	12	23	35	6	3	9	276	795	1071	786	259	1045	2160
#3 Elder Creek Rd / Bradshaw Rd													
Base	2926	1380	4306	1734	2899	4633	201	815	1016	311	78	389	10344
Added	13	13	26	13	13	26	0	0	0	0	0	0	52
Total	2939	1393	4332	1747	2912	4659	201	815	1016	311	78	389	10396
#4 Bradshaw Rd / Jackson Rd													
Base	2424	2375	4799	1933	2630	4563	757	1381	2138	1611	339	1950	13450
Added	13	13	26	54	54	108	83	83	166	16	16	32	332
Total	2437	2388	4825	1987	2684	4671	840	1464	2304	1627	355	1982	13782
#5 Bradshaw Rd / Kiefer Blvd													
Base	3120	1556	4676	1359	2968	4327	821	1129	1950	1577	1224	2801	13754
Added	54	54	108	54	54	108	0	0	0	0	0	0	216
Total	3174	1610	4784	1413	3022	4435	821	1129	1950	1577	1224	2801	13970
#6 Jackson Rd / Mayhew Rd													
Base	6	6	12	6	6	12	1384	764	2148	764	1384	2148	4320
Added	108	108	216	0	0	0	25	25	50	83	83	166	432
Total	114	114	228	6	6	12	1409	789	2198	847	1467	2314	4752

Morrison Creek Mining (South)
Cumulative Conditions - AM Peak Hour
Vineyard I No Plant & Aspen IV - Access via Mayhew North

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Base LOS	Future LOS	Future Del/ Veh	Future V/ C	Future LOS	Change in Del/ Veh	Change in V/ C
# 1 Elder Creek Rd / S. Watt Ave	D	xxxxx	0.860	D	xxxxx	0.861	+ 0.001			
# 2 Elder Creek Rd / Mayhew Rd	C	xxxxx	0.000	C	xxxxx	0.000	+ 0.000			
# 3 Elder Creek Rd / Bradshaw Rd	E	xxxxx	0.913	E	xxxxx	0.916	+ 0.003			
# 4 Bradshaw Rd / Jackson Rd	E	xxxxx	0.951	E	xxxxx	0.977	+ 0.026			
# 5 Bradshaw Rd / Kiefer Blvd	F	xxxxx	1.056	F	xxxxx	1.069	+ 0.013			
# 6 Jackson Rd / Mayhew Rd	E	xxxxx	0.000	F	xxxxx	0.000	+ 0.000			

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                         Morrison Creek Mining (South)
                      Cumulative Conditions - AM Peak Hour
           Vineyard I No Plant & Aspen IV - Access via
Mayhew North
-------------------------------------------------------
----------------------
                       Level Of Service Computation Report
           Circular 212 Planning Method (Future Volume
Alternative)
*******************************************************
***********************
Intersection #1 Elder Creek Rd / S. Watt Ave
*******************************************************
***********************
Cycle (sec):          1                Critical Vol./Cap.
(X):        0.861
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay
(sec/veh):      xxxxxx
Optimal Cycle:      164                Level Of Service:
D
*******************************************************
***********************
Approach:       North Bound      South Bound       East
Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T
-  R    L  -  T  -  R
------------|---------------||---------------||----------
-----||---------------|
Control:        Protected        Protected
Protected        Protected
Rights:           Include           Ovl
Include          Include
Min. Green:     0    0     0     0    0     0     0    0
0     0    0     0
Lanes:        1  0  2  1  0  1  0  3  0  1    2  0  0
1  0    1  0  1  0  1
------------|---------------||---------------||----------
-----||---------------|
Volume Module:
Base Vol:     107 1359    32    66  783   331   207  230
49    37  539   101
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
Initial Bse:  107 1359    32    66  783   331   207  230
49    37  539   101
Added Vol:      0    3     0     0    3     0     0    0
0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0
0     0    0     0
Initial Fut:  107 1362    32    66  786   331   207  230
49    37  539   101
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
PHF Volume:   107 1362    32    66  786   331   207  230
49    37  539   101
Reduct Vol:     0    0     0     0    0     0     0    0
0     0    0     0
Reduced Vol:  107 1362    32    66  786   331   207  230
49    37  539   101
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.10 1.00
1.00  1.00 1.00  1.00
Final Vol.:   107 1362    32    66  786   331   228  230
49    37  539   101
------------|---------------||---------------||----------
-----||---------------|
Saturation Flow Module:
Sat/Lane:    1375 1375  1375  1375 1375  1375  1375 1375
1375  1375 1375  1375
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
Lanes:       1.00 2.93  0.07  1.00 3.00  1.00  2.00 0.82
0.18  1.00 1.00  1.00
Final Sat.:  1375 4030    95  1375 4125  1375  2750 1134
241  1375 1375  1375
------------|---------------||---------------||----------
-----||---------------|
Capacity Analysis Module:
Vol/Sat:     0.08 0.34  0.34  0.05 0.19  0.24  0.08 0.20
0.20  0.03 0.39  0.07
Crit Vol:          465          66              114
539
Crit Moves:       ****        ****             ****
****
*******************************************************
***********************

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                        Morrison Creek Mining (South)
                     Cumulative Conditions - AM Peak Hour
          Vineyard I No Plant & Aspen IV - Access via
Mayhew North
-------------------------------------------------------
----------------------
                      Level Of Service Computation Report
          1985 HCM Unsignalized Method (Future Volume
Alternative)
*******************************************************
************************
Intersection #2 Elder Creek Rd / Mayhew Rd
*******************************************************
************************
                                        Level Of Service:
C
*******************************************************
************************
Approach:       North Bound       South Bound        East
Bound        West Bound
Movement:       L  -  T  -  R    L  -  T  -  R    L  -  T
-  R    L  -  T  -  R
------------|---------------||---------------||----------
-----||---------------|
Control:         Stop Sign         Stop Sign
Uncontrolled      Uncontrolled
Rights:            Include           Include
Include           Include
Lanes:          1  0  0  0  0    0  0  1! 0  0    0  0  1!
0  0    0  1  0  0  0
------------|---------------||---------------||----------
-----||---------------|
Volume Module:
Base Vol:       12    0     0     3    0     3     3  256
17     6  780     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
Initial Bse:    12    0     0     3    0     3     3  256
17     6  780     0
Added Vol:       0    0     0     0    0     0     0    0
0     0    0     0
PasserByVol:     0    0     0     0    0     0     0    0
0     0    0     0
Initial Fut:    12    0     0     3    0     3     3  256
17     6  780     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
PHF Volume:     12    0     0     3    0     3     3  256
17     6  780     0
Reduct Vol:      0    0     0     0    0     0     0    0
0     0    0     0
Final Vol.:     12    0     0     3    0     3     3  256
17     6  780     0
Adjusted Volume Module:
Grade:               0%                0%                0%
0%
% Cycle/Cars:   xxxx  xxxx       xxxx  xxxx       xxxx
xxxx       xxxx  xxxx
% Truck/Comb:   xxxx  xxxx       xxxx  xxxx       xxxx
xxxx       xxxx  xxxx
PCE Adj:     1.10 1.10  1.10  1.10 1.10  1.10  1.10 1.00
1.00  1.10 1.00  1.00
Cycl/Car PCE:   xxxx  xxxx       xxxx  xxxx       xxxx
xxxx       xxxx  xxxx
Trck/Cmb PCE:   xxxx  xxxx       xxxx  xxxx       xxxx
xxxx       xxxx  xxxx
Adj Vol.:       13    0     0     3    0     3     3  256
17     7  780     0
Critical Gap Module: >> Population: 0 << >> Run
Speed(E/W): 30 MPH <<
RT Rad/Ang:  20.0 ft/90.0 deg 20.0 ft/90.0 deg 20.0
ft/90.0 deg 20.0 ft/90.0 deg
Critical Gp:  6.5 xxxx xxxxx   6.5 xxxx   5.5   5.0 xxxx
xxxxx   5.0 xxxx xxxxx
------------|---------------||---------------||----------
-----||---------------|
Capacity Module:
Cnflict Vol: 1057 xxxx xxxxx  1062 xxxx   780   780 xxxx
xxxxx   273 xxxx xxxxx
Potent Cap.:  217 xxxx xxxxx   215 xxxx   438   512 xxxx
xxxxx   917 xxxx xxxxx
% Used Cap.:  6.1 xxxx xxxxx   1.5 xxxx   0.8   0.6 xxxx
xxxxx   0.7 xxxx xxxxx
Impedance:   xxxx xxxx xxxxx  xxxx xxxx  1.00  1.00 xxxx
xxxxx  1.00 xxxx xxxxx
Actual Cap.:  217 xxxx xxxxx   215 xxxx   438   512 xxxx
xxxxx   917 xxxx xxxxx
------------|---------------||---------------||----------
-----||---------------|
Level Of Service Module:
Unused Cap.:  204 xxxx xxxxx   212 xxxx   435   509 xxxx
xxxxx   910 xxxx xxxxx
LOS by Move:   C    *     *     *    *     *     A    *
*     A    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR
- RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx  289 xxxxx  xxxx xxxx
xxxxx  xxxx xxxx xxxxx
Unused Cap.: xxxx xxxx xxxxx  xxxx  282 xxxxx  xxxx xxxx
xxxxx  xxxx xxxx xxxxx
Shared LOS:    *    *     *     *    C     *     *    *
*     *    *     *

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                        Morrison Creek Mining (South)
                     Cumulative Conditions - AM Peak Hour
            Vineyard I No Plant & Aspen IV - Access via
Mayhew North
-------------------------------------------------------------
-----------------------
                      Level Of Service Computation Report
            Circular 212 Planning Method (Future Volume
Alternative)
*************************************************************
************************
Intersection #3 Elder Creek Rd / Bradshaw Rd
*************************************************************
************************
Cycle (sec):        100                 Critical Vol./Cap.
(X):        0.916
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay
(sec/veh):      xxxxxx
Optimal Cycle:      180                 Level Of Service:
E
*************************************************************
************************
Approach:       North Bound       South Bound       East
Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T
-  R    L  -  T  -  R
------------|---------------||---------------||----------
-----||---------------|
Control:        Protected        Protected
Protected        Protected
Rights:           Include          Ignore
Include          Include
Min. Green:     0    0    0    0    0    0    0    0
0    0    0    0
Lanes:        1  0  2  1  0    1  0  3  0  1    2  0  0
1  0    1  0  1  0  1
------------|---------------||---------------||----------
-----||---------------|
Volume Module:
Base Vol:     170 2750     6     9 1348   377   109   63
29     3  268    40
Growth Adj:  1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00
1.00  1.00 1.00  1.00
Initial Bse:  170 2750     6     9 1348     0   109   63
29     3  268    40
Added Vol:      0   13     0     0   13     0     0    0
0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0
0     0    0     0
Initial Fut:  170 2763     6     9 1361     0   109   63
29     3  268    40
User Adj:    1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00
1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00
1.00  1.00 1.00  1.00
PHF Volume:   170 2763     6     9 1361     0   109   63
29     3  268    40
Reduct Vol:     0    0     0     0    0     0     0    0
0     0    0     0
Reduced Vol:  170 2763     6     9 1361     0   109   63
29     3  268    40
PCE Adj:     1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00
1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  0.00  1.10 1.00
1.00  1.00 1.00  1.00
Final Vol.:   170 2763     6     9 1361     0   120   63
29     3  268    40
------------|---------------||---------------||----------
-----||---------------|
Saturation Flow Module:
Sat/Lane:    1375 1375  1375  1375 1375  1375  1375 1375
1375  1375 1375  1375
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
Lanes:       1.00 2.99  0.01  1.00 3.00  1.00  2.00 0.68
0.32  1.00 1.00  1.00
Final Sat.:  1375 4116     9  1375 4125  1375  2750  942
433  1375 1375  1375
------------|---------------||---------------||----------
-----||---------------|
Capacity Analysis Module:
Vol/Sat:     0.12 0.67  0.67  0.01 0.33  0.00  0.04 0.07
0.07  0.00 0.19  0.03
Crit Vol:          923          9                60
268
Crit Moves:       ****       ****             ****
****
*************************************************************
************************

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                          Morrison Creek Mining (South)
                       Cumulative Conditions - AM Peak Hour
            Vineyard I No Plant & Aspen IV - Access via
Mayhew North
-------------------------------------------------------------
-----------------------
                        Level Of Service Computation Report
            Circular 212 Planning Method (Future Volume
Alternative)
*************************************************************
************************
Intersection #4 Bradshaw Rd / Jackson Rd
*************************************************************
************************
Cycle (sec):         100                  Critical Vol./Cap.
(X):         0.977
Loss Time (sec):       0 (Y+R =  4 sec) Average Delay
(sec/veh):       xxxxxx
Optimal Cycle:       180                  Level Of Service:
E
*************************************************************
************************
Approach:       North Bound       South Bound        East
Bound        West Bound
Movement:       L  -  T  -  R     L  -  T  -  R     L  -  T
-  R     L  -  T  -  R
------------|---------------||---------------||----------
-----||---------------|
Control:         Protected         Protected
Protected         Protected
Rights:           Include           Include
Include           Include
Min. Green:      0     0     0     0     0     0     0     0
0     0     0     0
Lanes:          2  0  3  0  1     2  0  3  0  1     2  0  2
1  0     2  0  2  1  0
------------|---------------||---------------||----------
-----||---------------|
Volume Module:
Base Vol:      145 2218    61    34 1809    90   142  244
371   195 1146   270
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
Initial Bse:  145 2218    61    34 1809    90   142  244
371   195 1146   270
Added Vol:      13     0     0     0     0    54    54   16
13     0   16     0
PasserByVol:     0     0     0     0     0     0     0    0
0     0     0     0
Initial Fut:  158 2218    61    34 1809   144   196  260
384   195 1162   270
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
PHF Volume:   158 2218    61    34 1809   144   196  260
384   195 1162   270
Reduct Vol:      0     0     0     0     0     0     0    0
0     0     0     0
Reduced Vol:  158 2218    61    34 1809   144   196  260
384   195 1162   270
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
MLF Adj:     1.10 1.00  1.00  1.10 1.00  1.00  1.10 1.00
1.00  1.10 1.00  1.00
Final Vol.:   174 2218    61    37 1809   144   216  260
384   215 1162   270
------------|---------------||---------------||----------
-----||---------------|
Saturation Flow Module:
Sat/Lane:    1375 1375  1375  1375 1375  1375  1375 1375
1375  1375 1375  1375
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
Lanes:       2.00 3.00  1.00  2.00 3.00  1.00  2.00 2.00
1.00  2.00 2.43  0.57
Final Sat.:  2750 4125  1375  2750 4125  1375  2750 2750
1375  2750 3347   778
------------|---------------||---------------||----------
-----||---------------|
Capacity Analysis Module:
Vol/Sat:     0.06 0.54  0.04  0.01 0.44  0.10  0.08 0.09
0.28  0.08 0.35  0.35
Crit Vol:          739          19                108
477
Crit Moves:       ****        ****               ****
****
*************************************************************
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```

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                         Morrison Creek Mining (South)
                      Cumulative Conditions - AM Peak Hour
          Vineyard I No Plant & Aspen IV - Access via
Mayhew North
-------------------------------------------------------------
-----------------------
                       Level Of Service Computation Report
          Circular 212 Planning Method (Future Volume
Alternative)
*************************************************************
************************
Intersection #5 Bradshaw Rd / Kiefer Blvd
*************************************************************
************************
Cycle (sec):        100                 Critical Vol./Cap.
(X):         1.069
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay
(sec/veh):       xxxxxx
Optimal Cycle:      180                 Level Of Service:
F
*************************************************************
************************
Approach:       North Bound       South Bound       East
Bound        West Bound
Movement:      L  -  T  -  R    L  -  T  -  R    L  -  T
-  R    L  -  T  -  R
------------|---------------||---------------||----------
-----||---------------|
Control:         Protected         Protected
Protected         Protected
Rights:           Include           Include
Include           Include
Min. Green:      0    0    0    0    0    0    0    0
0    0    0    0
Lanes:         2  0  3  0  1    2  0  3  0  1    2  0  2
0  1    2  0  2  0  1
------------|---------------||---------------||----------
-----||---------------|
Volume Module:
Base Vol:       58 2568   494    53 1222    84   134  677
10   324  987   266
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
Initial Bse:    58 2568   494    53 1222    84   134  677
10   324  987   266
Added Vol:       0   54     0     0   54     0     0    0
0    0    0    0
PasserByVol:     0    0     0     0    0     0     0    0
0    0    0    0
Initial Fut:    58 2622   494    53 1276    84   134  677
10   324  987   266
User Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
PHF Adj:      1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
PHF Volume:     58 2622   494    53 1276    84   134  677
10   324  987   266
Reduct Vol:      0    0     0     0    0     0     0    0
0    0    0    0
Reduced Vol:    58 2622   494    53 1276    84   134  677
10   324  987   266
PCE Adj:      1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
MLF Adj:      1.10 1.00  1.00  1.10 1.00  1.00  1.10 1.00
1.00  1.10 1.00  1.00
Final Vol.:     64 2622   494    58 1276    84   147  677
10   356  987   266
------------|---------------||---------------||----------
-----||---------------|
Saturation Flow Module:
Sat/Lane:     1375 1375  1375  1375 1375  1375  1375 1375
1375  1375 1375  1375
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
Lanes:        2.00 3.00  1.00  2.00 3.00  1.00  2.00 2.00
1.00  2.00 2.00  1.00
Final Sat.:  2750 4125  1375  2750 4125  1375  2750 2750
1375  2750 2750  1375
------------|---------------||---------------||----------
-----||---------------|
Capacity Analysis Module:
Vol/Sat:      0.02 0.64  0.36  0.02 0.31  0.06  0.05 0.25
0.01  0.13 0.36  0.19
Crit Vol:          874          29                74
494
Crit Moves:       ****        ****              ****
****
*************************************************************
************************
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                      Cumulative Conditions - AM Peak Hour
          Vineyard I No Plant & Aspen IV - Access via
Mayhew North
-------------------------------------------------------
----------------------
                      Level Of Service Computation Report
          1985 HCM Unsignalized Method (Future Volume
Alternative)
*******************************************************
***********************
Intersection #6 Jackson Rd / Mayhew Rd
*******************************************************
***********************
                                          Level Of Service:
F
*******************************************************
***********************
Approach:      North Bound      South Bound       East
Bound       West Bound
Movement:      L  -  T  -  R    L  -  T  -  R    L  -  T
-  R    L  -  T  -  R
------------|---------------||---------------||----------
-----||---------------|
Control:        Stop Sign        Stop Sign
Uncontrolled     Uncontrolled
Rights:           Include          Include
Include          Include
Lanes:         0  0  1! 0  0    0  0  1! 0  0    1  0  1
0  1    1  0  0  1  0
------------|---------------||---------------||----------
-----||---------------|
Volume Module:
Base Vol:       2    2     2     2    2     2     2 1380
2     2  760     2
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
Initial Bse:    2    2     2     2    2     2     2 1380
2     2  760     2
Added Vol:     25    0    83     0    0     0     0    0
25    83    0     0
PasserByVol:    0    0     0     0    0     0     0    0
0     0    0     0
Initial Fut:   27    2    85     2    2     2     2 1380
27    85  760     2
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
PHF Volume:    27    2    85     2    2     2     2 1380
27    85  760     2
Reduct Vol:     0    0     0     0    0     0     0    0
0     0    0     0
Final Vol.:    27    2    85     2    2     2     2 1380
27    85  760     2
Adjusted Volume Module:
Grade:               0%                0%                0%
0%
% Cycle/Cars:   xxxx  xxxx       xxxx  xxxx       xxxx
xxxx       xxxx  xxxx
% Truck/Comb:   xxxx  xxxx       xxxx  xxxx       xxxx
xxxx       xxxx  xxxx
PCE Adj:     1.10 1.10  1.10  1.10 1.10  1.10  1.10 1.00
1.00  1.10 1.00  1.00
Cycl/Car PCE:   xxxx  xxxx       xxxx  xxxx       xxxx
xxxx       xxxx  xxxx
Trck/Cmb PCE:   xxxx  xxxx       xxxx  xxxx       xxxx
xxxx       xxxx  xxxx
Adj Vol.:      30    2    94     2    2     2     2 1380
27    94  760     2
Critical Gap Module: >> Population: 0 << >> Run
Speed(E/W): 30 MPH <<
RT Rad/Ang:  20.0 ft/90.0 deg 20.0 ft/90.0 deg 20.0
ft/90.0 deg 20.0 ft/90.0 deg
Critical Gp:  7.0  6.5   5.5   7.0  6.5   5.5   5.5 xxxx
xxxxx   5.5 xxxx xxxxx
------------|---------------||---------------||----------
-----||---------------|
Capacity Module:
Cnflict Vol: 2233 2229  1380  2315 2255   761   762 xxxx
xxxxx  1407 xxxx xxxxx
Potent Cap.:   65   82   196    65   82   446   445 xxxx
xxxxx   189 xxxx xxxxx
% Used Cap.: 45.7  2.7  47.7   3.4  2.7   0.5   0.5 xxxx
xxxxx  49.6 xxxx xxxxx
Impedance:   xxxx 0.98  0.60  xxxx 0.98  1.00  1.00 xxxx
xxxxx  0.58 xxxx xxxxx
Actual Cap.:   37   48   196    23   48   446   445 xxxx
xxxxx   189 xxxx xxxxx
------------|---------------||---------------||----------
-----||---------------|
Level Of Service Module:
Unused Cap.:    8   46   103    20   46   443   443 xxxx
xxxxx    95 xxxx xxxxx
LOS by Move:    *    *     *     *    *     *     A    *
*     E    *     *
Movement:      LT - LTR - RT    LT - LTR - RT    LT - LTR
- RT    LT - LTR - RT
Shared Cap.: xxxx   95 xxxxx  xxxx   44 xxxxx  xxxx xxxx
xxxxx  xxxx xxxx xxxxx
Unused Cap.: xxxx  -30 xxxxx  xxxx   38 xxxxx  xxxx xxxx
xxxxx  xxxx xxxx xxxxx
Shared LOS:     *    F     *     *    E     *     *    *
*     *    *     *

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Morrison Creek Mining (South)
Cumulative Conditions - PM Peak Hour
Vineyard I No Plant & Aspen IV - Access via Mayhew North

Trip Generation Report

Forecast for

Zone #	Subzone	Amount	Units	Rate In	Rate Out	Trips In	Trips Out	Total Trips	% Of Total
1	Vineyard I	1.00	Overburden	60.00	60.00	60	60	120	55.6
	Zone 1 Subtotal					60	60	120	55.6
4	Aspen IV Sou	1.00	Overburden	48.00	48.00	48	48	96	44.4
	Zone 4 Subtotal					48	48	96	44.4
TOTAL						108	108	216	100.0

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Morrison Creek Mining (South)
Cumulative Conditions - PM Peak Hour
Vineyard I No Plant & Aspen IV - Access via Mayhew North

Trip Distribution Report

Percent Of Trips

Zone	To Gates 1	2	3	4	5
1	50.0	20.0	15.0	12.0	3.0
4	50.0	20.0	15.0	12.0	3.0

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Morrison Creek Mining (South)
Cumulative Conditions - PM Peak Hour
Vineyard I No Plant & Aspen IV - Access via Mayhew North

Link Volume Report

Volume Type	NB Link In	NB Link Out	NB Link Total	SB Link In	SB Link Out	SB Link Total	EB Link In	EB Link Out	EB Link Total	WB Link In	WB Link Out	WB Link Total	Volume
#1 Elder Creek Rd / S. Watt Ave													
Base	1046	1446	2492	1670	1417	3087	1100	662	1762	478	769	1247	8588
Added	3	3	6	3	3	6	0	0	0	0	0	0	12
Total	1049	1449	2498	1673	1420	3093	1100	662	1762	478	769	1247	8600
#2 Elder Creek Rd / Mayhew Rd													
Base	29	32	61	9	9	18	744	349	1093	320	712	1032	2204
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	29	32	61	9	9	18	744	349	1093	320	712	1032	2204
#3 Elder Creek Rd / Bradshaw Rd													
Base	1385	3200	4585	3359	1658	5017	651	360	1011	115	292	407	11020
Added	13	13	26	13	13	26	0	0	0	0	0	0	52
Total	1398	3213	4611	3372	1671	5043	651	360	1011	115	292	407	11072
#4 Bradshaw Rd / Jackson Rd													
Base	2275	2491	4766	2395	2044	4439	1203	623	1826	568	1283	1851	12882
Added	13	13	26	54	54	108	83	83	166	16	16	32	332
Total	2288	2504	4792	2449	2098	4547	1286	706	1992	584	1299	1883	13214
#5 Bradshaw Rd / Kiefer Blvd													
Base	1896	2249	4145	2076	1652	3728	903	731	1634	1256	1499	2755	12262
Added	54	54	108	54	54	108	0	0	0	0	0	0	216
Total	1950	2303	4253	2130	1706	3836	903	731	1634	1256	1499	2755	12478
#6 Jackson Rd / Mayhew Rd													
Base	6	6	12	6	6	12	1204	624	1828	624	1204	1828	3680
Added	108	108	216	0	0	0	25	25	50	83	83	166	432
Total	114	114	228	6	6	12	1229	649	1878	707	1287	1994	4112

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Morrison Creek Mining (South)
Cumulative Conditions - PM Peak Hour
Vineyard I No Plant & Aspen IV - Access via Mayhew North

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Base LOS	Future LOS	Future Del/ Veh	Future V/ C	Future LOS	Change in Del/ Veh	Change in V/ C
# 1 Elder Creek Rd / S. Watt Ave	E	xxxxx	0.906	E		xxxxx	0.907		+ 0.001	V/C
# 2 Elder Creek Rd / Mayhew Rd	C	xxxxx	0.000	C		xxxxx	0.000		+ 0.000	V/C
# 3 Elder Creek Rd / Bradshaw Rd	F	xxxxx	1.040	F		xxxxx	1.043		+ 0.003	V/C
# 4 Bradshaw Rd / Jackson Rd	E	xxxxx	0.950	E		xxxxx	0.962		+ 0.012	V/C
# 5 Bradshaw Rd / Kiefer Blvd	E	xxxxx	0.976	E		xxxxx	0.989		+ 0.013	V/C
# 6 Jackson Rd / Mayhew Rd	E	xxxxx	0.000	F		xxxxx	0.000		+ 0.000	V/C

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                         Morrison Creek Mining (South)
                      Cumulative Conditions - PM Peak Hour
          Vineyard I No Plant & Aspen IV - Access via
Mayhew North
-------------------------------------------------------
-----------------------
                       Level Of Service Computation Report
          Circular 212 Planning Method (Future Volume
Alternative)
*******************************************************
***********************
Intersection #1 Elder Creek Rd / S. Watt Ave
*******************************************************
***********************
Cycle (sec):          1                Critical Vol./Cap.
(X):        0.907
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay
(sec/veh):      xxxxxx
Optimal Cycle:      180                Level Of Service:
E
*******************************************************
***********************
Approach:      North Bound      South Bound       East
Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T
-  R    L  -  T  -  R
------------|---------------||---------------||----------
-----||---------------|
Control:        Protected        Protected
Protected        Protected
Rights:           Include           Ovl
Include          Include
Min. Green:     0    0    0    0    0    0    0    0
0    0    0    0
Lanes:        1  0  2  1  0    1  0  3  0  1    2  0  0
1  0    1  0  1  0  1
------------|---------------||---------------||----------
-----||---------------|
Volume Module:
Base Vol:      55  959    32    95 1345   230   392  642
66    35  377    66
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
Initial Bse:   55  959    32    95 1345   230   392  642
66    35  377    66
Added Vol:      0    3     0     0    3     0     0    0
0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0
0     0    0     0
Initial Fut:   55  962    32    95 1348   230   392  642
66    35  377    66
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
PHF Volume:    55  962    32    95 1348   230   392  642
66    35  377    66
Reduct Vol:     0    0     0     0    0     0     0    0
0     0    0     0
Reduced Vol:   55  962    32    95 1348   230   392  642
66    35  377    66
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.10 1.00
1.00  1.00 1.00  1.00
Final Vol.:    55  962    32    95 1348   230   431  642
66    35  377    66
------------|---------------||---------------||----------
-----||---------------|
Saturation Flow Module:
Sat/Lane:    1375 1375  1375  1375 1375  1375  1375 1375
1375  1375 1375  1375
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
Lanes:       1.00 2.90  0.10  1.00 3.00  1.00  2.00 0.91
0.09  1.00 1.00  1.00
Final Sat.:  1375 3992   133  1375 4125  1375  2750 1247
128  1375 1375  1375
------------|---------------||---------------||----------
-----||---------------|
Capacity Analysis Module:
Vol/Sat:     0.04 0.24  0.24  0.07 0.33  0.17  0.16 0.51
0.51  0.03 0.27  0.05
Crit Vol:      55                449                708
35
Crit Moves:  ****              ****               ****
****
*******************************************************
***********************
```

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                    Morrison Creek Mining (South)
                  Cumulative Conditions - PM Peak Hour
          Vineyard I No Plant & Aspen IV - Access via
Mayhew North
-------------------------------------------------------
----------------------
                   Level Of Service Computation Report
          1985 HCM Unsignalized Method (Future Volume
Alternative)
*******************************************************
**********************
Intersection #2 Elder Creek Rd / Mayhew Rd
*******************************************************
**********************
                                      Level Of Service:
C
*******************************************************
**********************
Approach:       North Bound      South Bound       East
Bound        West Bound
Movement:      L  -  T  -  R    L  -  T  -  R    L  -  T
-  R    L  -  T  -  R
------------|---------------||---------------||----------
-----||---------------|
Control:         Stop Sign        Stop Sign
Uncontrolled     Uncontrolled
Rights:            Include          Include
Include          Include
Lanes:         0  0  1! 0  0    0  0  0  0  1    0  0  1!
0  0    0  1  0  0  0
------------|---------------||---------------||----------
-----||---------------|
Volume Module:
Base Vol:       23    0     6     0    0     9     9  706
29     3  317     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
Initial Bse:    23    0     6     0    0     9     9  706
29     3  317     0
Added Vol:       0    0     0     0    0     0     0    0
0     0    0     0
PasserByVol:     0    0     0     0    0     0     0    0
0     0    0     0
Initial Fut:    23    0     6     0    0     9     9  706
29     3  317     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
PHF Volume:     23    0     6     0    0     9     9  706
29     3  317     0
Reduct Vol:      0    0     0     0    0     0     0    0
0     0    0     0
Final Vol.:     23    0     6     0    0     9     9  706
29     3  317     0
Adjusted Volume Module:
Grade:              0%                0%                0%
0%
% Cycle/Cars:   xxxx  xxxx       xxxx  xxxx       xxxx
xxxx       xxxx  xxxx
% Truck/Comb:   xxxx  xxxx       xxxx  xxxx       xxxx
xxxx       xxxx  xxxx
PCE Adj:     1.10 1.10  1.10  1.10 1.10  1.10  1.10 1.00
1.00  1.10 1.00  1.00
Cycl/Car PCE:   xxxx  xxxx       xxxx  xxxx       xxxx
xxxx       xxxx  xxxx
Trck/Cmb PCE:   xxxx  xxxx       xxxx  xxxx       xxxx
xxxx       xxxx  xxxx
Adj Vol.:       25    0     7     0    0    10    10  706
29     3  317     0
Critical Gap Module: >> Population: 0 << >> Run
Speed(E/W): 30 MPH <<
RT Rad/Ang:  20.0 ft/90.0 deg 20.0 ft/90.0 deg 20.0
ft/90.0 deg 20.0 ft/90.0 deg
Critical Gp:  6.5 xxxx   5.5 xxxxx xxxx   5.5   5.0 xxxx
xxxxx   5.0 xxxx xxxxx
------------|---------------||---------------||----------
-----||---------------|
Capacity Module:
Cnflict Vol: 1059 xxxx   721  xxxx xxxx   317   317 xxxx
xxxxx   735 xxxx xxxxx
Potent Cap.:  217 xxxx   471  xxxx xxxx   770   875 xxxx
xxxxx   539 xxxx xxxxx
% Used Cap.: 11.7 xxxx   1.4 xxxxx xxxx   1.3   1.1 xxxx
xxxxx   0.6 xxxx xxxxx
Impedance:   xxxx xxxx  0.99  xxxx xxxx  0.99  0.99 xxxx
xxxxx  1.00 xxxx xxxxx
Actual Cap.:  213 xxxx   471  xxxx xxxx   770   875 xxxx
xxxxx   539 xxxx xxxxx
------------|---------------||---------------||----------
-----||---------------|
Level Of Service Module:
Unused Cap.:  188 xxxx   464  xxxx xxxx   760   865 xxxx
xxxxx   536 xxxx xxxxx
LOS by Move:   *    *     *     *    *     A     A    *
*     A    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR
- RT    LT - LTR - RT
Shared Cap.: xxxx  241 xxxxx  xxxx xxxx xxxxx  xxxx xxxx
xxxxx  xxxx xxxx xxxxx
Unused Cap.: xxxx  209 xxxxx  xxxx xxxx xxxxx  xxxx xxxx
xxxxx  xxxx xxxx xxxxx
Shared LOS:    *    C     *     *    *     *     *    *
*     *    *     *
```

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                         Morrison Creek Mining (South)
                      Cumulative Conditions - PM Peak Hour
           Vineyard I No Plant & Aspen IV - Access via
Mayhew North
-------------------------------------------------------
-----------------------
                       Level Of Service Computation Report
           Circular 212 Planning Method (Future Volume
Alternative)
*******************************************************
************************
Intersection #3 Elder Creek Rd / Bradshaw Rd
*******************************************************
************************
Cycle (sec):        100                 Critical Vol./Cap.
(X):        1.043
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay
(sec/veh):      xxxxxx
Optimal Cycle:      180                 Level Of Service:
F
*******************************************************
************************
Approach:       North Bound      South Bound       East
Bound        West Bound
Movement:      L  -  T  -  R    L  -  T  -  R    L  -  T
-  R    L  -  T  -  R
------------|---------------||---------------||----------
-----||---------------|
Control:        Protected        Protected
Protected        Protected
Rights:           Include          Ignore
Include          Include
Min. Green:     0    0    0     0    0    0     0    0
0     0    0     0
Lanes:         1  0  2  1  0    1  0  3  0  1    2  0  0
1  0    1  0  1  0  1
------------|---------------||---------------||----------
-----||---------------|
Volume Module:
Base Vol:       43 1336     6    35 3096   228   308  251
92    12   89    14
Growth Adj:  1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00
1.00  1.00 1.00  1.00
Initial Bse:   43 1336     6    35 3096     0   308  251
92    12   89    14
Added Vol:      0   13     0     0   13     0     0    0
0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0
0     0    0     0
Initial Fut:   43 1349     6    35 3109     0   308  251
92    12   89    14
User Adj:    1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00
1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00
1.00  1.00 1.00  1.00
PHF Volume:    43 1349     6    35 3109     0   308  251
92    12   89    14
Reduct Vol:     0    0     0     0    0     0     0    0
0     0    0     0
Reduced Vol:   43 1349     6    35 3109     0   308  251
92    12   89    14
PCE Adj:     1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00
1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  0.00  1.10 1.00
1.00  1.00 1.00  1.00
Final Vol.:    43 1349     6    35 3109     0   339  251
92    12   89    14
------------|---------------||---------------||----------
-----||---------------|
Saturation Flow Module:
Sat/Lane:    1375 1375  1375  1375 1375  1375  1375 1375
1375  1375 1375  1375
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
Lanes:       1.00 2.99  0.01  1.00 3.00  1.00  2.00 0.73
0.27  1.00 1.00  1.00
Final Sat.:  1375 4107    18  1375 4125  1375  2750 1006
369  1375 1375  1375
------------|---------------||---------------||----------
-----||---------------|
Capacity Analysis Module:
Vol/Sat:     0.03 0.33  0.33  0.03 0.75  0.00  0.12 0.25
0.25  0.01 0.06  0.01
Crit Vol:      43                  1036              343
12
Crit Moves:  ****                  ****              ****
****
*******************************************************
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                    Morrison Creek Mining (South)
                 Cumulative Conditions - PM Peak Hour
        Vineyard I No Plant & Aspen IV - Access via
Mayhew North
-------------------------------------------------------------
-----------------------
                    Level Of Service Computation Report
        Circular 212 Planning Method (Future Volume
Alternative)
*************************************************************
************************
Intersection #4 Bradshaw Rd / Jackson Rd
*************************************************************
************************
Cycle (sec):        100                 Critical Vol./Cap.
(X):        0.962
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay
(sec/veh):      xxxxxx
Optimal Cycle:      180                 Level Of Service:
E
*************************************************************
************************
Approach:      North Bound      South Bound       East
Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T
-  R    L  -  T  -  R
------------|---------------||---------------||----------
-----||---------------|
Control:        Protected        Protected
Protected        Protected
Rights:           Include          Include
Include          Include
Min. Green:     0    0    0     0    0    0     0    0
0     0    0     0
Lanes:        2  0  3  0  1    2  0  3  0  1    2  0  2
1  0    2  0  2  1  0
------------|---------------||---------------||----------
-----||---------------|
Volume Module:
Base Vol:     245 1842   188   156 2200    39   103  939
161   130  339    99
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
Initial Bse:  245 1842   188   156 2200    39   103  939
161   130  339    99
Added Vol:     13    0     0     0    0    54    54   16
13     0   16     0
PasserByVol:    0    0     0     0    0     0     0    0
0     0    0     0
Initial Fut:  258 1842   188   156 2200    93   157  955
174   130  355    99
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
PHF Volume:   258 1842   188   156 2200    93   157  955
174   130  355    99
Reduct Vol:     0    0     0     0    0     0     0    0
0     0    0     0
Reduced Vol:  258 1842   188   156 2200    93   157  955
174   130  355    99
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
MLF Adj:     1.10 1.00  1.00  1.10 1.00  1.00  1.10 1.00
1.00  1.10 1.00  1.00
Final Vol.:   284 1842   188   172 2200    93   173  955
174   143  355    99
------------|---------------||---------------||----------
-----||---------------|
Saturation Flow Module:
Sat/Lane:    1375 1375  1375  1375 1375  1375  1375 1375
1375  1375 1375  1375
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
Lanes:       2.00 3.00  1.00  2.00 3.00  1.00  2.00 2.54
0.46  2.00 2.35  0.65
Final Sat.:  2750 4125  1375  2750 4125  1375  2750 3489
636  2750 3225   900
------------|---------------||---------------||----------
-----||---------------|
Capacity Analysis Module:
Vol/Sat:     0.10 0.45  0.14  0.06 0.53  0.07  0.06 0.27
0.27  0.05 0.11  0.11
Crit Vol:     142                 733              376
72
Crit Moves:  ****                ****             ****
****
*************************************************************
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                    Morrison Creek Mining (South)
                 Cumulative Conditions - PM Peak Hour
          Vineyard I No Plant & Aspen IV - Access via
Mayhew North
-------------------------------------------------------
-----------------------
                  Level Of Service Computation Report
          Circular 212 Planning Method (Future Volume
Alternative)
*******************************************************
***********************
Intersection #5 Bradshaw Rd / Kiefer Blvd
*******************************************************
***********************
Cycle (sec):        100                 Critical Vol./Cap.
(X):         0.989
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay
(sec/veh):       xxxxxx
Optimal Cycle:      180                 Level Of Service:
E
*******************************************************
***********************
Approach:       North Bound       South Bound       East
Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T
-  R    L  -  T  -  R
------------|---------------||---------------||----------
-----||---------------|
Control:        Protected        Protected
Protected        Protected
Rights:           Include          Include
Include          Include
Min. Green:     0    0     0     0    0     0     0    0
0     0    0     0
Lanes:        2  0  3  0  1    2  0  3  0  1    2  0  2
0  1    2  0  2  0  1
------------|---------------||---------------||----------
-----||---------------|
Volume Module:
Base Vol:     160 1339   397   379 1602    95   124  723
56   591  476   189
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
Initial Bse:  160 1339   397   379 1602    95   124  723
56   591  476   189
Added Vol:      0   54     0     0   54     0     0    0
0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0
0     0    0     0
Initial Fut:  160 1393   397   379 1656    95   124  723
56   591  476   189
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
PHF Volume:   160 1393   397   379 1656    95   124  723
56   591  476   189
Reduct Vol:     0    0     0     0    0     0     0    0
0     0    0     0
Reduced Vol:  160 1393   397   379 1656    95   124  723
56   591  476   189
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
MLF Adj:     1.10 1.00  1.00  1.10 1.00  1.00  1.10 1.00
1.00  1.10 1.00  1.00
Final Vol.:   176 1393   397   417 1656    95   136  723
56   650  476   189
------------|---------------||---------------||----------
-----||---------------|
Saturation Flow Module:
Sat/Lane:    1375 1375  1375  1375 1375  1375  1375 1375
1375  1375 1375  1375
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
Lanes:       2.00 3.00  1.00  2.00 3.00  1.00  2.00 2.00
1.00  2.00 2.00  1.00
Final Sat.:  2750 4125  1375  2750 4125  1375  2750 2750
1375  2750 2750  1375
------------|---------------||---------------||----------
-----||---------------|
Capacity Analysis Module:
Vol/Sat:     0.06 0.34  0.29  0.15 0.40  0.07  0.05 0.26
0.04  0.24 0.17  0.14
Crit Vol:          464          208                   362
325
Crit Moves:       ****         ****                  ****
****
*******************************************************
***********************
```

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FCUM-PM.CMD                    Tue Feb 9, 1999 12:43:51
Page 10-1
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----------------------
                         Morrison Creek Mining (South)
                     Cumulative Conditions - PM Peak Hour
          Vineyard I No Plant & Aspen IV - Access via
Mayhew North
-------------------------------------------------------
----------------------
                      Level Of Service Computation Report
          1985 HCM Unsignalized Method (Future Volume
Alternative)
*******************************************************
***********************
Intersection #6 Jackson Rd / Mayhew Rd
*******************************************************
***********************
                                          Level Of Service:
F
*******************************************************
***********************
Approach:       North Bound      South Bound       East
Bound       West Bound
Movement:      L  -  T  -  R    L  -  T  -  R    L  -  T
-  R    L  -  T  -  R
------------|---------------||---------------||----------
-----||---------------|
Control:        Stop Sign        Stop Sign
Uncontrolled     Uncontrolled
Rights:           Include          Include
Include          Include
Lanes:         0  0  1! 0  0    0  0  1! 0  0    1  0  1
0  1    1  0  0  1  0
------------|---------------||---------------||----------
-----||---------------|
Volume Module:
Base Vol:       2    2     2     2    2     2     2 1200
2     2  620     2
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
Initial Bse:    2    2     2     2    2     2     2 1200
2     2  620     2
Added Vol:     25    0    83     0    0     0     0    0
25    83    0     0
PasserByVol:    0    0     0     0    0     0     0    0
0     0    0     0
Initial Fut:   27    2    85     2    2     2     2 1200
27    85  620     2
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
PHF Volume:    27    2    85     2    2     2     2 1200
27    85  620     2
Reduct Vol:     0    0     0     0    0     0     0    0
0     0    0     0
Final Vol.:    27    2    85     2    2     2     2 1200
27    85  620     2
Adjusted Volume Module:
Grade:              0%                0%                0%
0%
% Cycle/Cars:   xxxx  xxxx       xxxx  xxxx       xxxx
xxxx       xxxx  xxxx
% Truck/Comb:   xxxx  xxxx       xxxx  xxxx       xxxx
xxxx       xxxx  xxxx
PCE Adj:     1.10 1.10  1.10  1.10 1.10  1.10  1.10 1.00
1.00  1.10 1.00  1.00
Cycl/Car PCE:   xxxx  xxxx       xxxx  xxxx       xxxx
xxxx       xxxx. xxxx
Trck/Cmb PCE:   xxxx  xxxx       xxxx  xxxx       xxxx
xxxx       xxxx  xxxx
Adj Vol.:      30    2    94     2    2     2     2 1200
27    94  620     2
Critical Gap Module: >> Population: 0 << >> Run
Speed(E/W): 30 MPH <<
RT Rad/Ang:  20.0 ft/90.0 deg 20.0 ft/90.0 deg 20.0
ft/90.0 deg 20.0 ft/90.0 deg
Critical Gp:  7.0  6.5   5.5   7.0  6.5   5.5   5.5 xxxx
xxxxx   5.5 xxxx xxxxx
------------|---------------||---------------||----------
-----||---------------|
Capacity Module:
Cnflict Vol: 1913 1909  1200  1995 1935   621   622 xxxx
xxxxx  1227 xxxx xxxxx
Potent Cap.:   65   82   255    65   82   537   537 xxxx
xxxxx   244 xxxx xxxxx
% Used Cap.: 45.7  2.7  36.7   3.4  2.7   0.4   0.4 xxxx
xxxxx  38.3 xxxx xxxxx
Impedance:   xxxx 0.98  0.71  xxxx 0.98  1.00  1.00 xxxx
xxxxx  0.70 xxxx xxxxx
Actual Cap.:   45   57   255    32   57   537   537 xxxx
xxxxx   244 xxxx xxxxx
------------|---------------||---------------||----------
-----||---------------|
Level Of Service Module:
Unused Cap.:   15   55   162    30   55   535   535 xxxx
xxxxx   151 xxxx xxxxx
LOS by Move:    *    *     *     *    *     *     A    *
*     D    *     *
Movement:      LT - LTR - RT    LT - LTR - RT    LT - LTR
- RT    LT - LTR - RT
Shared Cap.: xxxx  117 xxxxx  xxxx   59 xxxxx  xxxx xxxx
xxxxx  xxxx xxxx xxxxx
Unused Cap.: xxxx   -8 xxxxx  xxxx   52 xxxxx  xxxx xxxx
xxxxx  xxxx xxxx xxxxx
Shared LOS:     *    F     *     *    E     *     *    *
*     *    *     *
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FCUM-AMM.CMD                Tue Feb 9, 1999 14:24:30
Page 1-1
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                         Morrison Creek Mining (South)
              Cumulative Conditions - AM Peak Hour -
Mitigated
          Vineyard I No Plant & Aspen IV - Access via
Mayhew North
-------------------------------------------------------
----------------------
                      Level Of Service Computation Report
          1985 HCM Unsignalized Method (Future Volume
Alternative)
*******************************************************
***********************
Intersection #6 Jackson Rd / Mayhew Rd
*******************************************************
***********************
                                          Level Of Service:
E
*******************************************************
***********************
Approach:      North Bound      South Bound       East
Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T
-  R    L  -  T  -  R
------------|---------------||---------------||----------
-----||---------------|
Control:        Stop Sign        Stop Sign
Uncontrolled     Uncontrolled
Rights:           Include          Include
Include          Include
Lanes:        0  1  0  0  1    0  0  1! 0  0    1  0  1
0  1    1  0  0  1  0
------------|---------------||---------------||----------
-----||---------------|
Volume Module:
Base Vol:       2    2     2     2    2     2     2 1380
2     2  760     2
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
Initial Bse:    2    2     2     2    2     2     2 1380
2     2  760     2
Added Vol:     25    0    83     0    0     0     0    0
25    83    0     0
PasserByVol:    0    0     0     0    0     0     0    0
0     0    0     0
Initial Fut:   27    2    85     2    2     2     2 1380
27    85  760     2
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
PHF Volume:    27    2    85     2    2     2     2 1380
27    85  760     2
Reduct Vol:     0    0     0     0    0     0     0    0
0     0    0     0
Final Vol.:    27    2    85     2    2     2     2 1380
27    85  760     2
Adjusted Volume Module:
Grade:              0%               0%               0%
0%
% Cycle/Cars:   xxxx  xxxx       xxxx  xxxx       xxxx
xxxx        xxxx  xxxx
% Truck/Comb:   xxxx  xxxx       xxxx  xxxx       xxxx
xxxx        xxxx  xxxx
PCE Adj:     1.10 1.10  1.10  1.10 1.10  1.10  1.10 1.00
1.00  1.10 1.00  1.00
Cycl/Car PCE:   xxxx  xxxx       xxxx  xxxx       xxxx
xxxx        xxxx  xxxx
Trck/Cmb PCE:   xxxx  xxxx       xxxx  xxxx       xxxx
xxxx        xxxx  xxxx
Adj Vol.:      30    2    94     2    2     2     2 1380
27    94  760     2
Critical Gap Module: >> Population: 0 << >> Run
Speed(E/W): 30 MPH <<
RT Rad/Ang:  20.0 ft/90.0 deg 20.0 ft/90.0 deg 20.0
ft/90.0 deg 20.0 ft/90.0 deg
Critical Gp:  7.0  6.5   5.5   7.0  6.5   5.5   5.5 xxxx
xxxxx   5.5 xxxx xxxxx
------------|---------------||---------------||----------
-----||---------------|
Capacity Module:
Cnflict Vol: 2233 2229  1380  2315 2255   761   762 xxxx
xxxxx  1407 xxxx xxxxx
Potent Cap.:   65   82   196    65   82   446   445 xxxx
xxxxx   189 xxxx xxxxx
% Used Cap.: 45.7  2.7  47.7   3.4  2.7   0.5   0.5 xxxx
xxxxx  49.6 xxxx xxxxx
Impedance:   xxxx 0.98  0.60  xxxx 0.98  1.00  1.00 xxxx
xxxxx  0.58 xxxx xxxxx
Actual Cap.:   37   48   196    23   48   446   445 xxxx
xxxxx   189 xxxx xxxxx
------------|---------------||---------------||----------
-----||---------------|
Level Of Service Module:
Unused Cap.:    8   46   103    20   46   443   443 xxxx
xxxxx    95 xxxx xxxxx
LOS by Move:    *    *     D     *    *     *     A    *
*     E    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR
- RT    LT - LTR - RT
Shared Cap.:   38 xxxx xxxxx  xxxx   44 xxxxx  xxxx xxxx
xxxxx  xxxx xxxx xxxxx
Unused Cap.:    6 xxxx xxxxx  xxxx   38 xxxxx  xxxx xxxx
xxxxx  xxxx xxxx xxxxx
Shared LOS:     E    *     *     *    E     *     *    *
*     *    *     *
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FCUM-PMM.CMD                    Tue Feb 9, 1999 14:27:50
Page 1-1
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                        Morrison Creek Mining (South)
                 Cumulative Conditions - PM Peak Hour -
Mitigated
            Vineyard I No Plant & Aspen IV - Access via
Mayhew North
-------------------------------------------------------------
-----------------------
                        Level Of Service Computation Report
            1985 HCM Unsignalized Method (Future Volume
Alternative)
*************************************************************
************************
Intersection #6 Jackson Rd / Mayhew Rd
*************************************************************
************************
                                        Level Of Service:
E
*************************************************************
************************
Approach:       North Bound       South Bound       East
Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T
-  R    L  -  T  -  R
------------|---------------||---------------||----------
-----||---------------|
Control:        Stop Sign        Stop Sign
Uncontrolled     Uncontrolled
Rights:           Include          Include
Include          Include
Lanes:        0  1  0  0  1    0  0  1! 0  0    1  0  1
0  1    1  0  0  1  0
------------|---------------||---------------||----------
-----||---------------|
Volume Module:
Base Vol:       2    2     2     2    2     2     2 1200
2     2  620     2
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
Initial Bse:    2    2     2     2    2     2     2 1200
2     2  620     2
Added Vol:     25    0    83     0    0     0     0    0
25    83    0     0
PasserByVol:    0    0     0     0    0     0     0    0
0     0    0     0
Initial Fut:   27    2    85     2    2     2     2 1200
27    85  620     2
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00
1.00  1.00 1.00  1.00
PHF Volume:    27    2    85     2    2     2     2 1200
27    85  620     2
Reduct Vol:     0    0     0     0    0     0     0    0
0     0    0     0
Final Vol.:    27    2    85     2    2     2     2 1200
27    85  620     2
Adjusted Volume Module:
Grade:              0%               0%               0%
0%
% Cycle/Cars:   xxxx  xxxx       xxxx  xxxx       xxxx
xxxx       xxxx  xxxx
% Truck/Comb:   xxxx  xxxx       xxxx  xxxx       xxxx
xxxx       xxxx  xxxx
PCE Adj:     1.10 1.10  1.10  1.10 1.10  1.10  1.10 1.00
1.00  1.10 1.00  1.00
Cycl/Car PCE:   xxxx  xxxx       xxxx  xxxx       xxxx
xxxx       xxxx  xxxx
Trck/Cmb PCE:   xxxx  xxxx       xxxx  xxxx       xxxx
xxxx       xxxx  xxxx
Adj Vol.:      30    2    94     2    2     2     2 1200
27    94  620     2
Critical Gap Module: >> Population: 0 << >> Run
Speed(E/W): 30 MPH <<
RT Rad/Ang:  20.0 ft/90.0 deg 20.0 ft/90.0 deg 20.0
ft/90.0 deg 20.0 ft/90.0 deg
Critical Gp:  7.0  6.5   5.5   7.0  6.5   5.5   5.5 xxxx
xxxxx   5.5 xxxx xxxxx
------------|---------------||---------------||----------
-----||---------------|
Capacity Module:
Cnflict Vol: 1913 1909  1200  1995 1935   621   622 xxxx
xxxxx  1227 xxxx xxxxx
Potent Cap.:   65   82   255    65   82   537   537 xxxx
xxxxx   244 xxxx xxxxx
% Used Cap.: 45.7  2.7  36.7   3.4  2.7   0.4   0.4 xxxx
xxxxx  38.3 xxxx xxxxx
Impedance:   xxxx 0.98  0.71  xxxx 0.98  1.00  1.00 xxxx
xxxxx  0.70 xxxx xxxxx
Actual Cap.:   45   57   255    32   57   537   537 xxxx
xxxxx   244 xxxx xxxxx
------------|---------------||---------------||----------
-----||---------------|
Level Of Service Module:
Unused Cap.:   15   55   162    30   55   535   535 xxxx
xxxxx   151 xxxx xxxxx
LOS by Move:    *    *     D     *    *     *     A    *
*     D    *    *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR
- RT    LT - LTR - RT
Shared Cap.:   45 xxxx xxxxx  xxxx   59 xxxxx  xxxx xxxx
xxxxx  xxxx xxxx xxxxx
Unused Cap.:   13 xxxx xxxxx  xxxx   52 xxxxx  xxxx xxxx
xxxxx  xxxx xxxx xxxxx
Shared LOS:     E    *     *     *    E     *     *    *
*     *    *    *

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APPENDIX D

MORRISON CREEK MINING REACH DRAINAGE MITIGATION PLAN

Sacramento County Public Works Agency
Water Resources Division

Morrison Creek Mining Reach
Drainage Mitigation Plan

Acknowledgements

Sacramento County Public Works Agency
Water Resources Division

Keith Devore, WRD Chief
Craig Crouch, Principal Engineer
Terri Wegener, Senior Engineer

Montgomery Watson Americas, Inc.

Eric Clyde, Project Manager
Steve Mano, Project Engineer
Abdul Khan, Engineer
Brent Mehner, Drafting

Technical Advisory Committee

Scott Wolcott, Granite Construction Co.
Rob Wainwright, Teichert Aggregates
Bill Vanderslice, GW Consulting Engineers

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Executive Summary

Introduction

WRD Objectives

The objectives of the Sacramento County Public Works Agency, Water Resources Division (WRD) include long-range planning for the ultimate needs of the County in the areas of stormwater quality, drainage, and flood control. As detailed in an August 20, 1991, report to the Board of Supervisors, WRD is in the process of developing Drainage Mitigation Plans for all of the creeks that comprise the Morrison Creek Stream Group (MCSG).

Mining Operations

Aggregate mining in the watershed directly tributary to Morrison Creek in the Mining Reach has occurred or is permitted on approximately 1,063 acres. Additional areas in the headwaters of the Mather Drain watershed are being mined or are proposed for mining, and will impact the floodplain of this tributary to Morrison Creek.

Over 3,000 additional acres in the Mining Reach are zoned for surface mining. Much of the area so zoned is or will be subject to existing or future mining applications.

The Drainage Mitigation Plan assumes mining of the entire aggregate resource within and adjacent to the study reach over a 20 to 30 year period.

Purpose of the Drainage Mitigation Plan

The purpose of this Morrison Creek Mining Reach Drainage Mitigation Plan is to provide the County of Sacramento with long-range planning for the ultimate drainage, and flood-control infrastructure requirements in the Mining Reach.

In particular, this study analyzes the gross reconstruction of the floodplain that will result from mining operations and the associated reclamation of the mined areas. The mining companies will be required to reclaim the mining pits after mining operations are complete, as described by their mining permits. They have included in their reclamation plans, a scenario involving the reconstruction of the mined areas with portions used as a drainage detention basin. Bypass channels are used to pass drainage flows around the mined areas. Sacramento County can either accept the mining companies' reclamation plan, or choose to supplement it with additional County-funded facilities. This Drainage Mitigation Plan investigates the County's options.

Continued on next page...

Introduction (continued)

Mitigation Plan Phases

The first phase of this study was begun in October 1991 and completed in June 1992. Eight different conceptual alternatives were identified which would utilize the large pit left after mining of the aggregate resources in the Mining Reach as a regional drainage detention facility. A report was presented to the Sacramento County Board of Supervisors in July 1992.

A contract amendment dated December 7, 1992, provided for Phase II of this study. Phase II refines the preferred preliminary conceptual alternative type (pump everything) and adds a second alternative type (bypass channel). Reconnaissance level cost estimates were also developed for each alternative.

Mitigation Plan Objectives

The objective of this study is to provide a plan that provides for the safe conveyance of Morrison Creek flows through or around the reclaimed mining pits under potential ultimate land use development. In addition, the study provides drainage alternatives that will mitigate future impacts (peak flow or volume) on areas downstream of the Mining Reach.

Description of Study Area

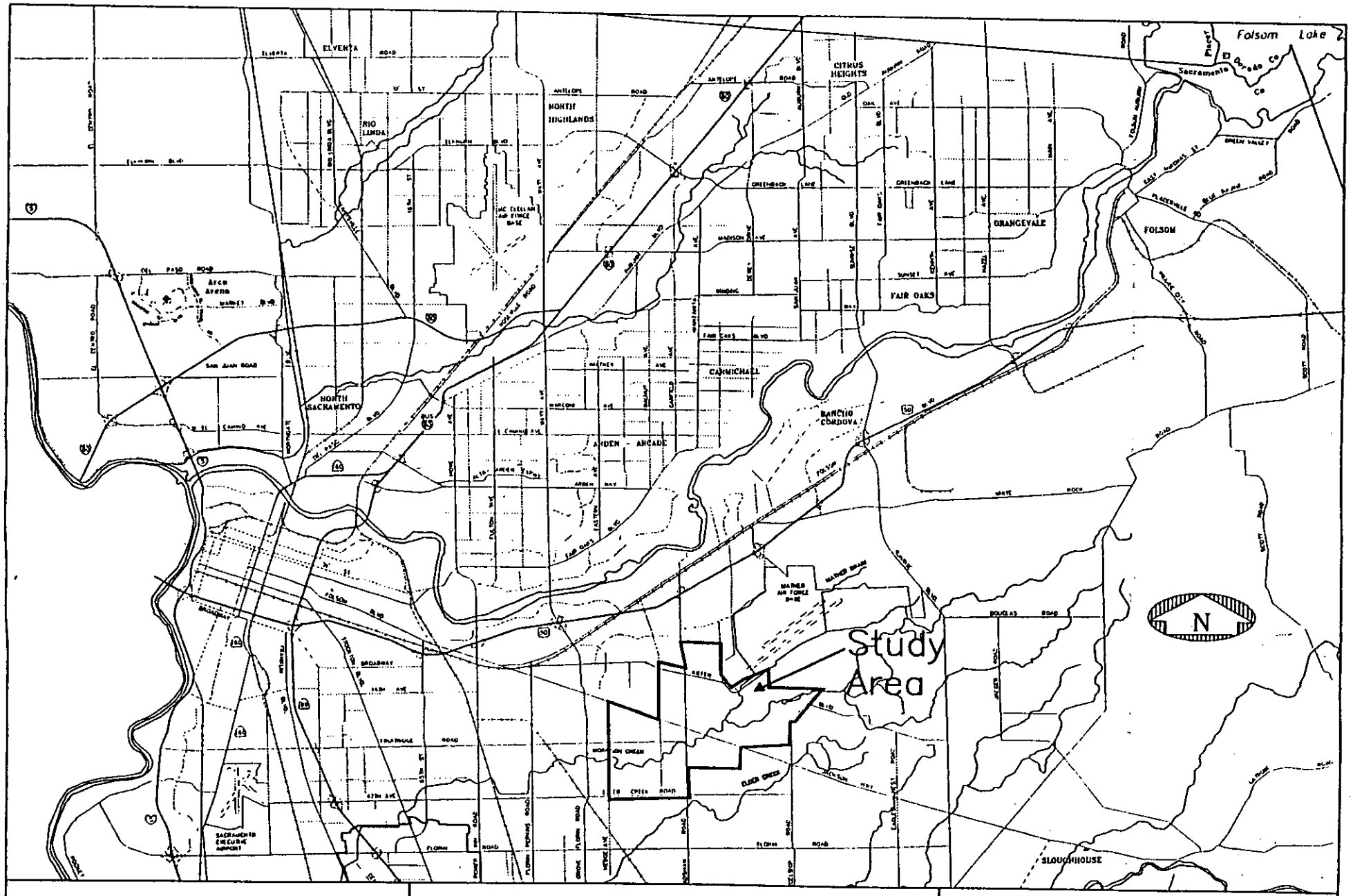
Tributary Area

The Mining Reach extends along Morrison Creek from Hedge Avenue upstream to Excelsior Road. This reach is located in unincorporated Sacramento County. Figure ES-1 is a location map for the Morrison Creek Mining Reach area.

The tributary drainage area for Morrison Creek at the Mining Reach is approximately 33 square miles. The majority of the upstream watershed is currently undeveloped (open).

Land Use

Both existing and ultimate development levels are addressed in this Drainage Mitigation Plan, although only ultimate development is used to analyze recommended drainage facilities. Existing land uses were estimated from January 1990 aerial photographs. Ultimate development was assumed to occur according to the County's 1992 General Plan (applicable to the year 2010) with any open, agricultural, or non-contributing (i.e., dredge tailing) areas in the General Plan being converted to low density residential land use. Ultimate development was used for the watershed tributary to the Mining Reach because it falls within the Urban Services Boundary. This boundary is the limit of development beyond which urban services will not be provided.



County of Sacramento Water Resources Division	Morrison Creek Mining Reach Drainage Mitigation Plan	Figure ES–1 Location Map

Drainage Alternative Analysis

Introduction

To identify a list of feasible drainage configurations for the reclaimed mining area, seven different alternatives were considered. Each of the alternatives falls under two general categories: *pump everything* (all runoff enters and is then pumped from the upper mining pit back up to the natural invert of Morrison Creek at Jackson Highway), and *bypass channel* (a bypass channel carries a portion of the flow around the mined areas with excess flow diverted to the upper pit floor).

Figures ES-2 and ES-3 represent the general configuration of the pump everything and bypass channel alternatives, respectively. All alternatives are based on ultimate land use in the Morrison Creek watershed. Table ES-1 summarizes the major aspects of the alternatives. The preferred alternative is a bypass channel alternative.

Full descriptions of the seven alternatives are included as Appendix B.

Project alternatives were analyzed to determine the drainage improvement project that would most effectively meet the overriding objective to safely convey Morrison Creek flows through or around the reclaimed mining pits while at the same time providing drainage benefits downstream and meeting the operational needs of the mining companies. Individual objectives for each of the alternatives are summarized in Table ES-1.

Drainage Facilities

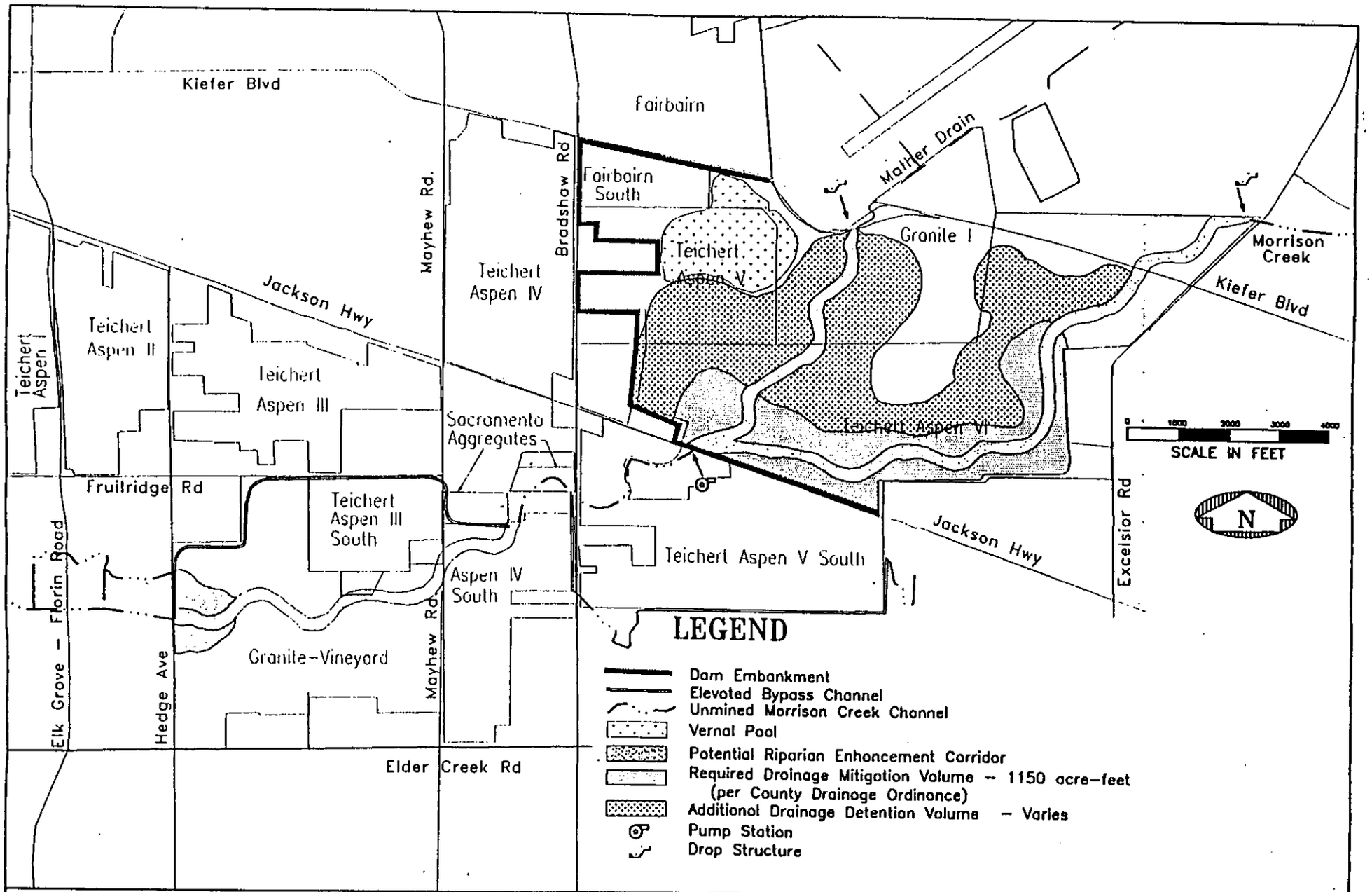
The various types of drainage facilities recommended under the different alternatives include:

- weirs and drop structures
- lined and unlined channels
- pump stations
- embankments
- pipes and inverted siphons.
- pit floor flooded area.

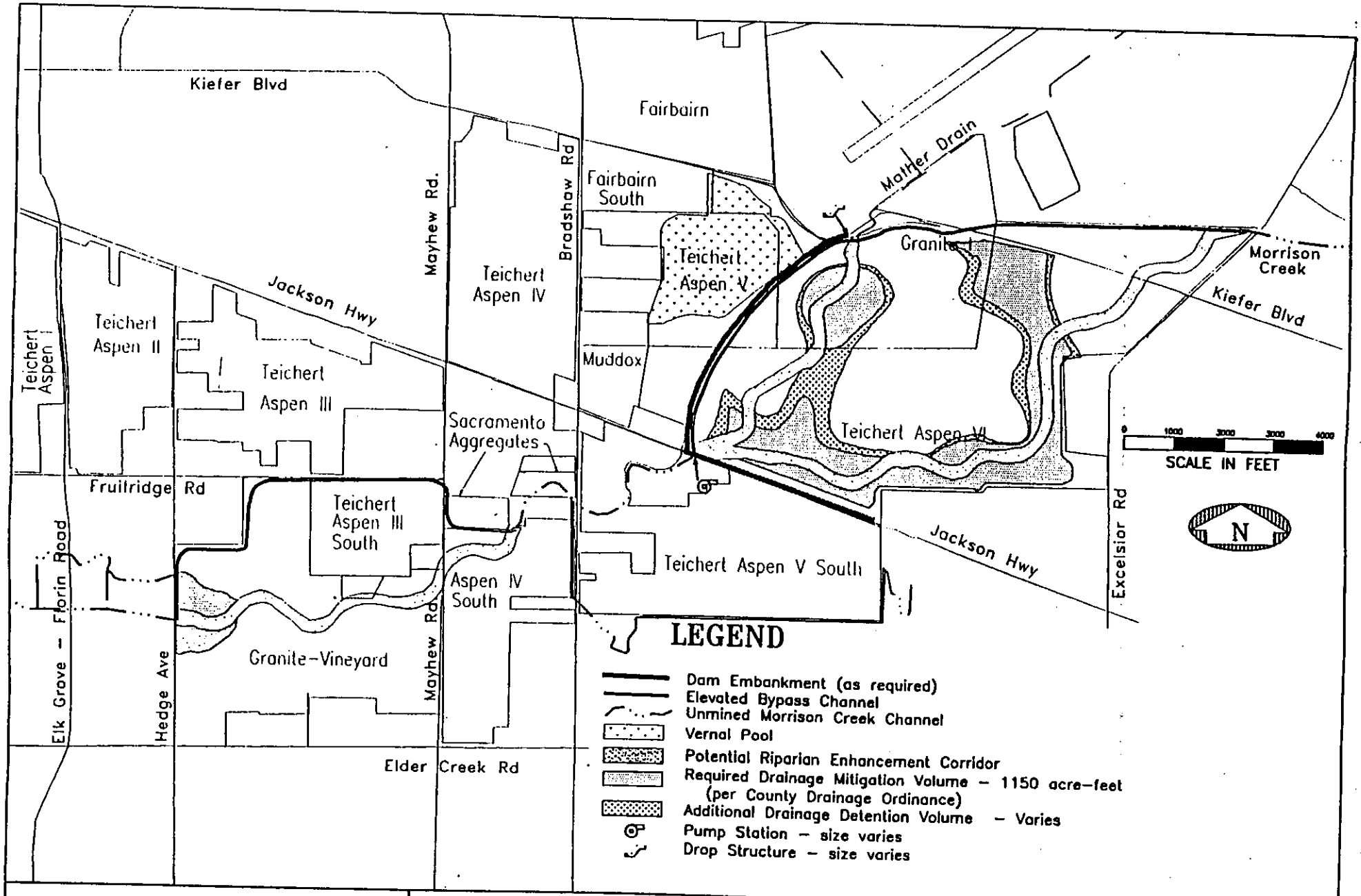
The characteristics of each of these types of drainage facilities are described in Appendix B.

Facility Requirements

Various combinations and sizes of the above listed facilities are used for the different alternatives. For example, embankments are constructed to Division of Safety of Dams (DSOD) requirements for those alternatives where detention storage impinges on the embankments.



County of Sacramento Water Resources Division	Morrison Creek Mining Reach Drainage Mitigation Plan	Figure ES-2 Pump Everything Alternatives



County of Sacramento Water Resources Division	Morrison Creek Mining Reach Drainage Mitigation Plan	Figure ES-3 Bypass Channel Alternatives

Table ES-1
Alternative Summary Table

Alternative Number	Alternative Name	Alternative Category	Objective	Results
1	Pump Everything Large Pump	Pump Everything	Divert all flows onto bottom of mined areas and recreate natural stream on floor of mined areas (400 cfs pump).	Provides peak flow and volume mitigation for areas downstream of Mining Reach. Detention storage drained in shorter time with larger pumps compared to Alternative 2.
2	Pump Everything Small Pump	Pump Everything	Divert all flows into bottom of mined areas and recreate natural stream on floor of mined areas (50 cfs pump).	Provides peak flow and volume mitigation. Detention storage requires a longer period for draining with a smaller pump compared to Alternative 1.
3	Existing Flow Bypass Channel	Bypass Channel	Bypass flows around mined areas in channel at existing elevation. Channel sized to pass existing 100-year peak flow. Divert excess flows into mined areas.	Maintains existing flow regime in Morrison Creek downstream of Mining Reach.
4	Miners' Preferred Bypass Channel	Bypass Channel	Bypass flows around mined areas in channel at existing elevation. Channel sized at mid-range of detention and channel alternatives. Divert excess flows into mined areas.	Some reduction in peak flows and volumes downstream of Mining Reach.
5	Downstream Capacity Bypass Channel	Bypass Channel	Bypass flows around mined areas in channel at existing grade. Channel sized to reduce flows to meet downstream channel capacity restrictions on Morrison Creek. Divert excess flows into mined areas.	Downstream peak flows reduced to non-damaging levels in City.
6	Volume Detention Bypass Channel	Bypass Channel	Provide detention volume in mined areas to mitigate impacts of future development on Beach-Stone Lakes area. Flows not detained for volume mitigation bypass around mined areas in an at-grade channel.	At Beach-Stone Lakes, mitigates increases in flood volume due to development by detaining volume increase in mined area. Also provides for non-damaging peak flows in City.
7	Bypass Siphon and Channel	Bypass Channel	Bypass flows around upper mined area in pipe that crosses mined areas as inverted siphon. Divert excess flows into mined areas.	Keeps flows enclosed in a pipe for increased safety. Provides both volume and peak flow mitigation for areas downstream of Mining Reach.

Preferred Plans

Introduction

The mining companies have selected one of the alternatives and have used it in the mining reclamation plans in their permit applications. This alternative will be constructed solely by the mining companies, without the financial participation of the County.

At the County's option, one of the other alternatives may be implemented as a County drainage project. The County would only be responsible for supplementing the facilities that the mining companies would build as a part their reclamation plan.

Figure ES-4 is a flow chart showing the relationship of alternatives.

Preferred Plan Part A

The mining companies have expressed their preference for one of the bypass channel alternatives. This alternative, referred to as the "Miners' Preferred Bypass Channel" or Alternative 4, involves the bypassing of flows around the mined areas in an unlined trapezoidal channel at the existing (unmined) elevation. The bypass channel is sized to pass a portion of the existing 100-year peak flow, with excess flows diverted into the upper mined area.

The mining companies will finance and construct the facilities associated with Alternative 4 as reclamation measures for the mining operations for which they are requesting permitting. This alternative is called Preferred Plan Part A. Figure ES-5 is a perspective view of Preferred Plan Part A.

Unless the County of Sacramento supplements it with one of the alternatives described below for Preferred Plan Part B, Preferred Plan Part A would require the mined areas to remain privately owned by the mining companies, relieving the County of any involvement in the operation and maintenance of the bypass channels. For this reason, unlined channels are allowed for Part A. In the event that one of the channels failed, only the mining pit areas (reclaimed for agriculture uses) would be affected.

This preferred plan would eliminate the possibility of utilizing the mined areas for development. Ultimate land use would be restricted to agriculture or open space because both the upper and lower mining pits would be designated as 100-year floodplain.

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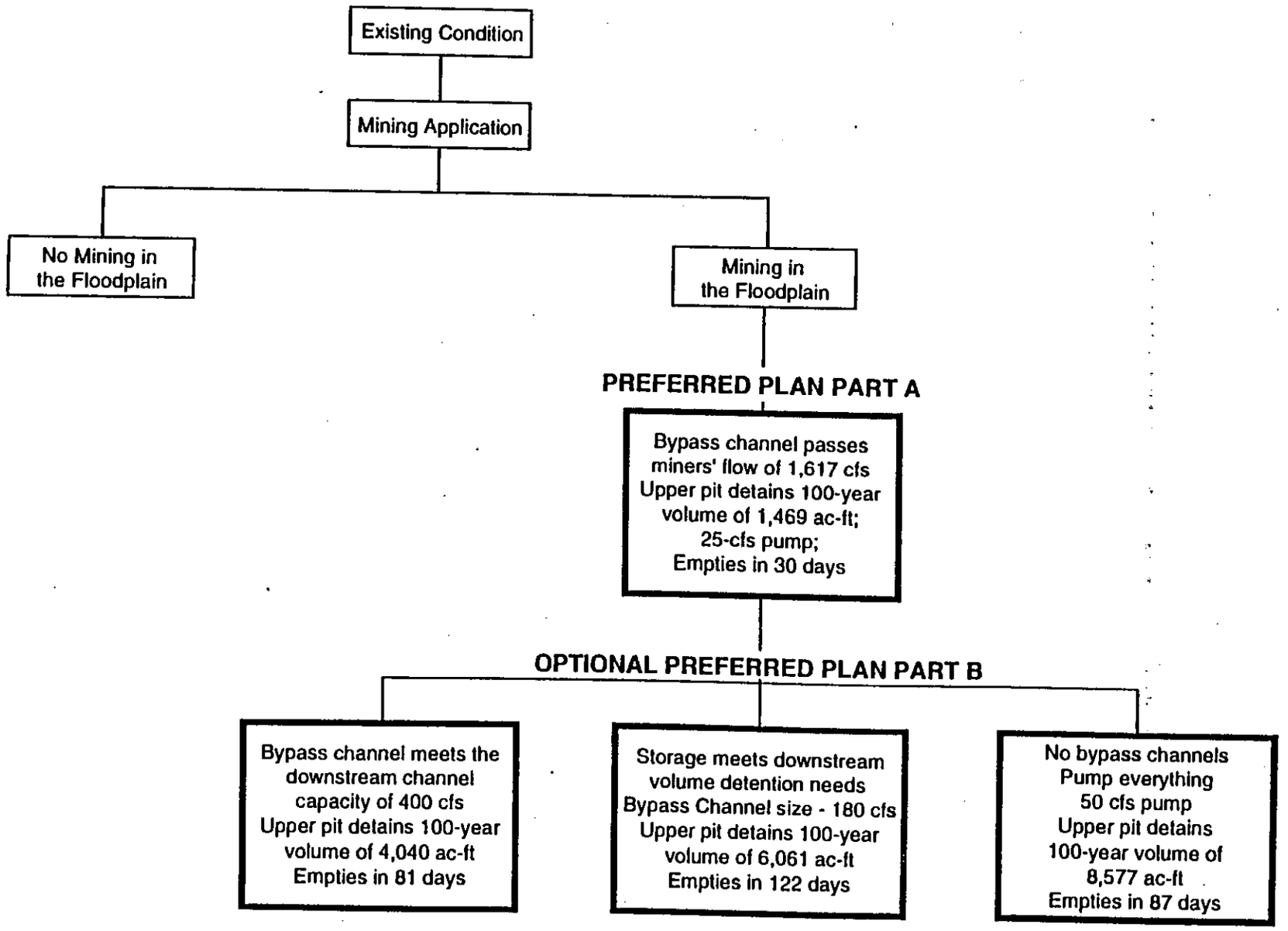
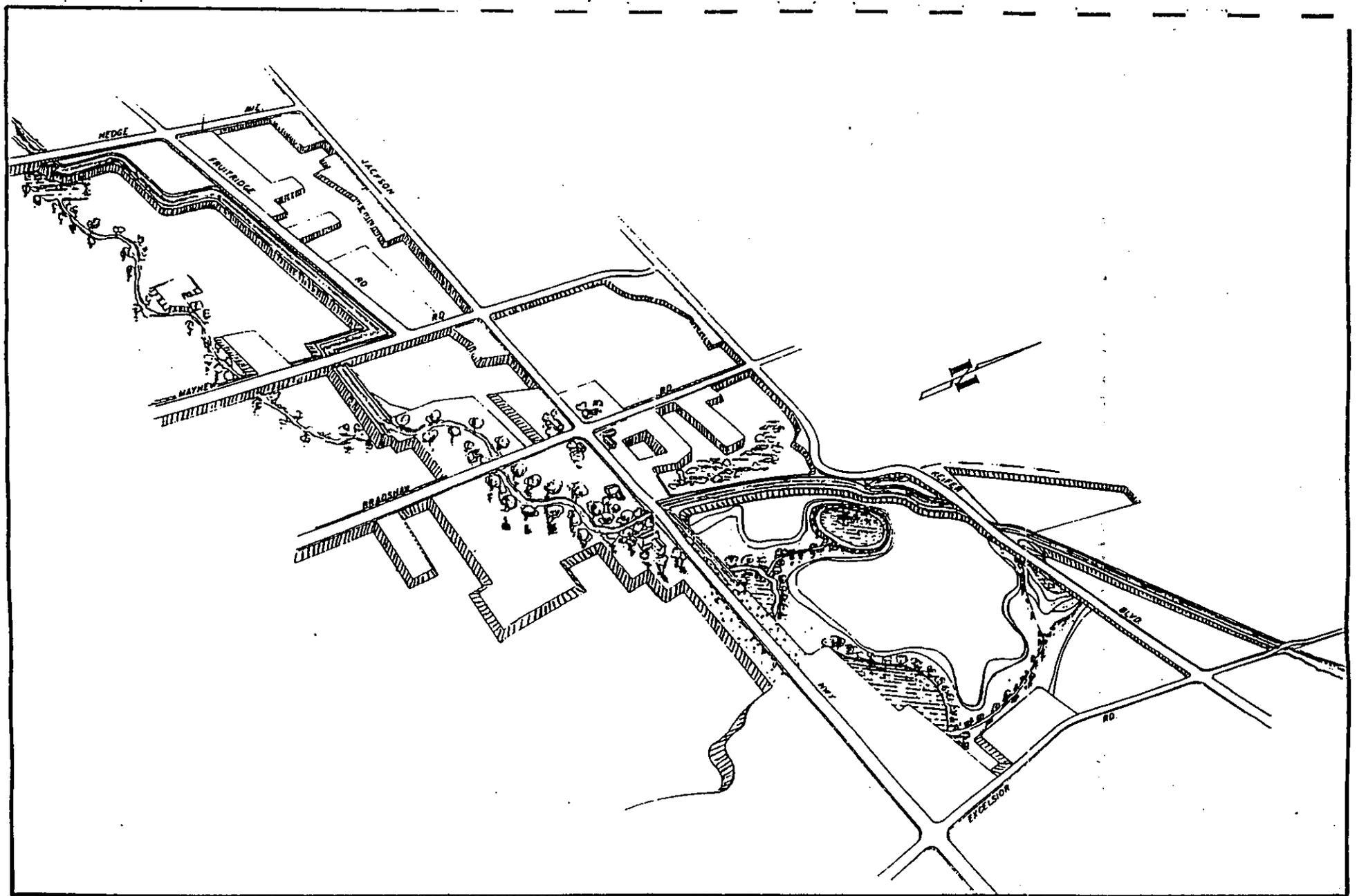


MORRISON CREEK MINING REACH DRAINAGE MITIGATION PLAN

FIGURE ES-4 PREFERRED PLAN FLOW CHART



County of Sacramento Water Resources Division	Morrison Creek Mining Reach Drainage Mitigation Plan	Figure ES–5 Part A Perspective View

Preferred Plans (continued)

Preferred Plan Part B

As described above, Alternative 4 was chosen by the mining companies from the seven original alternatives as Preferred Plan Part A and is included in the reclamation plan in their permit application. Three of the remaining six alternatives were selected as ones the County could implement to supplement the drainage facilities the mining companies would construct. Alternatives 2, 5, and 6 have been selected for further analysis and comparison for Preferred Plan Part B of this Drainage Mitigation Plan. The County Board of Supervisors has the option to select one of these three alternatives as Preferred Plan Part B, to be constructed in addition to Part A.

Chapter 5 describes the three selected alternatives for Part B and the reasons for their selection. A summary comparison of the seven original alternatives is also included. The comparison includes the advantages, disadvantages, and costs for each of the three selected Part B alternatives, as well as for Part A.

It is important to note that the cost estimates presented in Appendix B consider each of the alternatives as separate and independent. However, the analyses in Chapter 5 assume that the Part A (Miners' Preferred Bypass Channel alternative) will be constructed. Therefore, the Part B cost estimates reflect only the *additional* costs for which the County would be responsible, over and above the costs borne by the mining companies for their preferred alternative.

The decision to pursue Part B should occur prior to the construction of the Part A facilities so that any additional facilities required for Part B can be included in the original construction. Otherwise, inefficiencies and added costs will result as Preferred Plan Part B facilities are retrofitted onto Preferred Plan Part A.

Ultimate Land Use

The aggregate mining applications designate the mined areas for agricultural use after the completion of mining. Under Part A, this would be the case. However, a different ultimate land use potential could be considered if one of the Part B alternatives (county participation) is selected. With Part B, there is:

- the opportunity for a recreational corridor in the pits and/or in the inundation area
- the potential for a future land use application changing the agricultural land use to an urban (residential or industrial) use resulting from the more stringent construction standards required for a public facility.

Opportunities and Constraints

Introduction

The various pump everything and bypass channel alternatives provide both opportunities and constraints for recreation, development, open space corridors, floodplain designations, sewer interceptor, riparian corridors, and potential groundwater recharge. This section briefly describes these opportunities and constraints.

Recreation

The recreational opportunities associated with the various alternatives include bike trails along the bypass channels and park areas in the reclaimed mining pits. Development of bike paths would require provisions for crossings over Jackson Highway and Bradshaw Road. Park areas might include permanent lakes as water features.

Development

The development associated with the reclamation of the mining pits represents both an opportunity and a constraint. The large area that may become available for development within the reclaimed mining pits is an opportunity. The constraint associated with the development is the requirement that drainage facilities must adequately protect the proposed development (i.e., the bypass channels must be concrete lined to protect them from failing).

Because the drainage improvements in Alternatives 3 and 4 are owned by the mining companies and have unlined bypass channels, their development opportunities would be restricted to the agricultural development proposed in the miners' reclamation plans.

Open Space Corridors

Open space corridors will be created by the bypass channels and areas within the reclaimed mining pits. These could be left as open space or utilized for recreational purposes as described above.

Floodplain Designation in Bottom of Pits

Floodplain designations in the bottom of the reclaimed mining pits represent a constraint. Every alternative would require that the areas within the mining pits subject to flooding from detention storage be designated as floodplains and restricted from development. Because the bypass channels in Alternatives 3 and 4 would be unlined, the entire area within the upper and lower mining pits will be designated as 100-year floodplain. Such a scenario would be an opportunity for agricultural land use, but a constraint for development.

Sewer Interceptor

A proposed sewer interceptor (3MAFB, Sacramento Sewerage Expansion Study, 1993) was to cross the upper mined area to avoid a hill at the intersection of Jackson Highway and Excelsior Road. The mining pit represents an opportunity for this interceptor to be placed in the toe of the reclaimed slope in the southeast corner of the upper mined area.

Continued on next page...

Opportunities and Constraints (continued)

Riparian Corridors

Both the pump everything and bypass channel alternatives offer opportunities for riparian corridors. The pump everything alternatives will allow riparian corridors to develop as the two stream courses flow to Jackson Highway in the upper mined area. The bypass channel alternatives will have low flow channels in the upper and lower mined areas as riparian corridors. In addition, the wetlands created by short-term inundation resulting from detention storage may also create riparian habitat.

Potential Groundwater Recharge

The opportunity for groundwater recharge is associated with the detention storage of runoff in the upper mining pit. The exact permeability characteristics of the strata below the pit bottom are not known at this time and the exact recharge potential cannot be accurately determined. However, the presence of a regionally extensive silt-clay layer under the gravel deposits would suggest that groundwater recharge potential is limited.

A constraint associated with groundwater recharge is the possibility that if groundwater recharge occurs in the upper mined area, the contaminated groundwater plume from Mather Air Force Base may be pushed by the recharged groundwater in a different direction than currently assumed in the planning for the remediation. Groundwater recharge from the mining pits may be helpful in slowing down the rate of migration of the plume.

Recommendations and Summary

Selected Alternatives

Each of the seven alternatives provides some level of flood control and meets objectives listed in Chapter 5. The four following alternatives have been determined to be the most feasible and are described in Chapter 5:

- Alternative 2 (Pump Everything Small Pump)
- Alternative 4 (Miners' Preferred Bypass Channel)
- Alternative 5 (Downstream Capacity Bypass Channel)
- Alternative 6 (Volume Detention Bypass Channel).

It is important to understand that the mining companies have already selected Alternative 4 as the preferred alternative for their permit application (Preferred Plan Part A). The other three alternatives represent those from which the County can select if they choose to implement Preferred Plan Part B. Table ES-2 summarizes these four Preferred Plan alternatives.

Summary

In Chapter 5, a comparison of the four selected Preferred Plan Part A and Part B alternatives is presented. This information will be used by the Sacramento County Board of Supervisors in choosing the type of facilities and level of flood control they seek.

Feasible Alternative

Table ES-3 summarizes the advantages and disadvantages of the four selected alternatives.

Table ES-2

Detailed Preferred Plan Summary

Description	Part A	Part B		
	Alternative 4 Miners' Preferred Bypass Channel	**Alternative 2 Pump Everything**	**Alternative 5 Downstream Capacity Bypass Channel**	**Alternative 6 Volume Detention Bypass Channel**
Pump Size and Location	25 cfs at Jackson	50 cfs at Jackson	25 cfs at Jackson 5 cfs at Hedge	25 cfs at Jackson
Flows at Hedge Avenue	1,617 cfs	496 cfs	400 cfs	626 cfs
Upper Pit 100-Year Volume	1,469 ac-ft	8,577 ac-ft	4,040 ac-ft	6,061 ac-ft
Lower Pit 100-Year Volume	309 ac-ft	309 ac-ft	610	309 ac-ft
Storage Acreage Required	423 acres	794 acres	726 acres	753 acres
Meets Volume Detention Objective	no	yes	no	yes
Meets Downstream Channel Capacity Objective	no	yes	yes	yes
Capital Cost ($ million)	($7.2)	$5.6	$15.7	$14.1
Land Cost ($ million)	($2.6)	$2.2	$1.8	$2.0
Total Capital Cost ($ million)	($9.8)	$7.8	$17.5	$16.1
Total Present Value ($ million)	($11.5)	$12.0	$24.4	$22.7

Note: 1. Costs in parentheses ($) indicate private funding and ownership

2. Part B costs are public costs in addition to the Part A privately funded costs

Table ES-3

Comparison of Alternatives 2, 4, 5, and 6

	Advantages	Disadvantages
Bypass Channel	**Alternative 4 - Miners' Preferred Bypass Channel** **Preferred Plan Part A**	
	• pumping and other annual costs paid by mining companies • no capital cost to County • reduces downstream discharge to BELOW existing development discharge • smaller bypass channel size (compared to the similar Alternative 3) • alternative preferred by mining companies • riparian corridor established (environmental benefit)	• includes 'freestanding' channels; non-aesthetic; failure threat • bypass channel is much larger than other selected alternatives (capacity = 1617 cfs) • upper and lower mined areas designated as 100-year floodplains • peak flow exceeds SSULT limiting downstream channel capacity
	Alternative 5 - Downstream Capacity Bypass Channel **Preferred Plan Optional Part B**	
	• peak flow meets City limiting channel capacity as identified in SSULT • lowest peak flow (400 cfs) at Hedge Avenue • riparian corridor established (environmental benefit) • pit floor recreational opportunities • smaller freestanding channel (400 cfs capacity)	• requires drop structure and 5 cfs pump station for lower pit • includes 'freestanding' channels; non-aesthetic; failure threat • largest required storage (610 ac-ft) in lower pit • highest capital cost ($17.5 million) • DSOD requirements for embankment in upper pit • alters natural flow hydrograph more than some other alternatives (peak flows at Hedge Avenue limited to 400 cfs)
	Alternative 6 - Volume Detention Bypass Channel **Preferred Plan Optional Part B**	
	• median Part B capital cost ($16.1 million) • smallest freestanding channels (180 cfs capacity) • both volume and channel capacity problems mitigated • permanent pool established (environmental benefit) • riparian corridor established (environmental benefit)	• relatively large storage volume (6,061 ac-ft) in upper pit • alters natural flow hydrograph more than some other alternatives (peak flows at Hedge Avenue limited to 180 cfs) • includes 'freestanding' channels; non-aesthetic; failure threat • DSOD requirements for embankment in upper pit
Pump Everything	**Alternative 2 - Pump Everything Small Pump** **Preferred Plan Optional Part B**	
	• lowest Part B capital cost ($7.8 million) • both volume and channel capacity criteria are met (since • lowest annual costs ($228,700) of Part B alternatives • low annual lined channel O&M costs ($30,000) • permanent pool established (environmental benefit) • riparian corridor established (environmental benefit) • potential groundwater recharge	• permanent pool allows possibility of stagnant water • higher annual pumping costs compared to the other two selected Part B alternatives • alters natural flow pattern • largest storage volume (8,577 ac-ft) in upper pit • alters natural flow hydrograph more than other alternatives (peak flows at Jackson Highway limited to 50 cfs) • DSOD requirements for embankment in upper pit • largest potential for impact on contaminated groundwater

Cost Allocation

Cost Estimates

Total capital costs of facilities, annual operation and maintenance (O&M) costs, annual pumping costs, and annualized cost of replacement of the facilities were developed for each of the seven independent alternatives and described in Appendix B.

Cost estimates for the Preferred Plan Part A and Part B alternatives were developed in Chapter 5. These costs are summarized in Table ES-2. The Part B costs summarized in Table ES-2 are for the improvements required for Part B in addition to the Part A improvements.

Private vs. Public Project

The cost estimates in Appendix B list the *total* project costs. In the typical public works project, costs are borne entirely by the public or are financed through funds collected by a public agency. However, in this unique situation, Preferred Plan Part A is the direct result of aggregate mining that will radically alter the landscape and require a special use permit granted by the Board of Supervisors. Part A (Alternative 4) will be fully funded (privately) by the mining companies. As a result, the mining companies will retain ownership of both the land and the drainage facilities.

The County may choose to provide additional flood control and drainage improvements that require public participation, in which case one of the Part B alternatives would be selected. The costs for Preferred Plan Part B alternatives presented in Chapter 5 and Table ES-2 reflect only the *additional* costs for which the County would be responsible, over and above the costs borne by the mining companies for their preferred alternative. For any Part B alternative the total cost of the project will be the sum of Part A plus the selected Part B costs. However, Part A costs will be funded by the mining companies and Part B costs will be funded by the County.

Hydrologic and Hydraulic Analyses

Objectives

The overall objective of the hydrologic analysis is to develop peak flows and hydrograph volumes for use in sizing of the proposed drainage facilities associated with the mining pit reclamation. The purpose of the hydraulic analysis is to assess the hydraulic feasibility of the recommended facilities.

Hydrologic Analysis

Hydrologic models of the area tributary to the Morrison Creek Mining Reach were developed based modeling prepared previously by Montgomery Watson for the entire MCSG (January 1992). Revisions were made to bring this modeling into accordance with the current hydrologic methodologies outlined in the Sacramento City/County Drainage Manual.

The U.S. Army Corps of Engineers' HEC-1 Flood Hydrograph Package computer program was used to model the Morrison Creek watershed and all alternative configurations.

DSOD Requirement

If the storage water surface impinges to a height over 6 feet on the freestanding channel and Jackson Highway embankments, they would be classified as dams under the guidelines of the California Division of Safety of Dams (DSOD). The embankments in alternatives 2, 5, and 6 meet the DSOD criteria for classification as dams. As a result, the embankments must be constructed to meet DSOD guidelines and a spillway capable of safely conveying the 3-day probable maximum flood (PMF) must be provided.

An HEC-1 analysis determined that the storage volume in the upper mining pit in conjunction with the existing Jackson Highway bridge (2,400-cfs capacity) is capable of handling the PMF without overtopping the roadway and without any additional outlet facilities. This is a "worst-case" scenario. Any of the bypass channels or pumps specified in the proposed alternatives would reduce the required PMF storage in the upper mining pit.

Flow Frequency and Water Balance Analyses

A flow frequency analysis was performed based on daily flow data to attempt to determine the quantity of storm drainage that will enter the mining pits. Because only flows that exceed the bypass channel capacity would be diverted into the pits, the daily flow frequency-duration data was determined to be an unsuitable method for estimating the quantities of diversion into the mining pits.

Therefore, a water balance analysis was performed to determine these quantities. A spreadsheet operations model was developed to model the mining pits including monthly inflows, evaporation, pumping, and infiltration. The spreadsheet contains the monthly inflow data for the period of record at the Morrison Creek near Highway 99 gage, prorated to Hedge Avenue. The spreadsheet analysis is a simple accounting model that determines the water balance in the mining pits. Analyses were run for each of the alternatives and were used to determine pumping requirements.

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Hydrologic and Hydraulic Analyses (continued)

Hydraulic Analysis

Channel hydraulics were analyzed using the U.S. Army Corps of Engineers' HEC-2 Water Surface Profile computer model. HEC-2 models developed previously for the Morrison Creek Stream Group Hydraulic Analysis were used as a basis for this modeling.

The Federal Highway Administration's HY-8 culvert model and the U.S. Army Corps of Engineers HEC-2 backwater program were utilized to determine culvert capacities, where required.

Chapter 1

Introduction

Introduction

Background

The objectives of the Sacramento County Public Works Agency, Water Resources Division (WRD) include long-range planning for the ultimate needs of the County in the areas of stormwater quality, drainage, and flood control. As detailed in an August 20, 1991, report to the Board of Supervisors, WRD is in the process of developing Drainage Mitigation Plans for all of the creeks that comprise the Morrison Creek Stream Group.

Since October 1991, WRD has completed Study Phase I of a Drainage Mitigation Plan for the reach of Morrison Creek that is expected to be impacted by aggregate mining (Mining Reach) as shown in Figure 1-1. Under a contract amendment dated December 7, 1992, Montgomery Watson Americas, Inc. (Montgomery Watson) has completed the analysis for Study Phase II of this project.

Mitigation Plan Study Phases

The first study phase was begun in October 1991 and completed in June 1992. Eight different conceptual alternatives were identified that would utilize the large pit left after mining of the aggregate resources in the Mining Reach as a regional flood control detention facility. A report was presented to the Sacramento County Board of Supervisors in June 1992.

A contract amendment dated December 7, 1992, provided for Study Phase II that refines the preferred preliminary conceptual alternative type (pump everything) and adds a second alternative type (bypass channel). Reconnaissance level cost estimates were also developed for each alternative.

Continued on next page...

Introduction (continued)

Location

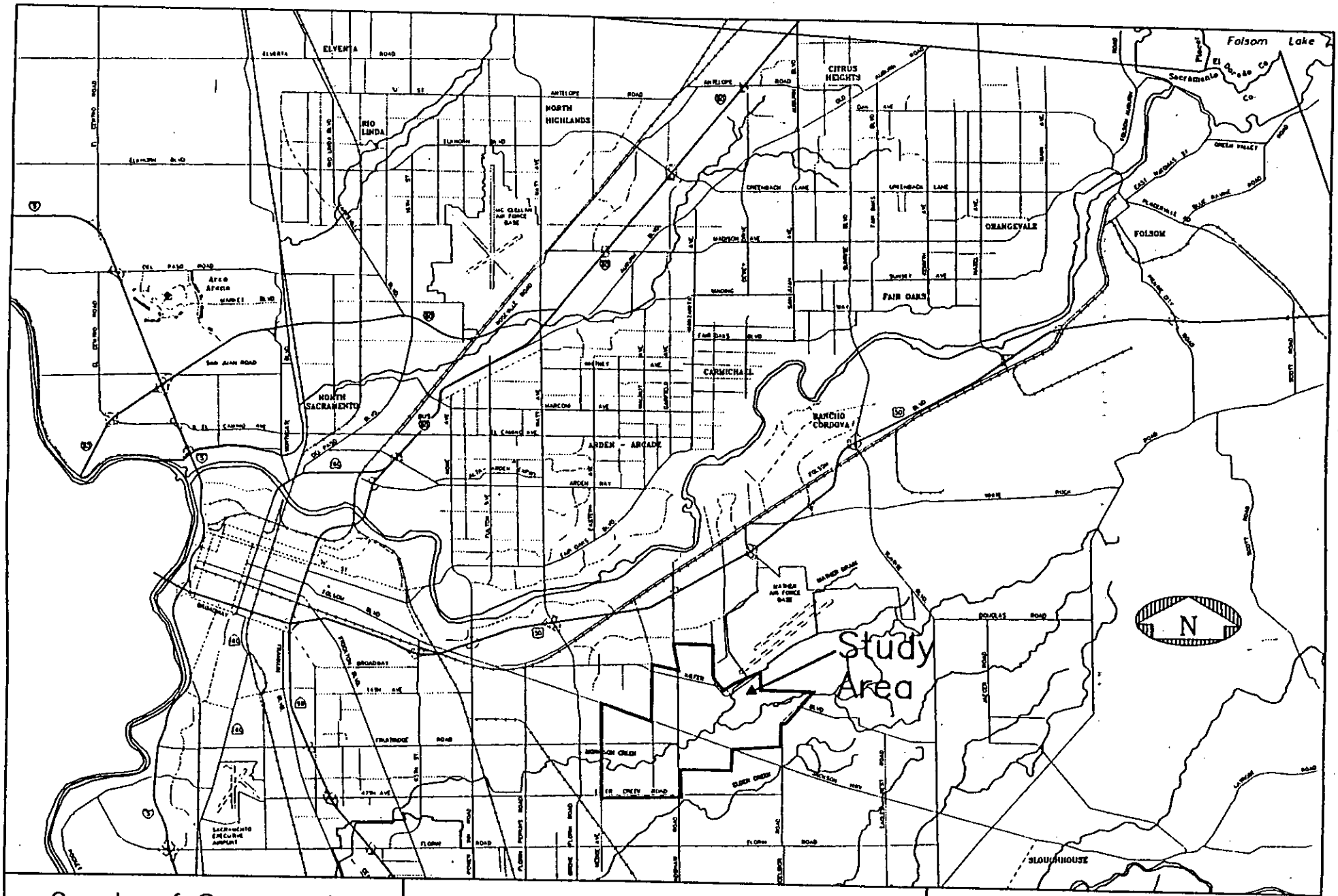
The Morrison Creek Stream Group (MCSG) watershed upstream of Interstate Highway 5 comprises about 143 square miles within Sacramento County, south of the American River.

The Mining Reach of Morrison Creek extends from Hedge Avenue upstream to Sunrise Boulevard. The tributary drainage area for Morrison Creek at the Mining Reach is approximately 33 square miles. Figure 1-1 is a location map. Mining in this region is often differentiated between the upper mining pit (upstream of Jackson Highway) and the lower mining pit (upstream of Hedge Avenue).

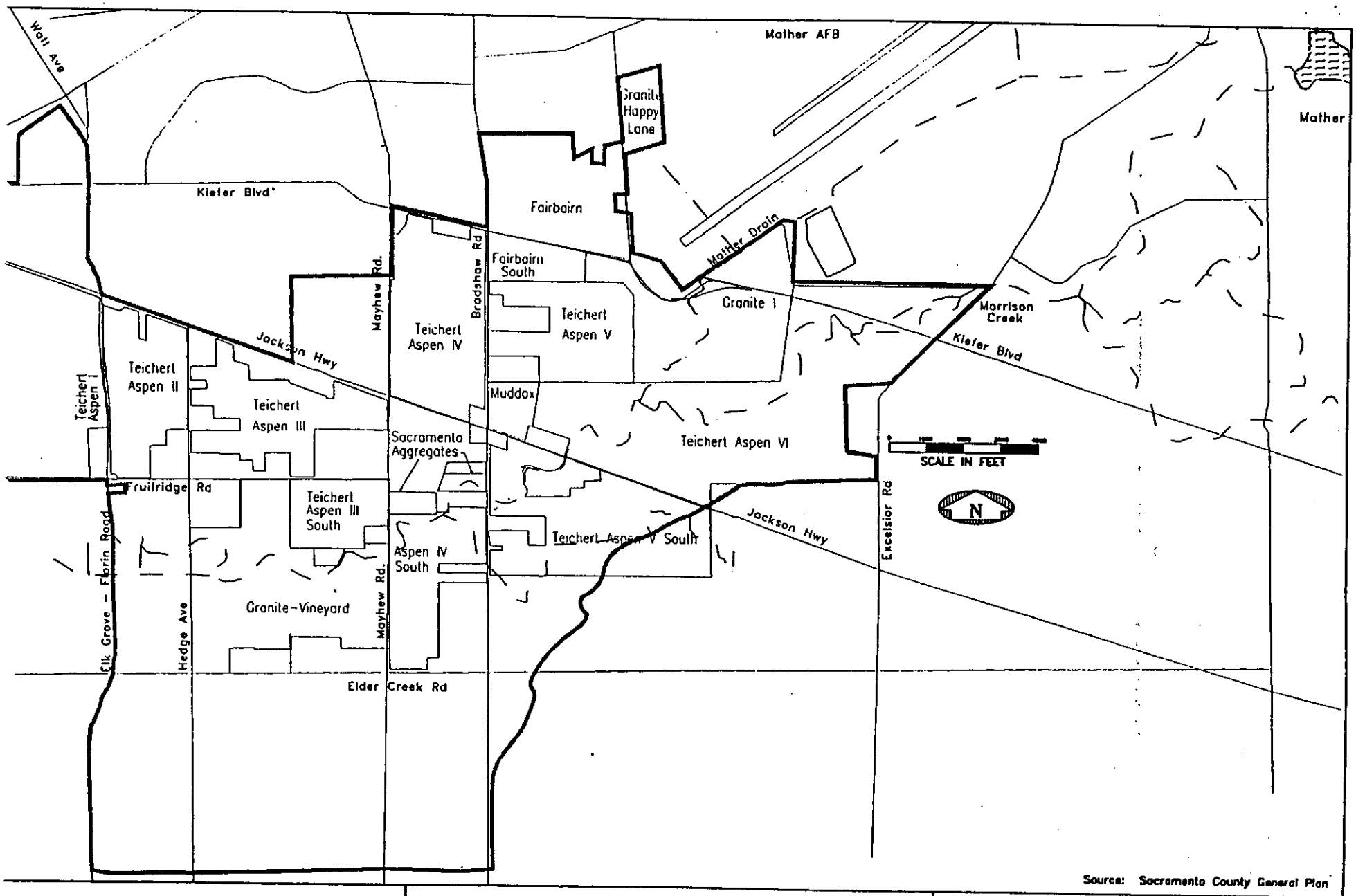
Zoning

The study area for the Drainage Mitigation Plan includes the area on or near Morrison Creek that, under the County of Sacramento's General Plan, has a proposed underlying zoning of Surface Mining. The areas zoned for surface mining in and around the mining reach are shown as Figure 1-2.

The plan assumes mining of the entire aggregate resource within the study reach. Therefore, the plan is comprehensive in its review of the potential scope of drainage impacts.



County of Sacramento Water Resources Division	Morrison Creek Mining Reach Drainage Mitigation Plan	Figure 1-1 Location Map



Source: Sacramento County General Plan

County of Sacramento Water Resources Division	Morrison Creek Mining Reach Drainage Mitigation Plan	Figure 1-2 Area Zoned for Mining

Purpose of Drainage Mitigation Plan

Background

The purpose of the Morrison Creek Mining Reach Drainage Mitigation Plan is to provide the County of Sacramento with long-range planning for the ultimate stormwater quality, drainage, and flood control needs in the Mining Reach.

In particular, this study analyzes the gross reconstruction of the floodplain that will result from mining operations and the associated reclamation of the mined areas. The mining companies will be required to reclaim the mining pits after mining operations are complete, as described by their mining permits. A possible reclamation scenario would involve the development of the mined areas as a detention basin. The study recommends ultimate drainage improvements associated with the reclamation.

Program Objectives

The objective of this study is to provide a plan that provides for the safe conveyance of Morrison Creek flows through or around the reclaimed mining pits under potential ultimate land use development. In addition, the study provides drainage alternatives that will mitigate future impacts (peak flow or volume) on areas downstream of the Mining Reach.

Existing and future flood flows are attenuated through the use of detention within the lowered land, while avoiding impacts to existing and planned sewer, transportation, and other infrastructure components. The study integrates habitat mitigation, recreation, and open space uses within the ultimate creek corridor.

Mining Applications

Introduction

Past General Plans have recognized the importance of developing the high-quality aggregate resources lying south of the American River within Sacramento County. Aggregate mining in the watershed directly tributary to Morrison Creek in the Mining Reach has occurred or is permitted on approximately 1,063 acres. Most of this area lies outside the 100-year floodplain. Additional areas in the headwaters of the Mather Drain watershed are being mined or are proposed for mining, and will impact the floodplain of this tributary to Morrison Creek.

Aspen VI, Granite I, Aspen IV South, & Granite-Vineyard I

The County Department of Environmental Review and Assessment (DERA) has circulated and received comments upon the Draft Environmental Impact Report (DEIR) for two mining applications, Aspen VI and Granite I, which together would affect 1,061 acres between Mather Air Force Base and Jackson Highway. Approximately half of that acreage lies within the existing 100-year floodplain. Environmental permitting is also underway in the mining applications for Aspen IV South and Granite-Vineyard that would mine a total of around 800 acres between Bradshaw Road and Hedge Avenue. Mining of all these areas and areas already permitted would lower the creek into pits over nearly the entire 4.5-mile reach, and could permit drainage to flow into adjacent already mined pits (Aspen III and Sacramento Aggregates).

Aspen V & Granite Fairbairn South

Just west of Aspen VI and Granite I, the previously approved mining of Aspen V has begun. After mining, much of Aspen V as well as the Muddox Bradshaw Pit and the Granite Fairbairn South Pit could lie within the ultimate floodplain.

Sacramento Aggregates and Aspen III South

Mining applications by Sacramento Aggregates (for two small sites off Mayhew and Bradshaw Roads) and Teichert Aggregates (Aspen III South) have been approved, and mining is progressing on condition that mining not extend to the lands lying within the floodplain until the Drainage Mitigation Plan is completed.

Mather Air Force Base

In addition, approximately 700 acres lying between Mather Drain and Morrison Creek within the boundaries of Mather Air Force Base (AFB) may ultimately be mined. However, any mining on Mather AFB must await federal decisions on disposal of lands and the underlying mineral resources.

Mining Summary

In Study Phase II, the focus of the Drainage Mitigation Plan was upon that aggregate mining that will directly affect Morrison Creek and Mather Drain and their ultimate floodplains south and southwest of Mather AFB. Existing and potential future mining upstream of Mather AFB and south of Mather Lake were considered for their effects upon flood flows.

Mining Phasing

Introduction

The Drainage Mitigation Plan assumes mining of the entire aggregate resource within and adjacent to the study reach over a 23-year period, as shown in Figure 1-3. There will be three mining pits left after the mining operations are complete -- one upstream of Jackson Highway, another between Jackson Highway and Bradshaw Road, and another between Bradshaw Road and Hedge Avenue. The first and third of these areas are referred to as the upper and the lower mining pits, respectively.

Existing Mining

Two of the largest aggregate mining interests, Granite Construction Company and Teichert Aggregates, seek to continuously hold permits for a 10-year inventory of aggregate resources. Teichert and Granite are concerned that they now hold substantially less than that target inventory. In fact, existing inventory is approximately 2 years for each company and as a result they have sought timely permitting of the Aspen VI and Granite I mining applications. Processing of permits for the two linked applications awaits resolution of the floodplain and other issues. Sacramento Aggregates' needs are immediate, and an application to mine the floodplain portion of its Mayhew Road site may be expected soon.

Mining operations are complete or nearly complete in Granite Fairbairn and Fairbairn South, Teichert Aspen III and IV, and Sacramento Aggregates areas. At present, these areas are nearly fully mined, with only minor reserves still left. Mining is ongoing in Granite Happy Lane and Aspen V. None of these first areas has impacted the natural drainage courses of either Morrison Creek or Mather Drain.

Future Mining

As indicated in Figure 1-3, future proposed mining operations would affect the upper pit first. Future operations would begin in Granite I and Aspen V. The bypass channel for Mather Drain will be constructed during the mining operations scheduled for year 1. This portion of the proposed bypass channel (designated Reach 2) will be the freestanding section between Mather Drain and Jackson Highway. Mather Drain flows will be directed into that channel during year 2 of mining when Granite encounters the existing channel of Mather Drain.

Under the preferred alternative, construction of the perimeter bypass channel between Morrison Creek and Mather Drain will take place during mining years 2 through 7. Morrison Creek will be diverted into the bypass channel beginning in year 7. The proposed diversion weir and drop structure at Mather Drain will also be constructed during this time period. A 25-cfs pump station at Jackson Highway will also be constructed during the latter part of this period to handle any diversions into the pit that may occur.

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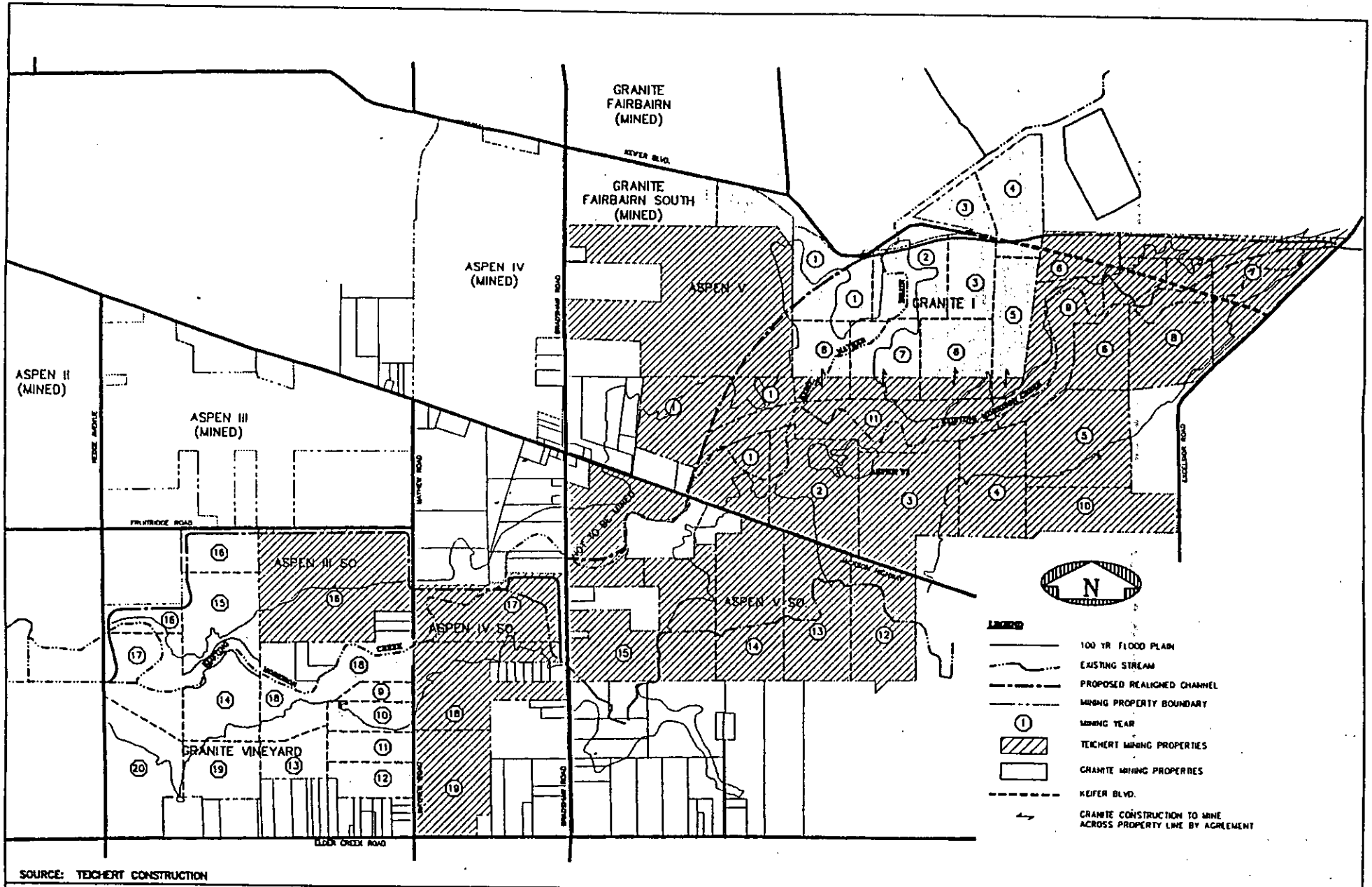

SOURCE: TEICHERT CONSTRUCTION

County of Sacramento Water Resources Division	Morrison Creek Mining Reach Drainage Mitigation Plan	Figure 1–3 Mining Phasing Map

Mining Phasing (continued)

In year 9, Granite is scheduled to begin operations in Granite-Vineyard, but Morrison Creek will not be affected until year 17. Prior to that time, Teichert will be mining the areas south of Jackson Highway and east of Bradshaw Road. Perimeter channels (designated as Reach 4) will be constructed at that time to convey Morrison Creek Tributary flows to Bradshaw Road, and from there north on Bradshaw to Morrison Creek.

In years 15 and 16, Granite and Teichert will construct the perimeter bypass channel (Reach 3) around the lower pit between a point downstream of Bradshaw Road to Hedge Avenue. When mining intersects Morrison Creek in year 17, the creek will be diverted into the bypass channel.

Chapter 2

Description of Study Area

Overview

Introduction

This chapter describes the physical features relating to the drainage of the study area including descriptions of the basin and proposed after-mining land forms.

Basin Description

Tributary Area

The Mining Reach extends along Morrison Creek from Hedge Avenue upstream to Sunrise Boulevard. This reach is located in unincorporated Sacramento County.

The tributary drainage area for Morrison Creek at the Mining Reach is approximately 33 square miles. The majority of the watershed is currently undeveloped (open). The only existing development in the watershed is composed of:

- residential housing at Mather
- industrial and flight facilities (hangars, runways, etc.) for Mather
- industrial and commercial development along Sunrise Boulevard.

There are currently large areas of dredge tailings associated with previous gold mining operations in the northeastern portion of the watershed. These areas were considered "non-contributing" in the existing development hydrologic analysis (see Chapter Four). For ultimate development, the dredge tailings were assumed to have been regraded and are considered to be "contributing" for hydrologic modeling purposes.

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Basin Description (continued)

Proposed drainage facilities for the Mining Reach as part of this Drainage Mitigation Plan must have adequate capacity to convey and store flows based on ultimate buildout conditions in the tributary watershed. Ultimate (or buildout) development is assumed to occur throughout the watershed according to the County's recently adopted General Plan (applicable to the year 2010) with any open, agricultural, or non-contributing (i.e., dredge tailings) area converted to low density residential land use (6 to 8 dwelling units per acre, or 50 percent impervious). Ultimate development was used for the watershed tributary to the Mining Reach because it falls within the Urban Services Boundary. This boundary is the limit of development beyond which urban services will not be provided.

In line with the County's drainage policy, it was assumed that the ultimate condition flows would be reduced to existing conditions through the use of local detention in areas upstream of the Mining Reach.

Mining Operations

The County of Sacramento General Plan has an underlying zoning of Surface Mining along the Mining Reach as shown in Figure 1-2. Mining of the aggregate resource within and adjacent to the study reach will occur over a 20-year period as described in Chapter One.

Proposed After-Mining Land Forms

Introduction

The Study Phase II drainage alternatives are described in detail in Appendix B. The alternatives fall into two general categories -- "pump everything" and "bypass channel." Under the pump everything alternatives, all Morrison Creek streamflows enter the upper mining pit and are pumped back up to the natural invert at Jackson Highway. Under the bypass channel alternatives, a bypass channel or pipe carries a portion of Morrison Creek peak flows around the upper mining pit. Excess flows are diverted into the mining pits as needed. In both categories, flows are sent around the lower pit in a perimeter bypass channel. The pump everything and bypass channel alternative categories are briefly summarized in the following table.

Alternative Category	Method of Conveying Flow	Alternative Numbers
Pump Everything	All Morrison Creek flow diverted into bottom of upper mining pit. Pump at Jackson, bypass channel around lower pit	1, 2
Bypass Channel	All Morrison Creek flows bypassed around mining pit until bypass channel capacity is exceeded; remainder of flow diverted into mined areas.	3, 4, 5, 6, 7

The after-mining land forms in the lower mining pit are similar for the two general alternatives. There is more of a variation in the configuration of the upper mining pit, as described in the following section.

Pump Everything Alternatives

For the pump everything alternatives, Morrison Creek after mining will follow approximately the same alignment as it does in its natural state. Excavation will create a permanent pool in the upper mining pit near the confluence with Mather Drain. The inundated area will have a "tiered effect." This tiered effect refers to the final grading of the areas in the mined area that will be subject to frequent flooding. Other than the few deep holes resulting from the mining of deeper gravel pockets, the flood storage area of the pit will be graded with a relatively flat grade and then will rise more steeply (4:1 or 5:1) to a level that will contain the 100-year flood volume. This "tiered effect" limits the area inundated by the 100-year flood event. Unless more than two tiers are created, this would also increase the area inundated by the more frequent events (i.e., 2-, 10-, 25-, and 50-year) due to the flat bottom grade in the lower tier.

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Proposed After-Mining Land Forms (continued)

Bypass Channel Alternatives

For the bypass channel alternatives, Morrison Creek flows will be diverted around the mining pits in a bypass channel or pipe. Only high flows, above the capacity of the bypass channel, will be diverted into the mining pit. A low flow diversion into the mining pit may be required to maintain riparian habitats. Inundated areas will vary widely (see Appendix B). Both the upper and lower mining pits will have some freestanding channels (see Appendix B).

The bypass channel for Morrison Creek may be freestanding in one or both of the following locations depending on the alternative:

- upper pit from Mather Drain to Jackson Highway
- the lower pit: from the end of the natural channel east of Bradshaw Road to Mayhew Road

Mining Pit Floor Elevations

Proposed final pit floor elevation data were developed using information from the mining companies. Extensive drill log information was used in developing the post-mining pit floor elevations. These elevations were used to develop the stage-volume tables for inundation calculations, as well as the embankment volumes for the various channel and siphon alternatives (Appendix B). It is likely that the final pit floor elevations will be different from those assumed for this study due to the lack of detailed data regarding the bottom of gravel elevations in the mined area. The mining interests can also alter (to some extent) the final land forms on the pit floors.

Pit floor elevations for the upper mining pit were developed from work done by GW Consulting Engineers describing a possible configuration for use with the pump everything alternatives.. Pit floor elevations for the lower mining pit were taken from the Granite Construction Company's Vineyard Permit Application.

Chapter 3

Planning Studies

Study Phase I

Description

Study Phase I of the Morrison Creek Mining Reach Drainage Mitigation Plan was completed and presented to the County Board of Supervisors in July 1992. Study Phase I was a screening study that analyzed conceptual alternatives from which the Study Phase II alternatives were developed for further study. Study Phase I included the following:

- Several agency coordination meetings and a "charette" (alternatives development workshop) were held. The purpose of the coordination meetings was to inform County, State, and Federal departments and agencies of the proposed Mining Reach Drainage Mitigation Plan.
- Seven preliminary conceptual alternatives for the Morrison Creek Mining Reach Drainage Mitigation Plan were developed as a result of the coordination meetings and the planning charette. The alternatives represent input from County departments, Federal and State agencies, gravel mining interests, and local interest groups.
- A description of the updated flood hydrology using the County Drainage Manual, and the definition of a revised 100-year floodplain based on HEC-2 modeling of the Mining Reach.
- Development of a conceptual flood control and drainage alternative by WRD staff and the mining companies (Alternative 8).
- Recommendation of a drainage plan for the Mining Reach (Alt. 8).
- Funding mechanism recommendations for flood control and drainage facilities in the Mining Reach.
- Recommendations prior to starting Study Phase II.
- A proposed Study Phase II Drainage Mitigation Plan scope of work.

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Study Phase I (continued)

The eight alternatives from the Study Phase I analysis are summarized in Table 3-1. These were all pump everything alternatives that varied by the ultimate use of the pit bottom.

At the June 1992 meeting, Alternative 8 was considered the preferred alternative.

The summary tables describing the eight alternatives from the Study Phase I report are located in Appendix A.

Table 3-1

Summary Of Study Phase I Conceptual Alternatives

Alternative Number	Description
1	No project/existing conditions and trends
2	Upstream diversion to bypass channel
3	No mining in floodplain/Morrison Creek as is
4	Morrison Creek in pit, pump at Jackson Highway, no mining on Mather AFB
5	Morrison Creek in pit, pump at Jackson Highway, mining on Mather AFB, park in pit
6	Morrison Creek in pit, pump at Hedge Avenue, no mining on Mather AFB
7	Morrison Creek in pit, pump at Hedge Avenue, mining on Mather AFB, _park in pit
8	WRD Alternative - Morrison Creek in pit, pump at Hedge, DSOD embankment, interim/habitat pump station

Study Phase IIa

Description

Study Phase I concentrated primarily on the development of the eight conceptual alternatives that described the post-mining configuration of the mined areas. Study Phase IIa greatly expanded upon Alternative 8 (the County's and Miners' Preferred Alternative).

After extensive study, the cost of this alternative was found to be prohibitively high, particularly when the annual cost of pumping and facility replacement were calculated for the large pump station included in the alternative. Nevertheless, this alternative is carried through with modifications to the current study phase (Study Phase IIb) as Alternative 1 (see Appendix B).

Study Phase IIb

Description

In September 1993, the mining companies proposed a new preferred alternative for Study Phase II of the Morrison Creek Mining Reach Drainage Mitigation Plan. This became the basis for Study Phase IIb Alternative 4 (see Appendix B). This phase investigates several "pump everything" and "bypass channel" alternatives, as described in detail in Appendix B.

Study Phase IIc

Description

During the summer of 1994, the County and mining companies conducted a series of meetings that discussed the best methods to accomplish the major objectives of both parties. The resulting Preferred Plan, which is described in Chapter 5, divides implementation of the Drainage Mitigation Plan into two parts. Part A of the Preferred Plan consists of the Miners' Preferred Bypass Channel Alternative as described in Appendix B. Part A would be constructed and owned by the mining companies.

Preferred Plan Part B is an optional phase of the plan that could consist of one of three alternatives. The three selected alternatives (Alternatives 2, 5, and 6), along with their reasons for being selected, are described in detail in Chapter 5. If selected, a Part B alternative would be constructed in addition to Part A. This alternative would include ownership and operation of the drainage facilities by the County.

U.S. Army Corps of Engineers

Description

The U.S. Army Corps of Engineers, Sacramento District conducted a reconnaissance study of the Morrison Creek Stream Group. The results of this study were published in March 1994 as "San Joaquin River Basin, South Sacramento County Streams Investigation, CA, Reconnaissance Report."

The primary objectives of this study were to identify flood related problems in the Morrison Creek Stream Group, identify a cost-effective plan to solve these problems, develop a management plan for feasibility-level studies, and identify a potential non-federal sponsor for the feasibility study.

Channel and levee improvement and detention basin measures, as well as measures to lower Beach Stone Lakes were evaluated in the study. The Corps also utilized the June 1991 "South Sacramento Urban Levees and Tributaries Study" (SSULT) by Ensign and Buckley when conducting the reconnaissance study. The study concluded that 100-year level of protection can be achieved along Morrison Creek through the use of appropriate drainage improvements.

A feasibility level study is currently authorized to determine the features of the recommended Corps flood control project.

Chapter 4

Hydrologic and Hydraulic Analyses

Introduction

Objectives

The overall objective of the hydrologic analysis is to develop peak flows and hydrograph volumes for use in sizing of the recommended drainage facilities associated with the mining pit reclamation. The objective of the hydraulic analysis is to determine the hydraulic feasibility of the recommended facilities.

Hydrologic Methodology

Original Analysis

Hydrologic models of the entire Morrison Creek Stream Group were developed in accordance with the Sacramento City/County Drainage Manual and were summarized in the Final Report for the Morrison Creek Stream Group Hydrologic Analysis in January 1992.

The U.S. Army Corps of Engineers' HEC-1 Flood Hydrograph Package computer program was used to model the Morrison Creek watershed and all alternative configurations. The City/County hydrologic procedures use a preprocessor called SACPRE to create HEC-1 data files from data specific to the Sacramento area.

Figure 4-1 shows the hydrologic subbasins for the area tributary to the Morrison Creek Mining Reach.

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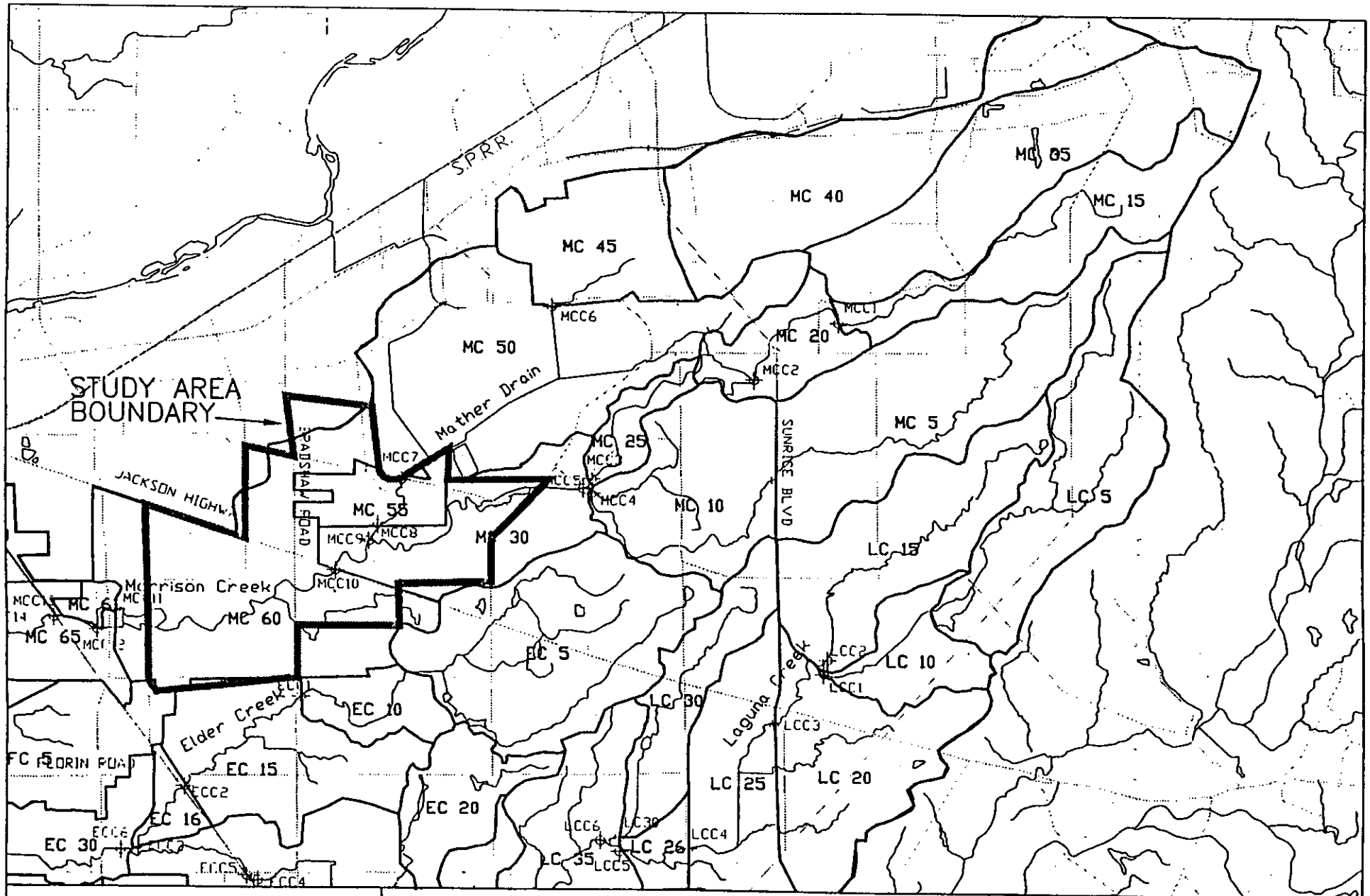

County of Sacramento Water Resources Division	Morrison Creek Mining Reach Drainage Mitigation Plan	Figure 4–1 Hydrologic Subbasins

Hydrologic Methodology (continued)

Revisions

In January 1993, revisions to the hydrologic methodology were made by the County of Sacramento, Water Resources Division. These revisions affected the computation of lag times by the U.S. Bureau of Reclamation formula. Specifically, the subbasin "n" values (hydraulic roughness characteristics of the subbasin) by land use type were increased.

Montgomery Watson recomputed lag times for all subbasins in the Morrison Creek watershed and revised the 100-year existing and ultimate development models. Tables 4-1 and 4-2 summarize the hydrologic parameters for each of the subbasins.

Design Storm

Once the numerical model of the watershed was developed, design storm(s) were applied to the model to compute design runoff hydrographs and peak discharges.

A 38.1 square mile storm centered for the lowest combination point in the Mining Reach was used for the hydrologic modeling.

SACPRE allows the user to select design storms of various durations and frequencies. The 12-hour storm duration was selected to determine peak flows because it yielded the highest flows for both the Mining Reach and the overall MCSG. A 10-day duration was also applied for the purposes of analyzing longer-term detention basin dynamics, flow diversions, and peak volumes.

The 100-year frequency storm event was analyzed in accordance with the City/County procedures.

Calibration

The revised models were re-calibrated to the 1982, 1983, and 1986 storm events. The re-calibration involved the removal of supplemental routing steps.

Table 4-1

Morrison Creek Existing Development Subbasin Hydrologic Data

Basin ID	Basin Area (sq mi)	Avg Elev (ft)	Basin Length (mi)	Basin Centrd (mi)	Basin Slope (ft/mi)	Basin 'n'	Basin Lag (hr)	Imp Area (%)	Existing Land Use Conditions									Soil Classification			
									Apt 0.90 (%)	Comm 0.95 (%)	Ind/Sch 0.70 (%)	HDR 0.60 (%)	MDR 0.40 (%)	LDR 0.10 (%)	Agric. 0.02 (%)	Open 0.01 (%)	Non Cont. 0.00 (%)	A (%)	B (%)	C (%)	D (%)
MC05	4.51	213	4.99	1.89	21.0	0.150	4.95	1	0	0	0	0	0	0	0	100	0	0	1	19	80
MC10	2.83	128	2.95	1.83	22.0	0.146	3.98	2	0	0	0	0	2	0	8	90	0	0	0	83	17
MC15	2.64	229	5.18	2.93	30.3	0.147	5.33	1	0	0	0	0	0	0	0	90	10	0	5	51	44
MC20	1.25	138	1.75	1.05	14.3	0.147	3.01	1	0	0	0	0	0	0	0	90	10	0	9	61	30
MC25	0.61	110	1.89	0.95	15.9	0.125	2.49	17	0	0	0	0	40	0	0	60	0	0	0	100	0
MC30	2.43	75	3.37	2.30	12.2	0.140	4.73	8	0	0	5	0	10	0	0	85	0	0	9	65	26
MC35	4.55	205	3.05	2.72	36.4	0.124	3.59	0	0	0	0	0	0	0	0	20	80	0	4	23	73
MC40	5.20	151	2.97	2.29	23.2	0.068	1.99	4	0	0	5	0	0	0	0	0	95	0	0	22	78
MC45	2.17	106	1.30	0.70	16.2	0.056	0.89	28	0	0	40	0	0	0	0	0	60	0	12	2	86
MC50	6.27	103	4.02	1.81	18.7	0.045	1.39	50	0	0	65	0	10	0	0	25	0	0	20	38	42
MC55	0.83	64	0.64	0.13	4.7	0.150	1.33	1	0	0	0	0	0	0	0	100	0	0	26	0	74
MC60	5.63	65	4.44	2.06	9.2	0.130	4.88	3	0	0	0	0	0	20	15	50	15	0	8	11	81

Table 4-2
Morrison Creek Ultimate Development Subbasin Hydrologic Data

Basin ID	Basin Area (sq mi)	Avg Elev (ft)	Basin Length (mi)	Basin Centrd (mi)	Basin Slope (ft/mi)	Basin 'n'	Basin Lag (hr)	Imp Area (%)	Ultimate Land Use Conditions									Soil Classification			
									Apt 0.90 (%)	Comm 0.95 (%)	Ind/Sch 0.70 (%)	HDR 0.60 (%)	MDR 0.40 (%)	LDR 0.10 (%)	Agric. 0.02 (%)	Open 0.01 (%)	Non Cont. 0.00 (%)	A (%)	B (%)	C (%)	D (%)
MC05	4.51	213	4.99	1.89	21.0	0.045	1.47	44	0	0	12	0	88	0	0	0	0	0	1	19	80
MC10	2.83	128	2.95	1.83	22.0	0.045	1.23	42	0	0	0	12	88	0	0	0	0	0	0	83	17
MC15	2.64	229	5.18	2.93	30.3	0.045	1.63	43	0	0	10	0	90	0	0	0	0	0	5	51	44
MC20	1.25	138	1.75	1.05	14.3	0.046	0.95	40	0	0	7	0	88	0	5	0	0	0	9	61	30
MC25	0.61	110	1.89	0.95	15.9	0.046	0.92	40	0	0	0	0	100	0	0	0	0	0	0	100	0
MC30	2.43	75	3.37	2.30	12.2	0.047	1.59	43	0	0	5	7	88	0	3	0	0	0	9	65	26
MC35	4.55	205	3.05	2.72	36.4	0.044	1.27	46	0	0	20	0	80	0	0	0	0	0	4	23	73
MC40	5.20	151	2.97	2.29	23.2	0.042	1.21	52	0	0	20	30	50	0	0	0	0	0	0	22	78
MC45	2.17	106	1.30	0.65	16.2	0.037	0.58	65	0	1	58	35	6	0	0	0	0	0	12	9	79
MC50	6.27	103	4.02	1.81	18.7	0.039	1.20	60	0	0	65	0	35	0	0	0	0	0	20	38	42
MC55	0.83	64	0.64	0.13	4.7	0.046	0.41	40	0	0	0	0	100	0	0	0	0	0	26	0	74
MC60	5.63	65	4.44	2.06	9.2	0.051	1.91	31	0	0	8	2	55	20	0	0	15	0	8	11	81

Hydrologic Models -- Existing and Ultimate Development

Existing-Condition HEC-1 Model

The existing condition HEC-1 model in this Drainage Mitigation Plan is based on existing land use and existing channel conditions. Existing land uses are those estimated from January 1990 aerial photographs.

Ultimate-Condition HEC-1 Model

The ultimate condition HEC-1 model is based on future land use, as determined from the County General Plan digitized by HDR Engineering, Inc., co-preparers of the City/County Drainage Manual. In addition, areas identified as open or agricultural on the General Plan (applicable to the year 2010) are converted to low density residential development for ultimate (buildout) conditions as described in Chapter Two.

Flood Storage Requirements

Purpose

Due to limited downstream Morrison Creek channel capacities and potential flooding in Beach-Stone Lakes where excess runoff volume is a concern, the mining pits on Morrison Creek near Jackson Highway are used in the various alternatives for regional detention storage.

Table 4-3 presents 10- and 100-year, 12-hour and 10-day duration ultimate development peak flows and total storm volumes for Morrison Creek at Hedge Avenue. The volumes shown are totals for the storm events and are not the required detention storage volume, which will vary depending upon the alternative.

Table 4-3
Peak Flows And Volumes
Morrison Creek At Hedge Avenue

	10-Year		100-Year	
	12-hour	10-Day	12-hour	10-Day
Peak Flows (cfs)	1,677	1,787	2,689	2,848
Peak Volumes (acre-feet)	1,474	7,507	2,300	11,376

Note:

Volumes above are the total for the storm event and are not the required detention storage which will vary depending on the alternative selected

Division of Safety of Dams PMF Analysis

DSOD Requirement

If water (more than 15 acre-feet) is stored in the mined area such that it impinges to a height of more than 6 feet on the embankment, then that embankment is classified as a dam under the guidelines of the California Division of Safety of Dams (DSOD). All dams thus classified must be constructed using DSOD guidelines and must have a spillway capable of safely conveying the 3-day probable maximum flood (PMF). The spillway can be a low-level outlet as long as the dam is not overtopped during the PMF. If the embankment can store the entire PMF volume, no outlet is required.

PMF Analysis

Montgomery Watson derived a probable maximum storm (PMS) hyetograph from available precipitation data. In deriving the PMS hyetograph, a key element was the estimation of the probable maximum precipitation (PMP). For Morrison Creek, PMP data for the Sacramento City National Weather Service precipitation station was utilized in conjunction with methodology developed by the U.S. Bureau of Reclamation, to develop the 3-day PMS hyetograph. The hyetograph was used as input to the HEC-1 model. The resulting peak flows and volumes at the upper mining pit were used to determine if the existing Morrison Creek bridge at Jackson Highway is adequate as a PMF spillway, in accordance with DSOD guidelines.

To analyze the effect of the PMF on the existing Jackson Highway bridge, the PMP was used in conjunction with the HEC-1 model described previously. No additional outlet from the upper pit was modeled. This is a "worst-case" (i.e., most conservative) scenario that attempts to store the entire PMF, with only the existing bridge at Jackson Highway at Morrison Creek acting as a spillway. The capacity of the existing bridge is approximately 2,400 cfs; the minimum roadway elevation (at which overtopping would commence) is 58.9 feet.

The chute crossings of Morrison Creek over the Folsom South Canal were included in the model because of their limited capacities that act as limiting factors on the peak flows in Morrison Creek at those locations. Significant portions of flood flows as large as the PMF would overtop the chutes and enter the canal rather than crossing the canal and continuing on into the Mining Reach.

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Division of Safety of Dams PMF Analysis (continued)

Results

The total volume of the PMF is approximately 30,000 acre-feet. The storage capacity of the upper mining pit with the freestanding channel crossing the pit is approximately 20,000 acre-feet. The analysis described above (Folsom Canal overchutes, PMF with no additional outlet; Jackson Highway as a spillway) essentially filled the upper mining pit, with a peak storage of 18,535 acre-feet, a peak outflow of 897 cfs, and a peak stage of 58.05 feet. The peak outflow is less than the capacity of the existing bridge. Therefore, in conjunction with the existing Jackson Highway bridge as a spillway, the upper mining pit is capable of storing the PMF volume without overtopping the roadway.

Because a pit with no low level outlet, bypass channel, or pump is the worst-case scenario, the operation of the bypass channels and pumps proposed with some of the alternatives was not analyzed as it would serve to reduce the required storage in the upper mining pit as well as the required spillway capacity.

As noted previously, the crossings (chutes) over Folsom South Canal will not allow the full PMF into the mined areas. Morrison Creek and Mather Drain both cross the Folsom South Canal. These crossings are not sufficiently large to carry the PMF. During the PMF, a total of 7,930 acre-feet would enter the Folsom South Canal at the chute crossings.

Flow Frequency Analysis

Background

Five of the alternatives being evaluated as part of this study rely on conveyance facilities that bypass flows around the mining pits until the capacity of the bypass conveyance is exceeded. From an operational standpoint, it is important to be able to determine the quantity of storm drainage that will enter the mining pits. Storage requirements, pump sizes, and proposed uses of the pit will depend on the frequency of flows into the pit, as well as the total quantity of water discharged into the pit.

It should be possible to determine the frequency of probable spills into the mining pits by using the flow frequency data for Morrison Creek at the Mining Reach.

Analysis

The flow frequency and duration for a stream may be determined using historical streamflow records for the stream. Morrison Creek has streamflow records for a U.S. Geological Survey (USGS) gage near Highway 99 for the period of 1960 to 1987. The data available from that gage are daily flows, meaning the average flow in cubic feet per second for the entire day.

Frequency-duration curves were developed from the daily flow data as shown in Figure 4-2. A study of these curves revealed that the daily nature of the flow data smoothed out the flow peaks that would be most responsible for diverting stormwater into the pits. The peak daily flows at Highway 99 were significantly less than the expected peak hourly flows at the Mining Reach, even though the watershed is 50 percent larger at Highway 99. Because only instantaneous flows that exceed the bypass capacity would be diverted into the pits, the daily flow frequency-duration data was determined to be unsuitable for estimating the quantities of diversion into the mining pits. Instead, a water balance approach was used as described in the following section.

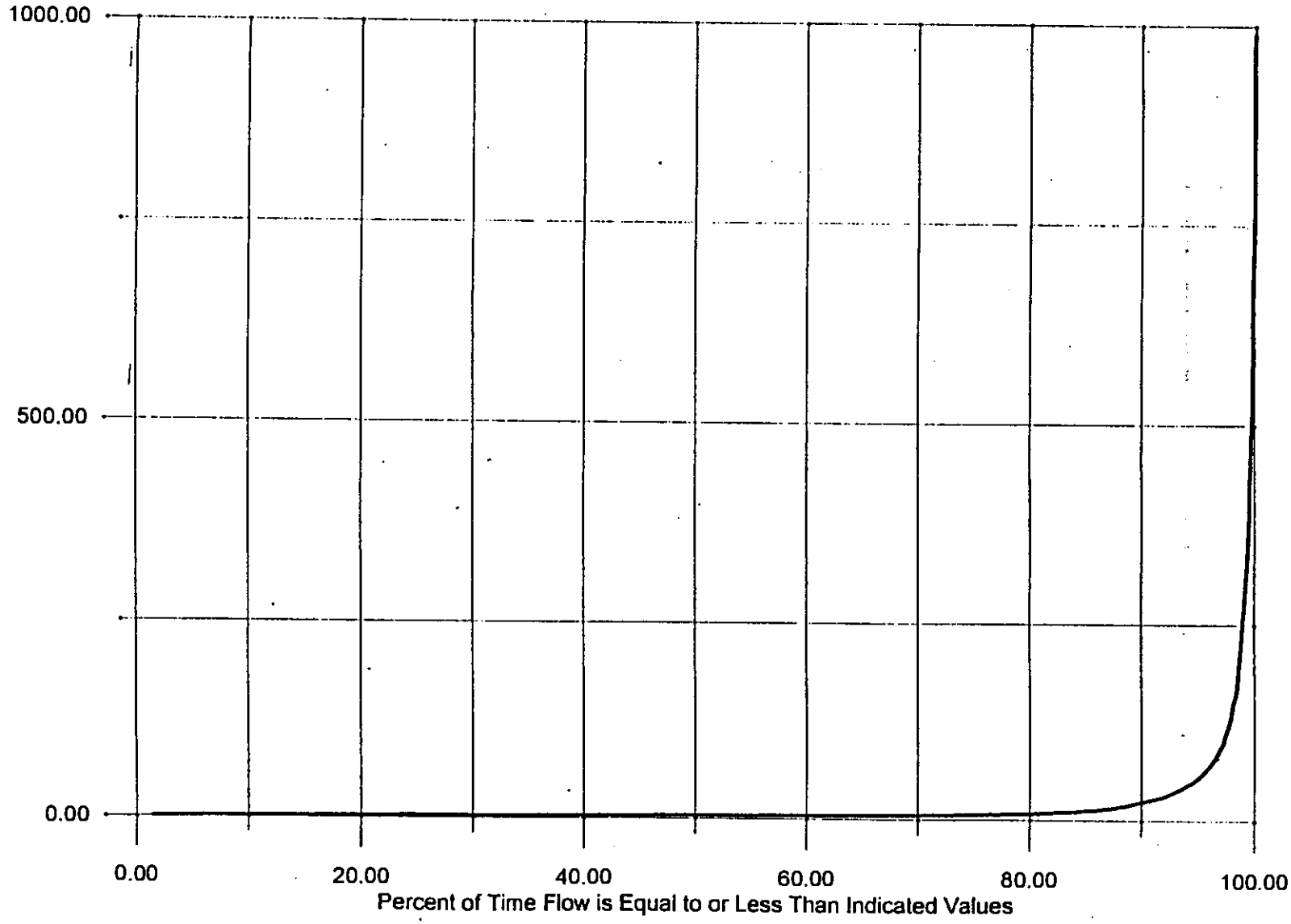

Figure 4-2

Flow Duration Curve at Morrison Creek Mining Reach
(based on prorated data for Morrison Creek stream gage)

Operations Analysis

Background

The purpose of the operations analysis is to determine the operational characteristics of each of the alternatives. These characteristics include:

- Frequency and volume of diversions into the pits
- Evaporation and infiltration from standing water in the pits
- Pumping requirements
- Maximum storage volumes.

Precipitation Data

Hourly precipitation data is available for the NWS rain gage in downtown Sacramento from the late 1800's to the present. No long-term precipitation data collected in the Morrison Creek watershed is available. There have been some short-term studies that have collected data, but none have covered a long enough period to be of use for the operations model.

Hourly precipitation data for the winter periods of water years 1982 to 1984 were used with HEC-1 to develop calibrating inflows to the Mining Reach. Water years 1982 to 1984 were selected because water year 1983 was an extremely wet year (including the 100-year, 3-month rainfall) and this period represents a worst case representative period. The hourly data for February 1983 was not available and hourly data for the gage at Sacramento Metro Airport was substituted.

Streamflow Data

Data from the USGS streamflow gage on Morrison Creek near Highway 99 were used to develop the streamflow at the Mining Reach for the operations analysis. The daily flow values were prorated to the Mining Reach based on the ratio of the watershed area at the Mining Reach to the watershed area at Highway 99, resulting in a value of 71 percent.

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Operations Analysis (continued)

A HEC-1 model with one subbasin covering the entire watershed above Hedge Avenue was developed. Hourly precipitation input data from the NWS gage in Sacramento was used for these three years. Results were compared to the results of the 71 percent proration analysis for the three years (winter months of November to April of water years 1982 to 1984). The results compared favorably.

This HEC-1 was also used to determine the percentage of flows in the Mining Reach that are diverted into the mining pits for each alternative by running the model using precipitation for the winter months of water years 1982 to 1984. The model included the diversion into the mining pits of all flows over the capacity of the alternative under study. The total inflow, bypass flow, and diversion into the mining pits were developed for each of the three years. The average percentage of flow diversion into the mining pits was calculated based on these values. This percentage was used as one of the input parameters into the operations model.

Evaporation Data

Evaporation was determined using the monthly average evaporation values for Folsom Dam from DWR Bulletin 73-79. These values were adjusted by a pan coefficient of 0.72 from NOAA Technical Report NWS 33.

Infiltration Data

Permeability tests for the mining pit areas were conducted by Wallace-Kuhl and Associates for Granite and Teichert and were included in the mining application package. Additional tests have been run on the overburden material as part of the embankment analysis The results are of these tests indicate permeabilities in the range of 1.1×10^{-7} cm/sec (3.1×10^{-4} ft/day) to 1.7×10^{-5} cm/sec (5.0×10^{-2} ft/day). Montgomery Watson groundwater experts have indicated that they would expect the permeability numbers to be on the low-end or middle of that range.

Operations Model

A spreadsheet operations model was developed to model the mining pits including monthly inflows, evaporation, pumping, and infiltration. The spreadsheet contains the monthly inflow data for the period of record at the Morrison Creek gage near Highway 99, prorated to Hedge Avenue. In addition, the spreadsheet computes average surface area, evaporation, seepage, pumping, and end of month storage. The spreadsheet analysis is a simple accounting model that determines the water balance in the mining pits.

Continued on next page...

Operations Analysis (continued)

Sample Analysis

Table 4-4 contains the results of the sample operations analysis of Alternative 5, the Downstream Channel Capacity alternative. The assumption was made that the alternative would include around 500 acre-feet of permanent pool and the analysis began with this volume in storage for October 1959. Infiltration was assumed to be 0.005 feet per day and 36 percent of the daily flows at the Mining Reach were assumed to enter the pits.

The sample analysis of Alternative 5 reveals that a total of 30 cfs pumping capacity is required, 25 cfs in the upper pit and 5 cfs in the lower pit, and that the maximum ending storage that would occur during the 1960 to 1987 period would be 4,613 acre-feet, resulting from the February 1986 storm. The pump size was determined by running the operations model for the period of available flow records and reserving a minimum residual storage of 10,000 acre-feet (available at any given time) and at the same time providing a maximum drain time of not more than 3 or 4 months for the 100-year flood. The minimum residual storage could not be maintained without pumping. In addition, 30 cfs pumping capacity was required to meet the maximum drain time criteria.

A similar analysis was run for each of the alternatives and the results were used to determine pumping requirements.

Table 4-4

Sample Operations Analysis of Alternative 5

(Water Years 1960 to 1987)

Assumes infiltration rate of : 0.005 feet per day

Adjusted inflows to pits are: 36% of total inflow to Mining Reach

All units in Acre-Feet

Includes a: 30 cfs total pumping capacity

Maximum Ending Storage: 4,613 ac-ft

Maximum Area: 637 acres

Permanent Pool: 500 ac-ft

Pool Area: 97 acres

Water Year	Begin Storage	October					November					December					January					February					March					April				
		Effect. Inflow	Avg. Area	Evap Inf&Pmp	Spill	End Storage	Effect. Inflow	Avg. Area	Evap Inf&Pmp	Spill	End Storage	Effect. Inflow	Avg. Area	Evap Inf&Pmp	Spill	End Storage	Effect. Inflow	Avg. Area	Evap Inf&Pmp	Spill	End Storage	Effect. Inflow	Avg. Area	Evap Inf&Pmp	Spill	End Storage	Effect. Inflow	Avg. Area	Evap Inf&Pmp	Spill	End Storage	Effect. Inflow	Avg. Area	Evap Inf&Pmp	Spill	End Storage
1960	500	63	104	61	0	502	48	104	29	0	522	95	112	90	0	526	208	126	210	0	524	479	151	490	0	514	106	112	110	0	509	68	108	79	0	498
1961	233	84	54	25	0	293	199	76	20	0	471	109	104	52	0	528	226	126	229	0	524	182	122	185	0	521	191	122	206	0	505	81	108	88	0	498
1962	233	60	50	23	0	270	132	65	17	0	385	171	94	27	0	530	104	115	108	0	526	2058	387	1759	0	826	280	208	632	0	474	76	101	49	0	502
1963	237	1227	169	991	0	473	-107	104	58	0	522	163	119	161	0	524	377	140	380	0	521	949	208	970	0	500	493	148	497	0	496	748	173	777	0	467
1964	218	136	54	25	0	329	382	101	188	0	523	73	112	70	0	526	472	151	479	0	519	93	112	88	0	523	113	115	129	0	508	86	108	96	0	498
1965	233	132	58	26	0	340	220	90	34	0	526	1475	318	1519	0	482	1134	235	1113	0	502	125	112	104	0	523	145	119	161	0	507	305	130	324	0	488
1966	228	82	54	25	0	286	263	83	21	0	528	300	133	307	0	521	317	133	316	0	523	278	130	281	0	519	107	112	116	0	509	95	112	108	0	496
1967	232	95	54	25	0	302	477	108	258	0	521	689	173	697	0	513	2228	404	1927	0	814	307	208	621	0	500	627	162	637	0	491	580	155	595	0	476
1968	222	253	68	31	0	443	82	94	25	0	500	128	112	101	0	526	336	137	340	0	522	320	133	324	0	518	259	130	275	0	503	76	108	81	0	498
1969	233	94	54	25	0	303	213	79	21	0	495	282	126	254	0	523	3342	477	1942	0	1923	2561	592	1808	0	2677	598	378	2055	0	1220	176	335	1007	0	389
1970	184	123	47	21	0	286	113	68	18	0	381	410	115	265	0	525	1934	370	1920	0	539	280	133	302	0	518	372	140	392	0	499	115	108	115	0	498
1971	233	122	58	26	0	329	819	148	637	0	510	952	208	957	0	505	276	126	257	0	524	120	115	122	0	522	242	126	261	0	504	109	112	117	0	496
1972	232	89	54	25	0	295	108	68	18	0	385	459	122	320	0	524	118	115	115	0	526	201	122	207	0	521	124	115	137	0	508	151	115	164	0	495
1973	230	150	58	26	0	353	452	115	287	0	519	202	122	197	0	524	2328	404	1927	0	925	1575	404	1763	0	737	761	263	1044	0	454	108	101	60	0	502
1974	237	200	65	29	0	407	612	140	507	0	512	780	180	781	0	511	1090	235	1099	0	502	139	112	117	0	523	448	143	475	0	496	287	126	294	0	490
1975	230	134	58	26	0	337	107	76	20	0	424	257	108	154	0	527	89	112	88	0	527	1040	235	1074	0	494	614	158	615	0	492	190	115	188	0	495
1976	230	204	65	29	0	405	62	86	23	0	443	52	94	20	0	475	67	101	13	0	529	120	115	127	0	522	132	115	147	0	508	153	115	166	0	495
1977	230	61	50	23	0	268	97	61	17	0	348	78	76	16	0	410	123	94	3	0	531	94	115	102	0	522	134	115	148	0	508	37	104	50	0	495
1978	230	41	47	21	0	250	126	61	17	0	359	297	101	128	0	528	2829	441	1934	0	1423	983	441	1771	0	634	950	263	1130	0	454	260	115	219	0	495
1979	230	67	50	23	0	274	426	97	176	0	524	99	112	97	0	526	1092	235	1116	0	502	960	208	962	0	500	482	148	486	0	496	92	108	90	0	498
1980	233	157	61	28	0	362	140	86	23	0	478	318	126	274	0	523	1653	335	1695	0	481	2109	370	1754	0	836	655	290	1047	0	444	129	101	71	0	502
1981	237	74	54	25	0	286	56	61	17	0	326	168	79	17	0	477	572	151	530	0	519	102	112	98	0	523	494	151	522	0	495	105	108	102	0	498
1982	233	174	61	28	0	380	1030	176	907	0	502	902	180	893	0	511	2115	387	1923	0	702	687	235	895	0	494	1235	263	1274	0	454	1396	263	1426	0	424
1983	201	266	65	29	0	437	1013	180	948	0	501	1540	318	1560	0	482	1972	370	1920	0	534	1572	335	1636	0	470	3353	477	2018	0	1804	718	477	2014	0	508
1984	238	92	54	25	0	306	646	126	436	0	516	1671	335	1710	0	478	136	108	86	0	528	148	119	154	0	521	148	119	162	0	507	89	108	97	0	498
1985	233	284	72	33	0	485	605	155	581	0	508	283	130	269	0	522	77	112	72	0	527	293	133	302	0	518	190	122	203	0	505	55	104	61	0	500
1986	235	59	50	23	0	271	529	104	278	0	522	344	137	345	0	521	791	180	798	0	513	5913	614	1813	0	4613	784	639	2078	0	3320	121	607	2076	0	1365
1987	180	103	43	20	0	263	66	58	16	0	313	101	72	15	0	399	237	101	107	0	529	625	166	644	0	510	546	155	563	0	493	84	104	77	0	500
AVERAGES	237	165	62	61	0	341	326	99	200	0	467	443	143	403	0	506	937	215	809	0	634	868	223	731	0	771	521	200	626	0	667	232	158	378	0	520

Table 4-4 (continued)

Sample Operations Analysis of Alternative 5

(Water Years 1960 to 1987)

Assumes infiltration rate of : 0.005 feet per day

Adjusted inflows to pits are: 36% of total inflow to Mining Reach

All units in Acre-Feet

Includes a: 30 cfs total pumping capacity

Maximum Ending Storage: 4,613 ac-ft

Maximum Area: 637 acres

Permanent Pool: 500 ac-ft

Pool Area: 97 acres

Water Year	May					June					July					August					September					Total			
	Effect. Inflow	Avg. Area	Evap Inf&Pmp	Spill	End Storage	Effect. Inflow	Avg. Area	Evap Inf&Pmp	Spill	End Storage	Effect. Inflow	Avg. Area	Evap Inf&Pmp	Spill	End Storage	Effect. Inflow	Avg. Area	Evap Inf&Pmp	Spill	End Storage	Effect. Inflow	Avg. Area	Evap Inf&Pmp	Spill	End Storage	Inflow	Effect. Inflow	Evap Inf&Pmp	Spills
1960	0	97	62	0	436	0	86	65	0	372	0	72	61	0	311	0	61	47	0	264	0	50	31	0	233	3763	1355	1333	0
1961	0	97	62	0	436	0	86	65	0	372	0	72	61	0	311	0	61	47	0	264	0	50	31	0	233	3970	1429	1071	0
1962	0	97	62	0	440	0	86	65	0	375	0	72	61	0	314	0	61	47	0	267	0	50	31	0	237	9041	3255	2879	0
1963	0	94	59	0	408	0	79	59	0	348	0	68	58	0	290	0	58	44	0	246	0	47	29	0	218	12671	4562	4082	0
1964	0	97	62	0	436	0	86	65	0	372	0	72	61	0	311	0	61	47	0	264	0	50	31	0	233	4917	1770	1340	0
1965	0	97	62	0	426	0	83	62	0	364	0	72	61	0	303	0	58	44	0	259	0	50	31	0	228	10877	3916	3541	0
1966	0	97	62	0	435	0	86	65	0	370	0	72	61	0	309	0	61	47	0	262	0	50	31	0	232	5436	1957	1439	0
1967	0	94	59	0	416	0	83	62	0	354	0	68	58	0	296	0	58	44	0	252	0	50	31	0	222	15254	5491	5014	0
1968	0	97	62	0	436	0	86	65	0	372	0	72	61	0	311	0	61	47	0	264	0	50	31	0	233	5074	1827	1442	0
1969	0	76	48	0	341	0	65	49	0	292	0	58	49	0	244	0	47	36	0	208	0	40	24	0	184	21642	7791	7317	0
1970	0	97	62	0	436	0	86	65	0	372	0	72	61	0	311	0	61	47	0	264	0	50	31	0	233	10828	3898	3299	0
1971	0	97	62	0	435	0	86	65	0	370	0	72	61	0	309	0	61	47	0	262	0	50	31	0	232	8694	3130	2642	0
1972	0	97	62	0	433	0	86	65	0	368	0	72	61	0	307	0	61	47	0	261	0	50	31	0	230	5093	1833	1251	0
1973	0	97	62	0	440	0	86	65	0	375	0	72	61	0	314	0	61	47	0	267	0	50	31	0	237	16938	6098	5569	0
1974	0	97	62	0	428	0	83	62	0	366	0	72	61	0	305	0	58	44	0	261	0	50	31	0	230	11550	4158	3562	0
1975	0	97	62	0	433	0	86	65	0	368	0	72	61	0	307	0	61	47	0	261	0	50	31	0	230	8193	2949	2431	0
1976	0	97	62	0	433	0	86	65	0	368	0	72	61	0	307	0	61	47	0	261	0	50	31	0	230	3894	1402	791	0
1977	0	97	62	0	434	0	86	65	0	369	0	72	61	0	308	0	61	47	0	261	0	50	31	0	230	2454	883	624	0
1978	0	97	62	0	433	0	86	65	0	368	0	72	61	0	307	0	61	47	0	261	0	50	31	0	230	16264	5855	5486	0
1979	0	97	62	0	436	0	86	65	0	372	0	72	61	0	311	0	61	47	0	264	0	50	31	0	233	9906	3566	3215	0
1980	0	97	62	0	440	0	86	65	0	375	0	72	61	0	314	0	61	47	0	267	0	50	31	0	237	15373	5534	5157	0
1981	0	97	62	0	436	0	86	65	0	372	0	72	61	0	311	0	61	47	0	264	0	50	31	0	233	6254	2251	1575	0
1982	0	83	53	0	371	0	72	54	0	317	0	61	52	0	266	0	50	39	0	227	0	43	26	0	201	22223	8000	7570	0
1983	0	101	64	0	444	0	86	65	0	380	0	76	64	0	316	0	61	47	0	269	0	50	31	0	238	30733	11064	10396	0
1984	0	97	62	0	436	0	86	65	0	372	0	72	61	0	311	0	61	47	0	264	0	50	31	0	233	9154	3295	2935	0
1985	0	97	62	0	438	0	86	65	0	373	0	72	61	0	313	0	61	47	0	266	0	50	31	0	235	5992	2157	1786	0
1986	0	335	1028	0	337	0	65	49	0	289	0	58	49	0	240	0	47	36	0	204	0	40	24	0	180	25051	9018	8596	0
1987	0	97	62	0	438	0	86	65	0	373	0	72	61	0	313	0	61	47	0	266	0	50	31	0	235	6204	2233	1706	0
AVERAGES	0	104	95	0	425	0	84	63	0	362	0	70	60	0	302	0	59	45	0	257	0	49	30	0	227	10980	3953	3502	0

Hydraulic Methodology

Channel Hydraulics

Channel hydraulics were analyzed using the U.S. Army Corps of Engineers' HEC-2 Water Surface Profiles computer model. HEC-2 modeling developed previously for Morrison Creek Stream Group Hydraulic Analysis was used as a basis for this modeling.

Culvert Capacities

The Federal Highway Administration's HY-8 culvert model was utilized to determine culvert capacities for culverts under Jackson Highway and Bradshaw Road. This analysis was also conducted for the Jackson Highway spillway/bridge. Results were verified using HEC-2.

Existing Floodplain Determination

Introduction

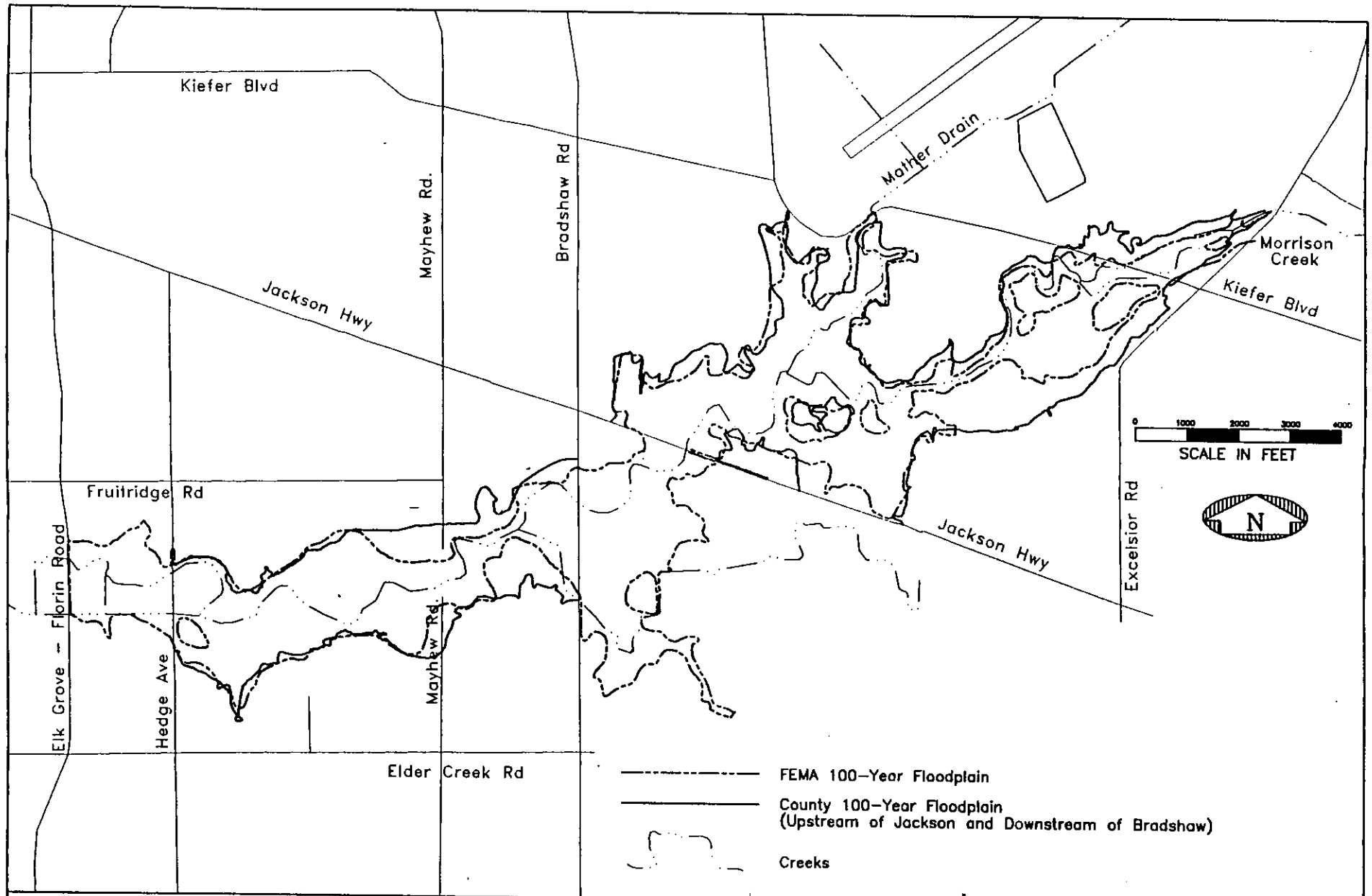
Existing development 100-year "without project" flows were computed based on the revised hydrologic parameters (see previous description in this chapter). These flows are higher than those developed previously by the Federal Emergency Management Agency (FEMA) in their Flood Insurance Study. WRD requested that the 100-year floodplain in this region be re-mapped based on the revised flows.

Hydraulics

The hydraulic analysis was performed using HEC-2 modeling developed for the Morrison Creek Stream Group Hydraulic Analysis.

Mapping

The results from the HEC-2 modeling were used in conjunction with current topographic mapping supplied by the mining companies to delineate existing development 100-year floodplain boundaries based on the revised hydrology. Both the FEMA and WRD existing development 100-year floodplain delineations are shown in Figure 4-3. The WRD existing development floodplain was not mapped between Bradshaw Road and Jackson Highway because no detailed topographic mapping was available for that area.



County of Sacramento Water Resources Division	Morrison Creek Mining Reach Drainage Mitigation Plan	Figure 4-3 100-Year Floodplains

Chapter 5

Preferred Plan

Introduction

Overview

Seven different feasible drainage mitigation alternatives were analyzed for the Morrison Creek Mining Reach as described in Appendix B. These alternatives all fall into two general categories -- pump everything and bypass channel.

Under the pump everything alternatives, all Morrison Creek streamflow enters the upper mining pit and is pumped back up to the natural invert at the downstream end of the upper pit. The pumped outflow is carried around the lower pit in a perimeter bypass channel

Under the bypass channel alternatives, a bypass channel or pipe carries a portion of Morrison Creek peak flows around the perimeter of both the upper and lower the pits; excess flows are diverted into the mining pits.

Preferred Plan

The mining companies have selected one of the alternatives (Alternative 4) and have used it for the mining reclamation plan in their permit applications. This alternative would be constructed solely by the mining companies, without the financial participation of Sacramento County. This is referred to as Preferred Plan Part A.

At Sacramento County's option, one of the other alternatives may be implemented as a County drainage project. The County would only be responsible for supplementing the facilities that the mining companies would build as a part of Preferred Plan Part A. This second option is referred to as Preferred Plan Part B.

Preferred Plan Part A

Mining Companies' Preferred Alternative

The mining companies have expressed their preference for one of the bypass channel alternatives described in Appendix B. This alternative, referred to as the "Miners' Preferred Bypass Channel" or Alternative 4, involves the bypassing of flows around the mined areas in an unlined trapezoidal channel at the existing (unmined) elevation. The bypass channel is constructed on embankment and is sized to pass a portion (1,650 cfs) of the existing 100-year peak flow, with excess flows diverted into the upper mined area.

The mining companies would construct the facilities associated with Alternative 4 as part of the reclamation measures for the mining operations for which they requesting permitting. This is called Preferred Plan Part A.

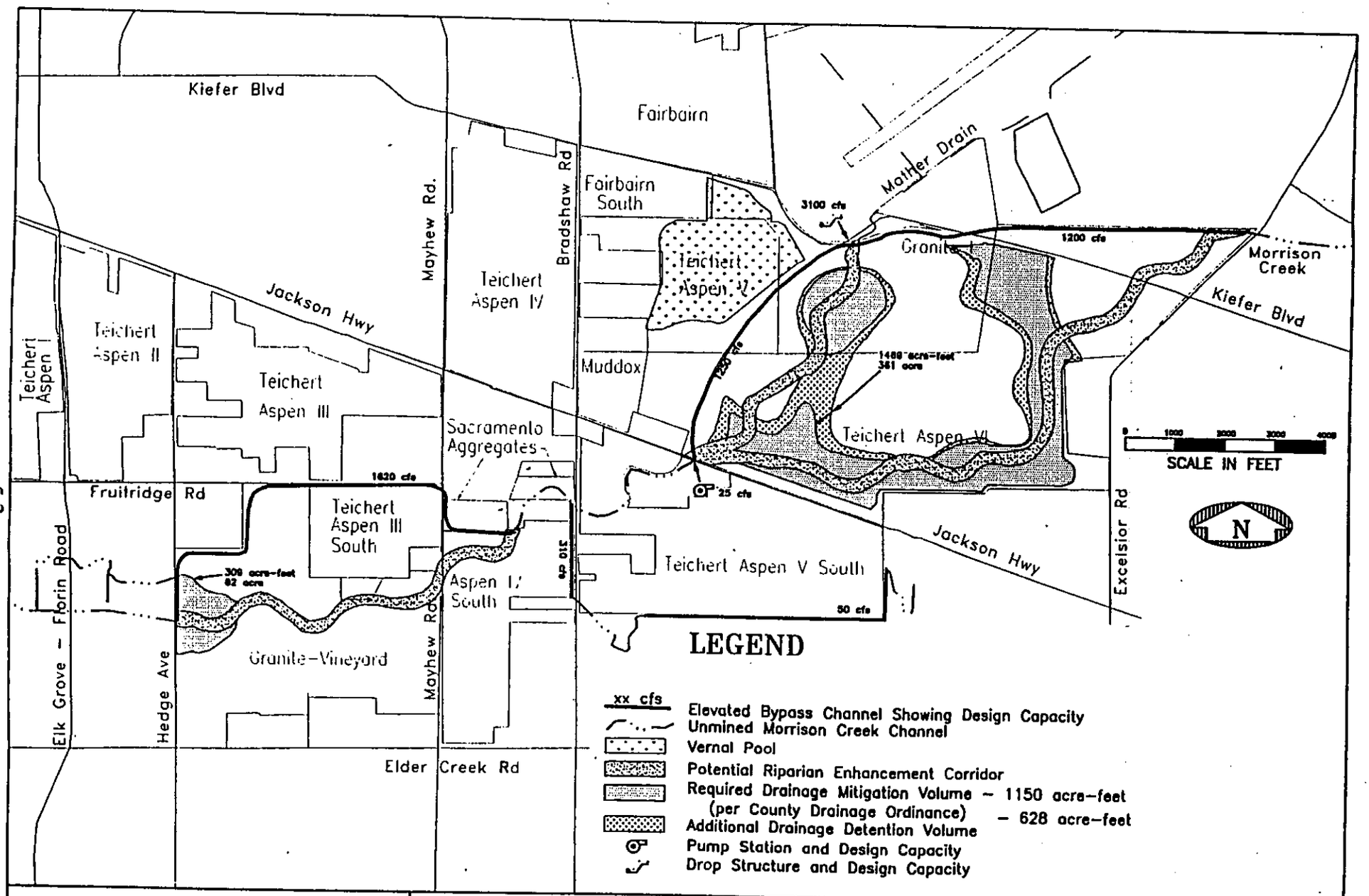
Unless the County of Sacramento supplements Part A with alternatives described below for Preferred Plan Part B, Part A would require that mined areas remain privately owned by the mining companies, relieving the County of any involvement in the operation and maintenance of the bypass channels. Unlined channels are allowed; because if they were to fail, only the mining pit areas would be affected.

This preferred plan would eliminate the possibility of utilizing the mined areas for development. Ultimate land use would be restricted to agriculture or open space because both the upper and lower mining pits would be designated as 100-year floodplain.

Figure 5-1 is a schematic depiction of the Miners' Preferred Bypass Channel. Hydraulic features of this alternative include:

- bypass channels sized to carry reduced Morrison Creek flows around the upper and lower mining pits
- a 25-cfs pump station for the upper pit at Jackson Highway
- a weir and drop structure at Morrison Creek and Mather Drain confluence to divert flows greater than channel capacity into the upper pit
- 1,235 acre-feet (approximately 358 acres) of flood storage in upper pit
- 309 acre-feet (approximately 62 acres) of flood storage in the lower pit.

This preferred plan reduces the effects of future upstream development on downstream flows to a level *below* those of existing development. However, it does not reduce downstream flows to a non-damaging level.



County of Sacramento Water Resources Division	Morrison Creek Mining Reach Drainage Mitigation Plan	Figure 5-1 Alternative 4 Implementation Plan Part A

Preferred Plan Part B

County's Options

Originally, seven alternatives were analyzed. Alternative 4 was chosen by the mining companies as Preferred Plan Part A and is included in the mitigation plan of their permit application. Three of the remaining six alternatives were selected as ones the County could implement to supplement the drainage facilities the mining companies will construct. Optionally, the County could select one of these other three alternatives as Preferred Plan Part B.

The remainder of this chapter describes the three alternatives selected for Part B along with the reasons for their selection. A comparison of the seven original alternatives is also included. The comparison includes the advantages, disadvantages, and costs for each of the three selected alternatives, as well as Part A (Miners' Preferred Bypass Channel alternative).

Preferred Alternatives

The three preferred alternatives designated as Preferred Plan Part B were selected because they fulfill some or all of the following criteria:

- volume detention to mitigate for stormwater volume increases in Beach-Stone Lakes
- reduction of peak flows such that the limiting downstream channel capacity is not exceeded
- low cost relative to other alternatives

Cost Estimates

It is important to note that the cost estimates presented in Appendix B consider each of the alternatives as separate and independent. However, the analyses in this chapter assume that Part A, the Miners' Preferred Bypass Channel alternative, will be constructed. Therefore, the Part B cost estimates reflect only the *additional* costs for which the County would be responsible, over and above the costs borne by the mining companies for their preferred alternative.

For example, the mining companies will construct unlined bypass channels as part of Part A. However, the County may choose to select one of the Part B bypass channel alternatives, in which case the costs for items such as channel lining and additional compaction of the freestanding channel to meet DSOD standards are included in the cost estimates in this chapter.

Construction Standards

The facilities in Part B would be public facilities and as a result would need to be constructed to meet all County safety requirements. In particular, channels constructed at grades above the pit floor would be concrete lined to prevent catastrophic failure and resultant flooding of the pit. Increased storage depths in the Part B alternatives would result in DSOD embankment standards being applied to the free-standing and Jackson Highway embankments.

Continued on next page...

Preferred Plan Part B (continued)

Alternatives Analysis Objectives

As described in Appendix B, seven project alternatives were originally analyzed to determine the improvement projects that would most effectively meet the overriding objective to safely convey Morrison Creek flows through the reclaimed mining pits. Alternative 4 has become Preferred Plan Part A, but is described below, along with the other alternatives. Individual objectives for each of the alternatives are described below.

Pump Everything Alternatives

- For Alternative 1 (Pump Everything Large Pump), the objective is to capture all the runoff volume in the upper mining pit and then pump all flow back to Morrison Creek at the downstream end of the pit (Jackson Highway) with a 400 cfs pump station. Recreate a "natural" stream in the bottom of the upper mined area.

- For Alternative 2 (Pump Everything Small Pump), the objective is to accomplish the same goals as Alternative 1, but with more economical pumping costs due to the fact that the Jackson Highway pump station has a capacity of 50 cfs instead of 400 cfs.

Continued on next page...

Preferred Plan Part B (continued)

Bypass Channel Alternatives

- For Alternative 3 (Existing Flow Bypass Channel), the objective is to use a perimeter bypass channel to pass existing 100-year peak flows around the mined areas. A diversion weir in the channel at Mather Drain would send excess flows into the upper mined area to simulate existing floodplain storage.

- For Alternative 4 (Miners' Preferred Bypass Channel), the objective is to use a perimeter bypass channel to pass reduced flows. This alternative would provide some reduction in downstream flows. A diversion weir in the bypass channel would reduce flows by sending excess into the upper mined area. This alternative is Preferred Plan Part A.

- For Alternative 5 (Downstream Capacity Bypass Channel), to use a perimeter bypass channel with diversion weirs designed to divert sufficient detention volume into the upper and lower mining pits to reduce the downstream ultimate development flow such that the limiting capacity in the City at the damage reach is not exceeded. The limiting capacity used was identified by Ensign and Buckley in the June 1991 "South Sacramento Urban Levees and Tributaries Study."

- For Alternative 6 (Volume Detention Bypass Channel), the objective is to use a perimeter bypass channel with a diversion weir designed to divert sufficient flow volume into the upper mined area for long-term detention, in order to mitigate the volume impacts of future development in the entire MCSG on Beach-Stone Lakes.

- For Alternative 7 (Bypass Siphon and Channel), the objective is to function the same as Alternative 6, while providing a safer bypass conveyance that utilizes a single-barrel inverted siphon to cross the upper pit, instead of a freestanding channel.

Continued on next page...

Preferred Plan Part B (continued)

Selected Alternatives

In addition to the Miners' Preferred Bypass Channel (Preferred Plan Part A), Alternatives 2, 5, and 6 have been selected for further analysis and comparison for Preferred Plan Part B of this drainage mitigation plan. The reasons for each selection follow along with a discussion of the reasons the remaining three alternatives were not selected. Alternative 2 is a pump everything alternative; Alternatives 4, 5, and 6 are bypass channel alternatives.

Each selected alternative provides some level of flood control. The purpose of this summary is to present information that the Sacramento County Board of Supervisors needs in order to decide whether to accept Part A (mining companies only) or choose to implement Part B (county participation).

This section of the report presents information regarding the type of facilities and level of flood control associated with the each of the Part B alternatives. This information may by used by the County Board of Supervisors in making the decision whether or not to implement a Part B alternative.

Alternative 2

Alternative 2 (Pump Everything Small Pump) was selected because it has the lowest capital costs of any of the independent County-owned alternative. Since all runoff enters the upper mining pit via a drop structure at Mather Drain before being pumped out, this alternative provides both volume and channel capacity mitigation as offered by Alternatives 5 and 6 respectively. The minimal (50 cfs) pump capacity results in lower annual pumping costs compared to Alternative 1. The annual costs (including O&M and annualized replacement of facilities) are the lowest for a Part B, County-owned alternative. Figure 5-2 is a schematic of Alternative 2.

Alternative 4

Alternative 4 (Miners' Preferred Bypass Channel) is Preferred Plan Part A and is included here for completeness. It is the miners' privately owned and maintained alternative that mitigates the effects of future upstream development on downstream flows to a level *below* those of existing development. This alternative does not, however, reduce downstream flows to a non-damaging level for all reaches. This alternative is the mining companies' preferred alternative. It has the lowest annual pumping costs of any of the alternatives with pumps and, with the exception of Alternative 3, has the lowest capital cost and smallest required land area for detention storage. Figure 5-1 is a schematic depiction of Alternative 4.

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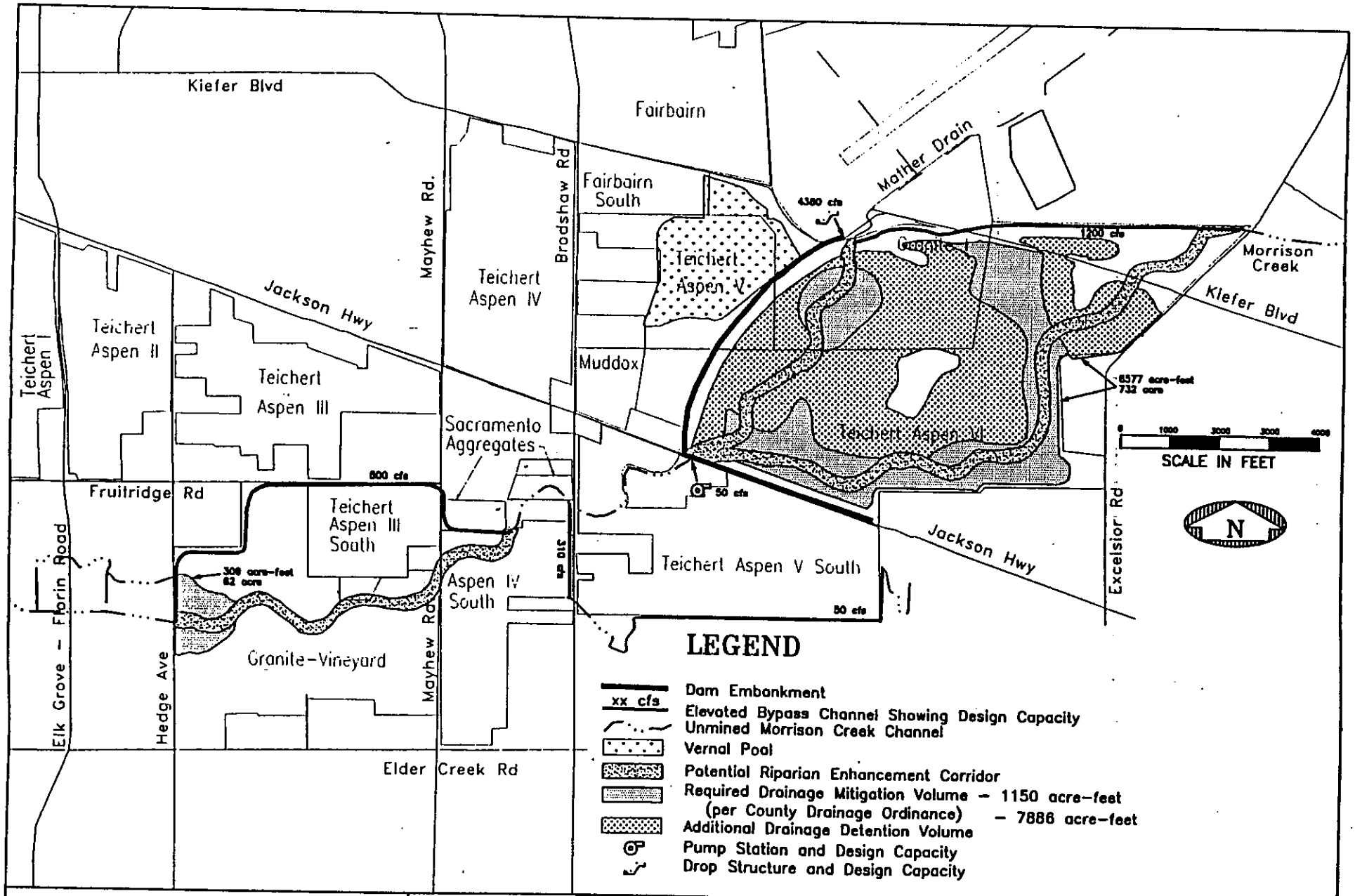

County of Sacramento Water Resources Division	Morrison Creek Mining Reach Drainage Mitigation Plan	Figure 5–2 Alternative 2 Implementation Plan Part B

Preferred Plan Part B (continued)

Alternative 5

Alternative 5 (Downstream Capacity Bypass Channel) was selected because it meets the downstream Morrison Creek channel capacity limitations in the City of Sacramento as identified in the U.S. Army Corps of Engineers "San Joaquin River Basin, South Sacramento County Streams Investigation" (based on work done for SSULT). Alternative 5 reduces flows to meet the channel capacity limitations by diverting all flows greater than 400 cfs into the upper and lower mining pits using weir and drop structures located at Mather Drain and downstream of Bradshaw Road. Figure 5-3 is a schematic depiction of Alternative 5.

Alternative 6

Alternative 6 (Volume Detention Bypass Channel) was selected because it mitigates the volume impacts of future development in the Morrison Creek watershed on the Beach-Stone Lakes area by diverting all flows greater than 180 cfs into the upper pit using a weir and drop structure at Mather Drain. Because the flows are reduced below the 400 cfs required for downstream channel capacity mitigation in Alternative 5, this alternative also provides channel capacity mitigation. Figure 5-4 is a schematic depiction of Alternative 6.

Summary of Selected Alternatives

Table 5-1 presents the 100-year, 12-hour peak flows at the limiting (non-damaging) reach in the City of Sacramento and the 2-, 10-, 50-, and 100-year, 10-day storm peak storage volumes in the upper and lower mining pits for Preferred Plan Part A and Part B. It also lists the time required to drain the mining pit detention storage after each storm.

A depth-duration-frequency analysis was also performed for each of the selected alternatives by running the hydrologic (HEC-1) model for different return periods with proposed finished pit floor plans (grades) and pump sizes. The resulting depth-duration-frequency curves for Alternatives 2, 4, 5, and 6 are shown in Figures 5-5 through 5-8, respectively. These curves depict the expected length of flooding at various depths for various return periods. This information was used by Jones and Stokes Associates in developing the "Environmental Issues Analysis" (Appendix D).

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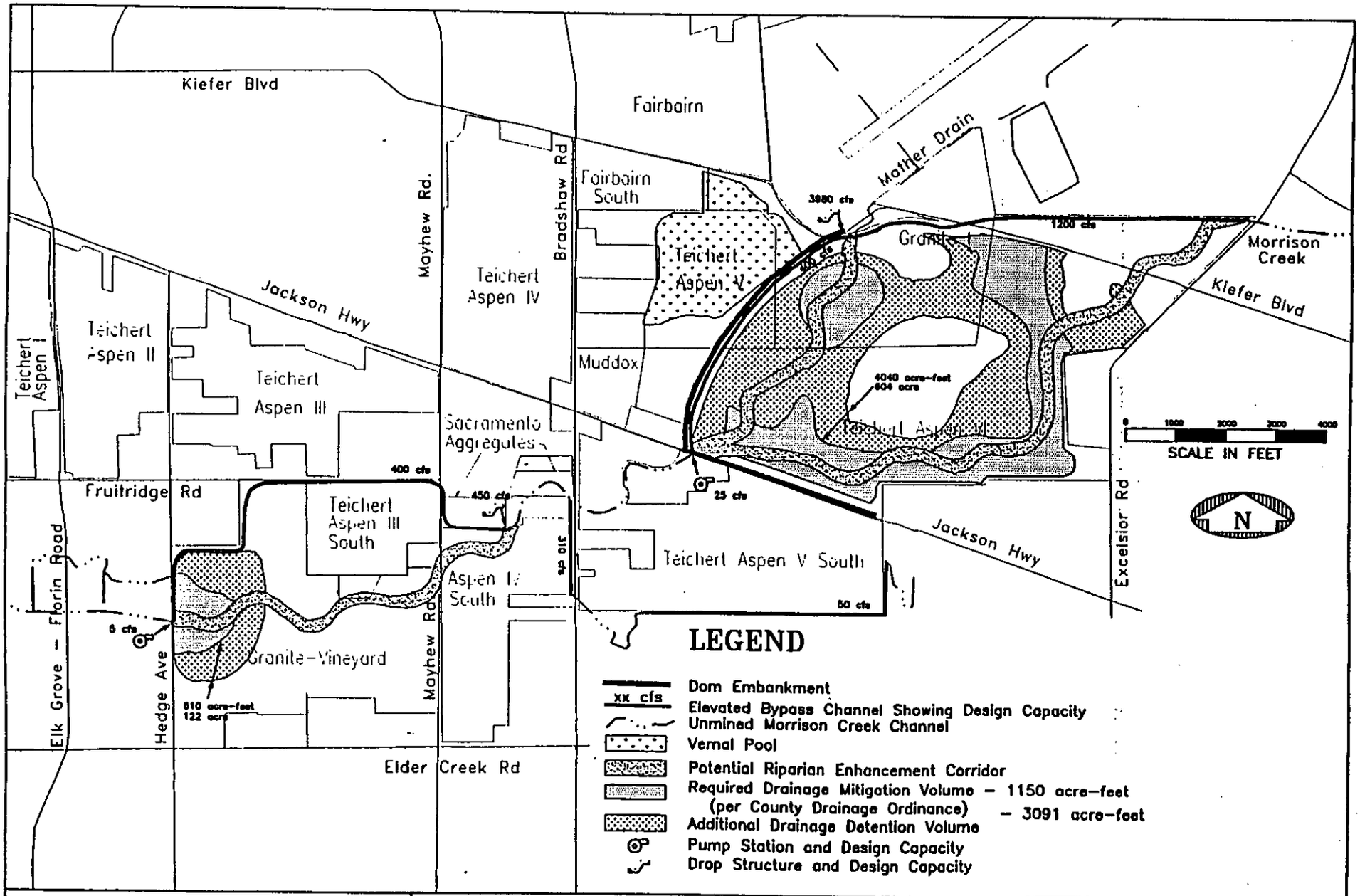
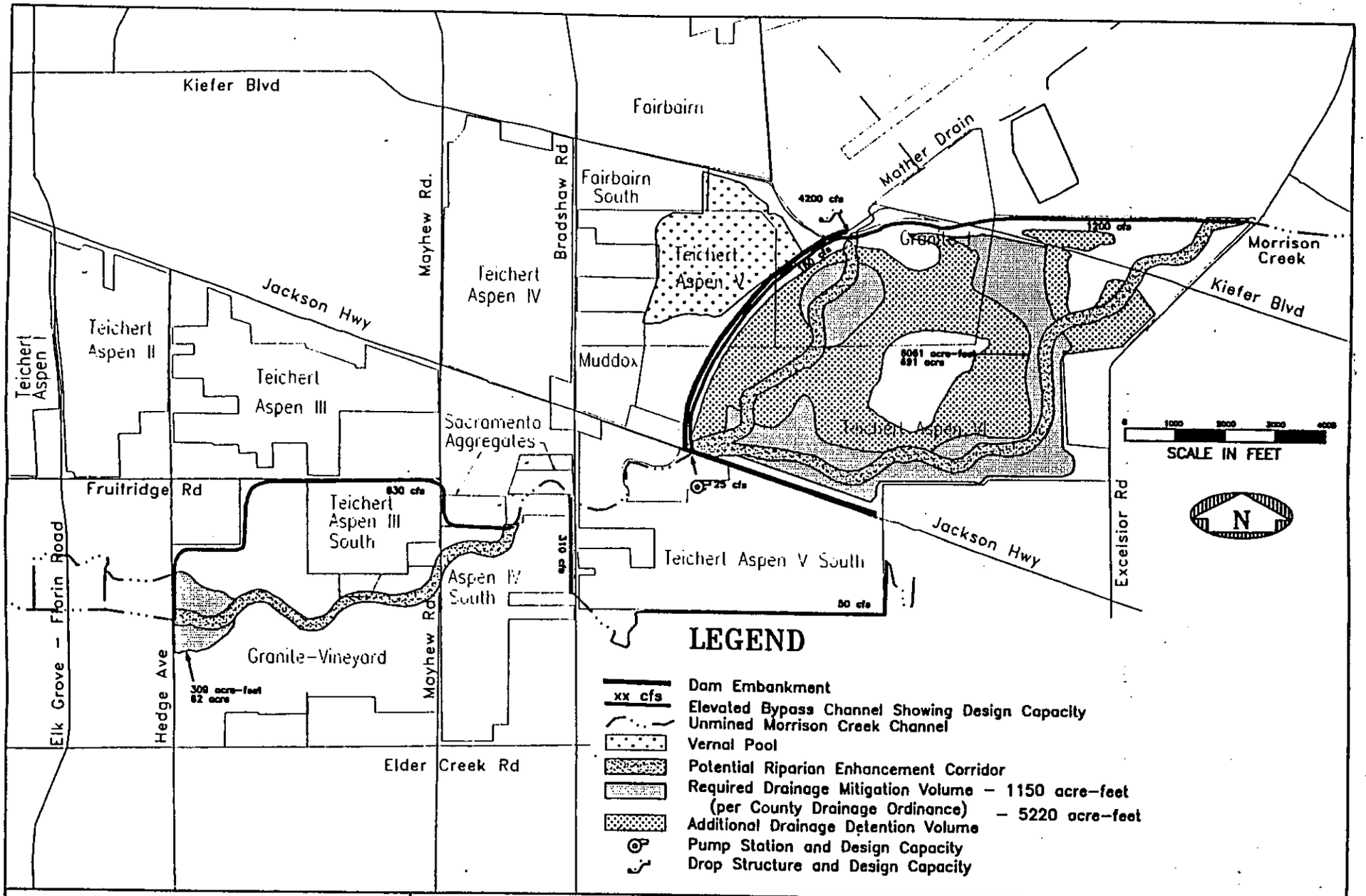


County of Sacramento Water Resources Division	Morrison Creek Mining Reach Drainage Mitigation Plan	Figure 5-3 Alternative 5 Implementation Plan Part B



County of Sacramento Water Resources Division	Morrison Creek Mining Reach Drainage Mitigation Plan	Figure 5–4 Alternative 6 Implementation Plan Part B

Table 5-1
Summary of Peak Flows and Volumes for
Alternatives 2, 4, 5, and 6

Alternative Number	Upper Mining Pit, 10-Day Design Storm								Lower Mining Pit, 10-Day Design Storm								100-Year, 12-Hour Peak Flow at Non-Damaging Reach (cfs)*
	2-Year		10-Year		50-Year		100-Year		2-Year		10-Year		50-Year		100-Year		
	Peak Storage (ac-ft)	Drain Time (day)	Peak Storage (ac-ft)	Drain Time (day)	Peak Storage (ac-ft)	Drain Time (day)	Peak Storage (ac-ft)	Drain Time (day)	Peak Storage (ac-ft)	Drain Time (day)	Peak Storage (ac-ft)	Drain Time (day)	Peak Storage (ac-ft)	Drain Time (day)	Peak Storage (ac-ft)	Drain Time (day)	
2	2884	29	5340	54	7630	77	8577	87	90	na	178	na	269	na	309	na	2763
4	105	2	459	9	1118	23	1469	30	90	na	178	na	269	na	309	na	3346
5	516	10	1785	36	3350	68	4040	81	141	14	330	33	529	53	617	62	2866
6	1199	24	3197	64	5213	105	6061	122	90	na	178	na	269	na	309	na	2823

* As defined in the SSULT Study (limiting capacity = approximately 2,800 cfs)

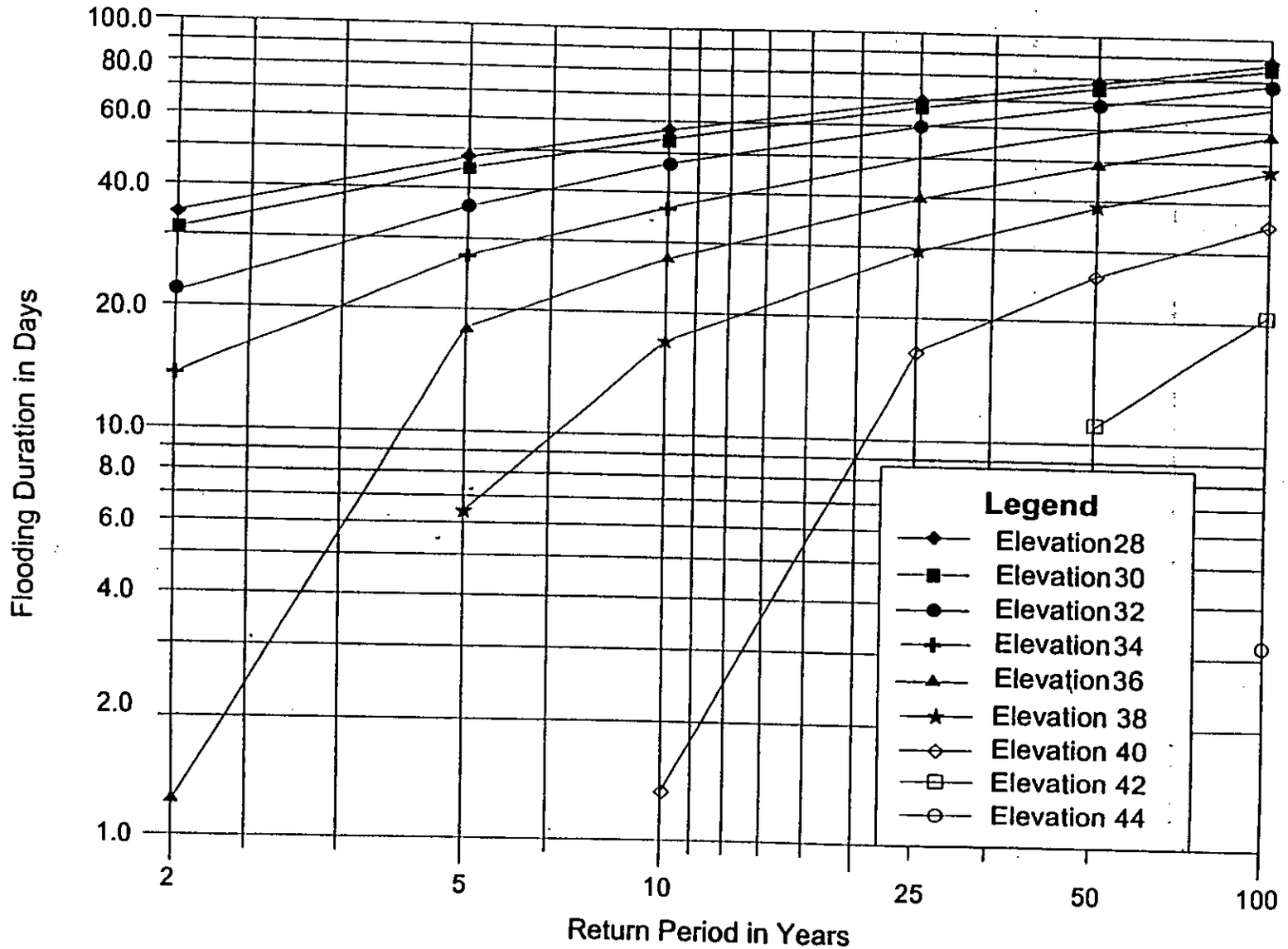


Figure 5-5
Alternative 2 - Pump Everything (50 cfs Pump Station)
Depth-Duration-Frequency in Upper Mined Area

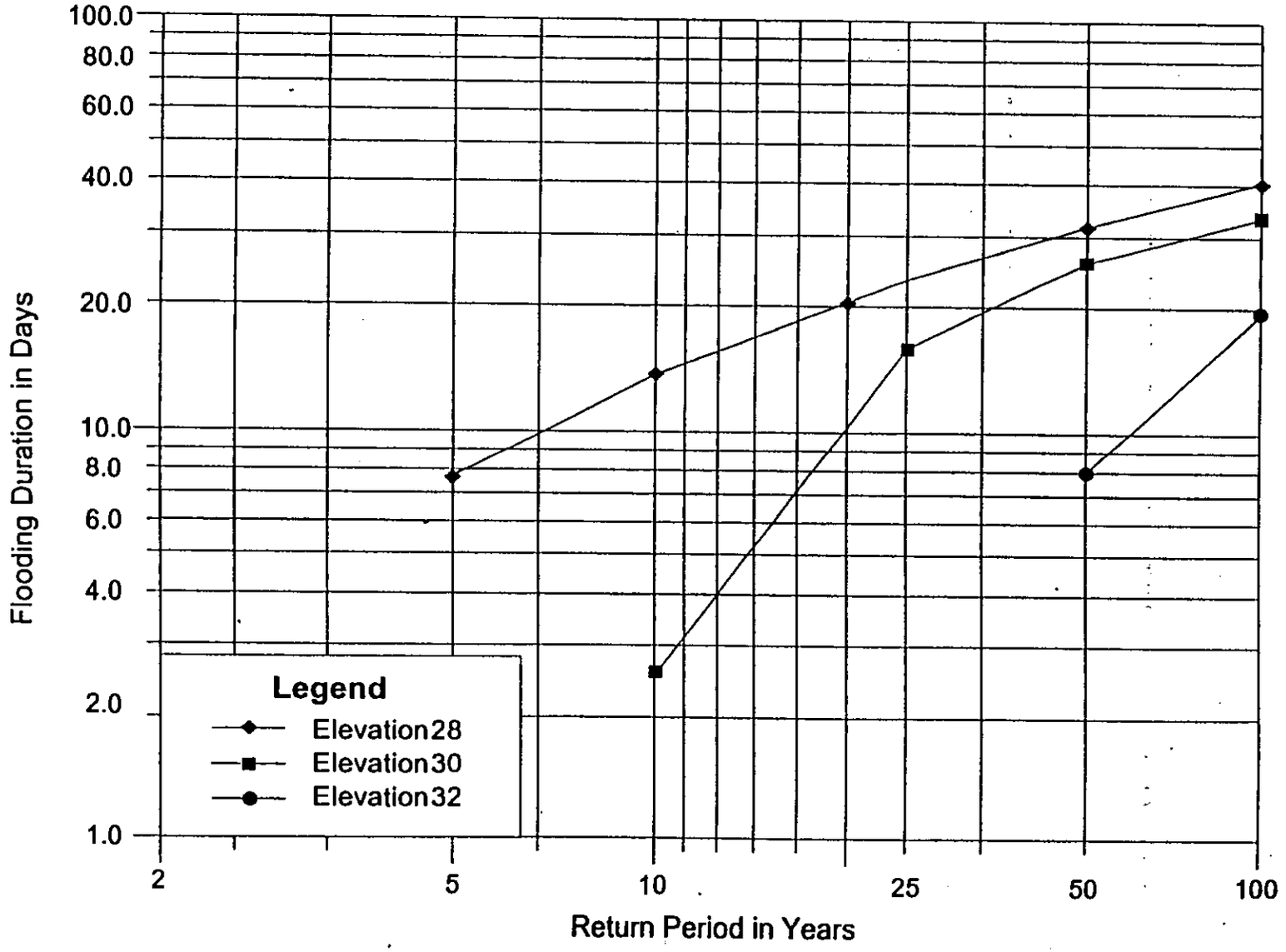


Figure 5-6
Alternative 4 - Miners' Preferred Bypass Channel
Depth-Duration-Frequency in Upper Mined Area

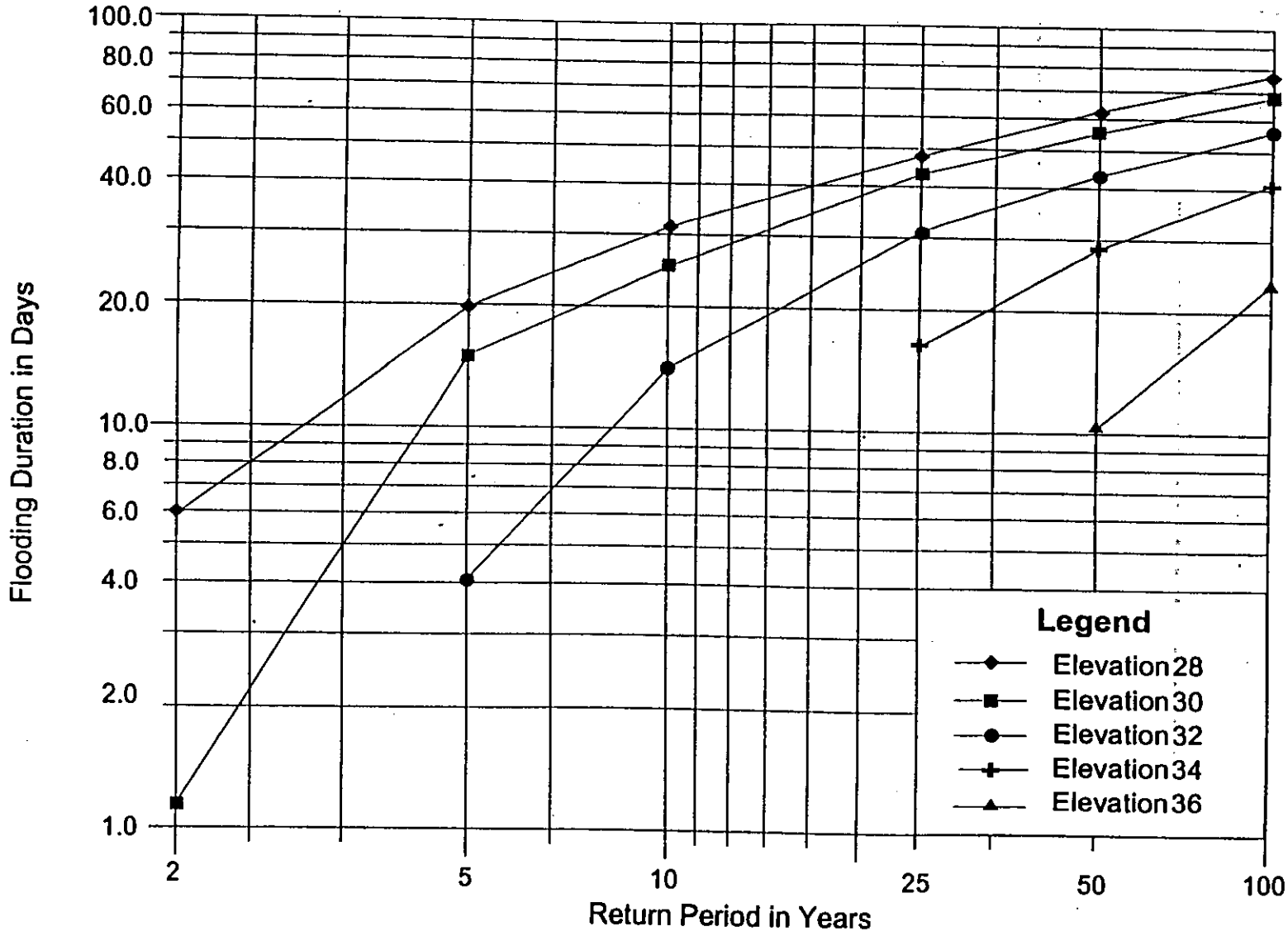


Figure 5-7
Alternative 5 - Downstream Channel Capacity
Depth-Duration-Frequency in Upper Mined Area

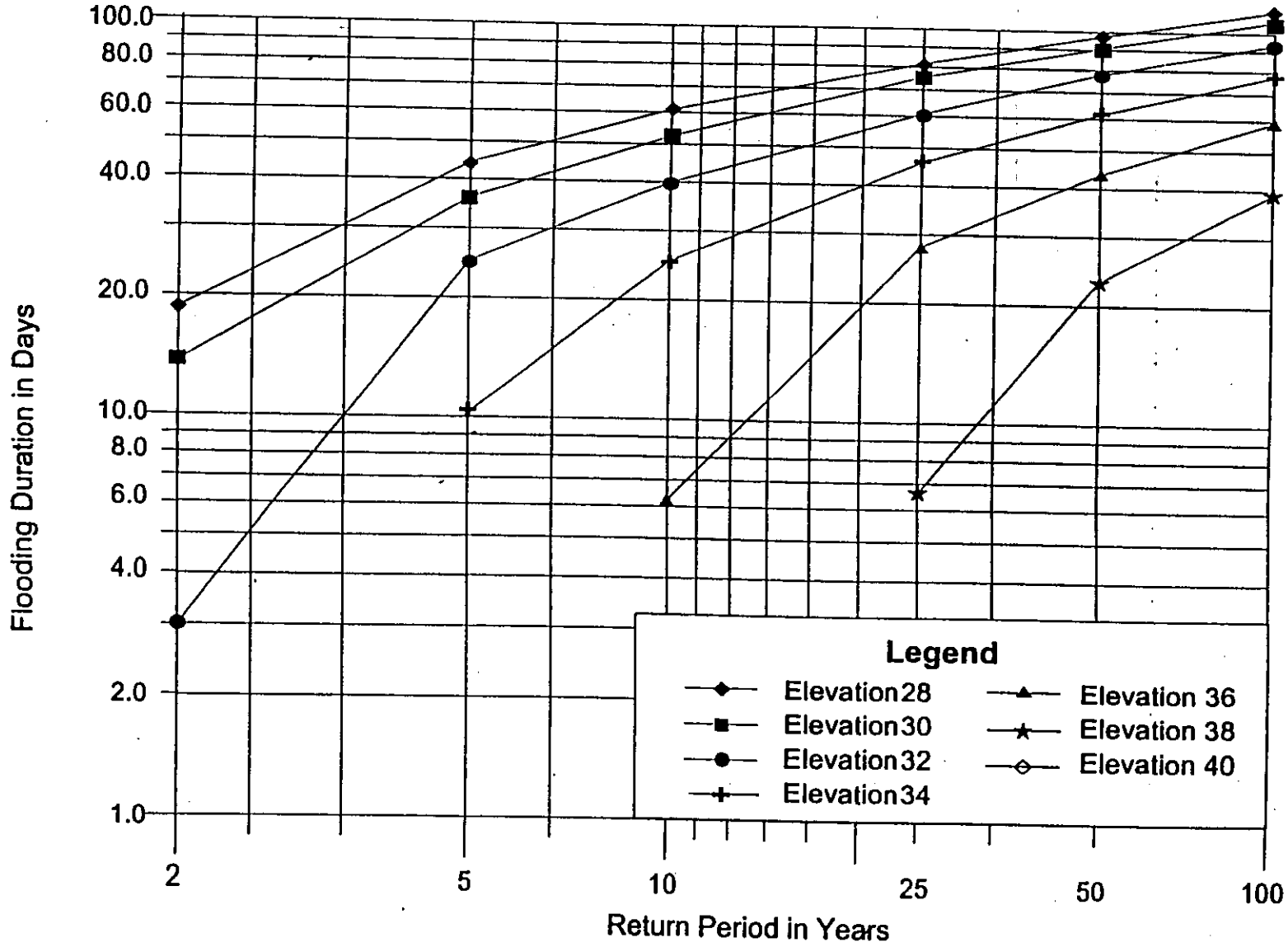


Figure 5-8
Alternative 6 - Volume Mitigation
Depth-Duration-Frequency in Upper Mined Area

Preferred Plan Part B (continued)

Unselected Alternatives

The remaining alternatives described in Appendix B (Alternatives 1, 3, and 7) were not selected for Part B for the reasons described below.

Alternative 1 (Pump Everything, 400-cfs Pump Station) was not selected because it is very similar to Alternative 2 (Pump Everything, 50-cfs Pump Station), but is more costly both in terms of capital costs and annual costs. Because of its 400-cfs pump station, the annual pumping costs are nearly 3 times higher for Alternative 1 compared to Alternative 2.

Alternative 3 (Existing Flow Bypass Channel) was not selected because it is similar to Alternative 4 (Miners' Preferred Bypass Channel), except the capacity of the bypass channel is substantially higher in the lower mining pit and the downstream portion of the upper mining pit. No flood control benefits are derived from this alternative. The higher bypass flows also pose a larger and more significant failure threat.

Alternative 7 (Siphon) was not selected because it is the most costly of the seven alternatives, both in terms of total capital costs and annual costs.

Comparison of Selected Alternatives

Introduction

This section describes the benefits and liabilities of Part A and the other three selected alternatives for Part B, based on project components. This information will be used by the Sacramento County Board of Supervisors in deciding whether to accept Part A alone or to additionally select one of the Part B alternatives. The advantages and disadvantages of these four selected alternatives are presented in tabular format as Table 5-2.

Land Use

If one of the Part B alternatives, owned and operated by the County, is selected, a control structure would be constructed at the Mather Drain weir. This control structure would be able to stop flow to the lower pit if a channel failure occurred. This control would make it possible to develop the lower pit with either residential or commercial land uses. The possibility of channel failure precludes such development with the miner-owned Part A.

Permanent Pool

All selected alternatives will have a permanent pool in the mining pits. Benefits of the permanent pool could include infiltration (groundwater recharge potential), wildlife habitats, recreation. Due to the attraction of a permanent pool to birds, a potential liability exists for a bird strike hazard in conjunction with the proposed airport at Mather. The possibility also exists that the permanent pool could become stagnant and become a breeding ground for mosquitoes.

Potential recharge benefits associated with the permanent pool may be diminished or even eliminated as a result of the low infiltration potential of the strata underlying the permanent pool (i.e., if the underlying strata exhibit low permeability). Further, since the Mather contaminated groundwater plume is close to the northwest corner of the mining pit, if there is significant recharge the plume may be "pushed" in a different direction by the head differential in the aquifer caused by infiltration from the permanent pool. Remediation efforts may be adversely affected by a change in plume movement, but at the same time may be enhanced by a change in groundwater gradient that slows down the contaminated plume migration.

Pump Station

The pump stations proposed for each alternative would provide the ability to regulate and control the level of the detention storage pool associated with the alternative. The primary liability associated with pump stations would be the annual operating and maintenance cost for pumping. In particular, Alternative 2 requires pumping of all flows in Morrison Creek and Mather Drain and thus has high energy and maintenance costs.

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Table 5-2

Comparison of Alternatives 2, 4, 5, and 6

	Advantages	Disadvantages
Bypass Channel	**Alternative 4 - Miners' Preferred Bypass Channel** **Preferred Plan Part A**	
	• pumping and other annual costs paid by mining companies • no capital cost to County • reduces downstream discharge to BELOW existing development discharge • smaller bypass channel size (compared to the similar Alternative 3) • alternative preferred by mining companies • riparian corridor established (environmental benefit)	• includes 'freestanding' channels; non-aesthetic; failure threat • bypass channel is much larger than other selected alternatives (capacity = 1617 cfs) • upper and lower mined areas designated as 100-year floodplains • peak flow exceeds SSULT limiting downstream channel capacity
Bypass Channel	**Alternative 5 - Downstream Capacity Bypass Channel** **Preferred Plan Optional Part B**	
	• peak flow meets City limiting channel capacity as identified in SSULT • lowest peak flow (400 cfs) at Hedge Avenue • riparian corridor established (environmental benefit) • pit floor recreational opportunities • smaller freestanding channel (400 cfs capacity)	• requires drop structure and 5 cfs pump station for lower pit • includes 'freestanding' channels; non-aesthetic; failure threat • largest required storage (610 ac-ft) in lower pit • highest capital cost ($17.5 million) • DSOD requirements for embankment in upper pit • alters natural flow hydrograph more than some other alternatives (peak flows at Hedge Avenue limited to 400 cfs)
Bypass Channel	**Alternative 6 - Volume Detention Bypass Channel** **Preferred Plan Optional Part B**	
	• median Part B capital cost ($16.1 million) • smallest freestanding channels (180 cfs capacity) • both volume and channel capacity problems mitigated • permanent pool established (environmental benefit) • riparian corridor established (environmental benefit)	• relatively large storage volume (6,061 ac-ft) in upper pit • alters natural flow hydrograph more than some other alternatives (peak flows at Hedge Avenue limited to 180 cfs) • includes 'freestanding' channels; non-aesthetic; failure threat • DSOD requirements for embankment in upper pit
Pump Everything	**Alternative 2 - Pump Everything Small Pump** **Preferred Plan Optional Part B**	
	• lowest Part B capital cost ($7.8 million) • both volume and channel capacity criteria are met (since • lowest annual costs ($228,700) of Part B alternatives • low annual lined channel O&M costs ($30,000) • permanent pool established (environmental benefit) • riparian corridor established (environmental benefit) • potential groundwater recharge	• permanent pool allows possibility of stagnant water • higher annual pumping costs compared to the other two selected Part B alternatives • alters natural flow pattern • largest storage volume (8,577 ac-ft) in upper pit • alters natural flow hydrograph more than other alternatives (peak flows at Jackson Highway limited to 50 cfs) • DSOD requirements for embankment in upper pit • largest potential for impact on contaminated groundwater

Comparison of Selected Alternatives (continued)

Freestanding Channel	The proposed freestanding channels significantly shorten the length of embankment and channel required to convey Morrison Creek and Mather Drain flows to Jackson Highway. As a result, the longitudinal channel slope increases with a corresponding decrease in required channel size. Liabilities resulting from the use of freestanding channels include the aesthetics of the freestanding channel and the failure threat, particularly with the larger bypass flows. This failure threat will result in the definition of both the upper and lower pits as 100-year floodplain for Preferred Plan Part A.
Economics	The primary economic consideration for selecting one of the Part B alternatives would be whether or not a particular alternative provides additional benefit to the County commensurate with a higher capital or annual cost. In some cases, the additional cost of an alternative may not mean a corresponding additional benefit to the County. For example, both Alternative 5 and 6 have higher annual and capital costs than Alternative 2, yet Alternative 2 provides much the same drainage functions as each of them.
Drainage Mitigation Plan Requirements	The two major flood control problems faced by the City and County on Morrison Creek are the limited downstream channel capacity and the volume concerns at Beach-Stone Lakes. Additionally, the County has a policy that post-development flows shall not exceed pre-development flows for any given parcel. All four of the selected alternatives meet or exceed this County policy. Only the pumping, channel capacity, and volume mitigation alternatives (Alternatives 2, 5, and 6, respectively) meet the downstream channel constraint. Only the pumping and volume mitigation alternatives (Alternatives 2 and 6) meet the volume constraint.
Miners' Requirements	Miners' concerns are: • A potential liability associated with the smaller bypass alternative (Part A) involves the greater risk of having water enter the upper mining pit while it is being actively mined • The Part B alternatives would require additional compaction along the dam embankment formed by the freestanding channel and Jackson Highway • The miners indicate that operational constraints during mining operations are greatest with the pump everything alternative (Alternative 2)

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Comparison of Selected Alternatives (continued)

Other Comparisons

This section presents additional comparisons among the four selected alternatives. This information will also help the Board of Supervisors choose a course of action.

The "pump everything" small pump alternative (Alternative 2) has the most impact on downstream flow regimes, because all flow passes through the pump station and the capacity is limited to 50 cfs.

Part A may offer more intensive recreational possibilities and more land in the upper pit available for other uses compared to the Part B alternatives because it has the smallest storage requirements. Conversely, Alternative 2 requires the most storage volume and therefore less land would be available for intensive recreational possibilities.

The volume mitigation alternative trades more costs at the mining pits for reduced mitigation costs in the Beach-Stone Lakes area. More information on the Beach-Stone Lakes problems are outlined in an Ensign and Buckley report entitled "Beach-Stone Lakes Volume Mitigation" dated April 4, 1994.

Summary

Along with the information in Tables B-1, 5-1, and 5-2, the County can use this section as a guideline to selecting a recommended course of action.

If	Then
Providing volume mitigation at the Beach-Stone Lakes area is the County's main concern	Alternatives 2 or 6
Mitigating the channel capacity problem at the non-damaging reach in the City of Sacramento is the County's main concern	Alternatives 2, 5 or 6
Minimizing capital costs to the County is the main concern	Alternative 2 or 4
Minimizing annual pumping costs to the County is the main concern	Alternative 4 or 5
Minimizing annual pump station and channel maintenance costs to the County is the main concern	Alternative 2 or 4
Minimizing annualized life cycle facility replacement costs to the County is the main concern	Alternative 4

Cost Estimates for Selected Alternatives

Introduction

This section presents the cost estimates for the three Preferred Plan Part B alternatives (Alternatives 2, 5, and 6). These costs are for items over and above the Preferred Plan Part A (Alternative 4) facilities that will be fully funded by the mining companies. Therefore, no costs are presented for Part A (Alternative 4) itself.

Alternative 2 Cost Estimate

Implementing Part B Alternative 2 would require the upgrading of the Jackson Highway pump station from 25 cfs to 50 cfs. In addition, the Reach 1 (Morrison Creek) and Reach 3 (Bradshaw to Hedge) bypass channels would have be lined. The freestanding channel (Reach 2) crossing the upper mining pit and the Jackson Highway frontage would have to be constructed to DSOD standards. Table 5-3 contains the Part B cost estimate for Alternative 2.

Alternative 5 Cost Estimate

Implementation of Part B, Alternative 5, the Downstream Channel Capacity alternative, would require that an additional weir and drop structure be constructed at the point where the Morrison Creek enters the bypass channel around the lower pit downstream of Bradshaw Road. In addition, the Reach 1 (Morrison Creek), Reach 2 (freestanding), and Reach 3 (Bradshaw to Hedge) bypass channels would have be lined. The freestanding channel crossing the upper mining pit and the Jackson Highway frontage would have to be constructed to DSOD standards. A 5-cfs pump station would be constructed at Hedge Avenue to pump out the storage at that location. Table 5-4 is the cost estimate for Part B, Alternative 5.

Alternative 6 Cost Estimate

Implementation of Part B, Alternative 6, the Volume Mitigation alternative, would require lining of the Reach 1 through Reach 3 bypass channels. The freestanding channel crossing the upper pit and the Jackson Highway frontage would have to be constructed to DSOD standards for a dam. Table 5-5 is the Part B, Alternative 6 cost estimate.

Table 5-3

Preferred Plan Part B Cost Estimate

Alternative 2 -- Pump Everything (50 cfs Pump Station)

Divert all flows into the bottom of the pit and recreate a natural stream on the pit floor.

Item	Description	Total Cost ($x1000)	Present Value ($x1000)
1	Reach 1 Channel Lining (6" concrete)	$2,329.8	
2	Drop Structure at Mather Drain increase capacity from 3099 to 3318 cfs	$19.3	
3	Dam Embankment for free-standing channel and Jackson Highway	$1,965.2	
4	Jackson Highway Pump Station (increase capacity from 25 to 50 cfs)	$454.7	
5	Reach 3 Channel Lining (6" concrete)	$1,290.0	
Subtotal		$3,729.2	
	20% Contingency	$745.8	
Subtotal		$4,475.0	
	25% Engineering/Administration	$1,118.8	
Total Cost		$5,593.8	
	Land Acquisition (371 acres)	$2,226.0	
Total Cost With Land Acquisition		$7,819.8	$7,819.8
	Estimated Annual Pumping Costs	$71.9	$1,312.6
	Annual Channel O&M Costs (for 17,350')	$30.0	$546.9
	Annual Pump Station O&M Costs	$21.8	$398.4
	Annualized Replacement Cost for Concrete-Lining of Channels	$38.7	$706.5
	Annualized Replacement Cost for Drop Structures	$18.9	$345.6
	Annualized Replacement Cost for Pump Stations	$47.4	$865.0
Total Annual Costs		$228.7	
Total Present Value of Facilities and Annual Costs			$11,994.8

Note: 1. This cost estimate does not include the impact of this alternative on mining operations. It also does not include costs related to obtaining additional permits, if required.

2. This cost estimate is for the incremental cost of this alternative, over and above the privately funded cost of Part A (Alternative 4).

Table 5-4

Preferred Plan Part B Cost Estimate

Alternative 5 -- Downstream Channel Capacity

Bypass flows around the pit in a channel at existing grade. The channel is sized to meet the downstream channel capacity restrictions on Morrison Creek in the City. Divert excess flows into the pit.

Item	Description	Total Cost ($x1000)	Present Value ($x1000)
Reach 1			
1	Reach 1 Channel Lining (6" concrete)	$2,329.8	
Reach 2			
1	Drop Structure at Mather Drain increase capacity from 3099 to 3978 cfs	$77.4	
2	Dam Embankment for free-standing channel and Jackson Highway	$1,965.2	
3	Reach 2 Channel Lining (6" concrete)	$1,438.9	
Reach 3			
1	Embankment and Channel (capacity=400 cfs)	$507.9	
2	Drop Structure downstream of Bradshaw (capacity=446 cfs)	$180.4	
3	5-cfs Pump Station at Hedge Avenue	$492.5	
4	Reach 3 Channel Lining (6" concrete)	$3,480.3	
Subtotal		**$10,472.4**	
	20% Contingency	$2,094.5	
Subtotal		**$12,566.9**	
	25% Engineering/Administration	$3,141.7	
Total Cost		**$15,708.7**	
	Land Acquisition (303 acres)	$1,818.0	
Total Cost With Land Acquisition		**$17,526.7**	**$17,526.7**
	Estimated Annual Pumping Costs	$25.8	$471.0
	Annual Channel O&M Costs (for 30,900')	$37.5	$684.1
	Annual Pump Station O&M Costs	$21.2	$386.6
	Annualized Replacement Cost for Concrete-Lining of Channels	$217.5	$3,970.1
	Annualized Replacement Cost for Drop Structures	$26.1	$476.3
	Annualized Replacement Cost for Pump Stations	$48.2	$880.6
Total Annual Costs		**$376.2**	
Total Present Value of Facilities and Annual Costs			**$24,395.3**

Note: 1. This cost estimate does not include the impact of this alternative on mining operations. It also does not include costs related to obtaining additional permits, if required.

2. This cost estimate is for the incremental cost of this alternative, over and above the privately funded cost of Part A (Alternative 4).

Table 5-5

Preferred Plan Part B Cost Estimate

Alternative 6 -- Volume Mitigation

Provide volume in the mined areas to mitigate the impacts of future development on the Beach-Stone Lakes area. Flows not required for volume mitigation bypass around the pit at existing elevations.

Item	Description	Total Cost ($x1000)	Present Value ($x1000)
Reach 1			
1	Reach 1 Channel Lining (6" concrete)	$2,329.8	
Reach 2			
1	Drop Structure at Mather Drain increase capacity from 3099 to 4198 cfs	$96.8	
2	Dam Embankment for free-standing channel and Jackson Hwy.	$1,865.3	
3	Reach 2 Channel Lining (6" concrete)	$1,323.4	
Reach 3			
1	Reach 3 Channel Lining (6" concrete)	$3,766.8	
Subtotal		**$9,382.1**	
	20% Contingency	$1,876.4	
Subtotal		**$11,258.5**	
	25% Engineering/Administration	$2,814.6	
Total Cost		**$14,073.1**	
	Land Acquisition (330 acres)	$1,980.0	
Total Cost With Land Acquisition		**$16,053.1**	$16,053.1
	Estimated Annual Pumping Costs	$38.5	$702.9
	Annual Channel O&M Costs (for 30,900')	$37.5	$684.1
	Annual Pump Station O&M Costs	$14.1	$256.6
	Annualized Replacement Cost for Concrete-Lining of Channels	$222.6	$4,063.8
	Annualized Replacement Cost for Drop Structures	$21.3	$388.1
	Annualized Replacement Cost for Pump Stations	$30.4	$555.1
Total Annual Costs		**$364.3**	
Total Present Value of Facilities and Annual Costs			**$22,703.8**

Note: 1. This cost estimate does not include the impact of this alternative on mining operations. It also does not include costs related to obtaining additional permits, if required.

2. This cost estimate is for the incremental cost of this alternative, over and above the privately funded cost of Part A (Alternative 4).

Appendix A

Summary of Phase I Alternatives

Introduction

Phase I Alternatives

This appendix summarizes the Phase I alternatives that were detailed in the June 1992 Phase I report to the County Board of Supervisors. Tables A-1 to A-8 contain feature summaries for the alternatives.

Phase I Preliminary conclusions

Table A-9 lists the preliminary conclusions from the Phase I report.

TABLE A-1
ALTERNATIVE # 1 - NO PROJECT / EXISTING CONDITIONS & TRENDS

FLOOD MANAGEMENT

positive aspects:

- maintains existing level of storage in floodplain of creek
- maintains County policy of no mining in 100-year floodplain of creeks

negative aspects:

- no additional flood detention provided downstream of Sunrise Blvd
- County and City of Sacramento must provide detention and flood control facilities elsewhere
- potential future flooding downstream even without future urban expansion in watershed

UTILITIES & ROADS

positive aspects:

- no major arterial roads affected
- no major sewer, water, or power lines affected

negative aspects:

- none apparent

OPEN SPACE & RECREATION

positive aspects:

- maintains existing rural open space in short term

negative aspects:

- no guaranteed open space in future and no recreational amenity provided outside of Mather AFB

BIOLOGICAL RESOURCES

positive aspects:

- maintains existing biological and vernal pool resources in short term, including natural, ephemeral creek

negative aspects:

- no guaranteed long term protection
- no enhancement of riparian and marsh habitat

GRAVEL RESOURCES

positive aspects:

- none apparent

negative aspects:

- no extraction of a significant, high quality gravel resource

TABLE A-2
ALTERNATIVE # 2 - UPSTREAM DIVERSION TO BYPASS CHANNEL

FLOOD MANAGEMENT

positive aspects:

- high flows in Morrison Creek can be diverted from artificial channel into a designated flood detention basin
- could provide 100-year or greater flood protection
- solves flood hazards in lower Morrison Creek
- flows less than 500 cfs will not require pumping

negative aspects:

- requires pumping of flows that exceed capacity of bypass channel (e.g., 500 cfs or greater)
- bypass channel built at grade may be subject to erosion and frequent maintenance due to limited capacity and earthen fill levees and base

UTILITIES & ROADS

positive aspects:

- Morrison Creek passes under roads at existing bridge crossings and grade

negative aspects:

- major obstacles for roads and utility lines crossing over or under perimeter bypass channel with levees above grade

OPEN SPACE & RECREATION

positive aspects:

- none apparent

negative aspects:

- loss of existing rural open space
- considerable land needed for bypass outside gravel pit
- artificial perimeter channel is visually unaesthetic and has little or no secondary use potential
- no park facilities provided and limited access to open space within gravel basin

BIOLOGICAL RESOURCES

positive aspects:

- maintains natural low flows at existing grade of creek

negative aspects:

- loss of all existing vernal pools and grassland in mined area
- little opportunity for marsh or riparian growth within confined bypass channel

GRAVEL RESOURCES

positive aspects:

- provides for phased extraction of high quality gravel close to point-of-use and processing facilities
- most gravel handling by conveyor instead of on haul roads

negative aspects:

- bypass channel must be built of mine spoils and hauled a long distance to one side of gravel pit
- complicated process to provide continuity of flow in Morrison Creek during phased gravel extraction

TABLE A-3
ALTERNATIVE # 3 - NO MINING IN FLOODPLAIN / MORRISON CREEK AS IS

FLOOD MANAGEMENT

positive aspects:

- maintains existing level of storage in floodplain of creek
- maintains County policy of no mining in 100-year floodplain of creeks
- no pump facility required for 100-year flood flows

negative aspects:

- pits could be flooded unintentionally by 100-year or greater storm flows
- no additional flood detention provided downstream of Sunrise Blvd
- County and City of Sacramento must provide detention and flood control facilities elsewhere
- potential future flooding downstream even without future urban expansion in watershed

UTILITIES & ROADS

positive aspects:

- no disturbance of utilities or roads within floodplain

negative aspects:

- major obstacles for utility crossings between discontinuous gravel pits scattered throughout study area

OPEN SPACE & RECREATION

positive aspects:

- maintains existing rural open space and creek corridor in short term within floodplain area

negative aspects:

- no guaranteed open space in future and no recreational amenity provided outside of Mather AFB
- unaesthetic appearance of several, smaller and disjointed pits throughout area

BIOLOGICAL RESOURCES

positive aspects:

- maintains some existing biological and vernal pool resources in short term
- maintains existing natural, ephemeral creek corridor through floodplain

negative aspects:

- no guaranteed long term protection
- no enhancement of riparian and marsh habitat
- vernal pool impacts outside of floodplain

GRAVEL RESOURCES

positive aspects:

- provides for partial, phased extraction of high quality gravel close to point-of-use and processing facilities

negative aspects:

- less than half of gravel resources in this area are extracted
- numerous conveyor tunnels or surface haul roads required to transport excavated gravel between discontinuous pits to processing plant (i.e., higher resource costs)

TABLE A-4
ALTERNATIVE # 4 - MORRISON CREEK IN PIT, PUMP AT JACKSON, NO MINING ON MATHER

FLOOD MANAGEMENT

positive aspects:

- provides 100-year or greater flood protection downstream of Mather AFB through detention within gravel pit
- wide meander zone for Morrison Creek possible between levees within basin
- maximum of 500 cfs flow below Jackson Hwy

negative aspects:

- requires pumping facility for both high and low flows in Morrison Creek
- requires at grade perimeter bypass channel around gravel pits downstream of Bradshaw Rd
- internal levees within basin must be engineered to prevent failure during high flows and flood storage

UTILITIES & ROADS

positive aspects:

- major arterial roads maintained at existing grade and alignment alongside pits

negative aspects:

- utility lines at pit locations must be rerouted

OPEN SPACE & RECREATION

positive aspects:

- reclaims mined areas to productive agricultural uses
- extensive gravel pits less obtrusive due to large scale
- expansive visual open space provided within basin and viewing from perimeter rim roads
- potential for forested creek corridor and seasonal lake

negative aspects:

- no major recreational development provided, although potential exists within reclaimed basin terraces

BIOLOGICAL RESOURCES

positive aspects:

- major opportunities for marsh and riparian growth within leveed floodplain and creek meander zone
- flood detention basin could also serve as a seasonal wetland and open water habitat

negative aspects:

- loss of all existing vernal pools and grassland in mined area
- Morrison Creek must be pumped to maintain natural flows downstream of Jackson Hwy

GRAVEL RESOURCES

positive aspects:

- complete extraction of high quality gravel resource on private lands in study area
- efficient handling of mine spoils and gravel
- all mined gravel handled within pits and on conveyors

negative aspects:

- no gravel extraction on approximately 700 acres of public land within Mather AFB

TABLE A-5
ALTERNATIVE # 5 - MORRISON CREEK IN PIT, PUMP AT JACKSON, MINING ON MATHER, PARK IN PIT

FLOOD MANAGEMENT

positive aspects:

- provides 100-year or greater flood protection downstream of Mather AFB through detention within gravel pit
- wide meander zone for Morrison Creek possible within pit, including wide corridor downstream of Mather Lake
- maximum of 500 cfs flow below Jackson Hwy

negative aspects:

- requires pumping facility for both high and low flows in Morrison Creek
- requires at grade perimeter bypass channel around gravel pits downstream of Bradshaw Rd
- undetermined complications to avoid contaminant site south of Mather Drain

UTILITIES & ROADS

positive aspects:

- major arterial roads maintained at existing grade and alignment alongside pits

negative aspects:

- utilities at pit locations must be rerouted

OPEN SPACE & RECREATION

positive aspects:

- reclaims mined areas for intensive, large-scale recreational uses on graded terraces within pit
- extensive gravel pits less obtrusive due to large scale
- expansive visual open space provided within basin and viewing from perimeter rim roads
- potential for forested creek corridor between Mather Lake and Jackson Hwy and for seasonal lake above Jackson Hwy

negative aspects:

- loss of existing rural open space in short term

BIOLOGICAL RESOURCES

positive aspects:

- major opportunities for marsh and riparian growth in creek meander zone (twice as long as for #4 & #6)
- terraced flood detention basin serves as a seasonal wetland and open water habitat
- vernal pool mitigation could occur near existing natural vernal pools within grassland south of Mather Lake

negative aspects:

- loss of all existing vernal pools and grassland in mined area
- Morrison Creek must be pumped to maintain natural flows downstream of Jackson Hwy

GRAVEL RESOURCES

positive aspects:

- complete extraction of high quality gravel resource on Both public and private lands in study area
- efficient handling of mine spoils and gravel
- all mined gravel handled within pits and on conveyors

negative aspects:

- none apparent

TABLE A-6
ALTERNATIVE # 6 - MORRISON CREEK IN PIT, PUMP AT HEDGE AVE, NO MINING ON MATHER

FLOOD MANAGEMENT

positive aspects:

- provides 100-year or greater flood protection downstream of Mather AFB through detention within gravel pit
- wide meander zone for Morrison Creek possible between levees within basin
- maximum of 500 cfs flow below Hedge Ave

negative aspects:

- requires pumping facility for both high and low flows in Morrison Creek
- pumping facility may have to be moved from Jackson Hwy to Hedge Ave during phased mining process
- requires expensive tunnel or road bridge to convey flood flows between the two major pits that straddle Jackson Hwy
- internal levees within basin must be engineered to prevent failure during high flows and flood storage

UTILITIES & ROADS

positive aspects:

- major arterial roads maintained at existing grade and alignment alongside pits

negative aspects:

- utility lines at pit locations must be rerouted

OPEN SPACE & RECREATION

positive aspects:

- reclaims mined areas to productive agricultural uses
- extensive gravel pits less obtrusive due to large scale
- expansive visual open space provided within basin and viewing from perimeter rim roads
- potential for forested creek corridor and seasonal lake

negative aspects:

- no major recreational development provided, although potential exists within reclaimed basin

BIOLOGICAL RESOURCES

positive aspects:

- major opportunities for marsh and riparian growth within leveed floodplain and creek meander zone
- flood detention basin could also serve as a seasonal wetland and open water habitat

negative aspects:

- loss of all existing vernal pools and grassland in mined area
- Morrison Creek must be pumped to maintain flows

GRAVEL RESOURCES

positive aspects:

- complete extraction of high quality gravel resource on private lands in study area
- efficient handling of mine spoils and gravel
- all mined gravel handled within pits and on conveyors

negative aspects:

- no gravel extraction on approximately 700 acres of public land within Mather AFB
- complicated and more costly excavation if phased mining proceeds first at Hedge Ave (i.e., not near existing plant and conveyor locations)

TABLE A-7
ALTERNATIVE # 7 - MORRISON CREEK IN PIT, PUMP AT HEDGE AVE, MINING ON MATHER, PARK IN PIT

FLOOD MANAGEMENT

positive aspects:

- provides 100-year or greater flood protection downstream of Hedge Ave through detention within gravel pit and maximum 500 cfs flow
- wide meander zone for Morrison Creek possible within basin, from Mather Lake to Hedge Ave

negative aspects:

- requires pumping facility for both high and low flows in Morrison Creek
- pumping facility may have to be moved from Jackson Hwy to Hedge Ave during phased mining process
- requires expensive tunnel or road bridge to convey flood flows between the two major pits

UTILITIES & ROADS

positive aspects:

- major arterial roads maintained at existing grade and alignment alongside pits

negative aspects:

- utilities at pit locations must be rerouted

OPEN SPACE & RECREATION

positive aspects:

- reclaims mined areas for large-scale recreational uses on terraces within upper pit
- extensive gravel pits less obtrusive due to large scale
- expansive visual open space provided within basin and viewing from perimeter rim roads
- potential for forested creek corridor between Mather Lake and Hedge Ave and seasonal lake above Jackson Hwy

negative aspects:

- loss of existing rural open space in short term

BIOLOGICAL RESOURCES

positive aspects:

- major opportunities for marsh and riparian growth within leveed floodplain and creek meander zone
- terraced flood detention basin serves as a seasonal wetland and open water habitat
- vernal pool mitigation could occur near existing natural vernal pools within grassland south of Mather Lake

negative aspects:

- loss of all existing vernal pools and grassland in mined area
- Morrison Creek must be pumped to maintain flows

GRAVEL RESOURCES

positive aspects:

- complete extraction of high quality gravel resource on both public and private lands in study area
- efficient handling of mine spoils and gravel
- all mined gravel handled within pits and on conveyors

negative aspects:

- complicated and more costly excavation if phased mining proceeds first at Hedge Ave (i.e., not near existing plant and conveyor locations)

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TABLE A-8
ALTERNATIVE # 8 - MORRISON CREEK IN PIT, PUMP AT HEDGE AVE, DETENTION IN UPPER PIT

FLOOD MANAGEMENT

positive aspects:

- provides 100-year or greater flood protection downstream of Hedge Ave through detention within gravel pit and maximum 100 to 500 cfs outflow
- lower long-term costs for operation, maintenance, and capital replacement
- wide meander zone for Morrison Creek possible within basin, from Keifer Blvd to Hedge Ave

negative aspects:

- higher up-front costs and land requirements
- requires pumping facility for both high and low flows in Morrison Creek
- requires habitat maintenance pump for the reach of historic Morrison Creek between Jackson Hwy and Bradshaw Rd
- pumping facility will have to be moved from Jackson Hwy to Hedge Ave during phased mining process, or mining will have to start at Hedge Ave
- requires tunnels to convey flood flows under Bradshaw Rd and Jackson Hwy

UTILITIES & ROADS

positive aspects:

- major arterial roads maintained at existing grade and alignment alongside pits

negative aspects:

- utilities at pit locations must be rerouted

OPEN SPACE & RECREATION

positive aspects:

- reclaims mined areas for possible large-scale recreational uses within upper pit
- extensive gravel pits less obtrusive due to large scale
- expansive visual open space provided within basin and viewing from perimeter rim roads

negative aspects:

- loss of existing rural open space in long term

BIOLOGICAL RESOURCES

positive aspects:

- major opportunities for marsh and riparian growth within creek corridor
- flood detention basin in upper pit serves as a seasonal wetland and open water habitat

negative aspects:

- lose existing vernal pools and grassland in mined area
- Morrison Creek must be pumped to maintain flows downstream of Hedge Ave
- requires habitat maintenance pump for Morrison Creek between Jackson Hwy and Bradshaw Rd

GRAVEL RESOURCES

positive aspects:

- complete extraction of high quality gravel resource on both public and private lands in study area
- efficient handling of mine spoils and gravel
- all mined gravel handled within pits and on conveyors

negative aspects:

- higher cost for interim pump station

TABLE A-9
PRELIMINARY CONCLUSIONS

Alternatives #4, 5, 6, & 7 are the most beneficial for flood control.

Alternative #1 has no impact on utility and road infrastructure, #2 poses the most obstacles, and #'s 3-7 are intermediate in their effect.

Alternatives #4, 5, 6, & 7 are the most beneficial for open space and recreation development, with #5 & 7 providing the most opportunities for intensive recreational uses.

Alternatives #1 & 3 have the least short-term impacts on existing biological resources and vernal pools. However, Alternatives #4 ,5, 6, & 7 provide the greatest future potential for marsh and riparian habitat enhancement, with #5 having the highest potential for a riparian forest corridor within the basin.

Alternatives #4, 5, 6, & 7 are the most beneficial for gravel extraction and #5 & 7 maximize gravel yield in the study area.

Appendix B

Drainage Alternative Analysis

Alternative Analysis -- Approach and Objective

Introduction

To identify a list of viable projects from which the Sacramento County Board of Supervisors can select, a number of different drainage alternatives were considered. All alternatives are based on ultimate land use in the Morrison Creek watershed. This appendix describes the alternatives analysis and includes:

- The objectives of the alternatives analysis
- A description of the types of recommended drainage facilities
- Detailed descriptions of each of the alternatives
- Capital, annual operation and maintenance (O&M), annual pumping, and annualized facility replacement costs for each alternative.

Analysis Objectives

Various project alternatives were analyzed to determine the improvement projects that would most effectively meet the overriding objective to safely convey Morrison Creek flows through or around the reclaimed mining pits. Individual objectives for each of the alternatives are as follows:

Pump Everything Alternatives

- For Alternative 1, to capture all the runoff in the upper mining pit and then pump back to Morrison Creek at the downstream end of the pit (Jackson Highway). Drop structures would carry the flow into the upper pit where Morrison Creek and Mather Drain enter the proposed mining area. Flows downstream of Bradshaw would be carried in a concrete-lined perimeter bypass channel. Recreate a "natural" stream in the bottom of the upper mined area. Provide a pump station that would drain the stored volume in less than a week.
- For Alternative 2, to accomplish the same goals as Alternative 1, but with more economical pumping costs and the correspondingly longer time required to drain the stored volume.

Continued on next page...

Alternative Analysis -- Approach and Objective (continued)

Bypass Channel Alternatives

- For Alternative 3 (Existing Flow Bypass Channel), to use an unlined perimeter bypass channel to pass existing 100-year peak flows around the mined areas. A diversion weir at Mather Drain would send excess flows into the upper mined area to replace existing floodplain storage.

- For Alternative 4 (Miners' Preferred Bypass Channel), to use an unlined perimeter bypass channel to pass reduced flows. This alternative would provide some reduction in downstream flows. A diversion weir in the bypass channel at Mather Drain would reduce flows by sending the excess into the upper mined area.

- For Alternative 5 (Downstream Capacity Bypass Channel), to use a concrete-lined perimeter bypass channel with diversion weirs, at Mather Drain and downstream of Bradshaw, designed to divert sufficient detention volume into the upper and lower mining pits to reduce the downstream ultimate development flow such that the limiting capacity in the City at the damage reach is not exceeded. The limiting capacity used was identified by Ensign and Buckley in the June 1991 "South Sacramento Urban Levees and Tributaries Study."

- For Alternative 6 (Volume Detention Bypass Channel), to use a perimeter bypass channel with a diversion weir at Mather Drain designed to divert sufficient flow volume into the upper mined area for long-term detention, in order to mitigate the volume impacts of future development in the entire MCSG on Beach-Stone Lakes.

- For Alternative 7 (Bypass Siphon and Channel), to function the same as Alternative 6, while providing a safer bypass conveyance that utilizes a single-barrel inverted siphon to cross the upper pit, instead of a freestanding channel.

The alternatives fall into two general categories. Under the "pump everything" alternatives (1 and 2), all Morrison Creek streamflow enters the upper mining pit and is pumped up to the Morrison Creek invert at Jackson Highway. Under the "bypass channel" alternatives (3, 4, 5, 6, and 7) a bypass channel or pipe carries a portion of Morrison Creek flows around the upper and lower pits, with excess flows are diverted into the upper pit.

The Alternatives 1 to 2, and 5 to 7 utilize concrete-lined channels for safety reasons as these alternatives would be County-owned. Unlined channels are specified for Alternatives 3 and 4 which would be owned by the mining companies —

Table B-1 presents a comparison of the seven alternatives.

Table B-1

Morrison Creek Mining Reach Drainage Mitigation Plan
Alternative Comparison

	Alternative #1 Pump Everything (400 cfs Pump)	Alternative #2 Pump Everything (50 cfs Pump)	Alternative #3 Existing Flow Bypass Channel	Alternative #4 Miners' Preferred Bypass Channel	Alternative #5 Downstream Channel Capacity	Alternative #6 Volume Mitigation	Alternative #7 Siphon
	Divert all flows to the bottom of the pit and recreate a natural stream on the pit floor	Same as Alt #1, but with a minimal sized pump at Hedge Avenue.	Bypass flows around the pit in a channel at existing grade, sized to pass existing 100-year peak flows. Divert excess flows into the pit.	Mid range of detention and channel size. Divert excess flows into the pit.	Bypass flows around the pit in a channel at existing grade, sized to meet the channel capacity of Morrison Creek in the City. Divert excess flows into the pit.	Provide volume in the mined areas to mitigate impacts of future development on the Beach-Stone Lakes area. Divert excess flows around the pit in a channel at existing grade.	Bypass flows around the pit in a pipe that crosses the pit floor in an inverted siphon. Divert excess flows into the pit.
Upper Pit Required Storage Volume (ac-ft)	3,376	8,577	841	1,469	4,040	6,061	6,446
Lower Pit Required Storage Volume (ac-ft)	309	309	309	309	616	309	309
Bypass Channel Capacity at Hedge Ave. (cfs)	846	496	2,237	1,617	400	626	606
Upper Pit Ultimate Pump Size (cfs)	400	50	N/A	25	25	25	25
Lower Pit Ultimate Pump Size (cfs)	N/A	N/A	N/A	N/A	5	N/A	N/A
Capital Cost (million dollars)	$15.5	$10.4	$6.1	$7.2	$15.5	$13.4	$18.0
Capital Cost with Land (million dollars)	$19.5	$15.7	$8.4	$9.8	$19.8	$17.9	$22.6
Annual Pumping Cost (million dollars)	$0.209	$0.072	$0.009	$0.008	$0.026	$0.039	$0.039
Annual P.S./Channel Maintenance Cost (million dollars)	$0.092	$0.041	$0.026	$0.040	$0.059	$0.052	$0.033
Annualized Life Cycle Replacement Cost (million dollars)	$0.236	$0.116	$0.012	$0.049	$0.190	$0.156	$0.300
Total Annual Cost (million dollars)	$0.536	$0.229	$0.037	$0.096	$0.275	$0.246	$0.372
Acreage Required by Storage	668	885	393	423	726	752	758
Major Constraint			Channel Failure Threat	Channel Failure Threat	Upper Channel Failure Threat	Upper Channel Failure Threat	
Project Benefits	City Peak Flows Mitigated County Volume Increase Mitigated	City Peak Flows Mitigated County Volume Increase Mitigated	No Increase in Peak Flow Privately Funded	Peak Flow Reduced below Existing Privately Funded	City Peak Flows Mitigated	City Peak Flows Mitigated County Volume Increase Mitigated	Safer Conveyance Facility City Peak Flows Mitigated County Volume Increase Mitigated
Project Disadvantages	DSOD Dam Embankment Requirements Highest Pumping Costs Capital Cost Disrupts Natural Flow Hydrograph Mining Difficult	DSOD Dam Embankment Requirements Pumping Costs Disrupts Natural Flow Hydrograph the most Mining Difficult	Safety Threat To Both Pit Floors Bypass Channel has Low Aesthetic Appeal	Safety Threat To Both Pit Floors Bypass Channel has Low Aesthetic Appeal	DSOD Dam Embankment Requirements Safety Threat To Upper Pit Floor Capital Cost Disrupts Natural Flow Hydrograph Bypass Channel has Low Aesthetic Appeal	DSOD Dam Embankment Requirements Safety Threat To Upper Pit Floor Capital Cost Disrupts Natural Flow Hydrograph Bypass Channel has Low Aesthetic Appeal Mining Difficult	DSOD Dam Embankment Requirements Highest Capital Cost Disrupts Natural Flow Hydrograph Mining Difficult
Pit Floor Potential Use	Permanent Lake Riparian Corridor Recreation Vernal Pool Mitigation	Permanent Lake Riparian Corridor Recreation Vernal Pool Mitigation	Riparian Corridor Recreation Floodplain Designation Vernal Pool Mitigation	Riparian Corridor Recreation Floodplain Designation Vernal Pool Mitigation	Permanent Lake Riparian Corridor Recreation Vernal Pool Mitigation	Permanent Lake Riparian Corridor Recreation Vernal Pool Mitigation	Permanent Lake Riparian Corridor Recreation Vernal Pool Mitigation

Proposed Drainage Facilities

Overview

The different types of proposed drainage facilities are described in this section, including drop structures, channels (lined and unlined), pump stations, embankments, pipes and inverted siphons. Detailed unit cost data for the various drainage facilities are included in Appendix C.

Reach Descriptions

For the purposes of analyzing and sizing proposed drainage facilities, Morrison Creek was divided into four reaches:

- Reach 1 from the intersection of Morrison Creek with the upper pit boundary to Mather Drain
- Reach 2 from Mather Drain to Jackson Highway
- Reach 3 from downstream of Bradshaw Road to Hedge Avenue
- Reach 4, the Morrison Creek Tributary along the south side of the southern pit and along Bradshaw Road.

Weir and Drop Structures

Concrete weir and energy dissipation drop structures direct streamflow from existing elevations to the mining pit floor. Drop structures are required at each location where a natural streamcourse discharges into the mining pit. The drop structures have the following characteristics:

- cast-in-place concrete inlet transition - provides a smooth transition from stream channel to chute structure
- concrete chute structure - 30- to 40-foot vertical drop
- USBR Type III stilling basin - with chute blocks, baffle piers, & end sills
- riprap outlet transition from stilling basin
- overflow weir - a horizontal sharp-crested weir designed to pass flows above the 100-year discharge into an overflow channel and away from the drop structure
- access road.

Figure B-1 presents the various components of the drop structures.

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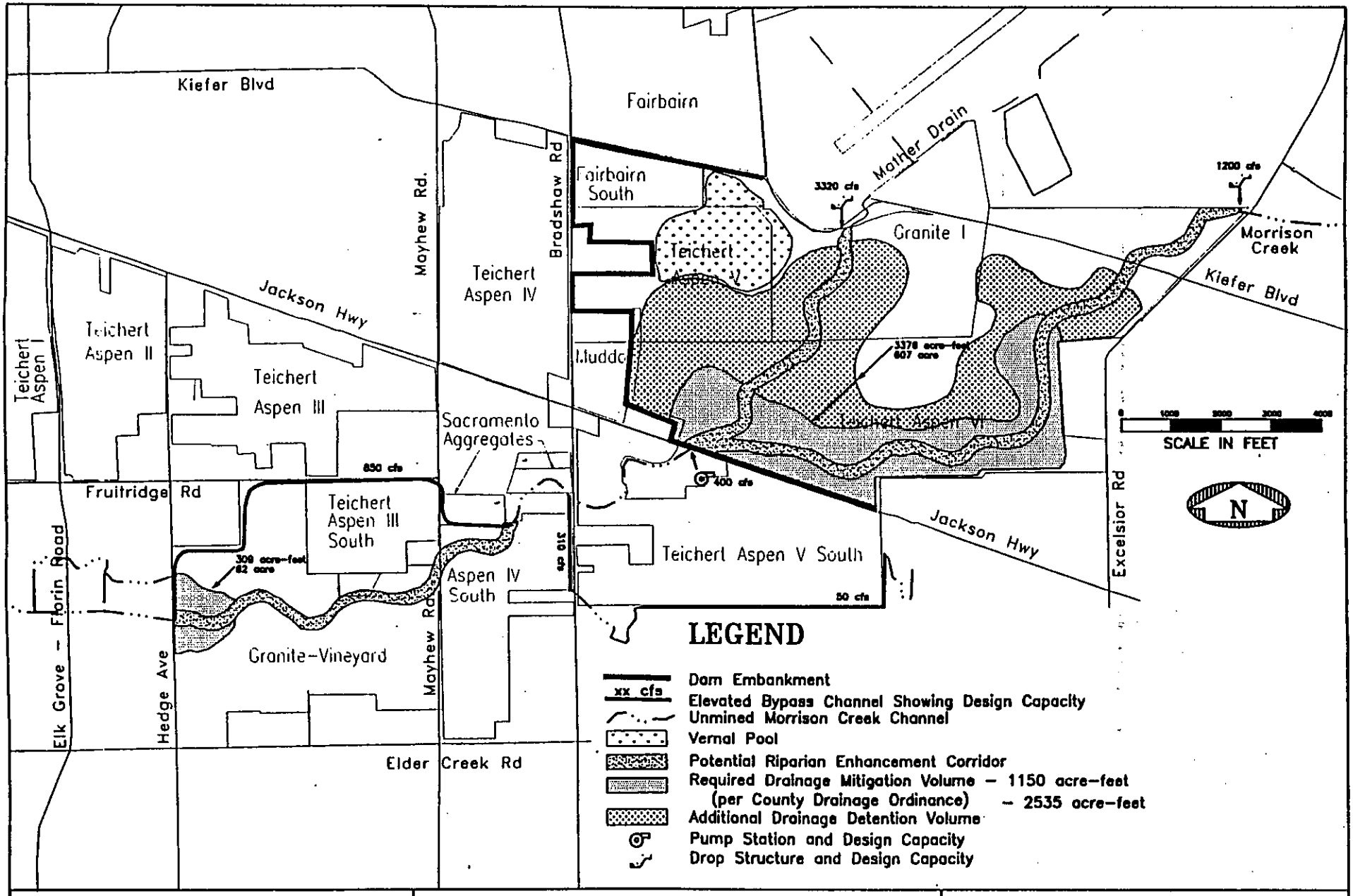

County of Sacramento Water Resources Division	Morrison Creek Mining Reach Drainage Mitigation Plan	Figure B–5 Alternative 1

Proposed Drainage Facilities (continued)

Channels, Lined and Unlined

Reconstructed bypass channels pass flow via open channel flow through the mining pit area. Unlined channels were investigated and are considered acceptable only for Alternatives 3 and 4 that would be owned by the mining companies due to the high risk of failure and maintenance requirements. All other channels are assumed to be concrete-lined.

The channels have the following characteristics

Characteristic	Unlined Channels	Lined Channels
Cross section	trapezoidal	trapezoidal
Minimum bottom width	10 feet	10 feet
Side slopes	3:1 (horiz.:vert.)	1.5:1 (horiz.:vert.
Freeboard	2 feet	2 feet
Lining thickness, type	n/a	6 inches, concrete
Manning's roughness	.030	.018

Construction requirements for embankments are presented later in this appendix. Figure B-2 presents a schematic of the channel characteristics.

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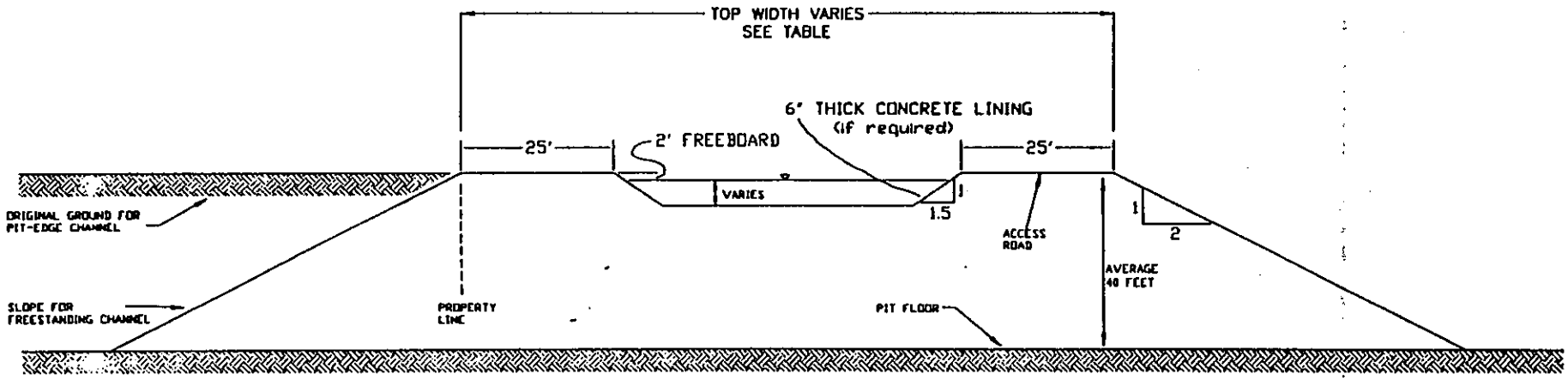

Alternative	Maximum Bypass Channel Topwidth (ft.)
Alt 3 – Existing Flow Bypass Channel	171
Alt 4 – Miners' Preferred Bypass Channel	121
Alt 5 – Downstream Capacity Bypass Channel	88
Alt 6 – Volume Detention Bypass Channel	76
Alt 7 – Bypass Siphon and Channel	76

Not To Scale

County of Sacramento Water Resources Division	Morrison Creek Mining Reach Drainage Mitigation Plan	Figure B–2 Typical Channel

Proposed Drainage Facilities (continued)

Drainage Pump Stations

Drainage pump stations pump stored runoff from the mining pit up to the natural invert of Morrison Creek. The pump stations have the following characteristics:

- concrete building structures with pumps situated above the 100-year flood elevations
- pumping lift of approximately 50 vertical feet
- both operational and standby pumps - standby pumps for emergencies
- outlet pipes with flap gates - to prevent backflow
- hydraulic trash racks - hydraulically operated (automatic)
- riprap outlet transition
- access road
- electrical substations - where required to provide electrical service to the pump station.

Figure B-3 presents the various components of the pump stations.

A summary of the location and size of the pump stations by alternative is presented below.

Alternative Number	Pump Station Location	Pump Station Size (cfs)
1	Jackson Highway	400
2	Jackson Highway	50
3	n/a	n/a
4	Jackson Highway	25
5	Jackson Highway Hedge Avenue	25 5
6	Jackson Highway	25
7	Jackson Highway	25

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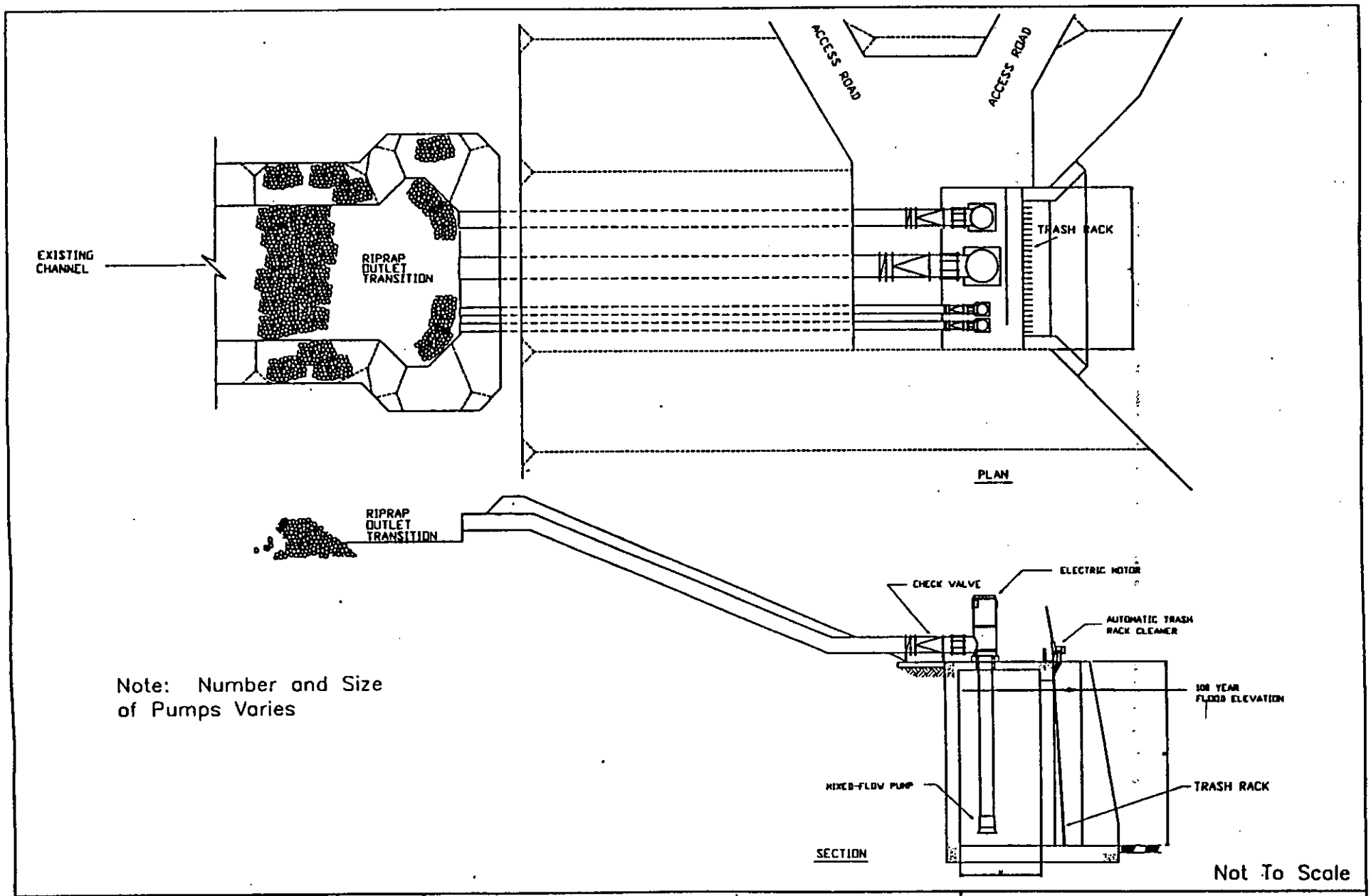

County of Sacramento Water Resources Division	Morrison Creek Mining Reach Drainage Mitigation Plan	Figure B–3 Typical Channel

Proposed Drainage Facilities (continued)

Embankments

The reconstructed bypass channels and inverted siphons along the pit bottom are constructed within compacted soil embankments; these embankments are categorized by one of two configurations -- freestanding or perimeter. Freestanding embankments are elevated with slopes down to the pit floor on either side of them; perimeter embankments are constructed against the vertical perimeter wall of the mining pit, with a slope down to the pit floor on one side only.

Embankments are used for the perimeter and freestanding channels. A summary of the lengths of freestanding and perimeter embankments for each of the alternatives is presented in Appendix C. The embankments will use overburden from mining operations. The embankments have the following characteristics (see Figure B-2):

- trapezoidal in cross section
- 2:1 (horizontal:vertical) outside side slopes for freestanding embankments
- vertical sides for the embankment along the pit wall for perimeter alignments, with 2:1 outside side slopes
- 25-foot wide setback for access roads on either side of channel topwidth, or 25-foot topwidth for embankments associated with inverted siphon pipes
- 3 feet of cover over inverted siphon pipes
- proposed pit floor elevations supplied by GW Consulting Engineers for upper pit and Granite Construction Company's mining application for the Granite Vineyard project for the lower pit were used to determine the embankment volume quantities
- cross sectional channel area is deducted from volume calculations
- embankment heights (pit floor to top of channel) range from 15 to 72 feet in the upper pit and from 19 to 23 feet in the lower pit
- where required, embankment compaction shall be consistent with DSOD's "Guidelines for the Design and Construction of Small Embankment Dams"
- only channel side slopes and bottoms are lined -- access roads are unpaved.

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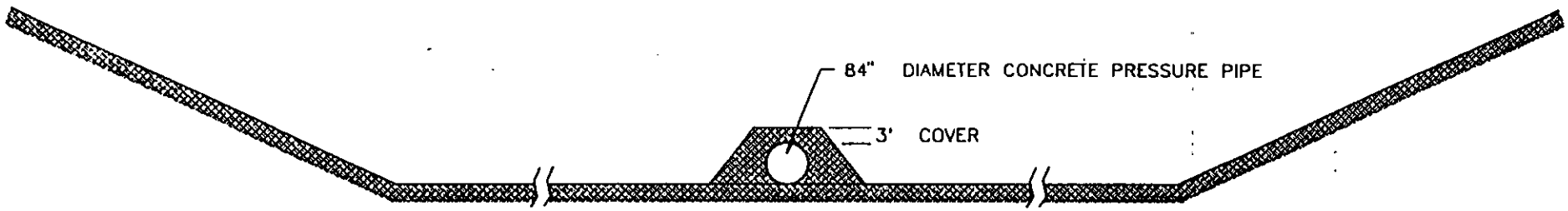
Proposed Drainage Facilities (continued)

Pipes and Inverted Siphons

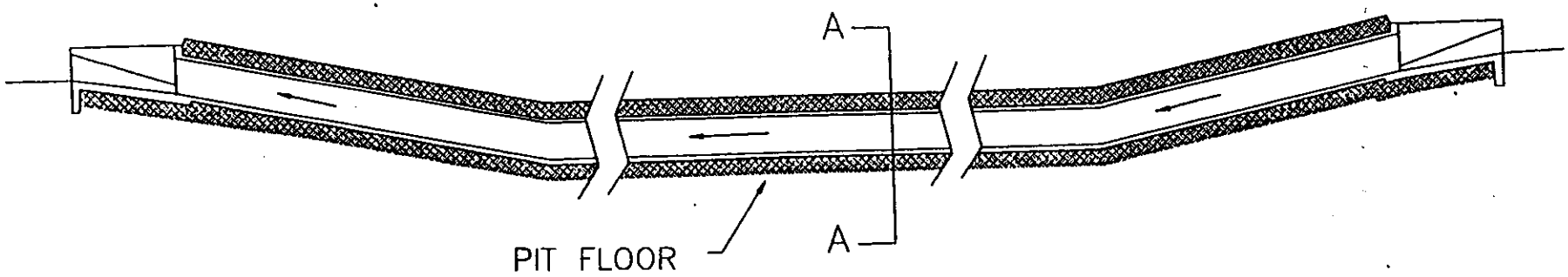
Inverted siphons are investigated as an alternative to open channels along the pit bottom. Inverted siphons have the following characteristics.

- pressure pipes are utilized due to the pressure head caused by the depth of the mining pit
- constructed of "wet pack" pipes with steel core and steel jacket with rings that stay with the jacket overnight during casting
- follow same alignments as the bypass channel alternatives.

Figure B-4 presents the various components of the inverted siphons.



SECTION A–A



PROFILE

Not To Scale

County of Sacramento Water Resources Division	Morrison Creek Mining Reach Drainage Mitigation Plan	Figure B–4 Typical Channel

Opportunities and Constraints

Introduction

The various pump everything and bypass channel alternatives provide both opportunities and constraints for recreation, development, open space corridors, floodplain designations, sewer interceptor, vernal pool mitigation area, and riparian corridors. This section briefly describes these opportunities and constraints.

Recreation

The recreational opportunities associated with the various alternatives include bike trails along the bypass channels and park areas in the reclaimed mining pits. Development of bike paths would require provisions for crossings over Jackson Highway and Bradshaw Road. Park areas might include permanent lakes as water features.

Development

The development associated with the reclamation of the mining pits represents both an opportunity and a constraint. The large area that may become available for development within the reclaimed mining pits is an opportunity. The constraint associated with the development is the requirement that drainage facilities must adequately protect the proposed development (i.e., the bypass channels are concrete lined to protect them from failing).

Alternatives 3 and 4, because they are owned by the mining companies and have unlined bypass channels would not provide development opportunities other than the agriculture proposed in the miners' reclamation plans.

Open Space Corridors

Open space corridors will be created by the bypass channels and areas within the reclaimed mining pits. These could be left as open space or utilized for recreational purposes as described above.

Floodplain Designation in Bottom of Pits

Floodplain designations in the bottom of the reclaimed mining pits represent a constraint. Each alternative will require that the areas within the mining pits subject to flooding be designated as floodplains and restricted from development. Because the bypass channels in Alternatives 3 and 4 are not concrete lined, the entire area within the upper and lower mining pits will be designated as 100-year floodplains. Such a scenario would be an opportunity for agricultural land use, but a constraint for development.

Sewer Interceptor

A proposed sewer interceptor (3MAFB, Sacramento Sewerage Expansion Study, 1993) was to cross the upper mined area to avoid a hill at the intersection of Jackson Highway and Excelsior Road. The mining pit represents an opportunity for this interceptor to be placed in the toe of the reclaimed slope in the southeast corner of the upper mined area.

Continued on next page...

Opportunities and Constraints (continued)

Vernal Pool Mitigation Area	The mining pits represent a constraint with regard to the vernal pool mitigation areas. Vernal pools are sensitive to the depth, duration, and frequency of inundation. Since the detention in the mining pits will be operated for flood control purposes, the depth, duration, and frequency of inundation could adversely affect the species inhabiting the vernal pool mitigation areas if they are located in areas of frequent inundation.
Riparian Corridors	Both the pump everything and bypass channel alternatives offer opportunities for riparian corridors. The pump everything alternatives will allow riparian corridors to develop as the two streamcourses flow to Jackson Highway in the upper mined area. The bypass channel alternatives will have low flow channels in the upper mined areas as riparian corridors. In addition, the wetlands created by short-term inundation resulting from detention storage may also create riparian habitat.
Potential Groundwater Recharge	The opportunity for groundwater recharge is associated with the detention storage of runoff in the upper mining pit. However, the permeability characteristics of the strata below the pit bottom are not known at this time and the exact recharge potential cannot be accurately determined. A constraint associated with groundwater recharge is the possibility that if groundwater recharge occurs in the upper mined area, the contaminated groundwater plume from Mather Air Force Base may be pushed by the recharged groundwater in a different direction than currently assumed in the planning for the remediation.

Alternative 1 -- Pump Everything (400 cfs Pump Station)

Description

This alternative involves the storage of all runoff in the upper mined area and then pumping all the flows back up into Morrison Creek using a 400 cfs pump station at Jackson Highway. The objective of this alternative is to recreate a "natural" stream in the bottom of the upper and lower mined areas. Figure B-5 is a schematic depiction of Alternative 1. Hydraulic features of this alternative include:

- a 400-cfs pump station at Jackson Highway
- drop structures entering the upper mining pit at Morrison Creek and Mather Drain
- a dam embankment compacted to Department of Safety of Dams (DSOD) standards along the east side of Bradshaw Road, north side of Jackson Highway, south side of Kiefer Boulevard between Bradshaw Road and Happy Lane in the upper mined area
- 2,788 acre-feet (approximately 562 surface acres) of storage in upper pit
- 309 acre-feet (approximately 62 surface acres) of storage in the lower pit.
- a perimeter bypass channel with a capacity of 846 cfs around the lower pit

The 400-cfs pump station at Jackson Highway was selected because it is the largest affordable pump station; it evacuates the water stored from the 100-year flood in less than 10 days.

Cost Estimate

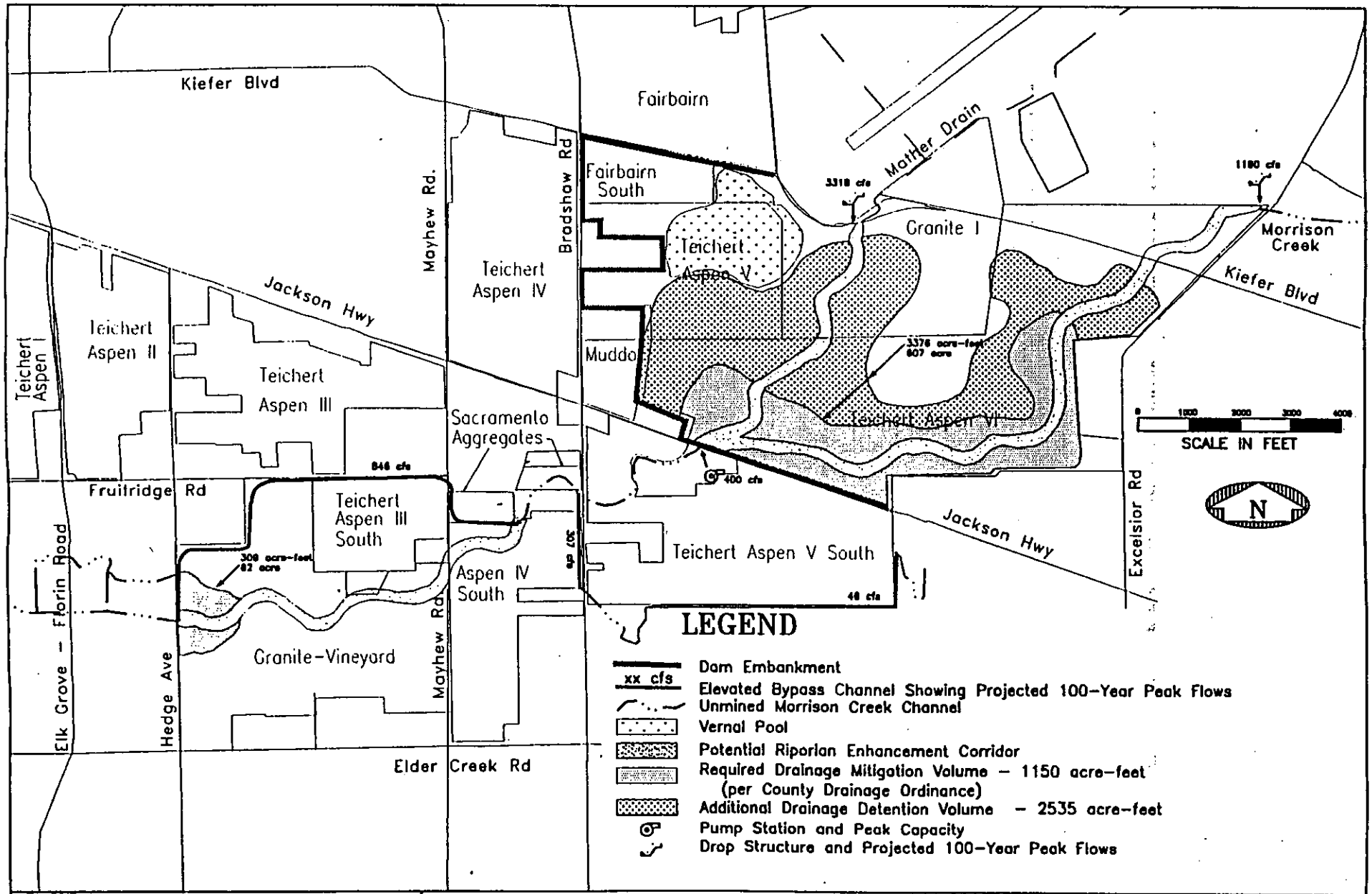
Table B-2 provides a cost estimate for Alternative 1.

Capital Costs

- The capital cost of improvements is $15.4 million.
- The total cost, including land acquisition, for Alternative 1 is $19.2 million.

Annual Costs

- Total annual costs for pumping, operation and maintenance (O&M), and annualized replacement of facilities are $535,100
- Total present worth of capital and annual costs is $28.9 million.



County of Sacramento Water Resources Division	Morrison Creek Mining Reach Drainage Mitigation Plan	Figure B-5 Alternative 1

Table B-2

Cost Estimate

Alternative 1 -- Pump Everything (400 cfs Pump Station)

Divert all flows into the bottom of the pit and recreate a natural stream on the pit floor.

Item	Description	Total Cost ($x1000)	Present Value ($x1000)
1	Drop Structure at Morrison Creek (capacity= 1190 cfs)	$367.0	
2	Drop Structure at Mather Drain (capacity= 3318 cfs)	$637.6	
3	Dam Embankment along Keifer Blvd., Bradshaw Rd., and Jackson Hwy.	$2,793.5	
4	Jackson Highway Pump Station (400 cfs)	$3,889.0	
5	Reach 3 Embankment and Channel (capacity= 846 cfs)	$2,554.0	
6	Reach 4 Morrison Creek Tributary Channels (capacity= 307 & 46 cfs)	$65.8	
Subtotal		**$10,307.1**	
	20% Contingency	$2,061.4	
Subtotal		**$12,368.5**	
	25% Engineering/Administration	$3,092.1	
Total Cost		**$15,460.6**	
	Land Acquisition (669 acres)	$4,014.0	
Total Cost With Land Acquisition		**$19,474.6**	$19,474.6
	Estimated Annual Pumping Costs	$208.5	$3,806.4
	Annual Channel O&M Costs (for 17,350')	$19.2	$350.9
	Annual Pump Station O&M Costs	$72.5	$1,324.4
	Annualized Replacement Cost for Concrete-Lining of Channels	$57.7	$1,052.6
	Annualized Replacement Cost for Drop Structures	$30.1	$550.2
	Annualized Replacement Cost for Pump Stations	$147.8	$2,697.5
Total Annual Costs		$535.8	
Total Present Value of Facilities and Annual Costs			**$29,256.6**

Alternative 2 -- Pump Everything (50 cfs Pump Station)

Description

This alternative is similar to Alternative 1, except it uses a small (50 cfs) pump station at Jackson Highway. Figure B-6 is a schematic depiction of Alternative 2. Hydraulic features of this alternative include:

- a 50-cfs pump station at Jackson Highway
- drop structures entering the upper mining pit at Morrison Creek and Mather Drain
- a dam embankment compacted to Department of Safety of Dams (DSOD) standards along the east side of Bradshaw Road, north side of Jackson Highway, south side of Kiefer Boulevard between Bradshaw Road and Happy Lane in the upper mined area
- 7,747 acre-feet (approximately 814 surface acres) of storage in upper pit
- 309 acre-feet (approximately 62 surface acres) of storage in the lower pit.

The 50-cfs pump station at Jackson Highway was selected for this alternative because it is the minimum size pump that could maintain adequate capacity (10,000 acre-feet) in the mining pits for the long-term operations model (see Chapter Four).

Cost Estimate

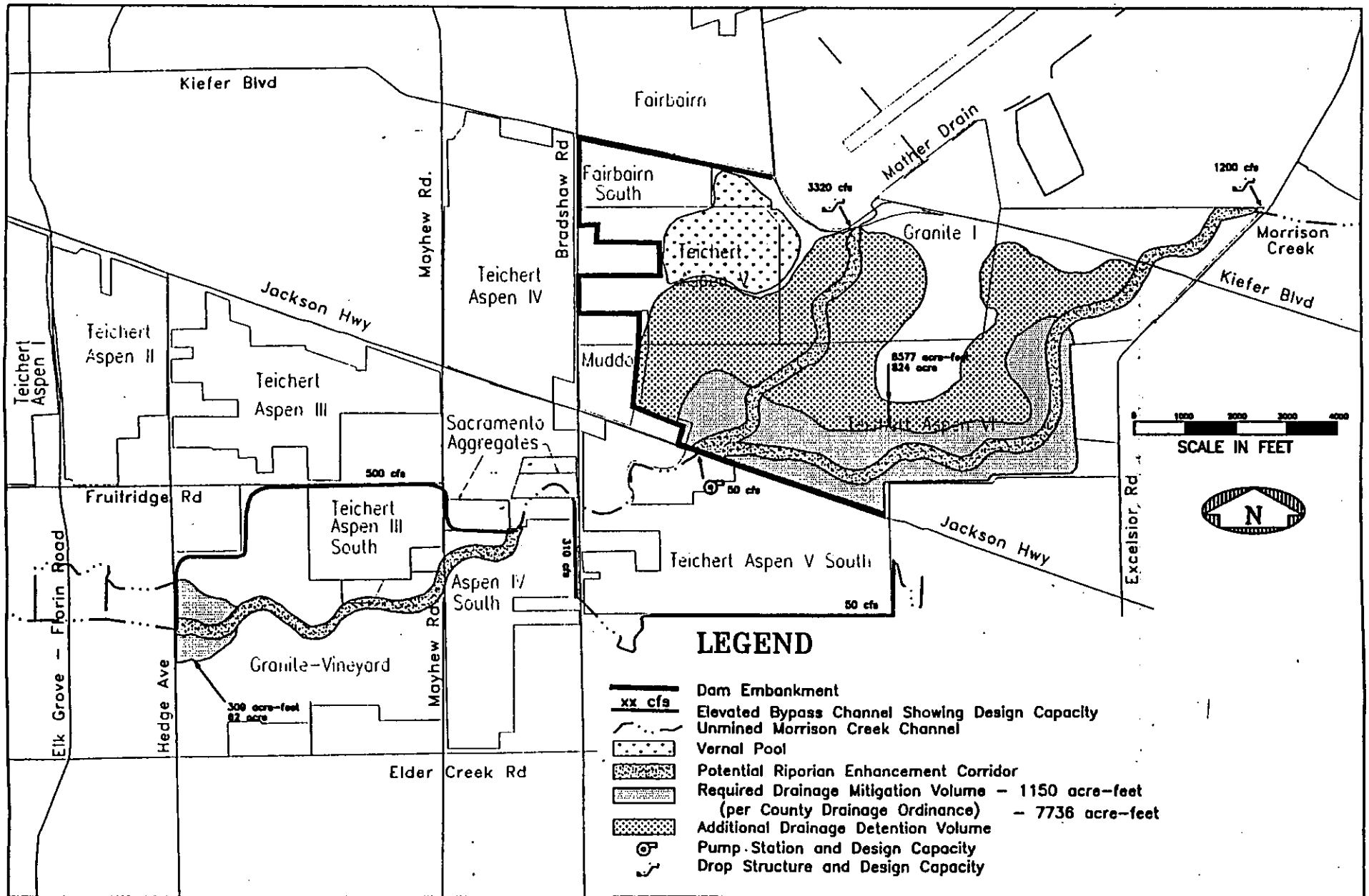
Table B-3 provides a cost estimate for Alternative 2.

Capital Costs

- The capital cost of improvements is $10.4 million.
- The total cost, including land acquisition, for Alternative 2 is $15.6 million.

Annual Costs

- Total annual costs for pumping, O&M, and annualized replacement of facilities are $228,400
- Total present worth of capital and annual costs is $19.8 million



County of Sacramento Water Resources Division	Morrison Creek Mining Reach Drainage Mitigation Plan	Figure B–6 Alternative 2

Table B-3

Cost Estimate

Alternative 2 -- Pump Everything (50 cfs Pump Station)

Divert all flows into the bottom of the pit and recreate a natural stream on the pit floor.

Item	Description	Total Cost ($x1000)	Present Value ($x1000)
1	Drop Structure at Morrison Creek (capacity= 1190 cfs)	$367.0	
2	Drop Structure at Mather Drain (capacity= 3318 cfs)	$637.6	
3	Dam Embankment along Keifer Blvd., Bradshaw Rd., and Jackson Hwy.	$2,793.5	
4	Jackson Highway Pump Station (50 cfs)	$1,267.6	
5	Reach 3 Embankment and Channel (capacity= 496 cfs)	$1,797.9	
6	Reach 4 Morrison Creek Tributary Channels (capacity= 307 & 46)	$65.8	
Subtotal		**$6,929.5**	
	20% Contingency	$1,385.9	
Subtotal		**$8,315.4**	
	25% Engineering/Administration	$2,078.8	
Total Cost		**$10,394.2**	
	Land Acquisition (886 acres)	$5,316.0	
Total Cost With Land Acquisition		**$15,710.2**	$15,710.2
	Estimated Annual Pumping Costs	$71.9	$1,312.6
	Annual Channel O&M Costs (for 17,350')	$19.2	$350.9
	Annual Pump Station O&M Costs	$21.8	$398.4
	Annualized Replacement Cost for Concrete-Lining of Channels	$38.7	$706.5
	Annualized Replacement Cost for Drop Structures	$30.1	$550.2
	Annualized Replacement Cost for Pump Stations	$47.4	$865.0
Total Annual Costs		$229.2	
Total Present Value of Facilities and Annual Costs			$19,893.9

Alternative 3 -- Existing Flow Bypass Channel

Description

This alternative uses a perimeter bypass channel to pass the existing 100-year peak flows around the mined areas. Storage is provided in the mining pits for the attenuation of peak flows using diversion weirs in the channel at Mather Drain to send flows in excess of the bypass channel capacity into the upper mined area. Figure B-7 is a schematic depiction of Alternative 3. Hydraulic features of this alternative include:

- a bypass channel sized to carry the existing 100-year peak flows
- no pump stations
- a diversion weir and drop structure at Mather Drain
- a low-flow inlet at the upper end of each pit
- 314 acre-feet (approximately 151 surface acres) of storage in upper pit
- 309 acre-feet (approximately 62 surface acres) of storage in the lower pit.

For this alternative, DSOD requirements are avoided because the storage is non-jurisdictional due to the fact that it is contained in depressions and does not impinge on embankments.

Cost Estimate

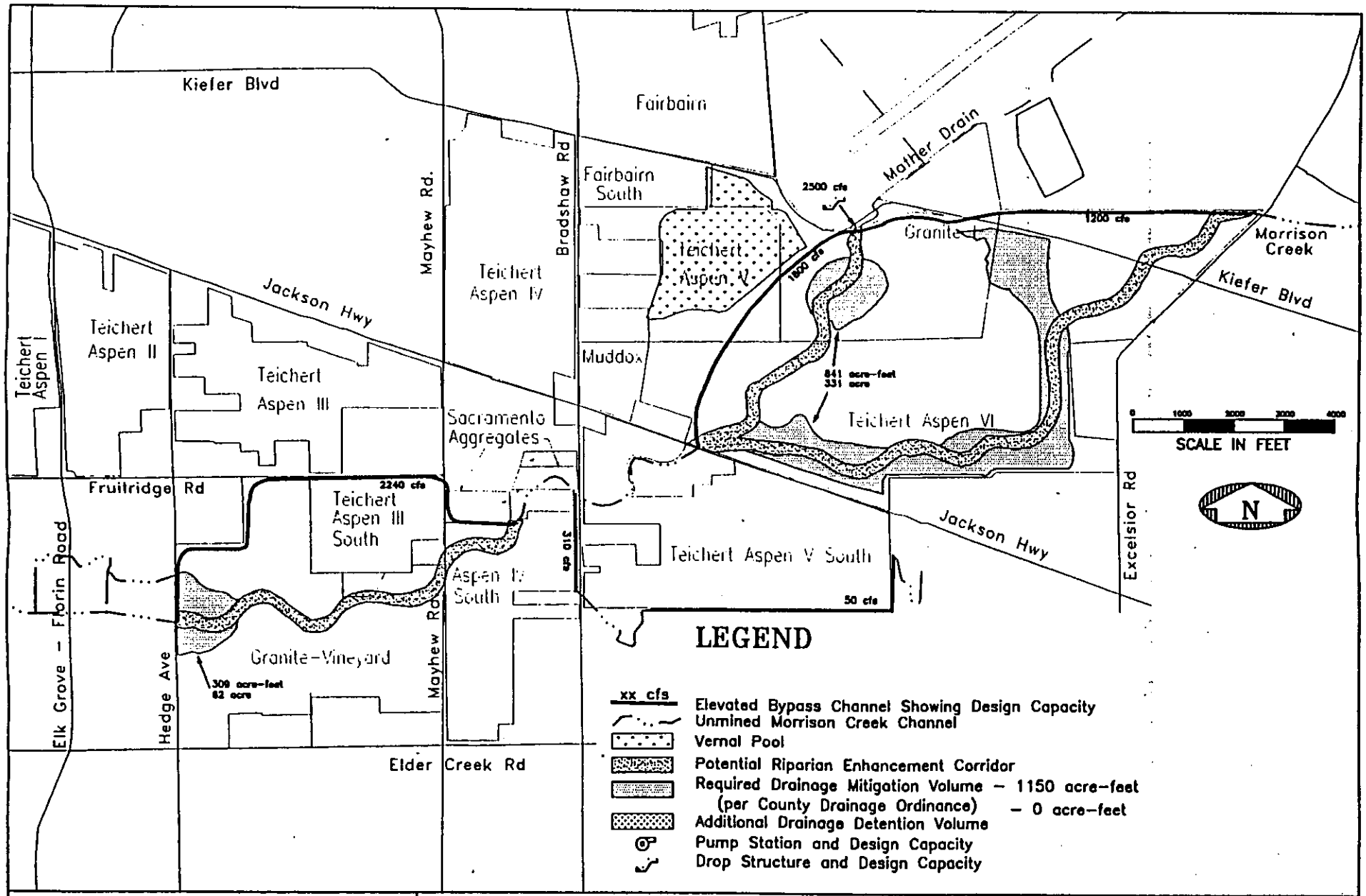
Table B-4 provides a cost estimate for Alternative 3. All costs for this alternative would be paid by the mining companies with no public participation.

Capital Costs

- The capital cost of improvements is $6.1 million.
- The total cost, including land acquisition, for Alternative 3 is $7.4 million.

Annual Costs

- Total annual costs for O&M and annualized replacement of facilities are $37,000
- Total present worth of capital and annual costs is $8.0 million



County of Sacramento Water Resources Division	Morrison Creek Mining Reach Drainage Mitigation Plan	Figure B–7 Alternative 3

Table B-4

Cost Estimate

Alternative 3 -- Existing Flow Bypass Channel

Bypass flows around the pit in a channel at existing elevation. The channel is sized to pass existing 100-year peak flow. Divert excess flows into the pit.

Item	Description	Total Cost ($x1000)	Present Value ($x1000)
Reach 1			
1	Embankment and Channel (capacity= 1,190 cfs)	$1,192.2	
Reach 2			
1	Embankment and Channel (capacity= 1,800 cfs)	$1,104.8	
2	Drop Structure at Mather Drain (capacity= 2498 cfs)	$383.4	
Reach 3			
1	Embankment and Channel (capacity= 2237 cfs)	$1,306.0	
Reach 4			
1	Morrison Cr Tributary Channel along Bradshaw (capacity= 307 cfs)	$41.3	
2	Morrison Cr Tributary Channel along south side of pit (capacity= 46 cfs)	$24.6	
Subtotal		$4,052.3	
	20% Contingency	$810.5	
Subtotal		$4,862.7	
	25% Engineering/Administration	$1,215.7	
Total Cost		$6,078.4	
	Land Acquisition (393 acres)	$2,358.0	
Total Cost With Land Acquisition		$8,436.4	$8,436.4
	Estimated Annual Pumping Costs	$0.0	$0.0
	Annual Channel O&M Costs (for 30,900')	$25.5	$464.9
	Annual Pump Station O&M Costs	$0.0	$0.0
	Annualized Replacement Cost for Concrete-Lining of Channels	$0.0	$0.0
	Annualized Replacement Cost for Drop Structures	$11.5	$210.0
	Annualized Replacement Cost for Pump Stations	$0.0	$0.0
Total Annual Costs		$37.0	
Total Present Value of Facilities and Annual Costs			$9,111.3

Note: 1. Channel lining costs have not been included in this cost estimate

2. All costs would be borne by the mining companies, no public funds involved.

Alternative 4 -- Miners' Preferred Bypass Channel

Description

This alternative is similar to Alternatives 3 and 6, the channel and detention alternatives. Alternative 4 is referred to as the "miners' preferred bypass channel" because this is the alternative used by the mining companies as the reclamation plan in their applications. Figure B-8 is a schematic depiction of Alternative 4. Hydraulic features of this alternative include:

- a bypass channel sized to carry reduced 100-year peak flows
- a 25-cfs pump station at Jackson Highway
- a diversion weir and drop structure at Mather Drain
- a low-flow inlet at the upper end of each pit
- 1,235 acre-feet (approximately 359 surface acres) of storage in upper pit
- 309 acre-feet (approximately 62 surface acres) of storage in the lower pit.

As for Alternative 3, DSOD embankment requirements are not required for this alternative because the storage does not impinge on the embankments.

Cost Estimate

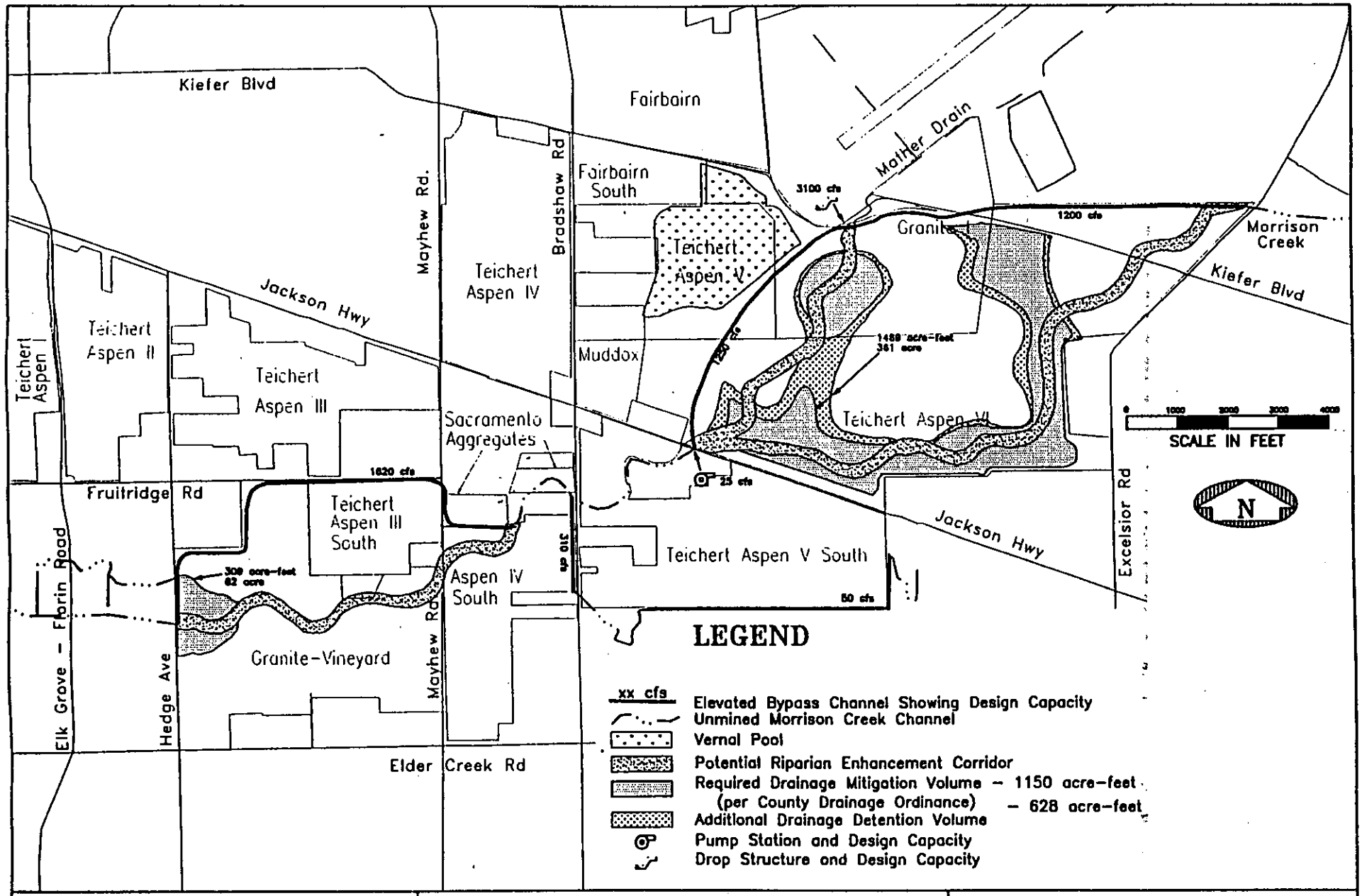
Table B-5 provides a cost estimate for Alternative 4. All costs for this alternative would be paid by the mining companies with no public participation.

Capital Costs

- The capital cost of improvements is $7.2 million.
- The total cost, including land acquisition, for Alternative 4 is $9.7 million.

Annual Costs

- Total annual costs for pumping, O&M, and annualized replacement of facilities are $96,200
- Total present worth of capital and annual costs is $11.5 million



County of Sacramento Water Resources Division	Morrison Creek Mining Reach Drainage Mitigation Plan	Figure B–8 Alternative 4

Table B-5

Cost Estimate

Alternative 4 -- Miners' Preferred Bypass Channel

Bypass flows around the pit in a channel at existing elevation. The channel is sized at mid-range of detention and channel alternatives. Divert excess flows into the pit.

Item	Description	Total Cost ($x1000)	Present Value ($x1000)
Reach 1			
1	Embankment and Channel (capacity= 1190 cfs)	$1,369.4	
Reach 2			
1	Embankment and Channel (capacity= 1244 cfs)	$988.5	
2	Drop Structure at Mather Drain (capacity= 3099 cfs)	$618.3	
4	25-cfs Pump Station at Jackson Hwy	$812.9	
Reach 3			
1	Embankment and Channel (capacity= 1,617 cfs)	$962.1	
Reach 4			
1	Morrison Cr Trib Channel along Bradshaw (capacity= 307 cfs)	$41.3	
2	Morrison Cr Trib Channel along south side of pit (capacity= 46 cfs)	$24.6	
Subtotal		**$4,817.0**	
	20% Contingency	$963.4	
Subtotal		**$5,780.4**	
	25% Engineering/Administration	$1,445.1	
Total Cost		**$7,225.5**	
	Land Acquisition (423 acres)	$2,538.0	
Total Cost With Land Acquisition		**$9,763.5**	**$9,763.5**
	Estimated Annual Pumping Costs	$7.9	$144.2
	Annual Channel O&M Costs (for 30,900')	$25.5	$465.4
	Annual Pump Station O&M Costs	$14.1	$256.7
	Annualized Replacement Cost for Concrete-Lining of Channels	$0.0	$0.0
	Annualized Replacement Cost for Drop Structures	$18.5	$338.6
	Annualized Replacement Cost for Pump Stations	$30.4	$555.2
Total Annual Costs		**$96.4**	
Total Present Value of Facilities and Annual Costs			**$11,523.6**

Note: 1. Channel lining costs have not been included in this cost estimate

2. All costs would be borne by the mining companies, no public funds involved.

Alternative 5 -- Downstream Channel Capacity

Description

This alternative provides peak flow detention storage in the upper and lower mined areas to mitigate the peak flow impacts of future development on the Morrison Creek downstream of the Mining Reach. The goal of this alternative is to ensure that the non-damaging capacity at the limiting reach identified by Ensign and Buckley in the June 1991 South Sacramento Urban Levees and Tributaries (SSULT) Study is not exceeded. This limiting reach, with a non-damaging capacity of 2,800 cfs, is between Stockton Boulevard and Highway 99. For hydrologic purposes, this location was assumed to coincide with node MCC22 in Montgomery Watson's modeling. Figure B-9 is a schematic depiction of Alternative 5. Hydraulic features of this alternative include:

- a bypass channel sized to allow no more than the non-damaging Morrison Creek capacity to enter the City
- a flow of approximately 400 cfs at Jackson Highway and Hedge Avenue
- a 25-cfs pump station at Jackson Highway and a 5-cfs pump station at Hedge Avenue
- a diversion weir and drop structure at Mather Drain, and downstream of Bradshaw
- a dam embankment compacted to Department of Safety of Dams (DSOD) standards along the freestanding bypass channel and the north side of Jackson Highway in the upper mined area
- modifications to the Morrison Creek bridge on Jackson Highway to act as the Probable Maximum Flood (PMF) spillway if required
- 3,481acre-feet (approximately 579 surface acres) of storage in upper pit
- 610 acre-feet (approximately 122 surface acres) of storage in the lower pit.

The 25-cfs pump station at Jackson Highway and a 5-cfs pump station at Hedge Avenue were selected for this alternative because they represent the minimum size pumps that can maintain adequate capacity (10,000 acre-feet) in the mining pits in the operations model (see Chapter Four).

Continued on next page...

Alternative 5 -- Downstream Channel Capacity (continued)

Cost Estimate

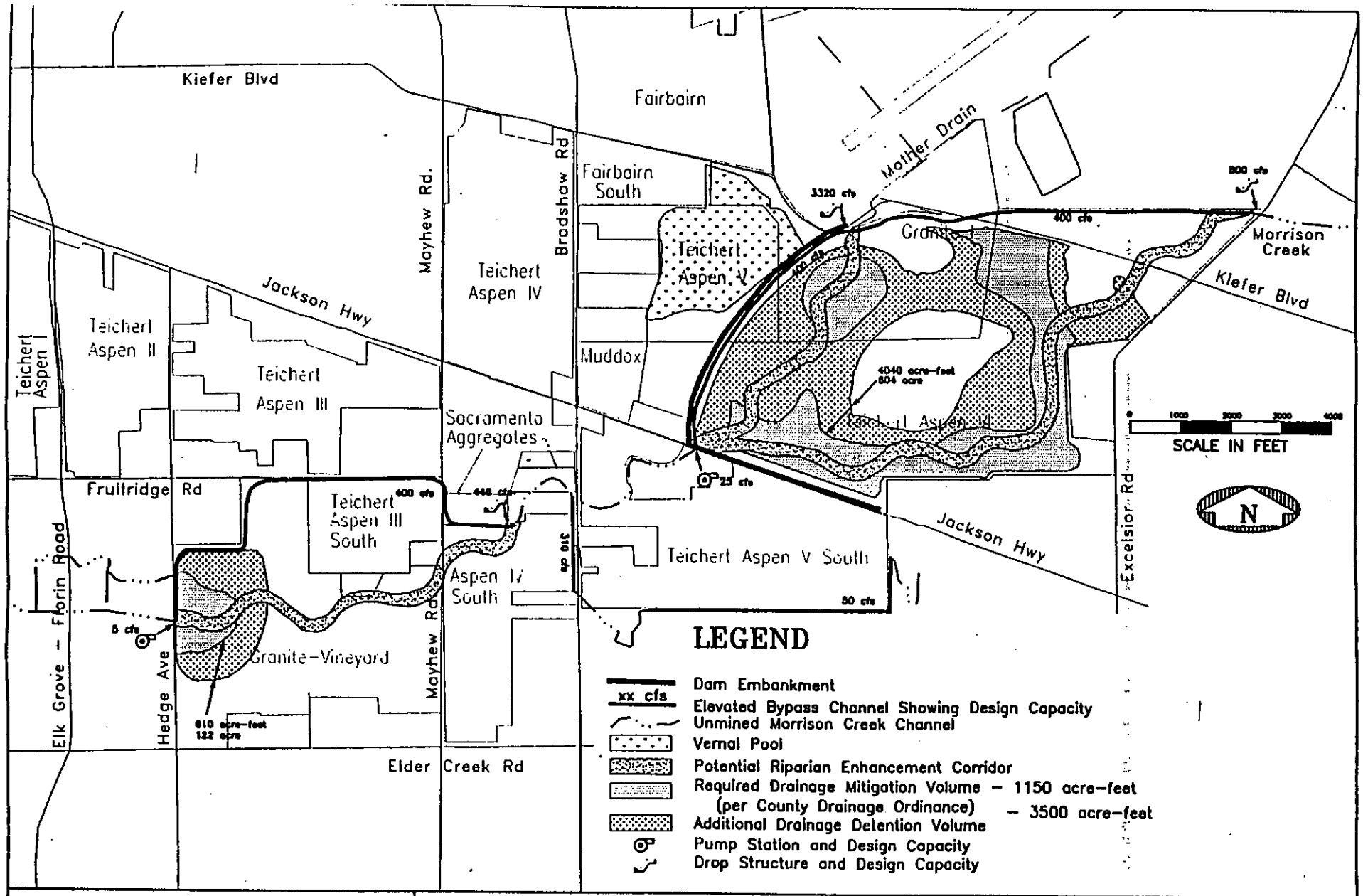
Table B-6 provides a cost estimate for Alternative 5.

Capital Costs

- The capital cost of improvements is $15.4 million.
- The total cost, including land acquisition, for Alternative 5 is $19.6 million.

Annual Costs

- Total annual costs for pumping, O&M, and annualized replacement of facilities are $273,800
- Total present worth of capital and annual costs is $24.6 million



County of Sacramento Water Resources Division	Morrison Creek Mining Reach Drainage Mitigation Plan	Figure B–9 Alternative 5

Table B-6

Cost Estimate

Alternative 5 -- Downstream Channel Capacity

Bypass flows around the pit in a channel at existing grade. The channel is sized to meet the downstream channel capacity restrictions on Morrison Creek in the City. Divert excess flows into the pit.

Item	Description	Total Cost ($x1000)	Present Value ($x1000)
Reach 1			
1	Embankment and Channel (capacity= 400 cfs)	$974.1	
2	Drop Structure at Morrison Creek (capacity= 790 cfs)	$266.7	
3	Reach 1 Channel Lining (6" concrete)	$1,441.3	
Reach 2			
1	Embankment and Channel (capacity= 400 cfs)	$756.1	
2	Drop Structure at Mather Drain (capacity= 3318 cfs)	$637.6	
3	25-cfs Pump Station at Jackson Hwy	$812.9	
4	Dam Embankment for free-standing channel and Jackson Highway	$1,965.2	
5	Reach 2 Channel Lining (6" concrete)	$1,069.9	
Reach 3			
1	Embankment and Channel (capacity= 400 cfs)	$507.9	
2	Drop Structure downstream of Bradshaw Road (capacity= 446 cfs)	$180.4	
3	5-cfs Pump Station at Hedge Avenue	$492.5	
4	Reach 3 Channel Lining (6" concrete)	$1,134.1	
Reach 4			
1	Morrison Cr Trib Channel along Bradshaw (capacity= 307 cfs)	$41.3	
2	Morrison Cr Trib Channel along south side of pit (capacity= 46 cfs)	$24.6	
Subtotal		**$10,304.6**	
	20% Contingency	$2,060.9	
Subtotal		**$12,365.5**	
	25% Engineering/Administration	$3,091.4	
Total Cost		**$15,456.9**	
	Land Acquisition (726 acres)	$4,356.0	
Total Cost With Land Acquisition		**$19,812.9**	$19,812.9
	Estimated Annual Pumping Costs	$25.8	$471.0
	Annual Channel O&M Costs (for 30,900')	$37.5	$684.1
	Annual Pump Station O&M Costs	$21.2	$386.6
	Annualized Replacement Cost for Concrete-Lining of Channels	$109.4	$1,996.5
	Annualized Replacement Cost for Drop Structures	$32.5	$594.1
	Annualized Replacement Cost for Pump Stations	$48.2	$880.6
Total Annual Costs		**$274.6**	
Total Present Value of Facilities and Annual Costs			**$24,825.8**

Alternative 6 -- Volume Mitigation

Description

Alternative 6 provides volume storage in the upper mined area to mitigate the volume impacts of future development in the Morrison Creek Stream Group on the Beach-Stone Lakes area. The goal of this alternative is to capture the difference between the existing and ultimate development runoff volume. Figure B-10 is a schematic depiction of Alternative 6. Hydraulic features of this alternative include:

- a bypass channel around both the upper and lower mined areas sized to provide volume mitigation storage for the 1986 flood in the mined area
- a flow of 180 cfs at Jackson Highway
- a 25-cfs pump station at Jackson Highway
- a diversion weir and drop structure at Mather Drain
- a dam embankment compacted to Department of Safety of Dams (DSOD) standards along the freestanding bypass channel and the north side of Jackson Highway in the upper mined area
- modifications to the Morrison Creek bridge on Jackson Highway to act as the Probable Maximum Flood (PMF) spillway if required
- 5,268 acre-feet (approximately 663 surface acres) of storage in upper pit
- 309 acre-feet (approximately 62 surface acres) of storage in the lower pit.

Cost Estimate

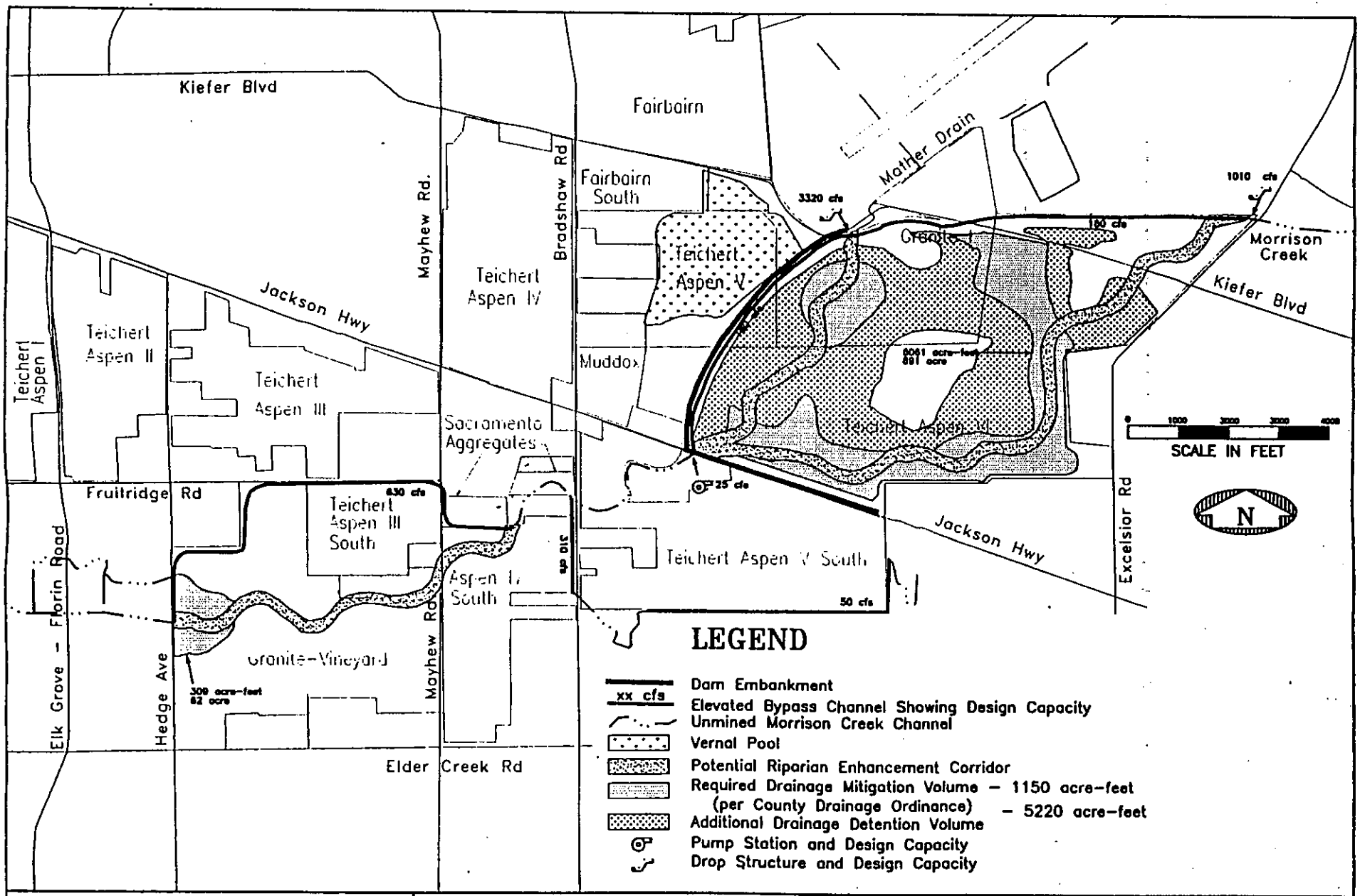
Table B-7 provides a cost estimate for Alternative 6.

Capital Costs

- The capital cost of improvements is $13.3 million.
- The total cost, including land acquisition, for Alternative 6 is $17.6 million.

Annual Costs

- Total annual costs for pumping, O&M, and annualized replacement of facilities are $244,900
- Total present worth of capital and annual costs is $22.1 million



County of Sacramento Water Resources Division	Morrison Creek Mining Reach Drainage Mitigation Plan	Figure B–10 Alternative 6

Table B-7
Cost Estimate
Alternative 6 -- Volume Mitigation

Provide volume in the mined areas to mitigate the impacts of future development on the Beach-Stone Lakes area. Flows not required for volume mitigation bypass around the pit at existing elevations.

Item	Description	Total Cost ($x1000)	Present Value ($x1000)
Reach 1			
1	Embankment and Channel (capacity= 180 cfs)	$762.2	
2	Drop Structure at Morrison Creek (capacity= 1010 cfs)	$321.9	
3	Reach 1 Channel Lining (6" concrete)	$983.8	
Reach 2			
1	Embankment and Channel (capacity= 180 cfs)	$681.2	
2	Drop Structure at Mather Drain (capacity= 3318 cfs)	$637.6	
3	25-cfs Pump Station at Jackson Hwy	$812.9	
4	Dam Embankment for free-standing channel and Jackson Hwy.	$1,865.3	
5	Reach 2 Channel Lining (6" concrete)	$734.9	
Reach 3			
1	Embankment and Channel (capacity= 626 cfs)	$529.1	
2	Reach 3 Channel Lining (6" concrete)	$1,506.4	
Reach 4			
1	Morrison Cr Trib Channel along Bradshaw (capacity= 307 cfs)	$41.3	
2	Morrison Cr Trib Channel along south side of pit (capacity= 46 cfs)	$24.6	
Subtotal		**$8,901.1**	
	20% Contingency	$1,780.2	
Subtotal		**$10,681.3**	
	25% Engineering/Administration	$2,670.3	
Total Cost		**$13,351.6**	
	Land Acquisition (752 acres)	$4,512.0	
Total Cost With Land Acquisition		**$17,863.6**	$17,863.6
	Estimated Annual Pumping Costs	$38.5	$702.9
	Annual Channel O&M Costs (for 30,900')	$37.5	$684.1
	Annual Pump Station O&M Costs	$14.1	$256.7
	Annualized Replacement Cost for Concrete-Lining of Channels	$96.8	$1,766.3
	Annualized Replacement Cost for Drop Structures	$28.8	$525.5
	Annualized Replacement Cost for Pump Stations	$30.4	$555.2
Total Annual Costs		**$246.0**	
Total Present Value of Facilities and Annual Costs			**$22,354.3**

Alternative 7 -- Siphon

Description

This alternative provides peak flow detention and volume storage in the upper mined areas to mitigate the impacts of future development in the Morrison Creek Stream Group. Bypass flows are carried across the bottom of the upper pit in an inverted siphon pipe and around the lower mined areas in a perimeter bypass channel. Figure B-11 is a schematic depiction of Alternative 7. Hydraulic features of this alternative include:

- an 84-inch diameter inverted siphon pipe (in a low berm) carries bypass flows across the upper pit
- a flow of 150 cfs at Jackson Highway
- a 25-cfs pump station at Jackson Highway
- a diversion weir and drop structure at Mather Drain
- a dam embankment compacted to Department of Safety of Dams (DSOD) standards along the freestanding bypass channel and the north side of Jackson Highway in the upper mined area
- modifications to the Morrison Creek bridge on Jackson Highway to act as the Probable Maximum Flood (PMF) spillway if required
- 5,654 acre-feet (approximately 675 surface acres) of storage in upper pit
- 309 acre-feet (approximately 62 surface acres) of storage in the lower pit.

Cost Estimate

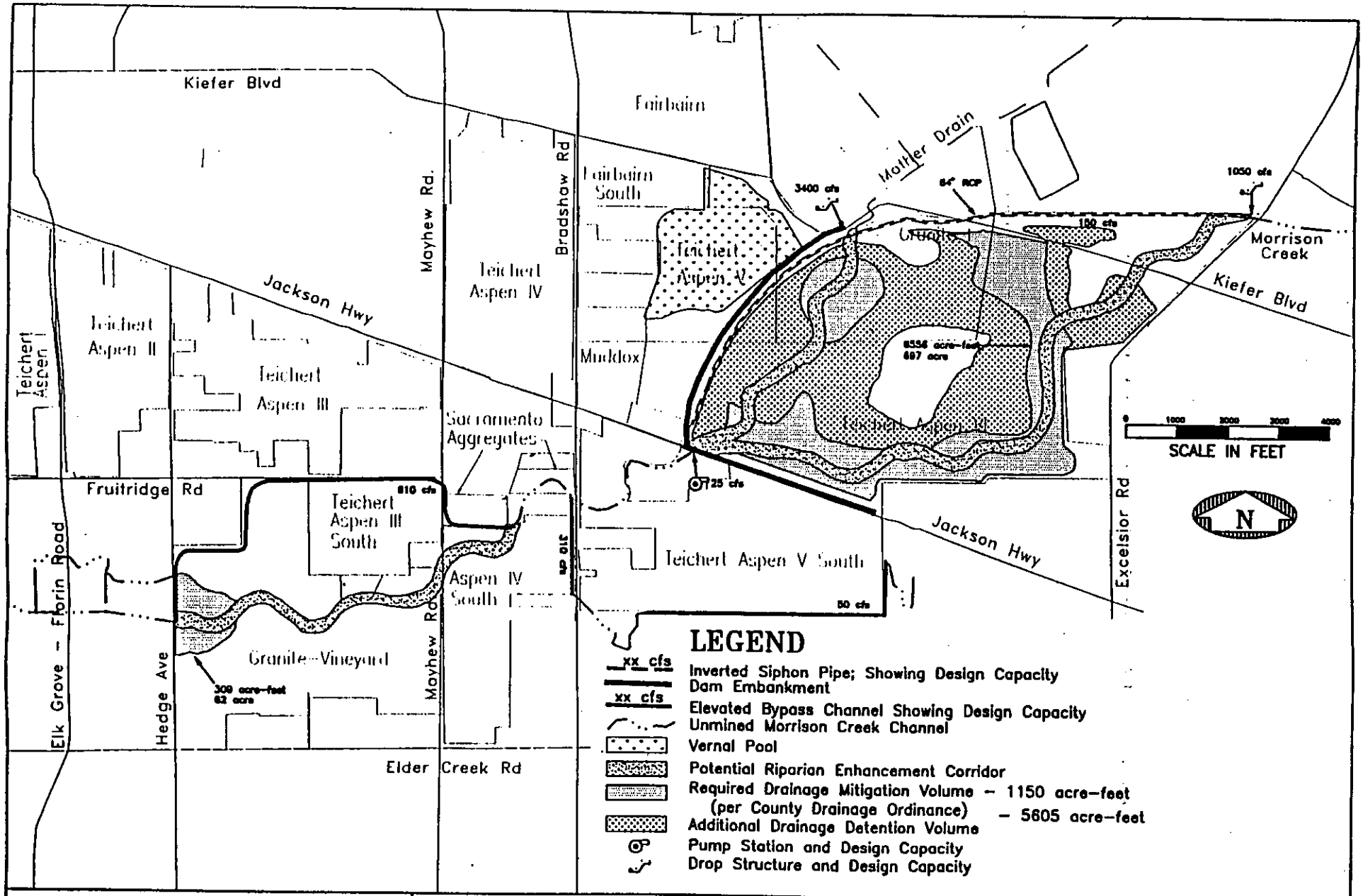
Table B-8 provides a cost estimate for Alternative 7.

Capital Costs

- The capital cost of improvements is $18.0 million.
- The total cost, including land acquisition, for Alternative 7 is $22.4 million.

Annual Costs

- Total annual costs for pumping, O&M, and annualized replacement of facilities are $370,700
- Total present worth of capital and annual costs is $29.2 million



County of Sacramento Water Resources Division	Morrison Creek Mining Reach Drainage Mitigation Plan	Figure B–11 Alternative 7

Table B-8
Cost Estimate
Alternative 7 -- Siphon

Bypass flows around the upper pit in a pipe that crosses the pit as an inverted siphon.
Divert excess flows into pit.

Item	Description	Total Cost ($x1000)	Present Value ($x1000)
Reach 1			
1	Embankment	$516.2	
2	Drop Structure at Morrison Creek (capacity= 1048 cfs)	$331.4	
3	84-inch RCP and appurtenant structures	$4,006.8	
Reach 2			
1	Embankment	$69.6	
2	Drop Structure at Mather Drain (capacity= 3390 cfs)	$643.9	
3	84-inch RCP (inverted siphon) and appurtenant structures	$2,807.3	
4	25-cfs Pump Station at Jackson Hwy	$812.9	
5	Dam Embankment for siphon and Jackson Highway	$1,049.9	
Reach 3			
1	Embankment and Channel (capacity= 606 cfs)	$536.0	
2	Reach 3 Channel Lining (6" concrete)	$1,186.5	
Reach 4			
1	Morrison Cr Trib Channel along Bradshaw (capacity= 307 cfs)	$41.3	
2	Morrison Cr Trib Channel along south side of pit (capacity= 46 cfs)	$24.6	
Subtotal		**$12,026.3**	
	20% Contingency	$2,405.3	
Subtotal		**$14,431.6**	
	25% Engineering/Administration	$3,607.9	
Total Cost		**$18,039.5**	
	Land Acquisition (759 acres)	$4,554.0	
Total Cost With Land Acquisition		**$22,593.5**	$22,593.5
	Estimated Annual Pumping Costs	$38.5	$702.9
	Annual Channel O&M Costs (for 17,350')	$19.2	$350.9
	Annual Pump Station O&M Costs	$14.1	$256.7
	Annualized Replacement Cost for Concrete-Lining of Channels	$35.6	$649.8
	Annualized Replacement Cost for Drop Structures	$29.3	$534.2
	Annualized Replacement Cost for Pump Stations	$30.4	$555.2
	Annualized Replacement Cost for RCP Siphon	$204.4	$3,731.9
Total Annual Costs		**$371.5**	
Total Present Value of Facilities and Annual Costs			**$29,375.0**

Appendix C

Detailed Cost Estimates

Introduction

Background

This appendix presents information regarding the development of the cost estimates in Chapter Five and Appendix B. Unit costs, cost estimate contingencies, and annual costs are discussed in this appendix.

Unit Costs

Overview

This section of Appendix C includes information regarding the unit costs used to uniformly develop cost estimates for drainage facilities for each of the alternatives. These facilities include drop structures, channels, outlet works and tunnels, pump stations, embankments, and pipes and inverted siphons. The design criteria for these facilities are described in Appendix B.

The unit costs for facilities come from recent construction data collected by Montgomery Watson and by the County and are considered appropriate for the master plan level of analysis. At such time as a particular facility is actually constructed, a more specific analysis of the associated costs should be performed as part of the predesign and design phases.

Drop Structures

Detailed cost estimates were developed for several drop structures covering a large range of capacities from 10 to 3,300 cfs. It was possible to use the curve produced to develop drop structure cost estimates for intermediate-sized facilities, based on the required capacity. The detailed cost estimates used to develop the curve are: $71,000 for a 10-cfs drop structure, $495,000 for a 1,700-cfs drop structure, and $636,000 for a 3,300-cfs drop structure (before contingencies).

Continued on next page...

Unit Costs (continued)

Channels

The Reach 1 to 3 bypass channels in this study would be constructed in conjunction with embankments (see Appendix B). Therefore, no excavation costs are included with the cost estimates; the costs of forming the channel are included in the embankment costs. For the County-owned alternatives (1, 2, 5-7), the channels are assumed to be concrete-lined. The bypass channels for Alternatives 3 and 4 are assumed to be unlined. The cost of the 6-inch thick lining was developed using a unit cost of $250 per cubic yard for the concrete along with the wetted perimeter (including freeboard) and the length of the channel.

The Reach 4 channels are relatively small and would be excavated in the buffer zone around the southern mining pit and along Bradshaw Road. Reach 4 channels would be unlined.

Pump Stations

The costs for the 400-, 50-, 25-, and 5-cfs pump stations were developed using costs for individual components of the stations, as outlined in Table C-1. The 400-cfs pump station utilizes the following combination of pumps and motors: 2-100 cfs, 3-50 cfs, 2-25 cfs, and 1-5 cfs. The 50-cfs pump station utilizes 1-5 cfs and 2-25 cfs pumps and motors. The 25-cfs pump station utilizes 1-25 cfs pump and motor and 1-5 cfs pump and motor. The 5-cfs pump station utilizes 2-5 cfs pumps and motors.

Embankments

The unit cost for the placement and compaction of the fill required to form the embankments associated with channels and inverted siphons is $0.75 per cubic yard. Since it is assumed that the fill material will be available on-site at the mining pits, no additional costs are included for fill material.

Pipes and Inverted Siphons

The unit cost for the 84-inch diameter RCP siphon pipe associated with Alternative 7 is $504 per linear foot, installed. The unit cost includes a 10 percent allowance for necessary appurtenances.

Table C-1

Pump Station Unit Costs

Item	Description	Cost ($x1000)
100 cfs (800 hp) Pump		
1	Pump	$122.4
2	Motor	$154.8
3	Discharge pipe (48 in. diameter, 150 feet long))	$63.0
4	48 in. Check Valve	$8.6
Total		**$348.8**
50 cfs (400 hp) Pump		
1	Pump	$79.8
2	Motor	$81.0
3	Discharge pipe (36 in. diameter, 150 feet long))	$49.5
4	36 in. Check Valve	$8.0
Total		**$218.3**
25 cfs (200 hp) Pump		
1	Pump	$55.2
2	Motor	$46.8
3	Variable speed controller	$25.8
4	Discharge pipe (24 in. diameter, 150 feet long))	$37.8
5	24 in. Check valve	$8.6
Total		**$174.2**
10 cfs (80 hp) Pump		
1	Pump	$18.0
2	Motor	$5.4
3	Variable speed controller	$11.8
4	Discharge pipe (16 in. diameter, 150 feet long))	$27.0
5	16 in. Check Valve	$3.8
Total		**$66.0**

Cost Estimate Contingencies

Introduction	This section describes the cost contingencies used in the cost estimates described in Chapter 5 and Appendix B. The cost contingencies are divided into a construction contingency and an engineering and administration contingency.
Construction Contingency	A construction contingency of 20 percent of the total raw cost of facilities is added to cover unforeseen problems with the construction of the facilities. These costs also include contractor mobilization and planning. This contingency is not applied to land acquisition.
Engineering and Administration Contingency	This contingency is estimated to be 25 percent of the *sum* of the total construction cost and the construction contingency. This contingency is composed of two parts: engineering and administration. The engineering portion is approximately 15 percent and is intended to cover all costs associated with engineering the project, including project-level engineering studies, reports, preparation of final plans, specifications, contract documents, and engineering services during project construction. The remaining 10 percent of this contingency is intended to cover those activities associated with the construction of the project, but not directly related to engineering (i.e., administrative and legal costs).

Annual Costs

Introduction	This section describes the annual operation and maintenance (O&M) costs, and annualized replacement costs used in developing the cost estimates described in Appendix B.
Pumping Costs	The annual pumping costs associated with the operation of the pump stations are derived from the operations model (see Chapter Four). These vary by the pumping capacities of the various alternative stations but are based on a unit cost of $6.10 per kilowatt (kW) for facility charges, $3.45 per kW for standby charges, $7.80 per kW for demand charges, and $0.036 to $0.054 per kilowatt-hour for energy charges.
Channel O&M Costs	Channel O&M costs were developed using actual lined and unlined channel maintenance data collected from Sacramento County. A unit cost of $2.70 per linear foot is used for concrete-lined channels, with $1.65 per foot used for unlined channels. It has been assumed that this cleaning will take place biannually; therefore, an annual value of $1.35 per foot for lined and $0.82 per foot for unlined is used.
Pump Station O&M Costs	Annual pump station O&M costs were estimated as 3 percent of the cost of the pumps and electrical equipment (but not the pump station structure).
Annualized Facility Replacement Costs	To determine the replacement costs for drop structures, pump stations, culverts siphon pipes, and channel lining, the economic lifetimes of these facilities were estimated. For all facilities except pump stations, a 50-year lifetime was assumed. For pump stations, the lifetime of pumps and motors was estimated at 35 years, while the lifetime of the structure and other components was estimated at 50 years. To simplify the present worth of the future replacement of the facilities, inflation was assumed to be directly offset by the interest rate. Therefore, the costs of facilities (including contingencies) were spread over their economic lifetimes to arrive at their *annualized* replacement costs.

APPENDIX E

PLANNING COMMISSION CONDITIONS OF APPROVAL

-COUNTY OF SACRAMENTO
INTER-OFFICE CORRESPONDENCE

August 24, 1998
Hearing Time: 8 hours

TO: Board of Supervisors

FROM: SANDRA BURNETT, Secretary
Policy Planning Commission

SUBJECT: **91-CZB-UPB-0118 –COMMUNITY PLAN AMENDMENT, REZONE, USE PERMIT, AND RELEASE/RESCISSION - GRANITE CONSTRUCTION COMPANY** – Representative: Michael Devereaux, Law Offices of Gregory D. Thatch – Engineer: Cunningham Engineering - Assessor's Parcel No. 063-0080-010 thru 013; 063-0090-001, 002, 003, 006, 010, 011, 015, 016, 017, and 019; 063-0110-001 thru 006, 012, 028, and 029, located on the south side of Fruitridge Road, the east side of Hedge Avenue, the north side of Elder Creek Road, and the west side of Mayhew Road, in the Vineyard community planning area.

The Policy Planning Commission, meeting in regular session on August 12, 1998, voted unanimously to make the following recommendations to your Board on the above referenced matter.

COMMUNITY PLAN AMENDMENT, REZONE AND USE PERMIT - OPTION A

The project proponent withdrew the request for consideration of Option "A".

COMMUNITY PLAN AMENDMENT - OPTION B

Recommend approval of the community plan amendment to change the land use designations from IR(F) and IR(SM) to IR(F)(SM) and to change 5.5 acres from M-1(F) to M-1(F)(SM).

REZONE - OPTION B

Recommend approval of the rezone from IR(F), IR(SM) and M-1(F) to IR(F)(SM) and M-1(F)(SM) with conditions as set forth in the staff report, amended as follows:

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Condition #18 amended to read:

The mining operator shall implement a water quality monitoring program for any water wells on adjacent property with wells. The wells shall be tested for water quality on quarterly basis during mining and reclamation. The operator shall continue to test the wells for constituents which may result from the proposed agricultural reclaimed use and which may adversely affect groundwater. The constituents to be tested for will be determined by the Environmental Management Department. Testing will be conducted on an annual basis for five years after reclamation. An analysis of the test results shall be provided to the owner of the above parcel and the County Environmental Management Department within one month of the tests. Testing at the wells shall begin before mining to establish existing water quality.

Condition #24 amended to read:

Every effort shall be made to remove overburden during the period of the year when surface soils are moist. If overburden is m removed when surface soils are dry, water spraying equipment shall be used to reduce dust emission. Water spraying equipment shall likewise be used, as needed, when removing aggregate. The duration and timing of water spraying shall be determined by the Public Works agency.

Condition #26 amended to read:

The mining operator shall implement an air quality monitoring program for all adjacent properties with habitable structures. The operator shall obtain a consultant from a list provided by the Department of Environmental Review and Assessment. The consultant shall test for particulate emissions levels during the initiation of the removal of overburden and the operation when these activities are within close proximity to the residence in order to determine the effectiveness of the mitigation measures. The applicant shall notify the owners when the testing will occur. The test results and an air quality analysis shall be provided to the County and the owners of the residence within two weeks of the testing.

Condition #41.5 added to read:

All overburden removed from the site by trucks shall be routed onto Mayhew Road north to Jackson Road via an on site crossing of Morrison Creek. If required, the creek crossing shall be consistent with all Corps of Engineers, USFWS and CDFG permits required for the project. Overburden hauling (truck trips) shall not exceed 30 per hour during the peak traffic periods.

Condition #53 amended to read:

The proponent shall maintain the following setbacks:

a. A 25-foot minimum setback from adjoining rural residential land uses, the first 10 feet of which shall consist of undisturbed land.

b. No mining may occur within 50 feet of any habitable structures in existence on adjacent properties at the time of mining.

c. No mining may occur within 50 feet of the west property line of the Buddhist Temple (APN: 063-0110-008)

d. A 25-foot minimum landscaped setback from all public streets consisting entirely of unmined land, or unless otherwise specified herein.

e. The setback area consisting of mined land shall be reclaimed to original grade within one year or less of completion of mining.

Condition #54 - Deleted

Condition #58 amended to read:

Comply with the following operation hours for the on-site mining, unless modified on an interim basis by the Zoning Administrator:

a. Monday through Friday: 6:00 a.m. until 10:00 p.m.
b. Saturday: 8:00 a.m. until 5:00 p.m.
c. Sunday and labor holidays: No mining or processing.
d. Buddhist Cultural holidays - No mining or processing within 500 feet of the Buddhist Temple property.

Condition #59 - Deleted

Condition #62 - Deleted

Condition #63 - Deleted

Condition #64 amended to read:

The mining operator shall institute a noise monitoring program for adjacent property with habitable structures. The operator shall obtain a noise consultant from a list provided by the Department of Environmental Review and Assessment. The consultant shall test noise levels at the residence during the initial removal of overburden and the operation when these activities are at the closest proximity to the residence in order to determine the effectiveness of the mitigation measures. The applicant shall notify the owners when the testing will occur. The test results and a noise analysis shall be provided to the County and the owners of the residence within two weeks of the testing.

Condition #69.5 amended to read:

Landscaping shall be provided adjacent to residential property within one year of issuance of use permit. Landscaping along residential properties shall consist of fast growing, closely spaced shrubs and shall be irrigated and maintained over the life of the project.

Condition #80 - Deleted.

Condition #86 added to read:

Provide a 150 foot unmined setback from the mean high water mark of Morrison Creek. This setback shall be provided from the east end of the Granite Property to the west end of the Smith property (APN: 063-0090-009).

Condition #87 added to read:

Provide a 10 foot unmined setback adjacent to the Smith access road.

USE PERMIT - OPTION B

Recommend approval of the Use Permit to allow aggregate surface mining on the entire 407.5 acres with conditions as follows:

Condition #1 added to read:

Project proponent shall comply with all conditions of the rezone.

RELEASE FROM PRIOR ZONING AGREEMENT

Recommend approval of the Release from a Prior Zoning Agreement.

The Commission accepted the Draft Environmental Impact Report/Environmental Impact Statement as adequate and complete, directed staff to respond to comments received and prepare the Final Environmental Impact Report

cc: In house
Applicant/Owner

Control No.: 901607/
940484/940671
Type: CZB-UPB

TO: BOARD OF SUPERVISORS - POLICY PLANNING COMMISSION

ON: **ASPEN III SOUTH/ASPEN IV SOUTH/ASPEN V SOUTH**
COMMUNITY PLAN AMENDMENT, REZONE AND USE PERMIT

ASSESSOR'S PARCEL NO.: 063-0080-016, 028 thru 032; 063-0090-007, 012 (Aspen III South); 063-0100-011, 014, 015, 016, 019; 063-0130-001, 002, 009, 010, 011 (Aspen IV South); 063-0170-021; 063-0190-014, 015, 018, 021, 025, 027, 028, 029, 040; 063-0200-006 thru 010 (Aspen V South).

LOCATION: The project totaling 550± acres is located on the south side of Jackson Road (State Route 16), east of Bradshaw Road; the southwest corner of Fruitridge Road and Mayhew Road; and the northeast corner of Mayhew Road and Elder Creek Road; in the Vineyard community planning area.

REPRESENTATIVE:

Taylor and Hooper
Attn: B. Demar Hooper
1435 River Park Drive, Suite 300
Sacramento, CA 95815

ENGINEER:

G.W. Consulting Engineers
Attn: Jerry Anders
7447 Antelope Road, Suite 202
Citrus Heights, CA 95621

OPERATOR:

Teichert Aggregates
Attn: Rob Wainwright
P.O. Box 15002
Sacramento, CA 95851-1002

OWNER:

Teichert Land Company
Attn: Bob Hamel
P.O. Box 13308
Sacramento, CA 95813

REQUEST: 1. Aspen III South (94-UPB-0484):

a. An **Amendment** to a previously approved **Use Permit** (Control No. 90-CZB-UPB-1084) to allow aggregate surface mining on an additional 31 acres (area within the 100-year floodplain of Morrison Creek) of the 112± acre site. The site is currently zoned IR (SM) and IR (F) (SM).

2. Aspen IV South (90-CZB-UPB-1607):

   a. A **Community Plan Amendment** to change the land use designations on 2± acres from Agricultural-Residential-1 to Industrial Reserve (Flood Combining) (Surface Mining Combining); and to change the land use designation on 178± acres from Industrial Reserve (Flood Combining) and Industrial Reserve (Surface Mining Combining) to Industrial Reserve (Flood Combining) (Surface Mining Combining).

   b. A corresponding **Rezone** from AR-1, IR (F) and IR (SM) to IR (F) (SM).

   c. A **Use Permit** to allow aggregate surface mining on the entire 180± acre site.

3. Aspen V South (94-CZB-UPB-0671):

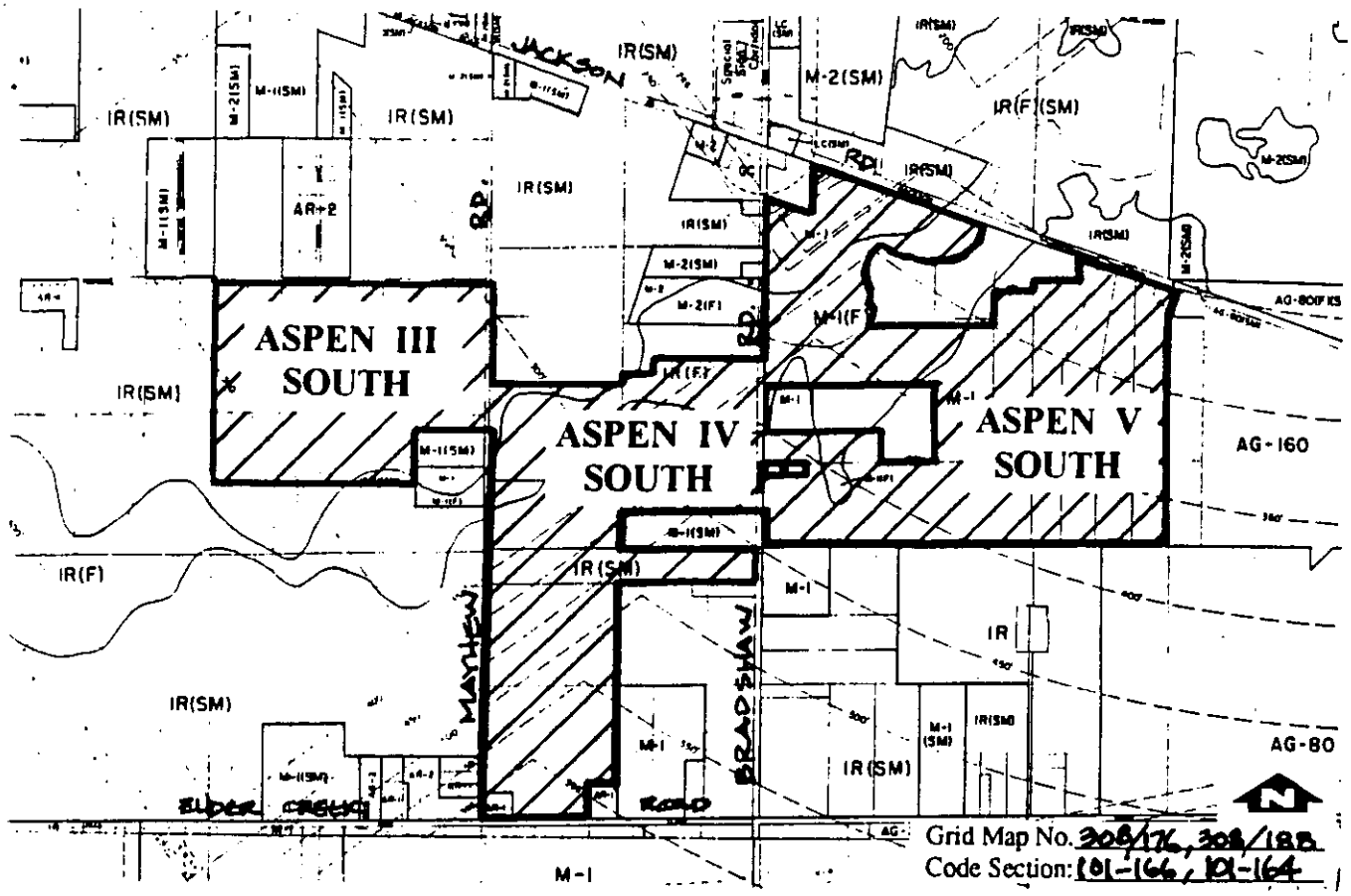
   a. A **Community Plan Amendment** to change the land use designations on 193± acres from Light Industrial and Light Industrial (Flood Combining) to Light Industrial (Surface Mining Combining) and Light Industrial (Flood Combining) (Surface Mining Combining).

   b. A corresponding **Rezone** from M-1 and M-1 (F) to M-1 (SM) and M-1 (F) (SM).

   c. A **Use Permit** to allow aggregate surface mining on 193± acres of the 261± acre project site. Those portions of the project site not to be mined include Morrison Creek and its associated riparian environment, and an area containing vernal pools.

   d. A Release/Recision from prior rezone agreements adopted by Resolution Nos. 79-1673, 80-0800, 81-1320, 81-1354, 82-0267, 82-0327, and 85-1236.

ENVIRONMENTAL DOCUMENT: **DRAFT ENVIRONMENTAL IMPACT REPORT/ ENVIRONMENTAL IMPACT STATEMENT**



I. STAFF RECOMMENDATION:

A. Recommended Actions:

1. Environmental Documentation: A **DRAFT ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL IMPACT STATEMENT** has been prepared for the project which can be used by both Sacramento County during its deliberation on the land use entitlement requested by the project proponents and by the U. S. Army Corps of Engineers during its review and consideration of the required Section 404 permit for the proposed project. The EIR/EIS focuses on several resources/environmental issues that would experience impacts which are determined to be either significant or potentially significant as a result of the proposed project and/or alternatives. Those impacts attributable to permanent alteration of the project site's landforms, deterioration of the LOS on nearby roadways under cumulative conditions, and potential conflicts with on-site and surrounding land uses are considered to be significant and unavoidable.

2. Aspen III South (94-UPB-0484):

   a. Use Permit: **APPROVE** the requested use permit, subject to the mining and reclamation plans and related data (Exhibits "A-1" thru "A-6"), and the findings listed in Section I.B. and the conditions listed in Section I.C. of this report.

   b. MMRP: **ADOPT** the program prepared for this project.

3. Aspen IV South (90-CZB-UPB-1607):

   a. Community Plan Amendment and Corresponding Rezone: **APPROVE** the requested plan amendment and rezone, subject to Exhibit "B" and the findings listed in Section I.B. of this report. The rezone should be subject to the conditions listed in Section I.C. of this report.

   b. Use Permit: **APPROVE** the requested use permit, subject to the mining and reclamation plans and related data (Exhibits "B-1" thru "B-6"), and the findings listed in Section I.B. and the conditions listed in Section I.C. of this report.

   c. MMRP: **ADOPT** the program prepared for this project.

4. Aspen V South (94-CZB-UPB-0671):

   a. Community Plan Amendment and Corresponding Rezone: **APPROVE** the requested plan amendment and rezone, subject to Exhibit "C" and the findings listed in Section I.B. of this report. The rezone should be subject to the conditions listed in Section I.C. of this report.

   b. Use Permit: **APPROVE** the requested use permit, subject to the mining and reclamation plans and related data (Exhibits "C-1" thru "C-5"), and the findings listed in Section I.B. and the conditions listed in Section I.C. of this report.

   c. Release/Recision: **APPROVE** the release/recision from prior rezone agreements (Resolution Nos. 79-1673, 80-0800, 81-1320, 81-1354, 82-0267, 82-0327, and 85-1236.

   d. MMRP: **ADOPT** the program prepared for this project.

Note: Action on the above reclamation plans should be inclusive of pertinent information contained within the EIR/EIS for the Morrison Creek Mining Reach Downstream (South) of Jackson Highway (EDAW, 1997), the Wetland Mitigation Plan for Aspen IV South (Sugnet & Associates, 1994), the Morrison Creek Mining Reach Drainage Mitigation Plan (Montgomery, Watson, 1995), and the Slope Stability Study for the Morrison Creek Realignment Channel (Wallace-Kuhl & Associates, 1994).

Note: The above use permits shall not become effective until they have been executed by the Chairman of the Board of Supervisors and recorded in the Official Records of the County Recorder of Sacramento County. The applicant shall provide a legal description for all parcels affected by the use permits sufficient to meet the requirements for recordation.

B. Justification: The staff recommendations are based upon the following considerations:

1. The proposal is consistent with the policies of both the Open Space and Conservation Elements of the County General Plan in that the site has been identified to contain significant mineral resources (ATAC Report, 1986). It is in the County's interest to encourage mining and resource conservation on this site in order to provide low consumer costs by promoting the utilization of aggregate resources convenient to the urban area.

2. The proposal is consistent with the policies of the Vineyard Community Plan in that the site has been identified to contain significant mineral resources (ATAC Report, 1986). The proposal will also promote the continued high yield of aggregate resources in a wise and appropriate manner for which these communities are known. And finally, the manner in which the site is reclaimed will ensure adequate protection or buffering of adjacent land uses, and enhancement of the environmental characteristics of the Morrison Creek floodplain.

3. The granting of the use permit will not, under the circumstances of this particular case, be detrimental to the health, safety, peace, morals, comfort or general welfare of persons working or residing in the neighborhood of

such proposed use or be detrimental or injurious to property or improvements, in the neighborhood or to the general welfare of the County, in that:

a) There are few residential uses in this area and the adjacent parcels are of a sufficient size so as to allow for appropriate setbacks for any residential dwelling units.

b) Noise levels from the mining operation can be adequately controlled at the site boundaries by the use of portable sound barriers.

c) All applicable Zoning Code standards for aggregate mining operations will be met.

4. The proposed drainage modifications are complimentary with the County's drainage master planning for Morrison Creek and will allow for some on-site detention which will help attenuate existing and future flood flows downstream of the site. The mining operators' proposed drainage facilities will in no way preclude the County from implementing a different drainage scenario for this reach of Morrison Creek; however, issues such as the potential cost of rebuilding the drainage facilities, land use compatibility, and growth inducement characteristics of future land uses will play a role in that decision.

5. An extensive wetland restoration program will be undertaken by the mining operator to mitigate the effects of mining within the Morrison Creek floodplain. Information submitted by various sources (see EIR/EIS), substantiates the claim that the proposed post-mining vernal pools, riparian corridors and emergent marshes will adequately mitigate for the loss of on-site environmental features, and may, in fact, enhance the vegetation and wildlife habitat on the site.

6. The proposal is compatible with operations at Mather Field in that the proposed mining will not result in a large concentration of people, nor body of water which acts as an attractant to fog or birds; restrictions imposed by the Mather CLUP which is currently the official guide to land use compatibility for this area. Further, representatives of the DOA have not voiced any significant concerns for the proposal, nor do they perceive there to be any potential conflicts with future land use restrictions on lands surrounding the airport (i.e., potential restrictions imposed with adoption of a non-military CLUP).

7. The environmental document (Draft EIR/EIS) prepared in conjunction with this project was considered in the project analysis, and suggested mitigation measures have been incorporated into the recommended conditions of approval for the project.

C. Recommended Conditions: Any approval of a Rezone and/or Use Permit for each of these projects shall be subject to the following conditions. **(Note: The applicability of each condition to a particular project is identified within the parentheses following the condition. A separate Use Permit will be issued for each of the projects.)**

Surface Water Hydrology and Quality

1. Mining equipment and any toxic substance associated with mining or reclamation operations shall be protected from flooding and from **contact** with surface water. **(Aspen III So., Aspen IV So., Aspen V So.)**

2. Given the risks involved to surface and groundwater contamination, measures shall be implemented to minimize the risk of toxic contamination of surface and/or groundwater during mining, reclamation or post-reclamation activities. These activities shall include an aggressive policy to restrict use of toxic contaminants on the project site to those absolutely necessary to conduct operations. Any form of pollutant shall be immediately contained, removed from the project site, and safely disposed. No storage of toxic materials shall be allowed in the gravel pits; storage will be allowed only in restricted upland areas where the opportunity for containment over less permeable ground exists. **(Aspen III So., Aspen IV So., Aspen V So.)**

3. An agricultural management plan shall be developed to ensure that post-mining agricultural practices do not result in groundwater or surface water contamination. The plan shall be submitted for review by the Agricultural Commissioner and for approval by the Environmental Management Department. The plan shall provide information on crops, crop rotation, pesticides, fertilizers, irrigation and drainage. The Environmental Management Department shall be notified of any changes in the plan. **(Aspen III So., Aspen IV So., Aspen V So.)**

4. Prior to construction, the proponent shall file a Notice of Intent (NOI) to obtain coverage under the State's General Construction Stormwater Permit. As a condition of the General Permit, the proponent shall also prepare and

implement a Stormwater Pollution Prevention Plan. **(Aspen III So., Aspen IV So., Aspen V So.)**

5. The proposed mining operations shall be consistent with the Drainage Mitigation Plan for the Morrison Creek Mining Reach. An analysis shall be submitted to WRD showing the reclamation plan and ultimate land use for the site. This analysis shall be consistent with WRD studies and the Drainage Mitigation Plan for the Morrison Creek Mining Reach. The analysis shall also consider the possibility of mining (and detention) may not occur upstream of Jackson Highway (as currently proposed), and detention may be required downstream of Jackson Highway. **(Aspen III So., Aspen IV So., Aspen V So.)**

6. The project shall continue acceptance of any off-site runoff during all phases of mining operations. Furthermore, all drainage facilities must be reviewed and approved by WRD prior to commencement of mining operations. **(Aspen III So., Aspen IV So., Aspen V So.)**

7. Drainage easements shall be provided and facilities installed pursuant to the Sacramento County Floodplain Management Ordinance, Sacramento County Land Grading and Erosion Control Ordinance, Sacramento County Water Agency Code, and Sacramento County Improvement Standards, including any fee required by Ordinance No. 1 of the County Water Agency. **(Aspen III So., Aspen IV So., Aspen V So.)**

8. All applicable State Fish & Game and U.S. Army Corps of Engineers permits shall be obtained prior to grading or building permit issuance. **(Aspen III So., Aspen IV So., Aspen V So.)**

9. Prior to improvement plan approval or recordation of the final map, whichever occurs first, pay a fair share contribution to the cost of: delineating wetlands, preparing a drainage master plan, acquiring right-of-way for and constructing flood control detention and providing environmental mitigation for drainage improvements, as determined in the drainage master plan for that watershed. The fair share contribution shall not exceed $6,000 per acre. The administrator of the Public Works Agency shall reduce the amount if it is determined prior to payment that the actual costs of the above studies, improvements, and mitigation is less than is projected. Subsequent adoption and payment of a revised drainage fee for this purpose shall satisfy this condition. If the amount of the obligation under the revised drainage fee is less than that of the fair share contribution paid, the County shall enter into an agreement with the payer of the fair

share contribution, providing for reimbursement of the difference. (Note: this project shall be exempt from payment of this fair-share contribution until such time as the area is used for purposes that would otherwise be subject to the prescribed fee, consistent with Chapter 3, Article II, Section B of the Drainage Ordinance.) **(Aspen III So., Aspen IV So., Aspen V So.)**

10. In order to mitigate erosion and sediment control impacts within the project site, all mining plans shall be required to comply with the County's Land Grading and Erosion Control Ordinance. **(Aspen III So., Aspen IV So., Aspen V So.)**

11. The risk of flow capture from Morrison Creek into gravel extraction pits and disruption of downstream flows shall be minimized by construction of hydraulic structures (berms, weirs, and inlet works) that would direct flows up to the 100-year peak flow (as calculated by WRD for ultimate watershed development conditions, with or without the North of Jackson Highway Drainage mitigation features in place) from the Jackson Highway crossing to the bypass channel system on Aspen IV South parcel and away from gravel pits. Engineered grading plans for the improvements, representing yearly mined conditions, as well as ultimate conditions, shall be submitted by the proponent and south of Jackson Highway. WRD shall coordinate approval of such plans with Caltrans with regard to the stability of the Jackson Highway bridge and roadway. These plans shall include the following: 1) A berm extending from Jackson Highway across the northern boundary of the Aspen V South parcel to the proposed bypass channel inlet at the Aspen IV South adequate to safely convey the peak 100-year flood; 2) armored weirs at the inlets to the proposed pit floor wetland mitigation sites on Aspen IV South to safely carry as proposed by the project; 3) plans for erosion control at the bypass channel inlet and along the proposed berm as necessary to prevent their failure; and 4) an erosion control and repair plan to restore flow and stability to Morrison Creek and to control offsite discharge of sediment. **(Aspen III So., Aspen IV So., Aspen V So.)**

12. Application shall be made to the California State Water Resources Control Board (SWRCB) for any surface water diversion of low flows from Morrison Creek into the wetlands mitigation sites on the Aspen IV parcel. This measure shall not be necessary if other proven long term water supplies (e.g., groundwater and reliable urban or agricultural flows) for perennial marsh, open water, emergent marsh and riparian vegetation are demonstrated and utilized. **(Aspen IV So.)**

Groundwater Hydrology and Quality

13. The groundwater wells proposed for use in dust control shall be analyzed periodically by the proponents for contamination and evaluated for possible hydrogeologic effects which may interfere with groundwater cleanup at Mather Field. The reports of the analysis shall be submitted to the County Environmental Management Department. A risk calculation could be used to estimate the worst-case risk from use of this water to workers and to the public. If the risk were estimated to be significant, an aeration point or other treatment could be introduced between the supply well(s) and the distribution for dust control, or alternative water sources could be used. **(Aspen III So., Aspen IV So., Aspen V So.)**

14. The proponents shall store contaminants in the gravel operation area in a manner that will contain any spills (i.e., containment berms). Any spills occurring in operational areas should be cleaned up immediately. **(Aspen III So., Aspen IV So., Aspen V So.)**

15. The proponents shall obtain all necessary permits for the construction or removal/abandonment of any water wells and septic systems from the Sacramento County Environmental Management Department, Environmental Health Division. **(Aspen III So., Aspen IV So., Aspen V So.)**

16. The proponents shall revise the proposed Mining Plan to specifically identify all sewage disposal systems within 300 feet of the proposed mining area. Prior to issuance of the work authorization permit, approval of the Sacramento County Environmental Management Department, Environmental Health Division and the California Regional Water Quality Control Board on the minimum mining setback from these sewage disposal systems shall be required. **(Aspen III So., Aspen IV So., Aspen V So.)**

17. The proponents shall coordinate the removal of groundwater wells with the Mather Field groundwater cleanup program to ensure that vital data collection is not disrupted. This may require the proponents to avoid some wells or to reconstruct wells destroyed by extraction. **(Aspen III So., Aspen IV So., Aspen V So.)**

Cultural Resources

18. Should any cultural resources, such as structural features, unusual amounts of bone or shell, artifacts, human remains, or architectural remains be encountered during any development activities, work shall be suspended and the Department of Environmental Review and Assessment (440-7914) and Army Corps of Engineers (557-5263) shall be immediately notified. At that time, the Department of Environmental Review and Assessment will coordinate any necessary investigation of the find with appropriate specialists as needed. The project proponent shall be required to implement any mitigation deemed necessary for the protection of the cultural resources. In addition, pursuant to Section 5097.97 of the State Public Resources Code, and Section 7050.5 of the State Health and Safety Code, in the event of the discover of human remains, all work is to stop and the County Coroner shall be immediately notified. If the remains are determined to be Native American, guidelines of the Native American Heritage Commission shall be adhered to in the treatment and disposition of the remains. **(Aspen III So., Aspen IV So., Aspen V So.)**

Air Quality

19. The proponent shall submit to the Sacramento Metropolitan Air Quality Management District an Air Pollution Control Plan for review and approval prior to commencement of grading operations. **(Aspen III So., Aspen IV So., Aspen V So.)**

20. Carry-out of mud or dirt onto public roads during initial overburden removal shall be controlled by creating either a gravel apron or a mud trap (series of metal bars or grating with space underneath to accumulate material) to remove mud or dust from truck tires. Public roads near project site access points shall be regularly swept to avoid accumulation of dust on the road surface. **(Aspen III So., Aspen IV So., Aspen V So.)**

21. Unpaved haul roads shall be regularly treated with appropriate dust suppressants (e.g., water or chemical dust palliatives). The frequency of application shall vary according to the weather and moisture level of the soils on the site, but shall be frequent enough to avoid visible dust plumes. **(Aspen III So., Aspen IV So., Aspen V So.)**

22. Overburden stockpiles shall be treated with appropriate dust suppressants, regularly watered or otherwise treated to minimize wind erosion. **(Aspen III So., Aspen IV So., Aspen V So.)**

23. Every effort shall be made to remove overburden during the period of the year when surface soils are moist. If overburden is removed when surface soils are dry, water spraying equipment shall be used to reduce dust emission. Water spraying equipment shall likewise be used, as needed, when removing aggregate. **(Aspen III So., Aspen IV So., Aspen V So.)**

24. The moisture content of material being conveyed on and off-site shall be maintained at a level sufficient to avoid visible dust from the conveyor loading and transfer points. **(Aspen III So., Aspen IV So., Aspen V So.)**

Geologic and Slope Stability

25. The proponent shall limit the planned slopes of the Morrison Creek realignment structure to 2:1 (horizontal:vertical). The overburden soils shall be placed and compacted in 6-inch lifts to at least 90 percent of the maximum dry density, at or near optimum moisture conditions. Since local stability of the slope is critically dependent upon proper compaction of the overburden soils, a qualified soils engineer shall be regularly present throughout grading operations to determine compliance with job specifications. **(Aspen III So., Aspen IV So.)**

26. Except as specified in the above condition, the proponents shall limit finished side slopes to 1.5:1 (horizontal:vertical) to ensure stability for existing soil conditions. Soils shall be placed and compacted to 90 percent of the maximum dry density, at or near optimum moisture conditions, in all finished slopes. Since local stability of the slope is critically dependent upon proper compaction of the overburden soils, a qualified soils engineer shall be regularly present throughout grading operations to determine compliance with job specifications. **(Aspen III So., Aspen IV So., Aspen V So.)**

27. The proponent shall ensure that the side slopes of the pit are vegetated following final slope placement to prevent excessive erosion and enhance slope stability. The side slopes shall be revegetated with an erosion control mix for which species, seeding rates and methodology are specified in a separate Erosion Control Plan which the proponent shall prepare and submit to the County. The species chosen for the erosion control mix shall not be

invasive in the wetland creation areas. This reclamation revegetation shall occur on an annual basis prior to the wet season (i.e., before October 1).The Erosion Control Plan shall include performance standards that can be used to determine the success of erosion control measures and the revegetation efforts, and shall discuss monitoring requirements. The plan shall include remedial measures to be implemented if revegetation is not successful. **(Aspen III So., Aspen IV So., Aspen V So.)**

Paleontological Resources

28. Should fossils be discovered on the project site, the proponent shall terminate work in the immediate area of the discovery and contact the County Department of Environmental Review and Assessment and the University of California at Davis or California State University Sacramento to jointly develop an action plan to assess and/or preserve the fossil resources. **(Aspen III So., Aspen IV So., Aspen V So.)**

Biological Resources

29. The proponent shall secure a Streambed Alteration Agreement (CDFG 1601-1607) with CDFG before re-routing existing stream channels. the Streambed Alteration Agreement should include a program and appropriate plans to protect upstream and downstream habitats. Best Management Practices should be employed to minimize alterations of natural water flows and reduce downstream sediment. **(Aspen III So., Aspen IV So., Aspen V So.)**

30. The proponent shall develop and implement a water quality and erosion control plan for all construction-related project activities. The plan shall include the following:

    a. Control disposal of runoff within the construction and staging as well as any water encountered during construction. There must not be any discharge to state waters unless authorized under permit by the CDFG and the Central Valley Regional Water Quality Control Board;

    b. Methods to control surface discharge away from disturbed areas and along roadways;

c. Methods to be used for slope stabilization and to limit erosion on disturbed areas or any other area subject to erosion;

d. Methods to be implemented that ensure proper operation, maintenance, and use of erosion control devices;

e. Seasonal variation in use of erosion control measures must be addressed, including winterizing all areas from October 15 through May 15 of each calendar year; and

f. A detailed revegetation and slope stabilization plan. **(Aspen III So., Aspen IV So., Aspen V So.)**

31. In order to comply with Public Resources Code Section 21081.6, a detailed monitoring program shall be developed for all mitigation conditions. The monitoring program shall include, but may not be limited to, the following:

a. Specific criteria to measure the effectiveness of the mitigation;

b. Annual monitoring reports for a minimum of five years. Annual reports must be submitted to Sacramento County, Corps, and CDFG; and

c. The annual monitoring reports must include corrective recommendations that shall be implemented in order to ensure that mitigation efforts are successful. **(Aspen III So., Aspen IV So., Aspen V So.)**

32. The proposed project (through the Lead Agencies) shall comply with the consultation requirements set forth in Section 7 of the Federal Endangered Species Act (per 16 USC Sec. 1531 et seq.), and the Fish and Wildlife Coordination Act (16 USC Sec. 661 et seq.). **(Aspen III So., Aspen IV So., Aspen V So.)**

33. Except as modified below for the proposed wetland mitigation, the proponents shall implement the proposed reclamation plans as presented in the surface mining application documents, including the Wetland Mitigation Plan (Zentner and Zentner, 1994; Sugnet & Associates, 1994b, and 1994c) to mitigate for impacts to the riparian forest/riparian scrub communities, wetlands, and wildlife habitats within the project site, including habitat for

special status wildlife species. The following modifications to the wetland mitigation plans shall be made:

a. The flows to be regulated and maintained in the mitigation corridor (to be located on Aspen IV South), by releases from the bypass channel, shall be determined in consultation with the USFWS, CDFG, Corps, and County and shall be sufficient to support the mosaic of habitats proposed for the corridor. This consultation shall establish the minimum low flow and optimal high flow conditions to be maintained within the mitigation corridor to achieve the hydrological goals of the mitigation and support the various habitats as expected.

b. The monitoring effort for the riparian woodland, riparian scrub, and Valley oak savanna habitats shall be performed for a period of ten years to ensure success of the plantings and development of the habitats anticipated.

c. Monitoring efforts on the Aspen V South parcel shall include hydrological and botanical monitoring of the vernal pools on the parcel to document consistency or any changes in these communities. Hydrological monitoring shall entail recording the period and duration of inundation; botanical monitoring shall be conducted as in the emergent marsh mitigation to be constructed. This additional monitoring would be incorporated into the five year monitoring program. Should the monitoring reveal that the vernal pools have been significantly impacted, additional mitigation for the vernal pools shall be developed in consultation with the USFWS, CDFG, Corps, and the County. **(Aspen IV So., Aspen V So.)**

34. After the five year monitoring period for mitigation of wetlands and other habitats, a written determination shall be made as to the success or failure of the wetland and habitat mitigation. The determination of success shall be made by a qualified biologist in consultation with and concurrence by the USFWS, CDFG, Corps and the County. If the determination concludes that the wetland, riparian, and/or oak woodland habitats have not met the success criteria, the proponents shall develop additional habitats and/or implement other remediation that is approved by the above mentioned agencies. **(Aspen IV So., Aspen V So.)**

35. To mitigate for impacts to fish and aquatic wildlife movement/migration in Morrison Creek, the bypass channel shall be designed to incorporate suitable habitat features. The features shall be developed in consultation with the USFWS, CDFG, Corps, and the County, and shall provide opportunities for the native Sacramento blackfish as well as other species of aquatic wildlife, including special status amphibians and reptiles. **(Aspen III So., Aspen IV So.)**

36. The following mitigation is recommended to minimize the potential impacts to the Swainson's hawk, burrowing owl and other special status raptor species. The measures listed below are related to the aforementioned species only.

    a. Prior to issuance of any grading permits, the proponent shall submit, to the Department of Environmental Review and Assessment, a current survey conducted by a qualified wildlife biologist indicating the location and status of any active nest on the project site.

    b. Prior to disturbance of any nest, the proponent shall secure the required permits from the USFWS for such removal, pursuant to the Migratory Bird Treaty Act.

    c. No construction shall be allowed within 150 feet from any active nest site until all of the young have fledged, or a permit has been secured from the appropriate resource agency to allow disturbance or removal of the active nests. The 150-foot "no construction" buffer zone must be adequately fenced and signed.

    d. The post-reclamation agricultural areas shall be planted only with crops that are suitable for Swainson's hawk foraging; these crops shall be approved by the CDFG.

    e. The post-reclamation project site shall not be operated with any rodent or small mammal control program that would eliminate all rodents and small mammals from the project site. The proponent shall ensure that any rodent or small mammal control program is approved by the CDFG, Corps, and County prior to its implementation. **(Aspen III So., Aspen IV So., Aspen V So.)**

37. The proponents shall comply with the implementing measures included in the County's standard tree preservation ordinance for all oak trees on the project site to be preserved and protected from mining operations. Any native oak trees greater than 4 inches dbh proposed for removal shall be compensated for by planting native oak trees (valley oak/*Quercus lobata*, blue oak/*Q. Douglasii*, and/or interior live oak/*Q. Wislizenii*) based on the compensation ratio provided below. The trees shall be planted on the project site or off-site, preferably at a nearby community park. Prior to issuance of the work authorization, a replacement Oak Tree Planting Plan shall be prepared by a certified arborist or a licensed landscape architect and shall be submitted to the Environmental Coordinator for review. The plan shall identify the planting location, the number and species of trees to be planted, the funding source for planting and maintenance, and maintenance agreements identifying the entity which shall provide care for the trees during a 3-year establishment period. In addition to oak tree replacement, the plan shall provide for the replacement of all landmark size (19 dbh or greater) native trees (except cottonwoods and willows) removed as a result of the project on an in-kind and inch-for-inch basis. The following compensation ratio for oak tree replacement is required:

- One 15-gallon oak tree equals 1-inch dbh
- One 24-inch box oak tree equals 2-inches dbh
- One 36-inch box oak tree equals 3-inches dbh

No replacement oak tree shall be planted within 15 feet of the driplines of oak trees which are retained on-site, or within 15 feet of a building foundation. **(Aspen III So., Aspen IV So., Aspen V So.)**

Traffic and Circulation

38. The proponent shall limit material to be removed from each of the project sites by truck to the initial 300,000 cubic yards of overburden. No direct access to Jackson Road shall be permitted. **(Aspen III So., Aspen IV So., Aspen V So.)**

39. The proponent shall transport mined aggregate material to the processing plants by conveyor only, and no trucks shall be used for this purpose. **(Aspen III So., Aspen IV So., Aspen V So.)**

40. No truck access for overburden removal shall be allowed onto Fruitridge Road between South Watt Avenue and the previously approved Aspen III South access point. **(Aspen III So.)**

41. Grant the County right-of-way for Mayhew Road based on an 84-foot standard and widen/upgrade it to accommodate two-way truck traffic to the satisfaction of the Transportation Division. **(Aspen III So., Aspen IV So.)**

42. The location, number and design of project access driveways on Mayhew Road shall be to the requirements of the Transportation Division. **(Aspen IV So.)**

43. Turn lanes shall be added on Bradshaw Road adjacent to the proposed access driveway to Aspen V South prior to overburden removal from the site. Design and location of the turn lanes shall be in accordance with County Improvement Standards and approved by the Transportation Division. **(Aspen V So.)**

44. The proponents shall agree to repair any damages to structural paving material along sections of project site roadway segments upon which loaded trucks are routed, to the extent such damage is caused by traffic which occurs during the period of hauling operations. Such agreement with the County Transportation Division of the Public Works Agency shall be formalized prior to issuance of the work authorization. **(Aspen III So., Aspen IV So., Aspen V So.)**

45. No mining shall take place within 25 feet of the ultimate right-of-way of Mayhew Road, except that the Public Works Director may authorize mining to proceed up to 12 feet from the ultimate right-of-way, with appropriate backfill and compaction to preexisting grade to the required 25-foot setback line (with a slope no steeper than 1 1/2:1). The mining and backfilling proposal shall be supported by a soils report prepared by a qualified soils engineer, certifying that the overburden and underlying aggregate can support the proposed activity and anticipated traffic levels of Mayhew Road without adversely affecting the County right-of-way. The 25-foot setback area adjacent to the right-of-way of Mayhew Road shall be backfilled and compacted prior to the onset of the rainy season, and the compaction shall be certified to at least 90% by a soils engineer. **(Aspen III So., Aspen IV So.)**

Land Use

46. The proponent shall maintain 25-foot minimum setbacks from adjoining rural residential land uses, the first 5 feet of which shall consist of undisturbed land, and 25-foot minimum landscaped setbacks from all public streets consisting entirely of unmined land. The setback area consisting of mined land shall be reclaimed to original grade within one year or less of completion of mining. **(Aspen III So., Aspen IV So., Aspen V So.)**

47. In order to mitigate potential impacts to surrounding land uses, the proponent shall be required to comply fully with mitigation measures identified in the Noise, Traffic and Circulation; Air Quality; and Visual Impacts sections of the EIR/EIS. These mitigation measures will employ appropriate state-of-the-art techniques for erosion control, reclamation, nuisance prevention, and environmental impact mitigation relative to surface mining operations. **(Aspen III So., Aspen IV So., Aspen V So.)**

48. In order to mitigate potential impacts to agricultural uses, prior to issuance of the work authorization, the proponents shall prepare a plan for the preservation and salvage of topsoil resources suitable for sustaining economically viable agricultural uses, consistent with the performance standards set forth in Sections 3708 and 3711 of the State Mining and Geology Board Reclamation Regulations. **(Aspen III So., Aspen IV So., Aspen V So.)**

49. Within six months of completing all mining land reclamation, the proponents shall identify, record, and grant to the County of Sacramento 600-foot wide open space easements as needed to delineate riparian corridors associated with the constructed seasonal drainages south of the reconstructed Morrison Creek bypass channel. Those easements shall identify the limits of agricultural activity so as to guarantee sufficient area to allow for regeneration of the riparian corridor, and shall also allow for the subsequent establishment of a public trail system when deemed appropriate by the County as part of an areawide trail network involving urban stream corridors. **(Aspen IV So.)**

Noise

50. Comply with the following operation hours, unless modified on an interim basis by the Zoning Administrator:

    a. Monday through Friday: 6:00 a.m. until 10:00 p.m.

    b. Saturday: 6:00 a.m. through 3:00 p.m.

    c. Sunday and labor union holidays: No mining or processing. **(Aspen III So., Aspen IV So., Aspen V So.)**

51. For all other common residential/project property lines, the proponents shall provide noise barriers consisting of 8-foot high earthen berms or temporary portable barriers installed and moved along property boundaries as mining progresses. The noise barriers shall be maintained at least until sufficient pit excavation has occurred to block the line of sight between nearby residences and mining activities. If temporary portable barriers are used, they shall either be constructed with 4 x 8 sheets of 3/4-inch plywood, placed side by side with an overlap of 1-2 inches to prevent gapping, or shall be constructed with other materials which achieve equivalent or greater sound attenuation as verified by a qualified acoustical consultant. (Note: While the above cited 3/4-inch plywood can provide acceptable temporary noise attenuation, this method as currently practiced is subject to weather damage, and lack of maintenance severely limits its effectiveness and aesthetic appeal. Alternatives which provide durability and improved aesthetics for nearby residents and passersby should be explored.) **(Aspen III So., Aspen IV So., Aspen V So.)**

Public Safety

52. Except along boundaries contiguous with approved mining operations, the proponent shall install fences and provide warning/trespass signs to comply with the Zoning Code. **(Aspen III So., Aspen IV So., Aspen V So.)**

53. All perimeter fencing shall be retained until post-reclamation development of the project site occurs. **(Aspen III So., Aspen IV So., Aspen V So.)**

54. Existing public infrastructure (roads, water and sewer, electrical, etc.) shall be protected from undermining and collapse. To protect the roadway and other public infrastructure, the proponents shall be required to construct adjacent pit sides to standards approved by Water Resources Division (WRD). The proponents shall submit to WRD for approval: a) studies and design for appropriate embankment protection or other needs; and b) the plan, an ongoing construction inspection program, and the results of a program of soils testing during construction. **(Aspen III So., Aspen IV So., Aspen V So.)**

55. As required as a condition of the existing permit, the proponent of Aspen III South shall install perimeter fencing between the existing driveway (exiting on Fruitridge Road) and the site to prevent public access to the mining area. **(Aspen III So.)**

56. As required as a condition of the exiting permit, the proponent of Aspen III South shall provide protection from truck traffic for pedestrians who use the existing driveway along the site's northwest boundary for access to Fruitridge Road. Such protection could consist of a protected pedestrian walkway, formed by providing additional chain link fencing along the entire length of the haul route, between the truck travel-way on the driveway and the site boundary. Such fencing should be at least six feet high, and the pedestrian walkway should be at least three feet wide, provided on level ground and signed to indicate that it is for pedestrian/bicycle use. This fencing used to form the pedestrian walkway could be removed after all mining and reclamation activities are completed. Alternative methods of providing for pedestrian protection/safety may be considered, and could be implemented if found to be acceptable by the County Public Works Department. Such alternative methods might include restricting truck traffic on the driveway to the northernmost portion of the roadway. **(Aspen III So.)**

Aesthetics and Visual Resources

57. The proponents shall screen mining operations from public roadways, private property, and other sensitive receptors by providing a combination of visual enhancements. These enhancements shall include 25-foot minimum buffers, chain link fencing, berming, and landscaping with fast-growing, closely spaced shrubs. To the extent possible, earthern berms shall meander and be

contoured to reflect a more natural pattern with variations in width, height and direction. **(Aspen III So., Aspen IV So., Aspen V So.)**

58. Landscaping shall be initiated upon issuance of the use permit and, if possible, at least one year prior to commencement of the mining operations to allow plant establishment and sufficient screening growth. Plantings shall be irrigated by trenching or with individual bubblers on an automatic irrigation system. Landscaping shall be installed *exterior* to earthen berms or chain link fencing to provide the least "industrial" appearance and the highest compatibility with neighboring uses. Slats may be used in the fencing only if mining occurs before vegetation has reached screening height and density. **(Aspen III So., Aspen IV So., Aspen V So.)**

59. Any lighting shall be arranged and controlled so as not to illuminate public rights-of-way or adjacent properties. Mercury vapor type lights shall be used, similar to the type used as residential outdoor security lights. The top of the lights shall be covered with a metal cap, and a 10-12 inch plastic shield shall surround the bulb. The design of the light shall result in a minimum 90% of the light being projected downward, and the plastic shield shall prevent glare. **(Aspen III So., Aspen IV So., Aspen V So.)**

Public and Private Utilities

60. The proponent shall enter into a formal agreement with Sacramento Regional County Sanitation District for the dedication of a 130-foot wide right-of-way for the purpose of constructing an interceptor sewer facility. The agreement will be finalized prior to issuance of a work authorization for the mining project. The proponent shall consult with the County Water Quality Division to discuss options that will maximize the available aggregate resource use and minimize interceptor sewer construction costs. The decision on placement of the interceptor construction corridor will be at the discretion of Sacramento Regional County Sanitation District. The proponent will retain mining rights to the areas encumbered by the dedication if mined prior to construction of the interceptor sewer. After the interceptor sewer is constructed, there will be no mining in a 50-foot maintenance right-of-way centered along the pipeline. Mining activities adjacent to the maintenance right-of-way will protect the structural integrity of the pipeline. The agreement will also address the contingency of mining within the right-of-way before construction. **(Aspen III So., Aspen IV So., Aspen V So.)**

61. The proponent shall submit plans for proposed mining setbacks from existing sewage disposal systems to the County Environmental Management Department and the Regional Water Quality Control Board for approval in conformance with the provisions of Section 235-59(d) of the Zoning Code. **(Aspen III So., Aspen IV So., Aspen V So.)**

62. The proponent shall submit for review by the Environmental Management Department a site plan showing the exact locations of existing wells and septic systems (including leach lines and seepage pits) within 300 feet of the project site. This plan shall also indicate the wells proposed for use during the mining operation, the wells and/or septic systems proposed for abandonment, and the proposed locations for any new wells. **(Aspen III So., Aspen IV So., Aspen V So.)**

63. The proponent shall abandon any existing septic systems according to the Environmental Management Department and Building Department procedures and standards. Use of the system to be excavated shall be discontinued six months prior to excavation and the tanks shall be pumped at that time. Should any septic system be uncovered during mining activities, it shall be destroyed as per the requirements of the Environmental Management Department. . **(Aspen III So., Aspen IV So., Aspen V So.)**

64. The proponent shall ensure that water wells located in each phase of mining shall be abandoned to the satisfaction of the Environmental Management Department prior to initiation of the mining of that phase. Any existing wells shall be abandoned according to the Environmental Management Department and Building Department procedures and standards. Should any well be uncovered during mining activities, it shall be destroyed as per the requirements of the Environmental Management Department. **(Aspen III So., Aspen IV So., Aspen V So.)**

65. The proponent shall contact the SMUD Distribution Planning Department and consult with SMUD through project planning and development so that any required facilities and easements would be developed in a coordinated manner. The proponent shall keep SMUD informed of all decisions or changes in schedules that pertain to the proposed project, including setbacks, landscaped corridors, or any other planning efforts which may effect SMUD electrical facilities. The proponent shall coordinate with SMUD for the construction of SMUD facilities during the different phases of development. **(Aspen III So., Aspen IV So., Aspen V So.)**

66. The proponent shall consult with the County Water Quality Division regarding the placement of the utility corridors (to accommodate the gravity sewerage system) as they relate to the project site and the proposed project. One option would be to place utilities in the toe of the reclaimed slopes in order to minimize aggregate resources which would be precluded from mining, or investigate alternative corridors outside the project boundaries to avoid areas planned for aggregate resource mining. The decision on placement of such corridors, however, remains the sole discretion of the County and the proponent shall work with the County to facilitate final plans. **(Aspen III So., Aspen IV So., Aspen V So.)**

67. All new wells constructed on the project site shall be located and designed to minimize interference with existing wells within and outside the project site, to the satisfaction of the Environmental Management Department. **(Aspen III So. Aspen IV So., Aspen V So.)**

68. Any existing overhead power lines shall remain and/or, if necessary, be relocated at the proponent's expense as the operation proceeds. **(Aspen III So., Aspen IV So., Aspen V So.)**

Miscellaneous

69. This action does not relive the proponent of the obligation to comply with all ordinances, statutes, regulations and procedures applicable at the time of development. Any required subsequent procedural actions shall take place within 36 months of the date on which the permit became effective or this action shall automatically be null and void. **(Aspen III So., Aspen IV So., Aspen V So.)**

70. This use permit shall expire 22 years from the date of approval by the Board of Supervisors (i.e., all mining should cease within 22 years of the approval date). All reclamation work shall be completed within 12 months of the completion of mining. **(Aspen III So., Aspen IV So., Aspen V So.)**

71. Mining and site reclamation shall proceed in accordance with applicable mining/reclamation plan and related data, the applicable information contained within the EIR/EIS prepared for the Morrison Creek Mining Reach Downstream (South) of Jackson Highway (EDAW, 1997), the Wetland Mitigation Plan for Aspen IV South (Sugnet & Associates, 1994), the Morrison Creek Mining Reach Drainage Mitigation Plan (Montgomery Watson, 1995), and the Slope Stability Study for the Morrison Creek Realignment Channel (Walker-Kuhl & Associates, 1994). **(Aspen III So., Aspen IV So., Aspen V So.)**

72. Provide Sacramento County with a performance bond for each of the projects made payable to the County of Sacramento and the Department of Conservation of the State of California in the amount of $9,955 (same amount for each project) to financially guarantee reclamation of the property prior to issuance of the work authorization permit. The amount of the bond shall be subject to annual review and adjustment pursuant to the requirements of SMARA. **(Aspen III So., Aspen IV So., Aspen V So.)**

73. Comply with the Mitigation Monitoring and Reporting Program (MMRP) for this project as follows:

    a. The proponent shall comply with the MMRP for this project, including the payment of 100% of the Department of Environmental Review and Assessment staff costs, and the costs of any technical consultant services incurred during implementation of the MMRP. The initial estimate of these costs is $_____. If the initial estimate exceeds the actual monitoring costs, the balance shall be refunded to the proponent, and if the actual monitoring costs exceed the initial estimate, the proponent shall be responsible to pay the additional amount.

    b. Until the MMRP has been recorded and the estimated MMRP fee has been paid, no final parcel map or final subdivision map for the subject property shall be approved; and no encroachment, grading, building, sewer connection, water connection or occupancy permit from Sacramento County shall be approved. **(Aspen III So., Aspen IV So., Aspen V So.)**

II. GENERAL INFORMATION:

A. Property Size and Configuration: Three projects, totaling 550± acres, irregular configuration.

B. Purpose of Request: To allow the harvesting of aggregate material on the entire property, including Morrison Creek and its associated floodplain.

C. Land Use Relationships with Adjacent Properties:

	Existing Land Use	Zoning and Community Plan Designations
Subject Property	Agriculture (Dry Pasture)	AR-1/IR(F)/IR (SM /M-1/M-1(F)
North	Single Family/Agriculture (Row Crops)	IR(SM)/M-2/ M-2(F)/M-1/M-1(F)
East	Single Family/Agriculture (Dry Pasture)	AG-80/AG-160/M-1
South	Single Family/Agriculture (Dry Pasture)	IR/M-1
West	Single Family/Agriculture (Dry Pasture)	IR/M-1/M-2(SM)

D. General Plan Designation: Extensive Industrial with Aggregate Resource Area combining land use; Agricultural-Urban Reserve with Aggregate Resources Area combining land use; and Urban Stream Corridor.

E. Procedural Limitation: The Board of Supervisors is the appropriate hearing authority to decide this proposal after a recommendation by the Policy Planning Commission.

F. Applicable Regulations: The County General Plan, Vineyard Community Plan, and County Zoning Code.

G. Prior Zoning Agreements: Resolution Nos. 79-1673, 80-0800, 81-1320, 81-1354, 82-0267, 82-0327, and 85-1236.

III. ENVIRONMENTAL ANALYSIS:

See the Draft Environmental Impact Report/Environmental Impact Statement prepared for the Morrison Creek Mining Reach Downstream (South) of Jackson Highway, released February 28, 1997.

IV. PROJECT ANALYSIS:

A. Background: In 1990-91, Teichert Aggregates and Granite Construction Company submitted applications to allow mining of sand and gravel from various contiguous sites located between Jackson Road (north), Hedge Avenue (west), Elder Creek Road (south), several large agricultural lots zoned AG-160 (east). The sites total 965± acres in size and include Morrison Creek and its associated 100-year floodplain which comprise about 570 acres of these sites. During this same period of time, the County Water Resources Division was undertaking preliminary steps to prepare a Drainage Master Plan for the various reaches of Morrison Creek. The mining operators chose to place their projects on hold in attempts to develop a mutually acceptable flood control plan.

In 1992, the Water Resources Division (WRD) issued a Phase I Report-Drainage Master Plan for Morrison Creek Mining Reach based on the assumption that aggregate mining would occur throughout the reach. The resulting flood control plan recommended by the WRD differed significantly from the post-mining (drainage) plan originally proposed by the mining operators. Subsequent meetings between representatives of the WRD and the mining operators resulted in several flood control alternatives. In 1994, revised plans were submitted for the mining projects reflecting a very different post-mining (drainage) plan. The Morrison Creek Mining Reach Drainage Mitigation Plan prepared by the WRD was released in August, 1995. This plan evaluates seven different drainage alternatives for the areas along Morrison Creek from Hedge Avenue upstream to Excelsior Road; the specifics of which will be discussed later in this report.

A joint EIR/EIS was prepared for the projects known as Morrison Creek Mining Reach Downstream (South) of Jackson Highway and released in February, 1997. This EIR/EIS was prepared by a private consultant (EDAW) for use by the County in its deliberation on the requested land use entitlements, and by the Corps of Engineers during its review and consideration of the required Section 404 permits for the project. It should be noted that in June of 1996, similar mining proposals by the same two operators were approved for the upstream reach of Morrison Creek, north of Jackson Road (Control Nos. 89-RZB-UPB-1194, 89-RZB-UPB-1195). To date, some preliminary mining activities have occurred on the upstream reach (e.g.,

perimeter plantings, and overburden removal); however, the Corps of Engineers in issuance of the Section 404 permits stipulated that no mining may occur within 150 feet of the centerline of Morrison Creek for a period of 5 years. After 5 years, it is anticipated that the Corps will evaluate the impact of mining on the riparian habitat and the success of the approved/proposed mitigation. It is still quite possible that the Corps will allow the operators to mine the creek as was originally approved by the Board of Supervisors.

B. Aggregate Resources in General: The supply of aggregate resources in the Sacramento area is limited to areas of specific geological formations. The Teichert and Granite properties represent a broad wedge of floodplain materials left behind by the ancestral American River over a half-million years ago. These formations (sand and aggregate) vary in thickness from 20 to 35 feet and quality with rigid construction specifications set by Caltrans and Sacramento County. It should be noted that not all stream channels and terraces in the Sacramento area contain suitable (quality) deposits of aggregates, and not all areas containing suitable deposits can be mined (e.g., American River Parkway).

The Teichert and Granite projects represent an estimated 36.7 million tons of aggregates. According to the Sacramento County Aggregate Resources Report (prepared by the Aggregate Technical Advisory Committee (ATAC) in 1986) there are approximately 161 million tons of mineable (quality) aggregates remaining in the Sacramento area. Based on more current information provided by the mining operators, this figure is currently at about 143 million tons of aggregates. However, the proposals represent a fairly large share of the remaining identified aggregate supply. It should also be noted that at a consumption rate of about 8.5 million tons per year in the Sacramento area, the remaining identified aggregate supply will be depleted by the year 2010. If entitlements are not granted to mine the remaining identified aggregates in a timely manner, the local demand will have to be supplemented from out-of-county sources (e.g., San Joaquin and Yolo Counties) which may have potentially adverse economic and environmental consequences.

In furtherance and in recognition of the findings of the ATAC report, several areas are identified on the current General Plan Land Use Diagram as Aggregate Resource Areas (subject site included). The intent of this land use designation is to protect those areas known to contain mineral resources from incompatible urban uses, and thereby allow for the orderly extraction of those resources. Applicable General Plan land use policies are as follows:

> CO-41. Apply the aggregate resources combining land use category to additional areas as subsequent studies determine them to contain mineral resources which are feasible and appropriate for mining. The

aggregate resources combining land use category shall not be a prerequisite to (SM) Surface Mining combining zoning in conjunction with proposed surface mining.

CO-42. Sewer interceptor and trunk alignments shall be routed to avoid areas planned for aggregate resource mining to the extent practical. Where such alignments are impractical, they shall be designed to minimize aggregate resources which would be precluded from mining, and make reasonable attempts to preserve the future use of mined areas for flood control or recharge purposes.

In regard to the above policy, the Surface Mining (SM) Combining Zone has not historically been applied to either the Comprehensive Zoning Plan or Community Plan for those areas located within the 100-year floodplain areas due to their potentially sensitive environmental characteristics.

C. Site Characteristics: There are three Teichert sites, totaling 550± acres in size. Each site fronts at least two public streets, including Jackson Road, Bradshaw Road, Elder Creek Road, Mayhew Road, and Fruitridge Road. Historically, these sites have been used for cattle grazing. There are 2-3 older residences on these sites which will be removed. Approximately 80 acres of the Aspen III South site have already been mined and is subject to a prior use permit (Control No. 90-CZB-UPB-1084).

Approximately 250-300 acres of the three Teichert sites fall within the 100-year floodplain. Morrison Creek enters the Teichert sites near the northwest corner of Jackson Road and traverses diagonally southwest to the Granite site west of Mayhew Road. This creek drains a watershed of approximately 14.5 square miles, but is seasonal on the project site.

The primary vegetation on the project site is annual grassland. There is very little riparian habitat (2.61 acres of wetlands and other waters subject to the Corps jurisdiction) associated with that portion of Morrison Creek proposed for mining and consists primarily of a few willow and cottonwood trees. Approximately 85 acres of the Aspen V South site is not proposed for mining and contains significant riparian forest/scrub, valley oak woodlands, vernal pools and seasonal wetland habitats. These habitat and foraging areas as well as certain species would be preserved if the site is mined as proposed. It should be noted, as well, that a restoration plan is proposed by the mining operators (discussed later in this report) to mitigate the impacts of the mining, and it is claimed that these habitat areas may actually be enhanced by the proposed site reclamation.

Numerous biological surveys conducted on the site revealed a potential for species listed as threatened or endangered by the U.S. Fish and Wildlife Service (USFWS) under the Federal Endangered Species Act or by the California Department of Fish and Game (CDFG) under the California Endangered Species Act. A list of special status species which may occur on the project site was also compiled. It should be noted that the term "special status species" is somewhat generic as it typically includes species which are proposed for federal listing, candidates for federal listing, special plant species, and California species of special concern (see EIR/EIS for a complete listing). Those species identified on the site listed as "threatened and endangered" includes only the vernal pool fairy shrimp and vernal pool tadpole shrimp. However, since no vernal pools are being destroyed, there is no loss in habitat for these species. The Swainson's hawk, listed as a "threatened species" by the state, is known to frequent this area, but no individual sightings were made nor nesting sites located on the site.

D. Mining in General: As indicated previously, there are three Teichert mining sites totaling 550 ± acres. According to the overall phasing plan, Aspen V South (193± acres) will be the first of the three sites to be mined. The operator has indicated that once mining is completed on Aspen VI (upstream and on the north side of Jackson Road), the conveyor system will be extended under Jackson Road and mining will begin on Aspen V South. According to the operator, it will take at least 10 years to complete mining on Aspen VI. Aspen III South (31± acres) will be the next phase of the mining. Mining of this project should proceed rather quickly because 81± acres of the 112± acre site have been mined (no reclamation has occurred yet) and the conveyor system is already in place (Control No. 90-CZB-UPB-1084). The bypass channel for Morrison Creek will be constructed in conjunction with the mining and in concert with the adjacent Granite project as well. Aspen IV South (180± acres) will be the final phase. The existing conveyor system from Aspen III South will be extended under Mayhew Road to serve this site. A bypass channel will also be constructed in conjunction with the mining, and Morrison Creek will be diverted into the bypass channel once the channel downstream has been completed. According to the operator, mining of these three sites should take about 12 years to complete.

It is estimated that a total of 17.5 million tons of sand and gravel are available from these three mining sites. The deposit varies in thickness from 20-35 feet, and lies below a 5-10 feet layer of clay/silt soil. Mining on each of these three sites would occur in 2-3 separate phases, each approximately 50-75 acres.

The first step in mining of each site would be the removal of up to 300,000 cubic yards of clay/silt soil, known as overburden, that overlies the aggregate deposit. This material would be trucked to various job sites for use as construction fill.

Except for employee trips, it is anticipated that this will be the only traffic generated by the project. During subsequent phases, all aggregates will be sent to the processing plant, located at Jackson Road and Florin-Perkins Road, via a conveyor system that currently serves several previously approved phases of the mining operation and crosses under Elk Grove-Florin Road, Hedge Avenue, Bradshaw Road, and Jackson Road at various locations. All other overburden material would be retained on-site for use in sidesloping and pit floor renovation which would take place behind the mining operation. It is anticipated that at any one time, only 50-75 acres of the site would be mined (i.e., the remainder of the site would be in either a reclaimed or undisturbed state).

According to the mining operator, there could be as many as 24 truck loads per hour over a 12-month (not necessarily contiguous) duration generated by the removal of the initial overburden. Access would be provided on Bradshaw Road, Mayhew Road, and Fruitridge Road where it is anticipated that the majority of trips would be northbound to Highway 50. Employee and maintenance vehicle activity, on the other hand, is expected to be only 25 daily vehicle trips. Under the "existing conditions" scenario, the project is not expected to adversely impact any nearby intersections, except for those already operating at unacceptable levels (e.g., Elder Creek/South Watt Avenue, and Elder Creek/Bradshaw, which both currently operates at LOS "F" during the p.m. peak hours). Any additional traffic at these intersections is considered to be a significant impact, regardless of the increase in trips. Under the "cumulative" scenario, several other intersections in this area are projected to operate at unacceptable levels of service (e.g., Bradshaw/Jackson, Bradshaw/Kiefer, Jackson, Mayhew), regardless of whether or not the mining proposal is approved. Under this scenario, the level of service at the Elder Creek/ Mayhew intersection is expected to drop from LOS "C" to LOS "E", but this may be more attributable to the Granite mining project with the proposed on-site processing. An alternative that may be further explored in the Final EIR/EIS includes routing additional truck traffic north to Jackson Road via Mayhew Road, and construction of a temporary crossing at Morrison Creek. This may make more sense from overall circulation in that Mayhew Road has historically carried aggregate truck traffic (prior Teichert and Sacramento Aggregates mining projects) and will continue to do so since both Aspen III South and Aspen IV South have access to Mayhew Road north of Morrison Creek. Deterioration of roadway surface and base material is a concern with most hauling operators, but conditions have been standardized to give the County adequate assurance that any subsequent damage would be corrected at the operator's expense.

The aggregate deposit will be harvested with machinery typical to the mining industry such as loaders, graders, scrapers, and large capacity trucks. The perimeter

will be fenced with a 6-foot high chain-link fence with three-strand barbed wire. Visual screening adjacent to the public streets would be accomplished by use of landscaping and setbacks in accordance with Zoning Code requirements. Employee parking would be provided on the site as well as heavy equipment storage/parking used in the harvesting operation. The hours of the operation will be the same as those of adjoining operations and will comply with Zoning Code requirements (i.e., 6:00 a.m. until 10:00 p.m., Monday through Friday; and 6:00 a.m. until 3:00 p.m. on Saturdays). The nearest residence is about 50 feet east of the Aspen IV South site along Elder Creek Road, and as such, could be adversely affected by noise from the equipment. According to the noise assessment contained within the EIR/EIS, there could still be brief periods where the equipment noise exceeds the County standard along the project boundaries. Therefore, the operator will be required to install noise barriers of 8 feet in height along all residential boundaries. Water would be obtained from on-site wells and used solely for dust control, and as such, no treatment would be necessary. It should be noted that the Department of Air Force monitors several wells in the vicinity of the project site for possible migration of identified pollutants in the groundwater. The financial responsibility for clean-up operations and ongoing testing of groundwater analysis for possible contamination should rest solely with the Air Force.

E. Reclamation in General: Reclamation of the site will consist of perimeter side slopes of 1.5:1 and chain-link fencing along the boundaries. A 25-foot wide landscaped setback will be provided along each of the public streets. According to the landscaping plan, landscaping will consist of a mix of acacia trees and oleanders. The boundaries common to adjoining parcels will be restored to the original grade for a distance of 25 feet. Side slopes will be revegetated with native grasses to discourage erosion. The floor of the pit will be covered with a layer of overburden to a depth of at least three feet. According to the operator, portions of the upper pit area (i.e., those areas at an elevation of about 30-35 feet below the natural grade) will be leased to farmers for growing corn, alfalfa, and grain crops. The proposed use is typical of other previously mined phases in this area for which the County Agricultural Commissioner has approved agricultural management plans.

F. Drainage and Flood Control: With respect to Aspen III South and Aspen IV South, the post-mining treatment of the Morrison Creek drainage will entail construction of an elevated (original grade) bypass channel to safely convey the flows of Morrison Creek through the reclaimed pit area. This bypass channel will be constructed using the overburden and lined with clay. It will loop north of the current alignment of Morrison Creek, and follow the north property line to Mayhew Road where it will join the channel constructed on the Granite mining site. As a result of construction being concurrent with the mining, the majority of the channel will be in place within

the first few years of these projects. The bypass channel will be sized to pass all of the existing 100-year peak flow (approximately 1,620 cfs).

The proposed modification to Morrison Creek upstream will help attenuate existing and future flood flows downstream of the project site which is one of the goals of the County master drainage planning efforts for this area. Several other drainage alternatives are also being considered for this area as will be briefly discussed later in this report.

G. Wetlands, Habitat Mitigation and Enhancement: Mining on the three Teichert sites would impact approximately 2.61 acres of jurisdictional wetlands, including portions of Morrison Creek and seasonal wetlands. No vernal pools are being impacted by the mining. In order to mitigate for the loss of these areas, the operator proposes to create 2.44± acres of emergent marsh and 0.20 acres of low-flow channel within a 600-foot wide corridor. This corridor (6.5 acres) will be located within the reclaimed pit floor of Aspen IV South along the original creek corridor to provide habitat functions similar to the original creek. A wetland mitigation plan prepared by Sugnet and Associates in 1994 (see EIR/EIS) details the specifics of these areas. According to the plan, the corridor will contain a series of terraces or habitat zones (e.g. Riparian Woodland, Riparian Scrub and Valley Oak Savanna) to compensate for losses to the limited woody riparian vegetation that will be impacted. A low flow channel approximately 7 feet wide will be provided initially, and will be allowed to meander within the limits of the corridor. The habitat zones will be sustained by a combination of direct rainfall, runoff from adjacent areas, and from diversion of some low flows from the bypass channel. It is anticipated that sufficient water will be available each year (even during dry years) to sustain the various zones. According to the compensation plan, the corridor and its various zones will be monitored by a qualified biologist for a minimum period of five consecutive growing seasons from the date construction is complete or until success criteria set forth in the plan have been met. In addition, preparers of the EIR/EIS recommend monitoring of these areas for up to 10 years under the MMRP.

H. Master Drainage Planning and Urban Stream Corridor Policies: Morrison Creek is designated on the General Plan as an "Urban Stream" throughout its mining reach. Several policies of the General Plan relate to urban streams and master drainage planning thereof.

Two policies which have been cited in previous projects along urban streams are Safety Element policies SA-5 and SA-21. Policy SA-5 requires preparation of a comprehensive drainage plan prior to any development within the 100-year floodplain of an urbanizing stream. Policy SA-21 states that areas within a 100-year floodplain shall not be upzoned to a more intensive use until a Master Drainage Plan

is prepared. Both of these policies relate to the Safety Element Goal which states, "Minimize the loss of life, injury, and property damage due to flood hazards."

In the case of these aggregate mining projects within the mining reach of Morrison Creek, it should be noted that the property is not being upzoned to a more intensive use, no urban development being proposed, and the projects are outside of the Urban Policy Area. Post-mining reclamation will be agriculture, flood control, and habitat/open space. The implementation of this mining and reclamation plan is, in fact, a master drainage plan and will help to attenuate existing and future flood flows downstream--which helps to accomplish the stated Safety Element Goal.

As was the case in the upstream mining approvals, the mining operators will establish 600-foot wide open space easements as part of Aspen IV (see the wetland mitigation plan, EIR/EIS) delineating those new riparian corridors after completion of mining and reclamation. Staff agrees that such easements are necessary in order to guarantee the establishment of the stream corridor, and further suggests that the easements identify agricultural limit lines beyond which post-mining farming activities will not encroach so as to ensure that natural riparian regeneration has an opportunity to occur. Furthermore, it is important that those easements allow for the possible subsequent establishment of a public trail system. Even though the expected post-mining use of this property is not urban, but is agriculture, flood control, and open space, the urban stream corridor is part of a network of such corridors.

I. Other Drainage Alternatives: Six other drainage/flood control options have been developed for this particular reach of Morrison Creek, and are as outlined within the Morrison Creek Mining Reach Drainage Mitigation Plan (1994). Each of the alternatives, including the mining operators' preferred alternative, fall under two general categories: "pump everything," which would result in all water entering the upper mining pit being pumped back up to the natural invert of Morrison Creek at Jackson Road; and the "bypass channel" which would result in construction of a bypass channel to carry a portion of the flow around the mined area with excess flows diverted into the upper pit floor. There are variations in the facilities under each alternative which influence flood control downstream. For example, pump size under the "pump everything" alternative influences the duration of detention storage within the mined areas. Storage volume planned for the mined area also influences the design of the pit. For example, embankments along Jackson Road intended to retain detention storage would have to be constructed to the standards of the Division of Safety of Dams.

Evaluation of the County drainage alternatives (Part B) is beyond the scope of this

report. The mining operators' will be responsible for the construction and cost of those drainage facilities under their preferred alternative (Part A). If a different alternative is ultimately chosen, the County would supplement the cost and assume the responsibilities for operation and maintenance of these facilities. It should be noted that the operators' preferred drainage alternative does not preclude the County from proceeding with another drainage alternative, although a delay of 2-3 years would mean a significantly higher cost in that drainage facilities would have to be rebuilt. And one final note is that since the mining operators do not propose to line the bypass channel, the construction will not meet the County's flood control protection standards so that the mined areas (pit) adjacent to the bypass channel (e.g., Aspen III South and Aspen IV South) will have to be designated by the Flood Combining (F) zone. If, on the other hand, the County were to opt for a different drainage alternative and construct the bypass channel so that the mining pit were provided adequate flood protection, some form of urban land use could ultimately be developed on the site. This issue would have to be weighed carefully in any future consideration of the drainage alternatives.

An obvious drainage alternative, which incidentally is also discussed within the EIR/EIS, is to avoid all mining within the 100-year floodplain on these sites. As indicated previously, approximately 300 acres of these three sites (totalling 550 acres) lies within the 100-year floodplain. While it would be quite possible for the operators to mine those portions of these sites that lie outside of the 100-year floodplain, there does not appear to be valid grounds in doing so, at least on the Teichert sites. Those portions of Morrison Creek and its associated floodplain proposed for mining are devoid of any significant riparian habitat. On the other hand, portions of the creek and its associated floodplain located within Aspen V South (85± acres) containing dense valley oaks, vernal pools and riparian habitat will be preserved as open space. To a certain extent, the precedent for mining within the 100-year floodplain has already been established, especially since the creek environment on these sites is virtually identical with that which exists upstream and for which approval (by the County) has already been granted to realign the creek.

Another drainage alternative that may be addressed within the Final EIR/EIS has been proposed by the U.S. EPA and Urban Creek Council and pertains to maintaining a 150-foot setback from the creek for all mining. This alternative would be similar to the requirement that has been imposed on the upstream approvals, but would have virtually no impact on Aspen III South or Aspen V South since the creek itself is not physically located on either site. For the reasons outlined above, this alternative does not appear to be necessary in this case. Moreover, the alternative itself may prove to be infeasible since certain engineering solutions have

yet to be tested (e.g., Will a berm or levee be sufficient to contain 100-year flood flows within this creek corridor? Will flood flows leach into the pit area; and, if so, is detention within the pit desirable at this location?)

J. Development Standards Update: The proposed mining and reclamation meet all applicable Zoning Code development standards (e.g., setbacks, landscaping and fencing) and is identical with respect to the mining/reclamation that has occurred in prior Teichert projects. In approval of the Sacramento Aggregates project (Control No. 94-CZB-UPB-0715), located at the southeast corner of Jackson Road and Eagles Nest Road, approximately 2.5 miles to the east of the Teichert project, the Board of Supervisors asked Planning staff to reexamine the development standards applicable to aggregate mining; specifically, how these projects interface with rural residential land uses. Planning staff has yet to commence work on the update. Recently, a funding agreement for the project was adopted by the Board. A series of workshops with staff, industry representatives, community interest groups, and concerned citizens will have to occur prior to preparation of any environmental documentation or staff recommendations on this matter.

A higher level of standards was applied to the Sacramento Aggregates project and included the following: more gradual side slopes of 3:1 or 2:1, instead of the typical slopes of 1:5:1; a 15-foot wide landscaped perimeter (along residential boundaries as well) consisting of 10 different plant species, many of which are native to the region; a 6-foot high chain-link fence behind the perimeter landscaped setback, 15 feet from the right-of-way line; landscaping to be planted at least 3 years prior to commencement of mining operations on any particular phase; and a minimum mining setback of at least 30 feet from any adjacent residence. These standards, for the most part, were imposed in the attempt to create a more compatible interface with the rural residential land uses in that area. In addition, the area in which the Sacramento Aggregates project is located was not identified as an Aggregate Resources Area on the General Plan, and was the first of such mining proposals ever to be contemplated for that area. That is the primary distinction between the Sacramento Aggregates and Teichert sites. Staff is reluctant to suggest a set of different development standards given the advance notice that mining would be permitted on these sites (shown on the General Plan as an Aggregate Resources Area for 20± years) and the abundance of similar uses found in this area.

There is, however, some concern for adverse noise levels, dust, and miscellaneous nuisances from mining activities to adjoining residential uses, especially on the Aspen IV South site where several adjoining residences are located as close as 50 feet from the boundary of the mining site. According to the EIR/EIS, the equipment used for mining (loaders, scrapers and dump trucks) have the potential of exceeding

the Noise Ordinance and General Plan Noise Element (50 dBA standard) when operating close to the boundaries (i.e., approximately 93 dBA at 15 feet). It should be noted that these are worst-case mining equipment noise levels and would be short-term in nature occurring only when equipment operates nearest the project site boundaries and before substantial pit excavation lowers and blocks the noise source. Berming and/or portable noise barriers are suggested in the EIR/EIS to reduce these potentially adverse noise levels to an acceptable level. The operator is in the process of installing a more aesthetic potable noise barrier on the Aspen VI mining site (upstream), and staff supports this new design which consists of 4' x 8' sheets of 3/4 inch T-111 exterior siding overlapping and affixed to a 2' x 4' frame which is attached to a concrete footing. This noise barrier is currently being installed behind the required landscaped strip along Jackson Road and is painted a beige color. If this same treatment is extended along all residential boundaries on the Aspen IV South site, the noise/nuisance potential should be mitigated.

K. Mather Field CLUP: The Aspen III South site is located almost entirely within the Approach-Departure Zone identified by the Comprehensive Land Use Plan (CLUP) for Mather AFB (amended 1992). The remainder of the site, as well as Aspen IV South and Aspen V South, are located within the Overflight Zone. While military operations at Mather AFB have ceased and a new CLUP is being prepared for this airport based on civilian aircraft operations, the Mather CLUP remains the official guide to land use compatibility for this area. According to this CLUP, including those CLUP policies incorporated within the General Plan, mining and quarrying activities are compatible with these areas provided that the activities do not result in a large concentration of people (average density of greater than 25 people per acre per hour during a 24-hour period, or a single event resulting in the gathering of 50 persons per acre at any time) or the possibility that a water area may cause ground fog or bird hazards to aircraft.

It is reasonable in this case to assume that the proposed mining activities will not result in a significant number of people, and this has in fact been confirmed by the operator. Comments received from the Department of Airports (DOA) indicate that their principal concern is for bird-airstrike hazards. Representatives indicate that the operators' plans to modify the Morrison Creek floodplain may, in fact, lessen the potential for these hazards to occur, especially since only seasonal wetlands are proposed. In the event that the County chooses another drainage alternative for the site, the potential for these hazards may be exacerbated. Once again, this is an issue which is more appropriate for future deliberations on the areawide drainage plan.

L. Department of Conservation Review: In accordance with the SMARA (1975) and the County Code, all reclamation plans and the financial assurance (preliminary

estimate of the reclamation cost which is typically required in the form of a surety bond or irrevocable letter of credit) must be forwarded to the Department of Conservation's Office of Mine Reclamation (OMR) for review. Comments submitted by the OMR have been addressed by the operator and will be forwarded under separate cover for consideration during the final hearings on this project.

M. Conclusion: The mining proposal complies with applicable standards set forth in the Zoning Code, County Code and SMARA. The site has been identified on the General Plan to contain a high quality supply of aggregates and protected from incompatible land uses by appropriate land designations. Mining of the site would otherwise be considered acceptable based on these factors alone. What is unusual about the site, however, is that a significant portion of it (approximately 300 acres out of the 550± acres) is located within the 100-year floodplain of Morrison Creek, and includes Morrison Creek proper. Planning staff has up to this point resisted designating floodplain areas with the Surface Mining Combining (SM) zone.

The primary question in this proposal is whether this is an appropriate site for mining. Planning staff believes that that question can be answered in the affirmative for several reasons. As indicated above, this site has been designated for mining for several years. The General Plan land use designations provide at least tacit assurance to the property owner that mining is acceptable, and to others that mining may in fact occur at this location. Second, the floodplain associated with Morrison Creek at this location does not provide a particularly high quality environment for wildlife or vegetation. The mining operator proposes an extensive wetland restoration plan where riparian corridors and emergent marshes will be created, and existing vernal pools preserved as open space. Numerous consultants, as well as opinions rendered by the USFWS suggest that the proposed restoration plans will result in a significant enhancement of the wildlife habitat on this site. And finally, the County is presently pursuing drainage master planning for Morrison Creek to attenuate existing and future flood flows downstream of the site. The mining operators' plan to construct a bypass channel for the Morrison Creek flows will allow for some on-site detention in the upstream pit areas. The proposed drainage facilities will help the County accomplish its goals while at the same time be operationally and economically feasible for the mining operators to construct. In addition, the proposal will not preclude other drainage alternatives from being implemented by the County.

For the reasons outlined above, Planning staff believes that the hearing authorities should APPROVE the proposal according to the conditions contained in this report.

V. WRITTEN COMMENTS RECEIVED:

A. Community Council: On October 7, 1997, the Vineyard Community Planning Advisory Council recommended APPROVAL of the proposals by a vote of 4-0. Their recommendation was predicated on the following conditions:

1. No processing plant will be allowed on the Vineyard I parcel.

2. Both Teichert and Granite will have to get together to formulate a plan for Granite to have conveyor easement to move its harvest to its present processing plant on Bradshaw Road.

3. Mining will not be done in the 100 year floodplain.

4. Overburden from Vineyard I will be trucked north on Mayhew to Jackson Highway. It is felt by Council and Community that Elder Creek and the corner of Elder Creek and Bradshaw Road will not be able to absorb this increased traffic load of one truck per minute.

5. Removal of overburden by truck will occur only during the non commute hours of 10 a.m. to 3 p.m.

6. The handling of Morrison Creek south of Bradshaw will require further review with community members having input prior to decisions being made by County Staff in conjunction with applicants.

7. Reclamation of mined pits should have gentle slopes. Landscaping should be pleasing as feasible.

8. The Design Standard Review which will deal with slopes, landscape and reclamation problems is to have Community members on the project from day one.

9. Mitigation measures to be arrived at between applicants and the residents on the perimeter of the mining operations.

B. Airport Land Use Commission: On November 20, 1995, the Airport Land Use Commission (ALUC) indicated that the proposal is compatible with the Comprehensive Land Use Plan (CLUP) for Mather AFB, provided that the use does not cause ground fog or result in a water hazard, the use does not result in a large concentration of people (50 persons per acre at any time), and that measures are

taken to incorporate an interior noise level reduction (50 CNEL) into the design of any building where people work or congregate. ALUC staff also indicated that they are in the process of updating the CLUP, and it is highly probable that the mining sites would be located outside of any identified safety zones and subject to much lower (less restrictive) noise levels.

VI. ATTACHMENTS:

A. Composite map showing the Teichert/Granite Mining Projects (Downstream)
B. Overall Phasing Plan Teichert/Granite (Upstream/Downstream)
C. Aspen III South:
   1. Prior Use Permit (Control No. 90-CZB-UPB-1084)
   2. Proposed Mining/Reclamation Plan (Exhibits "A-1" thru "A-5")
   3. Estimate of Financial Assurance (Exhibit "A-6")

D. Aspen IV South:
   1. Proposed Rezone (Exhibit "B")
   2. Proposed Mining/Reclamation Plans (Exhibits "B-1" thru "B-5")
   3. Estimate of Financial Assurance (Exhibit "B-6")

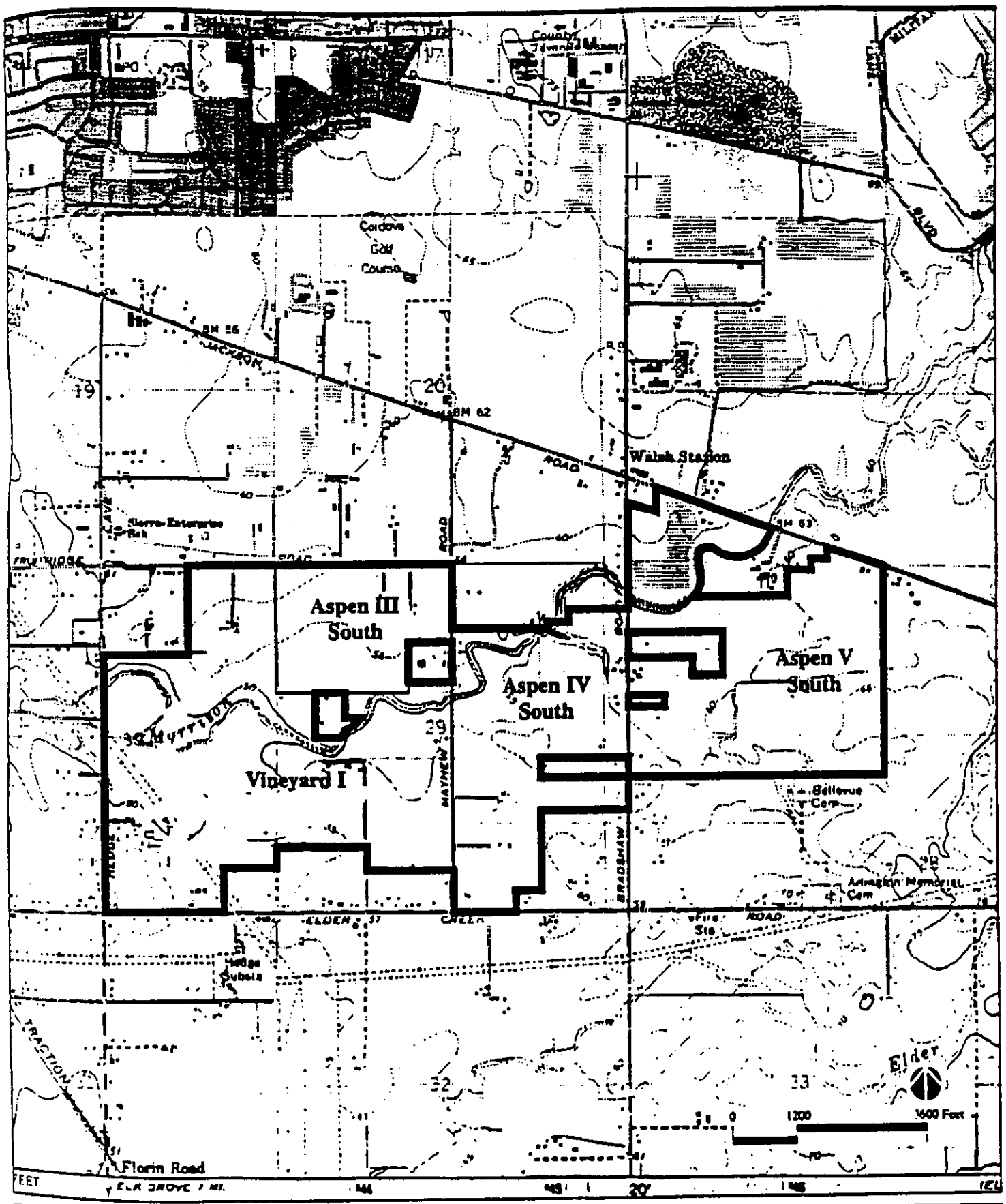
E. Aspen V South:
   1. Proposed Rezone (Exhibit "C")
   2. Proposed Mining/Reclamation Plan (Exhibits "C-1" thru "C-4")
   3. Estimate of Financial Assurance (Exhibit "C-5")

F. Airport Land Use Commission Referral

G. Community Council Referrals

This report was prepared by Jeff Gamel.

10/22/97



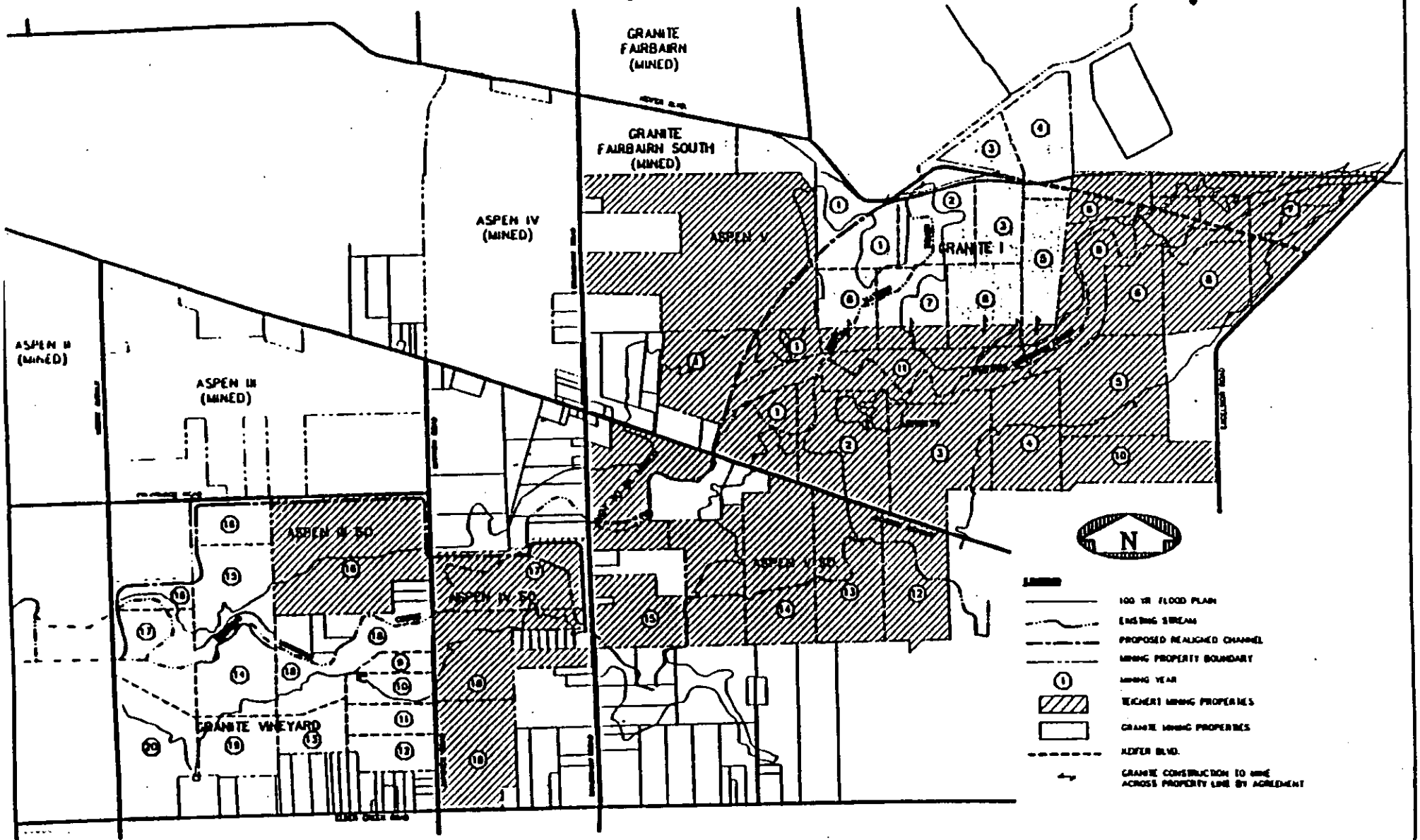
Morrison Creek Mining Reach.
Downstream (South) of Jackson Highway EIR/EIS

Project Boundary

Figure 3-2
Project Site Location

EDAW Inc. COMPOSITE (DOWNSTREAM)

OVERALL PHASING (DOWNSTREAM/UPSTREAM)



County of Sacramento
Water Resources Division

Morrison Creek Mining Reach
Drainage Mitigation Plan

Figure 1–3
Mining Phasing Map

USE PERMIT
County of Sacramento

063-0080-016, 028 through 032,
063-0090-007, 012
Assessor's Parcel No.

Date January 8, 1992

Board of Supervisors
Hearing Date January 8, 1992

TO: Sacramento Aggregates, P. O. Box 26567, Sacramento, CA 95827
Teichert Land Company, P. O. Box 15002, Sacramento, CA 95851
G. W. Consulting Engineers, 7447 Antelope Road, #202, Citrus Heights, CA 95621

PERMISSION IS GRANTED TO USE THE SUBJECT PREMISES FOR THE FOLLOWING DESCRIBED USES: Surface mining on a 112.0± acre site.

Description of Premises: The subject use permit pertains to the property described in Exhibit A, which is attached hereto and by this reference incorporated herein. Said property is located on the southwest corner of Fruitridge and Mayhew Roads in the community of Vineyard.
90-CZB-UPB-1084

CONDITIONS OF APPROVAL:

1. This action does not relieve the applicant of the obligation to comply with all ordinances, statutes, regulations and procedures. Any required subsequent procedural actions shall take place within 36 months of the date on which the permit became effective or this action shall automatically be null and void.

2. The mining operation shall be visually screened from travelers on Fruitridge and Mayhew Roads, from existing residential and industrial uses along those roadways, and from adjacent residential uses by providing 25-foot wide landscaped buffers along the public roadway frontages and 5-foot wide buffers adjacent to existing residential properties. Said buffers shall be planted prior to mining and should consist of fast growing landscape plants, closely spaced.

3. Landscape trees planted within the 25-foot wide buffer area along Fruitridge Road shall not include species with tap roots likely to extend to a depth of more than 25 feet. Any changes to the currently proposed species list (acacia or oleander) shall be reviewed by the Department of Environmental Review and Assessment for conformance with the above requirements

4. Provide noise barriers, consisting of moderately high berms (about 6 feet) or temporary portable barriers installed and moved along property boundaries as mining progresses, to provide noise reduction sufficient to bring the mining operation into conformance with the noise standards advanced in the Surface Mining Combining Zone.

5. After reclamation of the site, all required fencing shall be retained until development occurs.

6. The mined aggregate material shall be transported to the processing plant by conveyor rather than trucks.

7. Material to be removed from the site by truck shall be limited to the initial 300,000 cubic yards of overburden. The removal of the overburden from the site by truck shall be restricted to no more than 16 trips per hour.

8. The owner shall agree to repair any damaged structural paving material that can be reasonably attributed to the proposed operation.

CONDITIONS OF APPROVAL: (Continued)

9. The approved overburden haul route shall be via the easterly segment of Fruitridge Road to Mayhew road to Jackson Road.

10. Provide either a fair-share contribution to increase the thickness of the maintenance overlay on Fruitridge Road by one inch or overlay Fruitridge Road with 3 inches of AC over geotextile fabric from the project driveway to Mayhew Road to the satisfaction of the Director of the Department of Public Works.

11. Gravel or dirt roads used for access to the site or for the hauling of aggregate material shall be kept moist or treated with chemical dust palliatives.

12. During the period when public roads are used for the hauling of overburden from the site, these roads shall be swept to control dust. The portion of public streets near access roads to the site shall likewise be swept for dust control throughout the entire mining period.

13. Overburden should be removed during the period of the year when surface soils are moist. If overburden is removed when surface soils are dry, water spraying equipment shall be used to reduce dust emission. Water spraying equipment shall likewise be used, as needed, when removing aggregate.

14. If loose material (overburden or aggregates) are stored on the site, the stockpiles shall be kept sufficiently moist to reduce wind erosion, or if stored for a long period of time, chemical palliatives shall be applied.

15. The side slopes of the pit shall be vegetated to prevent excessive erosion and enhance slope stability.

16. The only overburden removed from the site shall be the initial 3000,000 cubic yards excavated to initiate mining.

17. The reclaimed overburden shall be placed by equipment with minimum compaction such that the specific gravity of the finished material is approximately the same as that of the natural soil.

18. The reclaimed pit floor shall be vegetated to reduce wind erosion of the soil.

19. Mining and other physical alterations shall be excluded from that portion of the mining site which falls within the FEMA-defined, 100-year floodplain as depicted on Exhibit X.

20. Submit a drainage plan to the Water Resources Division for review and approval prior to obtaining a work authorization permit for the site. Said plan shall show no net loss of floodplain storage, no encroachment into the floodway and no discharge of surface waters from the mining pit.

21. If deemed necessary by the County Environmental Management Department and/or the California Regional Water Quality Control Board, a groundwater quality monitoring program shall be established by the project proponent.

22. No polluting substance or toxic compound shall be applied to the pit floor. Any form of pollutant used on the site shall be contained and not disposed of on site.

23. Materials used for site reclamation shall be limited to the replacement of overburden. Reclamation materials shall not contain organic matter and the site shall not be used as a dumping area.

24. An agricultural management plan shall be submitted for review by the Agricultural Commissioner and for approval by the

CONDITIONS OF APPROVAL: (Continued)

25. Provide a 25-foot sewer easement along the north property line.

26. Abandon the existing on-site septic system prior to mining the site to the satisfaction of the County Environmental Management Department.

27. Should fossils be discovered on the project site, the project proponent shall contact the Sacramento County Department of Environmental Review and Assessment and the University of California at Davis to jointly develop an action plan to assess and/or preserve the fossils.

28. Caution shall be exercised in any land modification activities undertaken in the vicinity of Morrison Creek. Should any cultural resources be encountered, land modification activities shall be suspended and the County Department of Environmental Review and Assessment shall be immediately notified.

29. Comply with the Mitigation Monitoring and Reporting Program (MMRP) for this project as follows:

    a. The proponent shall comply with the MMRP for this project, including the payment of 100% of the Department of Environmental Review and Assessment staff costs, and the costs of any technical consultant services incurred during implementation of the MMRP. The initial estimate of these costs is $4,500.00 (to be determined and inserted prior to the publication of the Final Environmental Impact Report). If the initial estimate exceeds the actual monitoring costs, the balance shall be refunded to the proponent, and if the actual monitoring costs exceed the initial estimate, the proponent shall be responsible to pay the additional amount.

    b. Until the MMRP has been recorded and the estimated MMRP fee has been paid, no final parcel map or final subdivision map for the subject property shall be approved; and no encroachment, grading, building, sewer connection, water connection or occupancy permit from Sacramento County shall be approved.

30. Mining operations shall not:

    a. Direct a steady or flashing light of white, red, green or amber color toward an aircraft engaged in an initial straight climb following take-off or toward an aircraft engaged in a straight final approach toward a landing, other than an FAA approved navigational signal light or visual approach slope indicator (VASI);

    b. Cause sunlight to be reflected toward an aircraft engaged in an initial straight climb following take-off or toward an aircraft engaged in a straight final approach toward a landing;

    c. Generate smoke or attract large concentrations of birds, or otherwise affect safe air navigation within this area;

    d. Generate electrical interference that may be detrimental to the operation of aircraft or airport instrumentation; or

    e. Contain any hazardous installations such as: above-ground oil, gas or chemical storage facilities.

31. Mining and reclamation shall be in substantial compliance with the mining and reclamation plans depicted on Exhibits T, Y and X.

32. Provide Sacramento County with a performance bond in the amount of $122,000.00 to financially guarantee reclamation of the property, prior to issuance of the work authorization permit. The amount of the bond shall be subject to annual review and adjustment pursuant to

FINDINGS:

1. The request is consistent with the County General Plan and Text in that the project site has been identified to contain significant aggregate resources. Approval of the project will allow for the orderly extraction of aggregate resources, thereby lowering consumer costs by providing these resources convenient to the urban area.

2. The request is consistent with the Vineyard Community Plan Map and Text in that the project will allow for the continued high yield of aggregate resources for which the Vineyard community is known.

3. Noise and visual intrusion will be adequately mitigated by the implementation of the standards for surface mining operations as set forth in the Sacramento County Zoning Code.

4. Staff has identified no effects from this proposal which would result an any significant nuisances, hazards of adverse environmental impacts, if the conditions, as recommended by staff are adopted.

5. Identified environmental effects and suggested mitigation measures have been taken into consideration in the recommended actions and conditions of approval.

The above use will not be conducted to constitute either a public or private nuisance. Violation of any of the foregoing conditions will constitute grounds for revocation of this permit. Building permits are required in the event any building is planned.

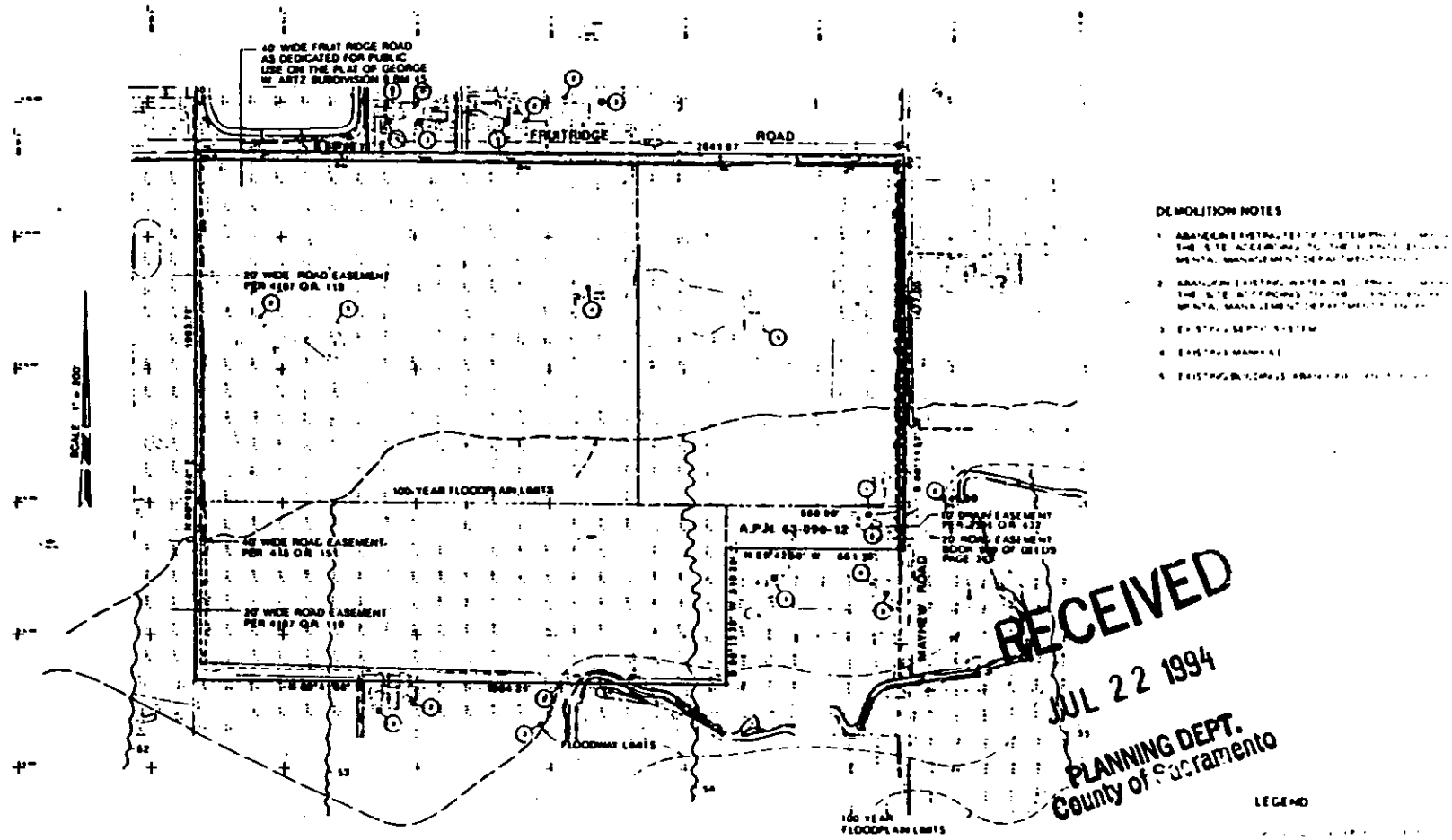
SACRAMENTO COUNTY BOARD OF SUPERVISORS

By Beverly A. Williams
Beverly A. Williams, Clerk

cc: Building Inspection (3)
Public Works
Environmental Health
Planning Department
Planning Commission

EXHIBIT "A-1"

94 0484



RECEIVED
JUL 22 1994
PLANNING DEPT.
County of Sacramento

SACRAMENTO COUNTY

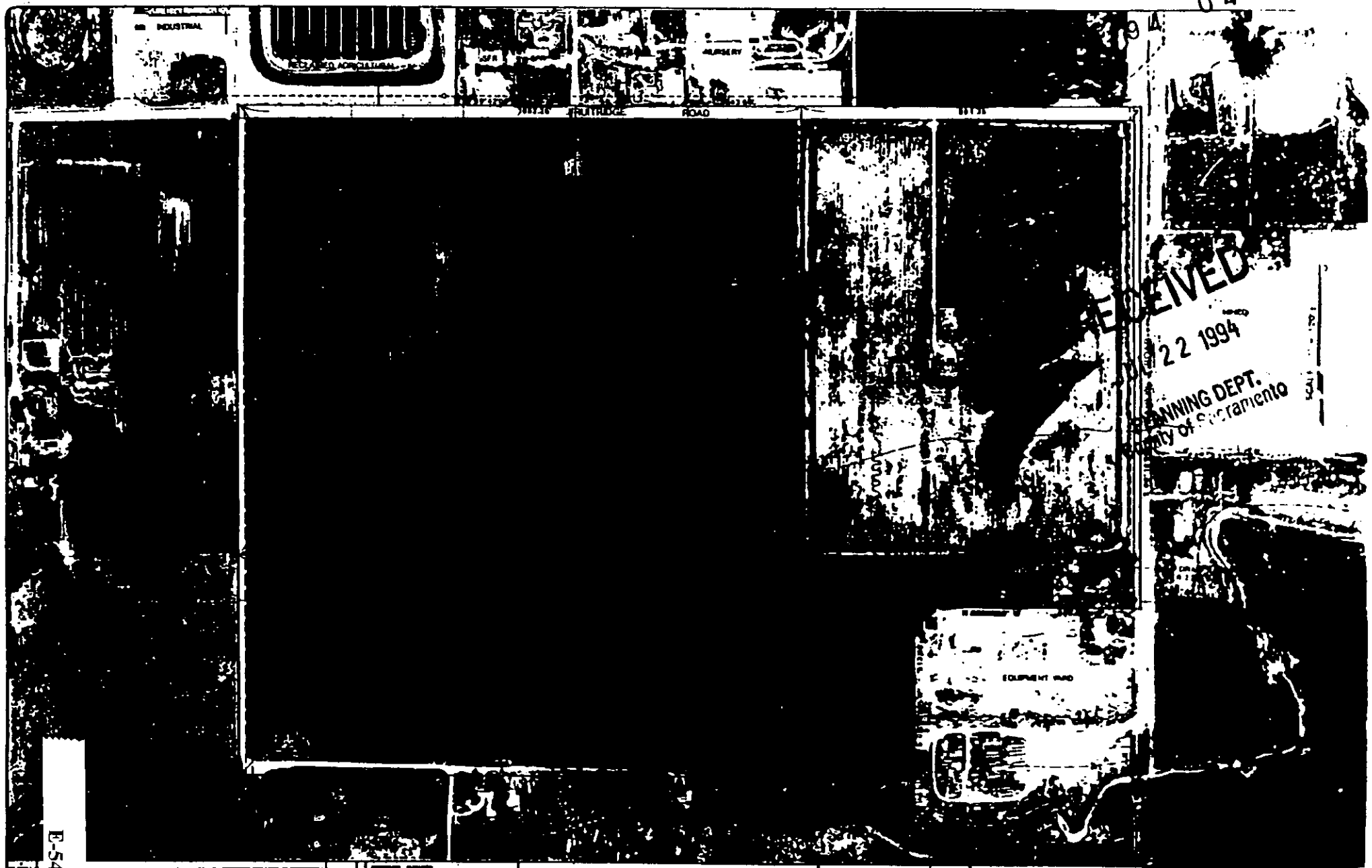
MINING AND RECLAMATION PLAN

ASPEN III SOUTH
EXISTING TOPOGRAPHY

SACRAMENTO COUNTY

EXHIBIT "A-2"

0484



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22 1994
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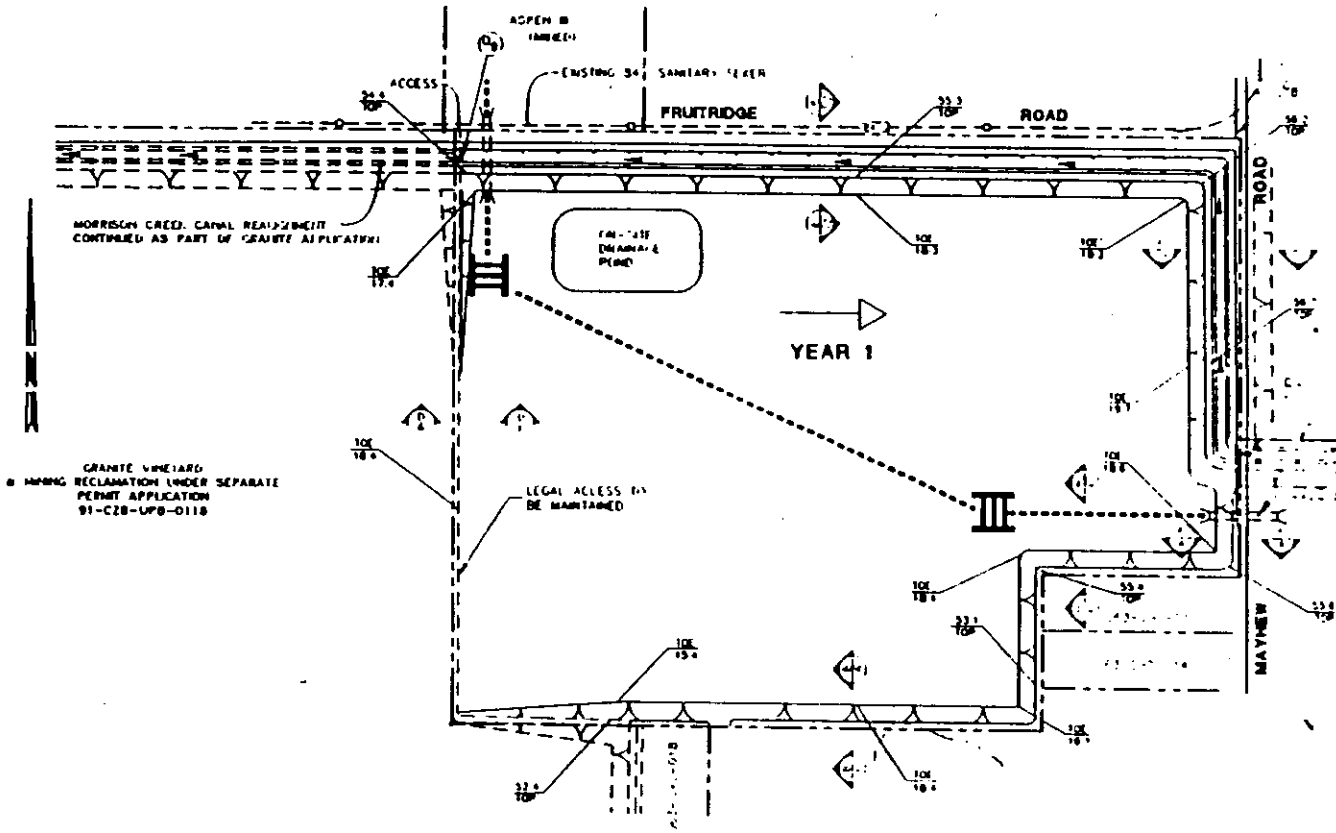
MINING AND RECLAMATION PLAN (REVISED)
ASPEN III SOUTH
EXISTING CONDITIONS
SACRAMENTO COUNTY

EXHIBIT "A-3"

94 0484

NOTES



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County of Sacramento

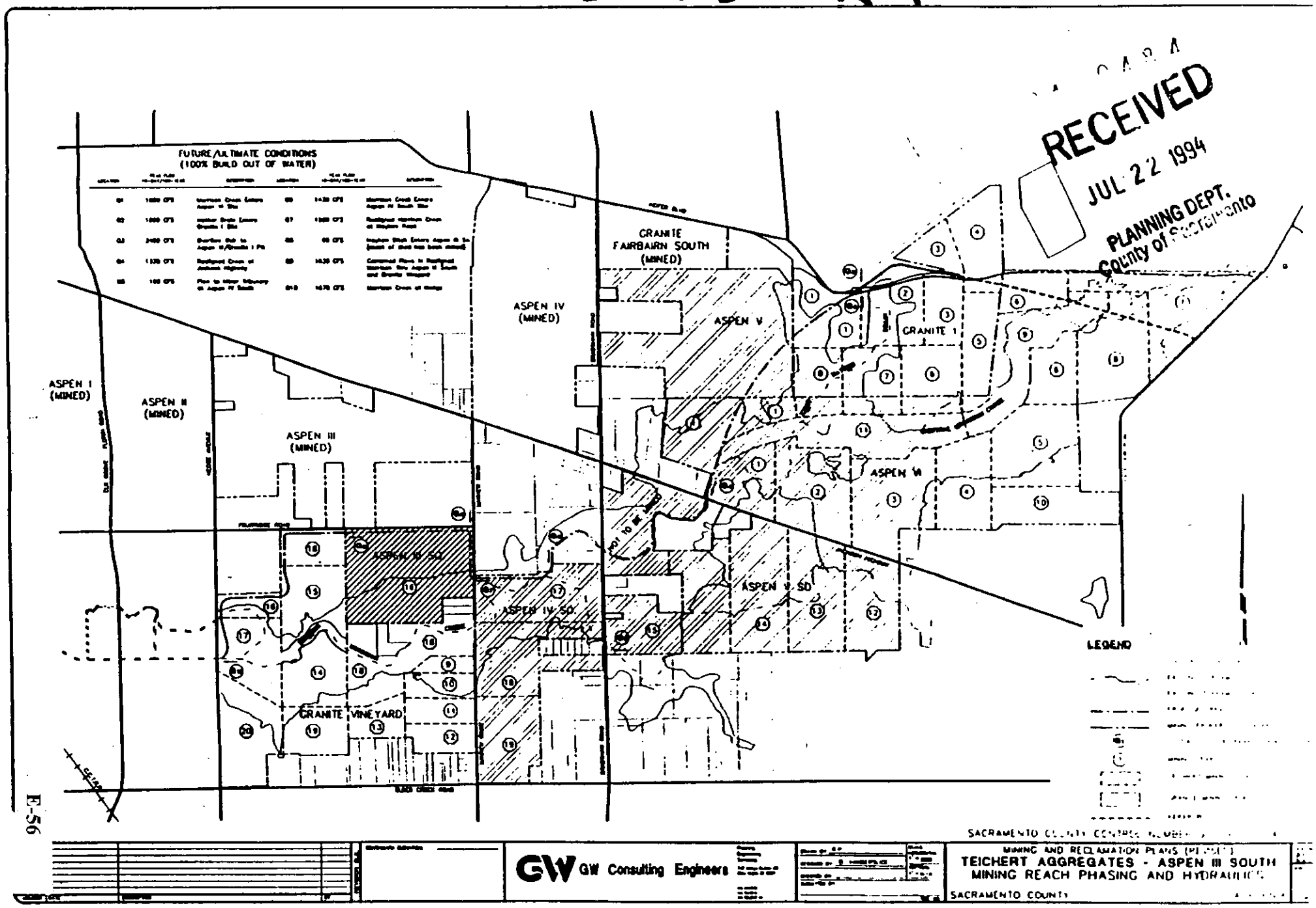
LEGEND

III

GW GW Consulting Engineers

MINING AND RECLAMATION PLAN
TEICHERT AGGREGATES - ASPEN III SOUTH
MINING AND RECLAMATION PLAN
SACRAMENTO COUNTY

EXHIBIT 'A-4'



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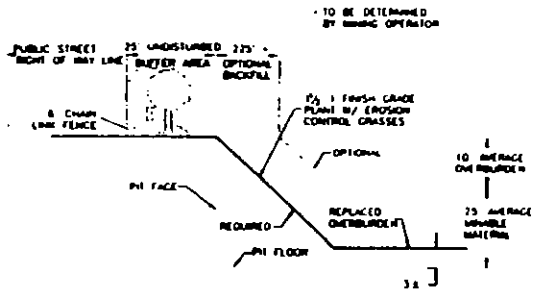
JUL 22 1994
PLANNING DEPT.
County of Sacramento

EXHIBIT "A-5"

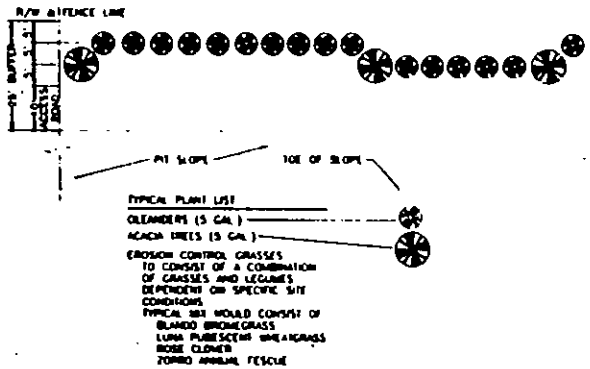
0434



SECTION A-A

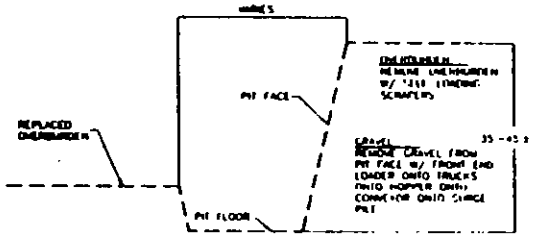
PROPOSED PIT ADJACENT TO PUBLIC ROADWAY

NO SCALE



PLANTING SCHEDULE FOR 25' BUFFER AREA

NO SCALE



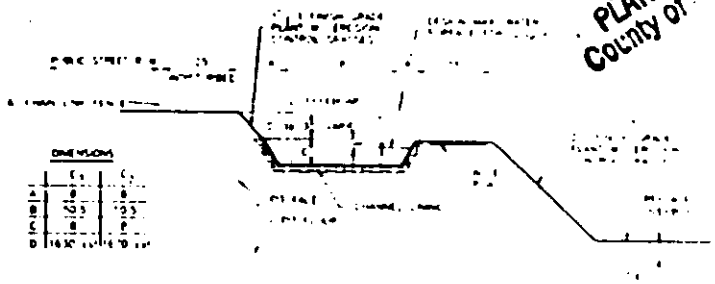
TYPICAL GRAVEL HARVEST AT PIT FACE

NO SCALE

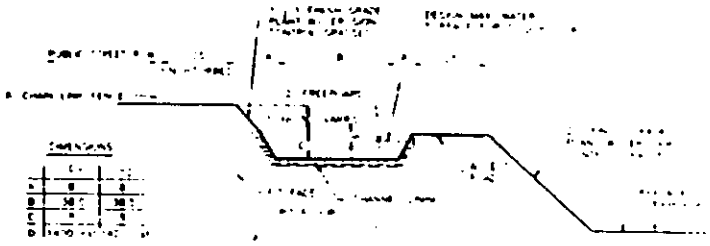
SECTION B-B

PROPOSED PIT ADJACENT TO PUBLIC ROADWAY

RECEIVED
JUL 22 1994
PLANNING DEPT.
County of Sacramento



SECTION C-C (1 & 2)



SECTION D-D

SACRAMENTO COUNTY

GW Consulting Engineers

MINING AND RECLAMATION PLAN
TEICHERT AGGREGATES - ASPEN III SOUTH
DETAIL SHEET
SACRAMENTO COUNTY

EXHIBIT "A-6"

ESTIMATE FOR FINANCIAL GUARANTEE

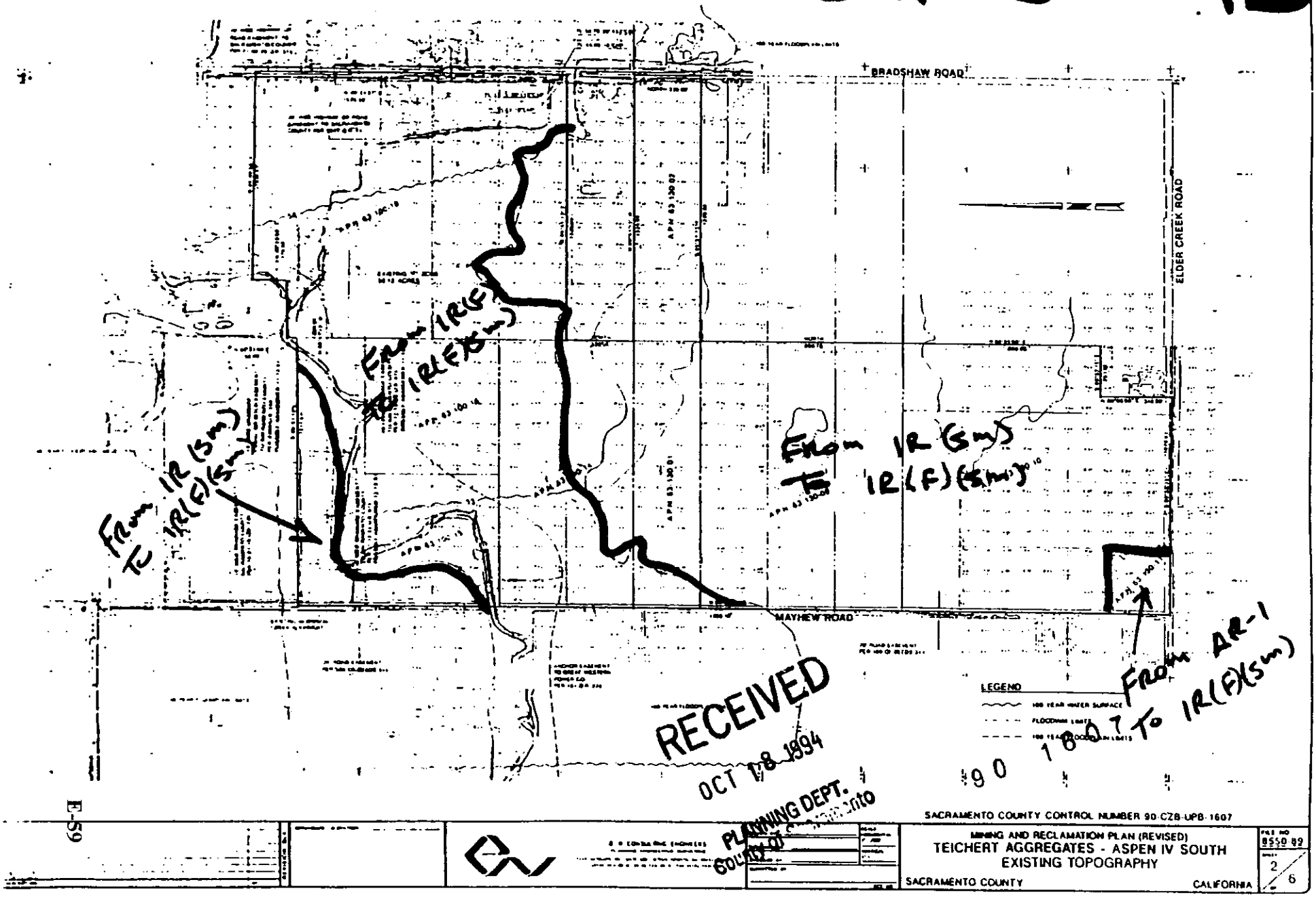
SITE NAME: Aspen III South

CONTROL NUMBER: 94-UPB-0484

DATE OF ESTIMATE: October 7, 1994

DESCRIPTION	QUANTITY	UNIT PRICE	COST
MOBILIZE	1	$1,000.00	$1,000.00
REPLACE SOIL	5000 CY	$0.70	$3,500.00
RESHAPE SLOPES (PER ACRE)	0	N/A	$0.00
GRADING & RELEVELING (PER ACRE)	10 AC	$200.00	$2,000.00
DUST CONTROL (PER ACRE)	10 AC	$35.00	$350.00
WEED CONTROL (PER ACRE)	10 AC	$20.00	$200.00
BROADCAST SEED (PER ACRE)	10 AC	$200.00	$2,000.00
HYDRO-SEED (PER ACRE)	0	N/A	$0.00
		SUBTOTAL	$9,050.00
		10% CONTINGENCY	$905.00
		TOTAL	$9,955.00
	FINANCIAL GUARANTEE TOTAL		$9,955.00

PROPOSED REZONE EXHIBIT "B"



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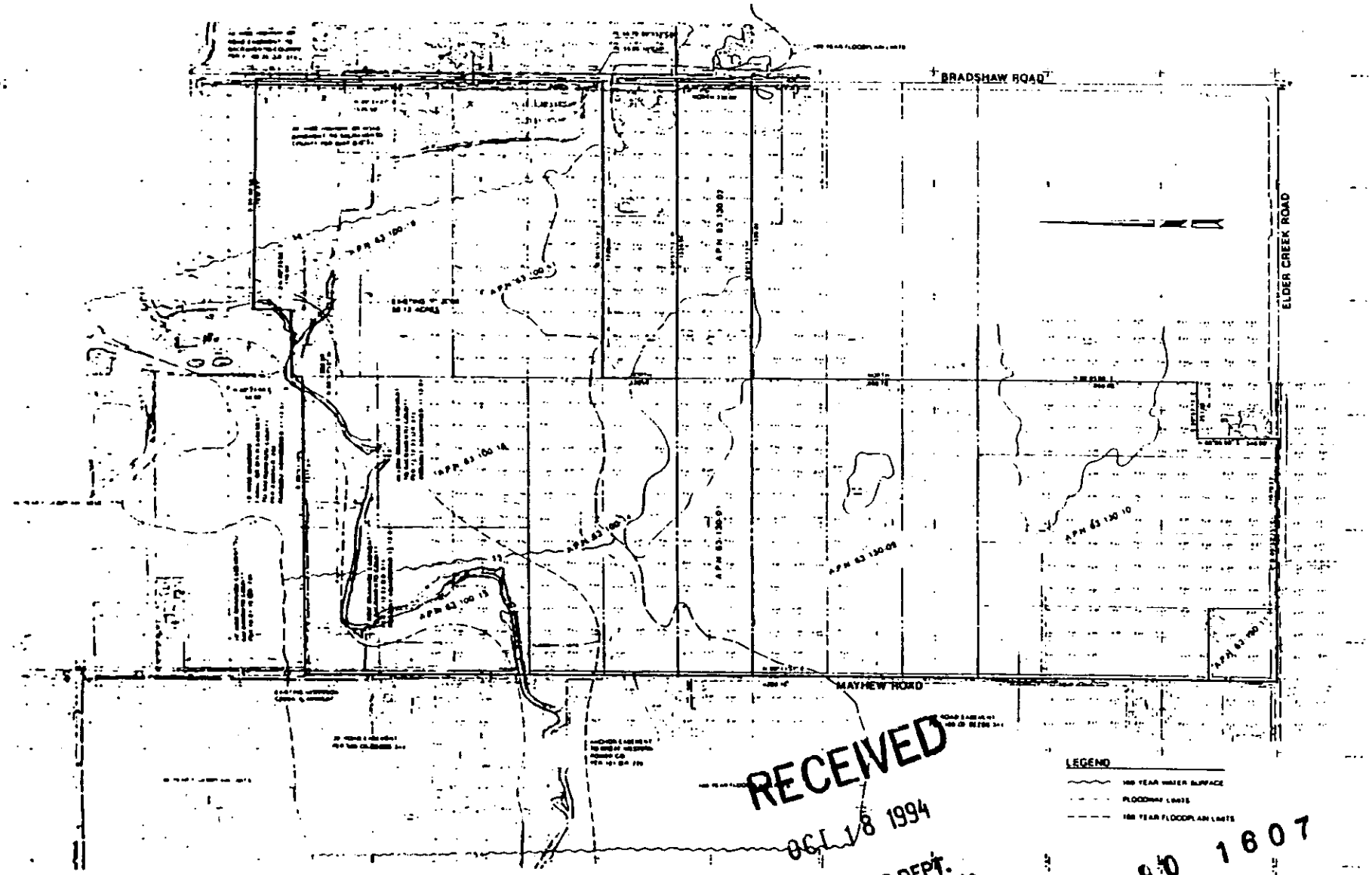

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OCT 18 1994
PLANNING DEPT.
COUNTY OF

90 1607

SACRAMENTO COUNTY CONTROL NUMBER 90-CZB-UPB-1607

MINING AND RECLAMATION PLAN (REVISED)
TEICHERT AGGREGATES - ASPEN IV SOUTH
EXISTING TOPOGRAPHY

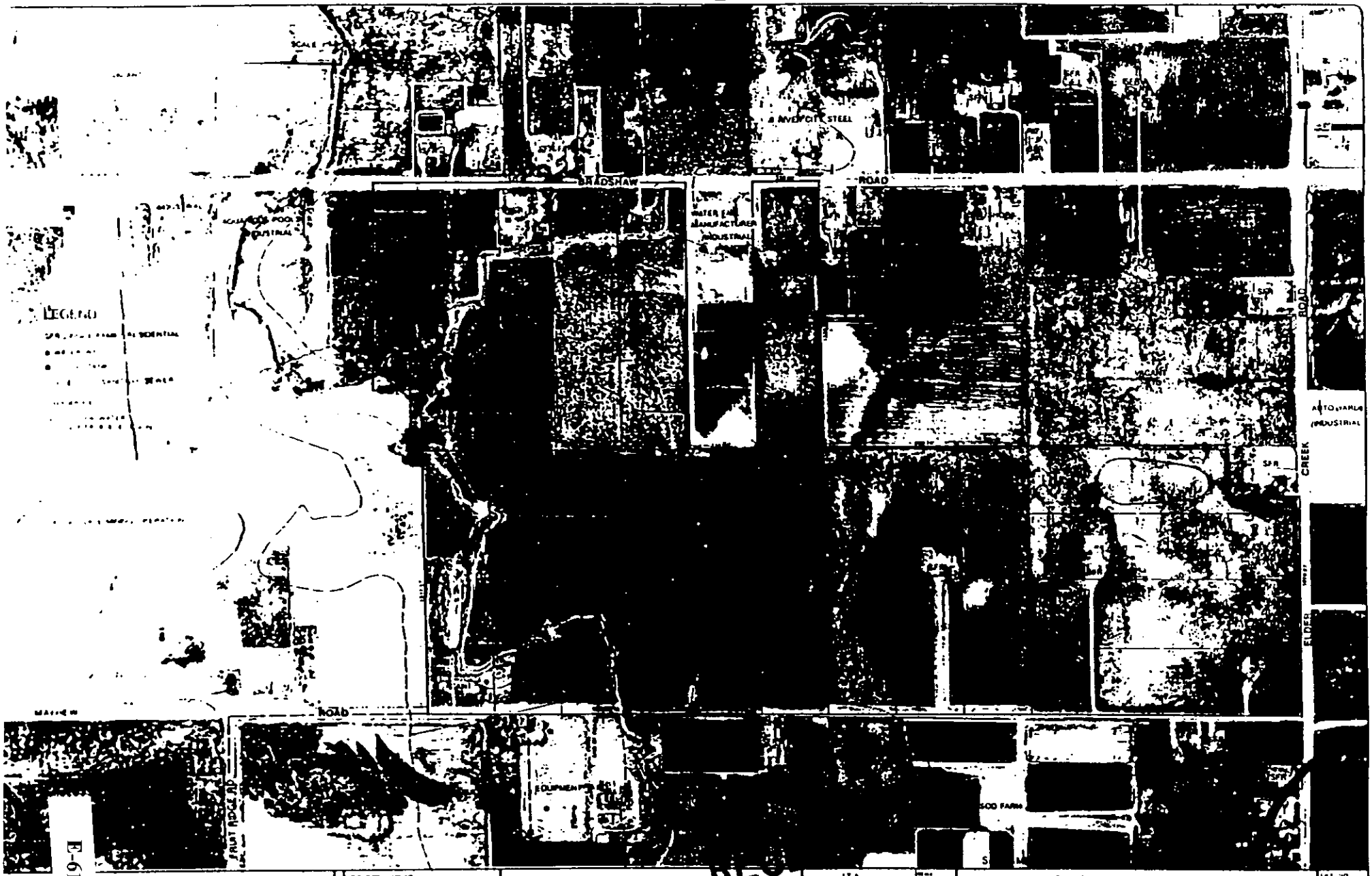
SACRAMENTO COUNTY CALIFORNIA

8550 89

2 / 6

E-60

EXHIBIT "B-2"



E-61

MINING AND RECLAMATION PLAN (REVISED)
TEICHERT AGGREGATES - ASPEN IV SOUTH
EXISTING CONDITIONS
SACRAMENTO COUNTY CALIFORNIA

8550 B9
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6

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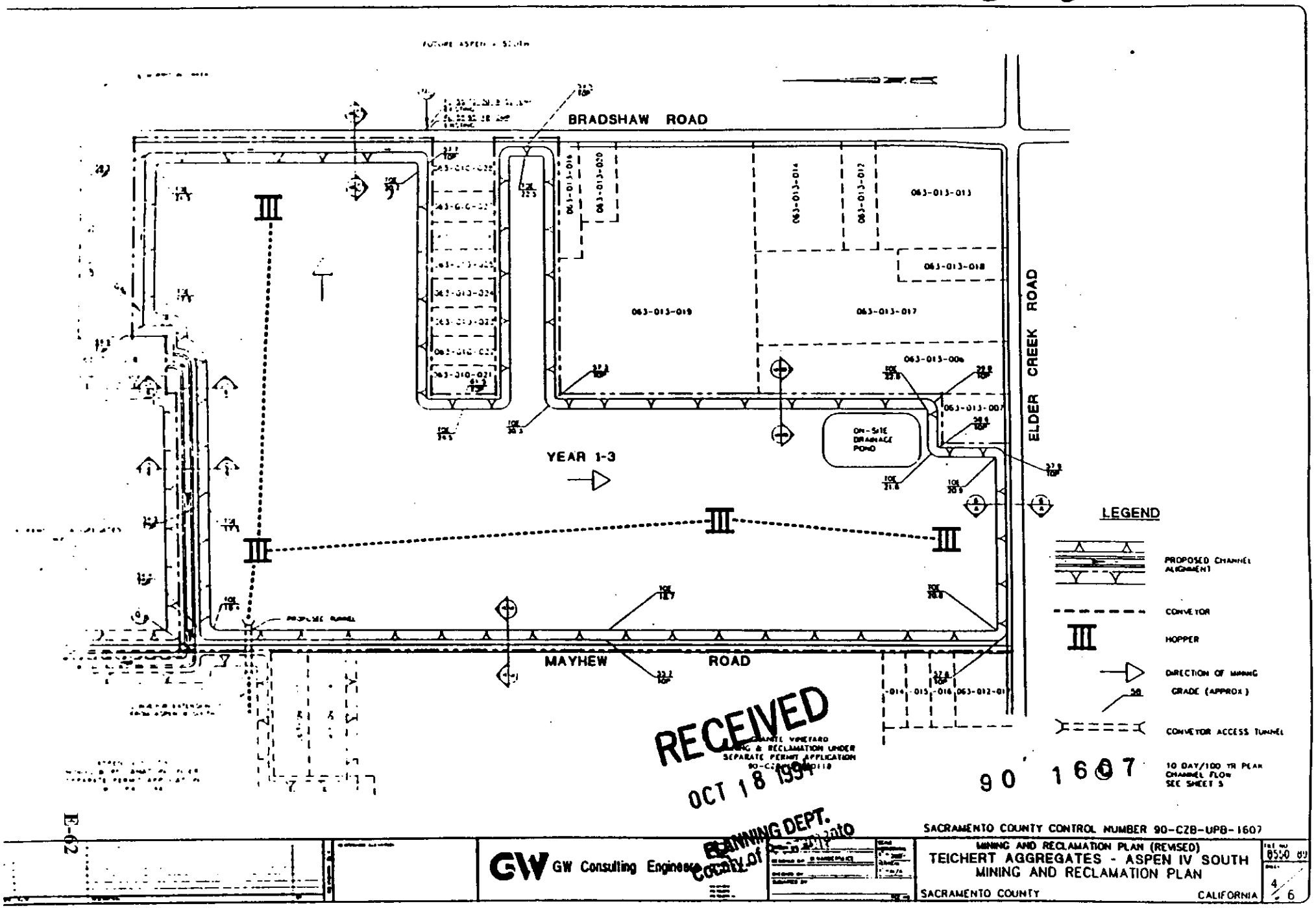
OCT 18 1994
PLANNING DEPT.

AO 1607

EXHIBIT "B-3"



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PLANNING DEPT.
County of Sacramento

90 1607

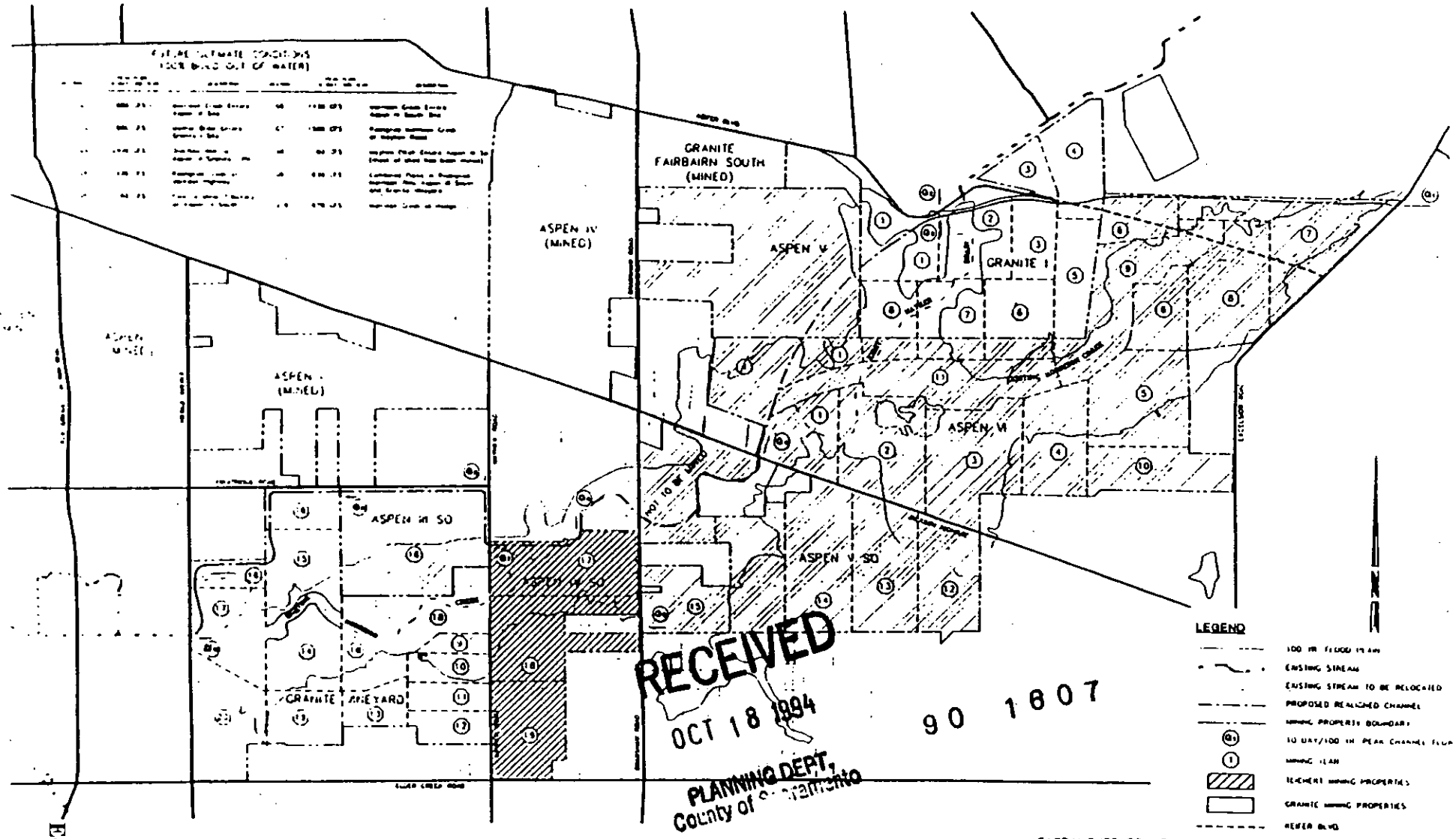
SACRAMENTO COUNTY CONTROL NUMBER 90-CZB-UPB-1607

GW Consulting Engineers

MINING AND RECLAMATION PLAN (REVISED)
TEICHERT AGGREGATES - ASPEN IV SOUTH
MINING AND RECLAMATION PLAN
SACRAMENTO COUNTY CALIFORNIA

4 / 6

EXHIBIT "B-4"



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PLANNING DEPT.
County of Sacramento

90 1607

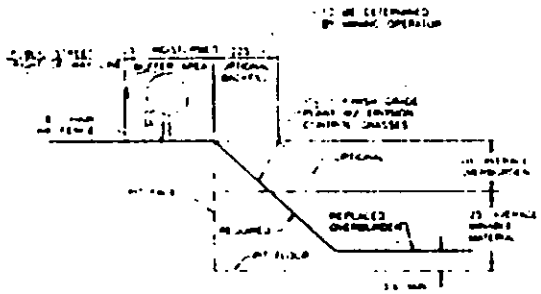
SACRAMENTO COUNTY CONTROL NUMBER 90-CZB-UPB-1607

GW Consulting Engineers

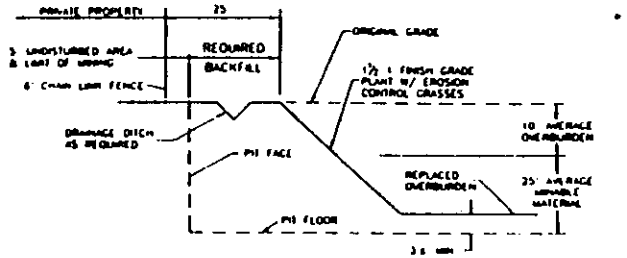
MINING AND RECLAMATION PLANS (REVISED)
TEICHERT AGGREGATES - ASPEN IV SOUTH
MINING REACH PHASING AND HYDRAULICS
SACRAMENTO COUNTY CALIFORNIA

FILE NO. 8250-89
SHEET 5 of 6

EXHIBIT "B-5"

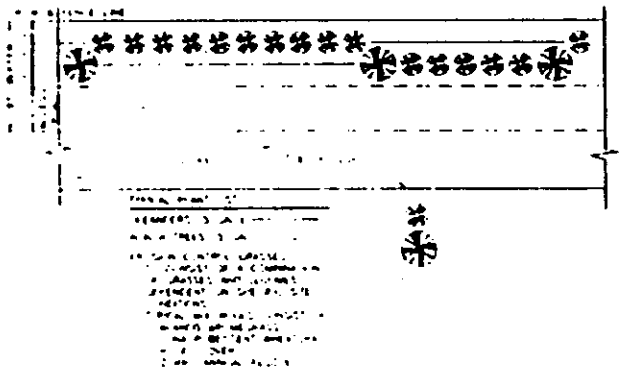


SECTION A-A

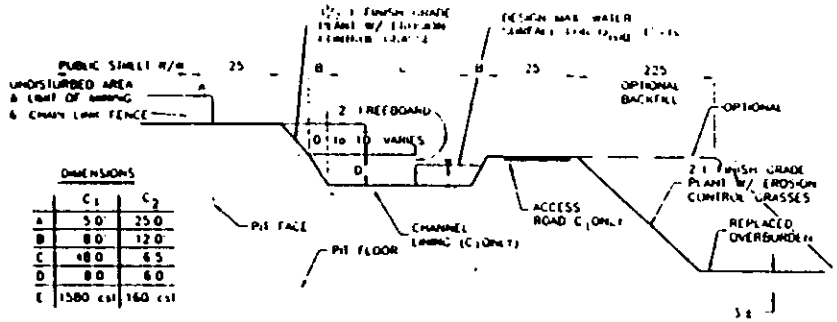


SECTION B-B

PROPOSED PIT ADJACENT TO PRIVATE PROPERTY
NO SCALE



PLANTING SCHEDULE FOR 25' BUFFER AREA



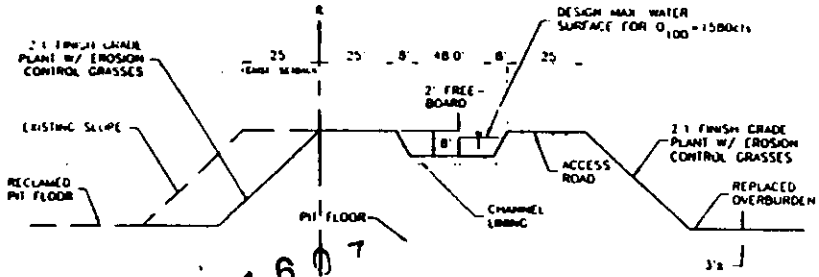
DIMENSIONS

	C_1	C_2
A	50'	250
B	80'	120
C	480	65
D	80	60
E	1580 cfs	160 cfs

SECTION C-C (1 & 2)

REACH A - REALIGNED MORRISON CREEK
NO SCALE

TYPICAL GRAVEL HARVEST AT PIT FACE



SECTION D-D

REALIGNED MORRISON CREEK
NO SCALE

RECEIVED
OCT 18 1994
PLANNING DEPT.
COUNTY OF SACRAMENTO

00 1607

SACRAMENTO COUNTY CONTROL NUMBER 90-CZB-UPB-1607

GW GW Consulting Engineers

MINING AND RECLAMATION PLANS (REVISED)
TEICHERT AGGREGATES - ASPEN IV SOUTH
DETAIL SHEET

SACRAMENTO COUNTY CALIFORNIA

FILE NO 8550 84
SHEET 6 of 6

EXHIBIT "B-6" 90

ESTIMATE FOR FINANCIAL GUARANTEE

SITE NAME: Aspen IV South

CONTROL NUMBER: 90-CZB-UPB-1607

DATE OF ESTIMATE: March 13, 1995

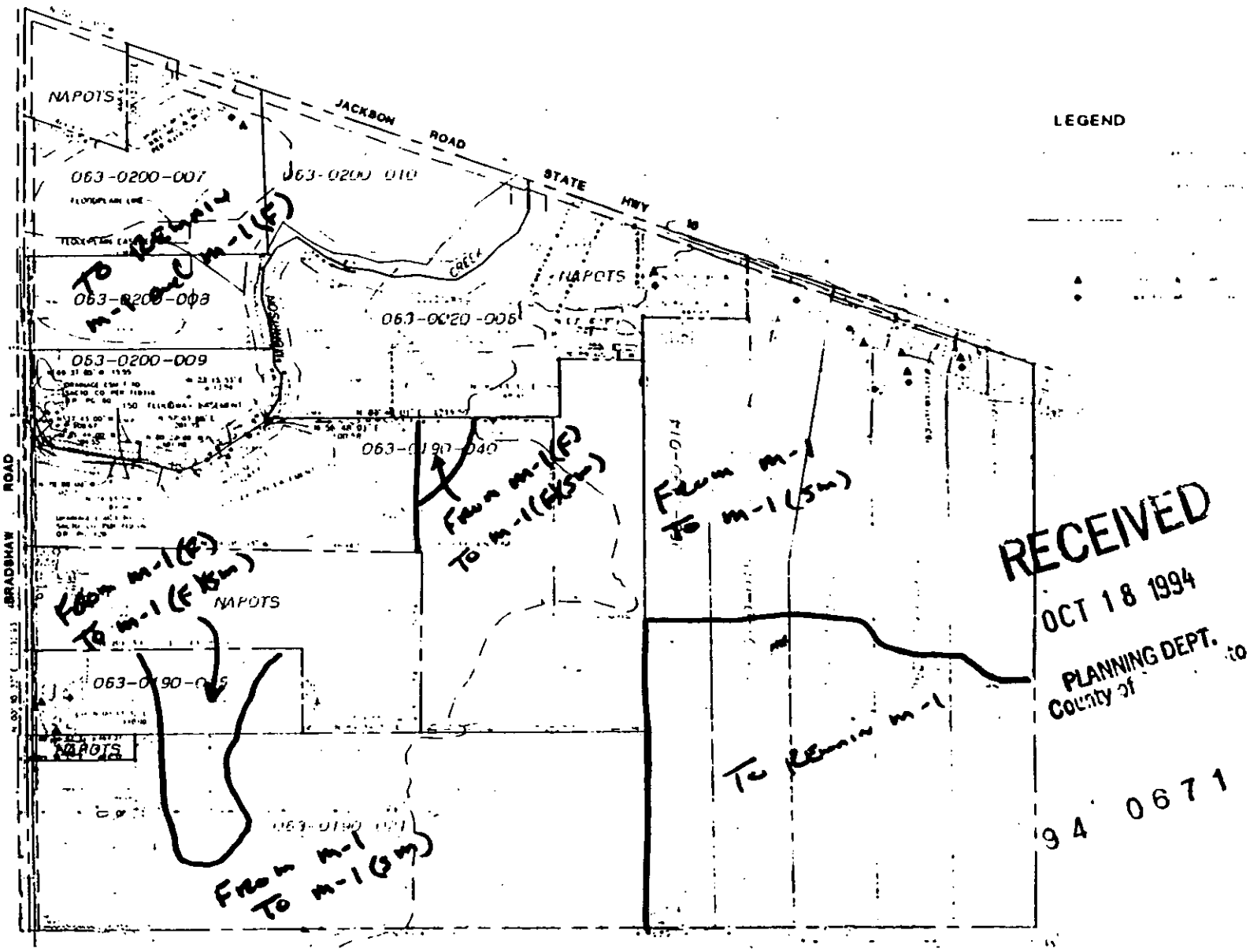
DESCRIPTION	QUANTITY	UNIT PRICE	COST
MOBILIZE	1	$1,000.00	$1,000.00
REPLACE SOIL	5000 CY	$0.70	$3,500.00
RESHAPE SLOPES (PER ACRE)	0	N/A	$0.00
GRADING & RELEVELING (PER ACRE)	10 AC	$200.00	$2,000.00
DUST CONTROL (PER ACRE)	10 AC	$35.00	$350.00
WEED CONTROL (PER ACRE)	10 AC	$20.00	$200.00
BROADCAST SEED (PER ACRE)	10 AC	$200.00	$2,000.00
HYDRO-SEED (PER ACRE)	0	N/A	$0.00
		SUBTOTAL	$9,050.00
		10% CONTINGENCY	$905.00
		TOTAL	$9,955.00
	FINANCIAL GUARANTEE TOTAL		$9,955.00

RECEIVED

APR 11 1995

PLANNING DEPT.

PROPOSED REZONE EXHIBIT "C"



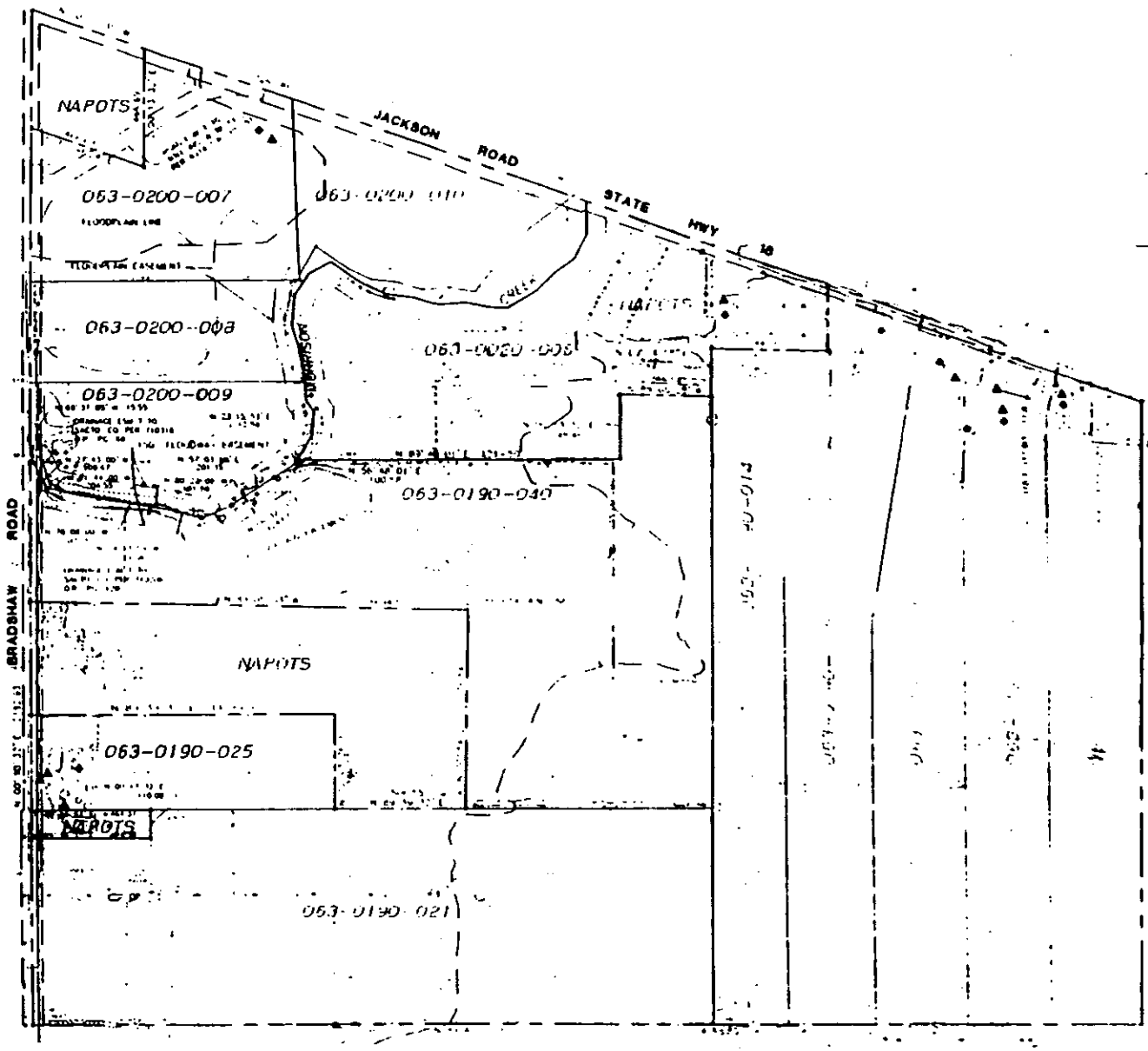
RECEIVED
OCT 18 1994
PLANNING DEPT.
County of

94 0671

GW Consulting Engineers

TEICHERT AGGREGATES - APSEN V SOUTH
EXISTING CONDITIONS

EXHIBIT "C-1"



LEGEND

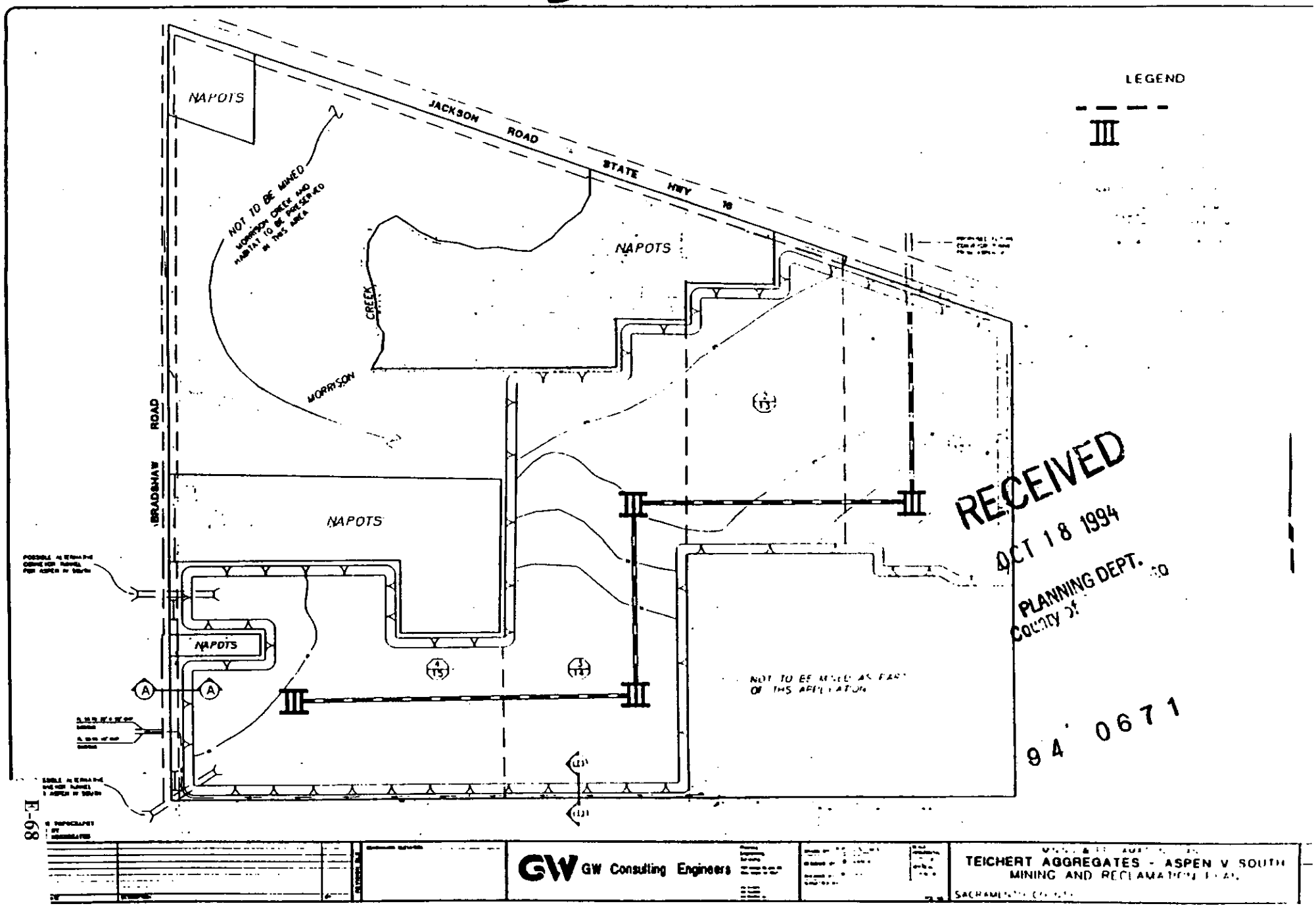
RECEIVED
OCT 18 1994
PLANNING DEPT.
County of

94 0671

GW Consulting Engineers

TEICHERT AGGREGATES - APSEN V SOUTH
EXISTING CONDITIONS

EXHIBIT "C-2"



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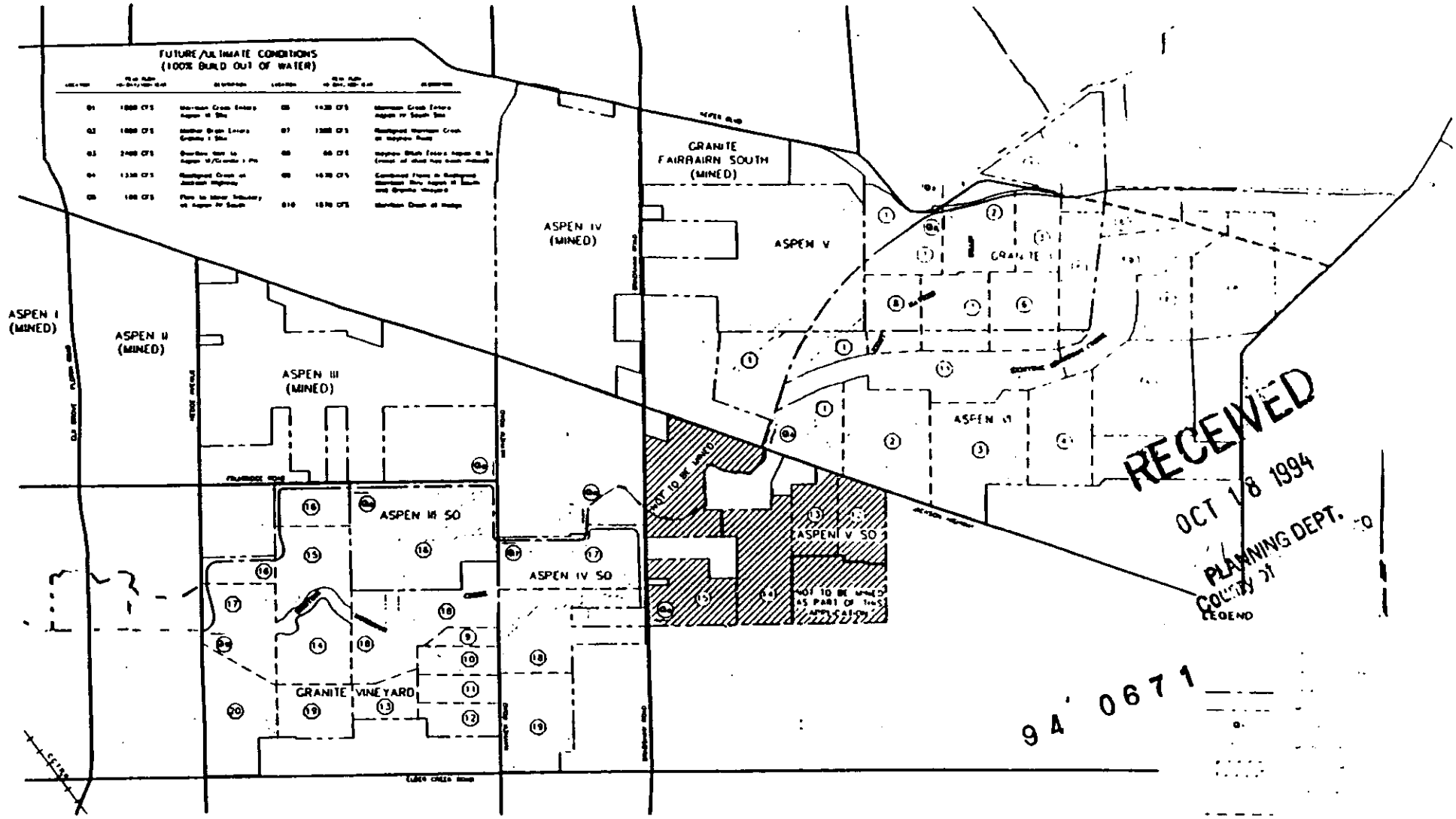
OCT 18 1994
PLANNING DEPT.
COUNTY OF SACRAMENTO

94 0671

EXHIBIT "C-3"



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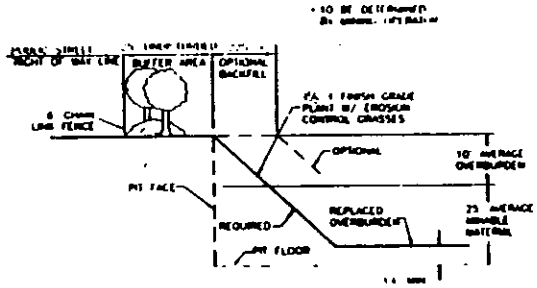
OCT 18 1994
PLANNING DEPT.
COUNTY OF

94 0671

GW Consulting Engineers

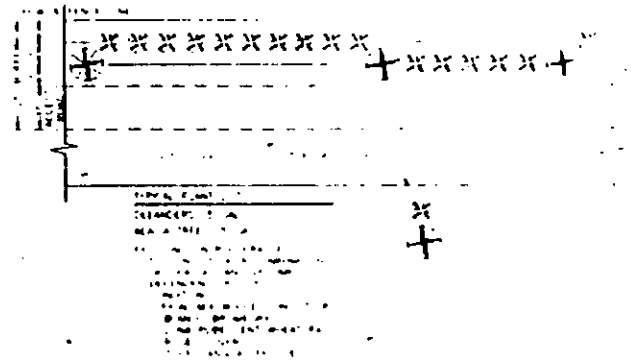
TEICHERT AGGREGATES - ASPEN V SOUTH
MINING REACH PHASING AND HYDRAULIC
SACRAMENTO COUNTY

EXHIBIT "C-4"

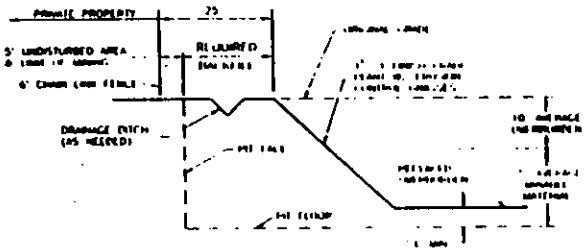


SECTION A-A

PROPOSED PIT ADJACENT TO PUBLIC ROADWAY
NO SCALE

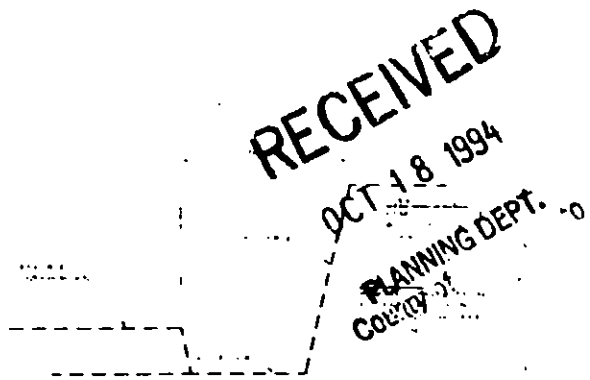


PLANTING SCHEDULE FOR 25' BUFFER AREA



SECTION B-B

PROPOSED PIT ADJACENT TO PRIVATE PROPERTY
NO SCALE



TYPICAL GRAVEL HARVEST AT PIT FACE

RECEIVED
OCT 18 1994
PLANNING DEPT.
COUNTY OF

94 0671

GW Consulting Engineers

TEICHERT AGGREGATES - ASPEN V SOUTH
DETAIL SHEET
SACRAMENTO COUNTY

EXHIBIT "C-5"

ESTIMATE FOR FINANCIAL GUARANTEE

SITE NAME: Aspen V South

CONTROL NUMBER: 94-CZB-UPB-0671

DATE OF ESTIMATE: February 7, 1995

DESCRIPTION	QUANTITY	UNIT PRICE	COST
MOBILIZE	1	$1,000.00	$1,000.00
REPLACE SOIL	5000 CY	$0.70	$3,500.00
RESHAPE SLOPES (PER ACRE)	0	N/A	$0.00
GRADING & RELEVELING (PER ACRE)	10 AC	$200.00	$2,000.00
DUST CONTROL (PER ACRE)	10 AC	$35.00	$350.00
WEED CONTROL (PER ACRE)	10 AC	$20.00	$200.00
BROADCAST SEED (PER ACRE)	10 AC	$200.00	$2,000.00
HYDRO-SEED (PER ACRE)	0	N/A	$0.00
		SUBTOTAL	$9,050.00
		10% CONTINGENCY	$905.00
		TOTAL	$9,955.00
	FINANCIAL GUARANTEE TOTAL		$9,955.00

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County of Sacramento

94 0671

REQUEST FOR STAFF COMMENT

AIRPORT LAND USE COMMISSION FOR SACRAMENTO, SUTTER, YOLO AND YUBA COUNTIES 3000 S STREET, SUITE 300 SACRAMENTO, CA 95816-7056 PHONE: (916) 457-2284 FAX: (916) 457-3299	DATE RECEIVED: 10/23/95 ALUC REVIEW NO.: 96-10 AFFECTED AIRPORT: Mather Field

REQUESTED BY: Sacramento County Dept. Of Environmental Review & Assessment	CONTROL NO.: 94-0484, 91-0118, 90-1607, 94-0671	DATE COMMENT REQUESTED: 11/23/95

PROJECT APPLICANT: Teichert Aggregates and Granite Construction Company
PROJECT TITLE: Morrison Creek Mining Reach South of Jackson Highway, Aspen III South, Vinyard I, Aspen IV South, and Aspen V South

APPLICATION FOR: [X] REZONE [X] GENERAL/COMMUNITY PLAN AMENDMENT [X] OTHER: Use permits

LOCATION OF PROJECT (reference to airport): The project is located approximately 11,000 feet southwest of the southwest end of Mather's primary runway, and in general is bounded by Jackson Road to the north, Elder Creek Road to the South, Hedge Avenue to the west, and Excelsior Road to the East.

DESCRIPTION OF PROPOSED PROJECT: Mining and subsequent reclamation on 881.7 acres of the 966.3 acre project site.

APPLICABLE ALUC POLICY: [X] HEIGHT [X] SAFETY [X] NOISE

ALUC STAFF COMMENTS: The project is located within the Airport-Area-of-Influence of the Mather Air Force Base Comprehensive Land Use Plan (CLUP).

Safety: [redacted] are located within the Approach-Departure Zone. The remainder of the project is located within the [redacted] (See attached Map 1). [redacted] mining and quarrying to be compatible within both of [redacted], subject to the following conditions.

1. Portions within Overflight Zone:

   "Uses compatible only if they do not result in a possibility that a water area may cause [redacted] fog or result in a water hazard."

2. Portions within Approach-Departure Zone:

   "Uses compatible only if they do not result in a possibility that a water area may cause [redacted] fog or result in a water hazard."

   and

   "Uses compatible only if they [redacted] result in a large concentration of people. A large concentration of people is defined as a gathering of individuals in an area that would result in an average density of greater than 25 persons per acre per hour during any 24 hour period ending at midnight, not to exceed 50 persons per acre at any time."

APPLICABLE ALUC PLAN: Mather Air Force Base Comprehensive Land Use Plan	PROJECT IS: [ ] Compatible [X] Compatible, subject to conditions [ ] Incompatible, due to: [ ] Height [ ] Safety [ ] Noise

REVIEWED BY: David Boyer, Associate Planner DB	DATE: 11/20/95

(Continued from Page 1)

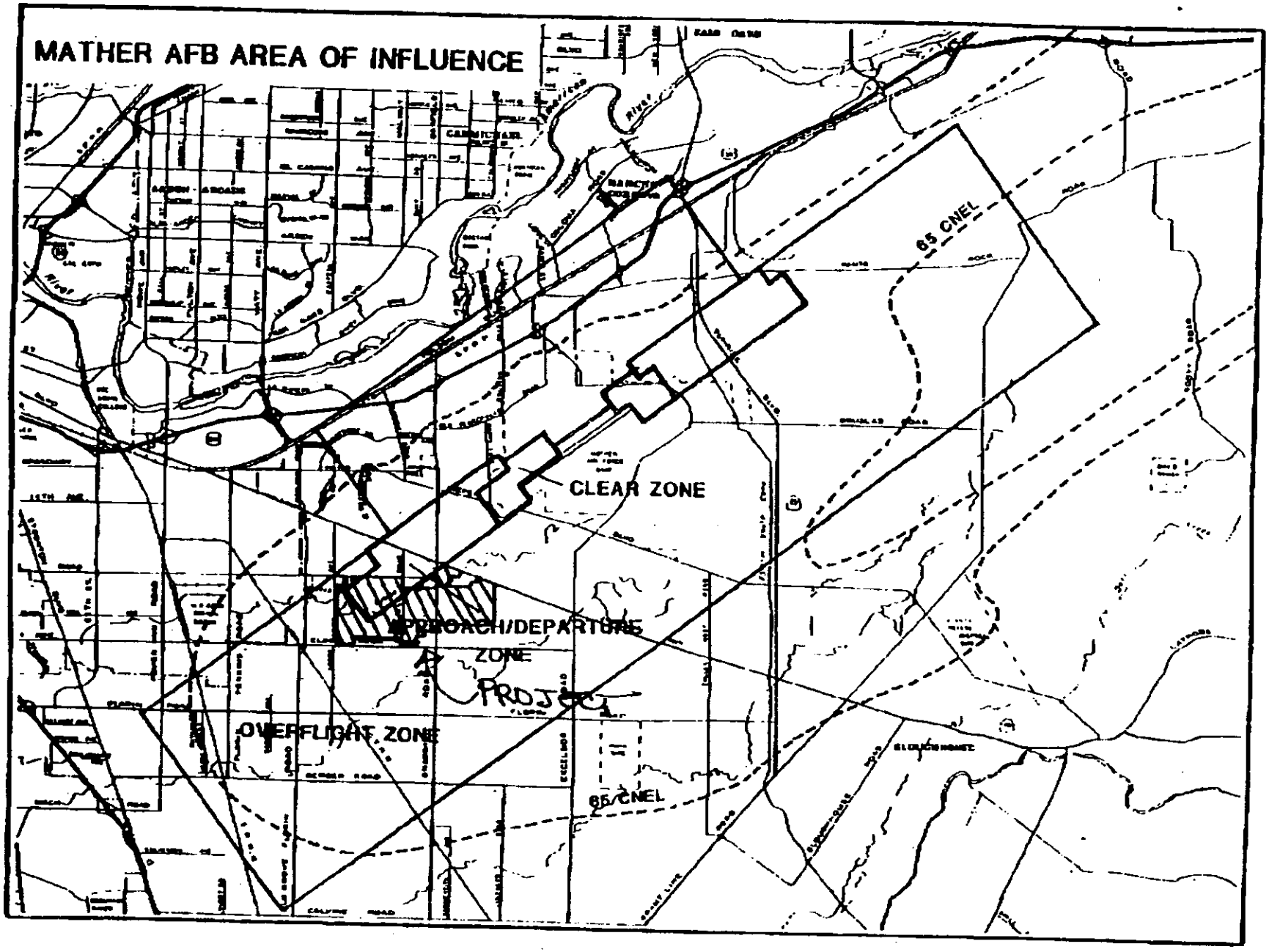
ALUC staff are currently in the process of updating the Mather Air Force Base CLUP to reflect the airport's conversion to a public-use airport. The safety zones proposed in the CLUP update are less extensive than those which currently exist (See attached Map 2). No change is being proposed to the CLUP's land use compatibility guidelines. Assuming these safety zones are the ones ultimately adopted by the ALUC, most of the project would be outside of them. The northern portion of Aspen V South would fall within the Overflight Zone. Mining and quarrying would be compatible within this zone, subject to the condition that such use does not result in a possibility that a water area may cause ground fog or result in a water hazard.

Noise: The project is located within two separate noise contours, the 75-80 and 80-85 CNEL noise contours (See attached Map 3). The CLUP defines the proposed use as being compatible within both contours, subject to the following condition:

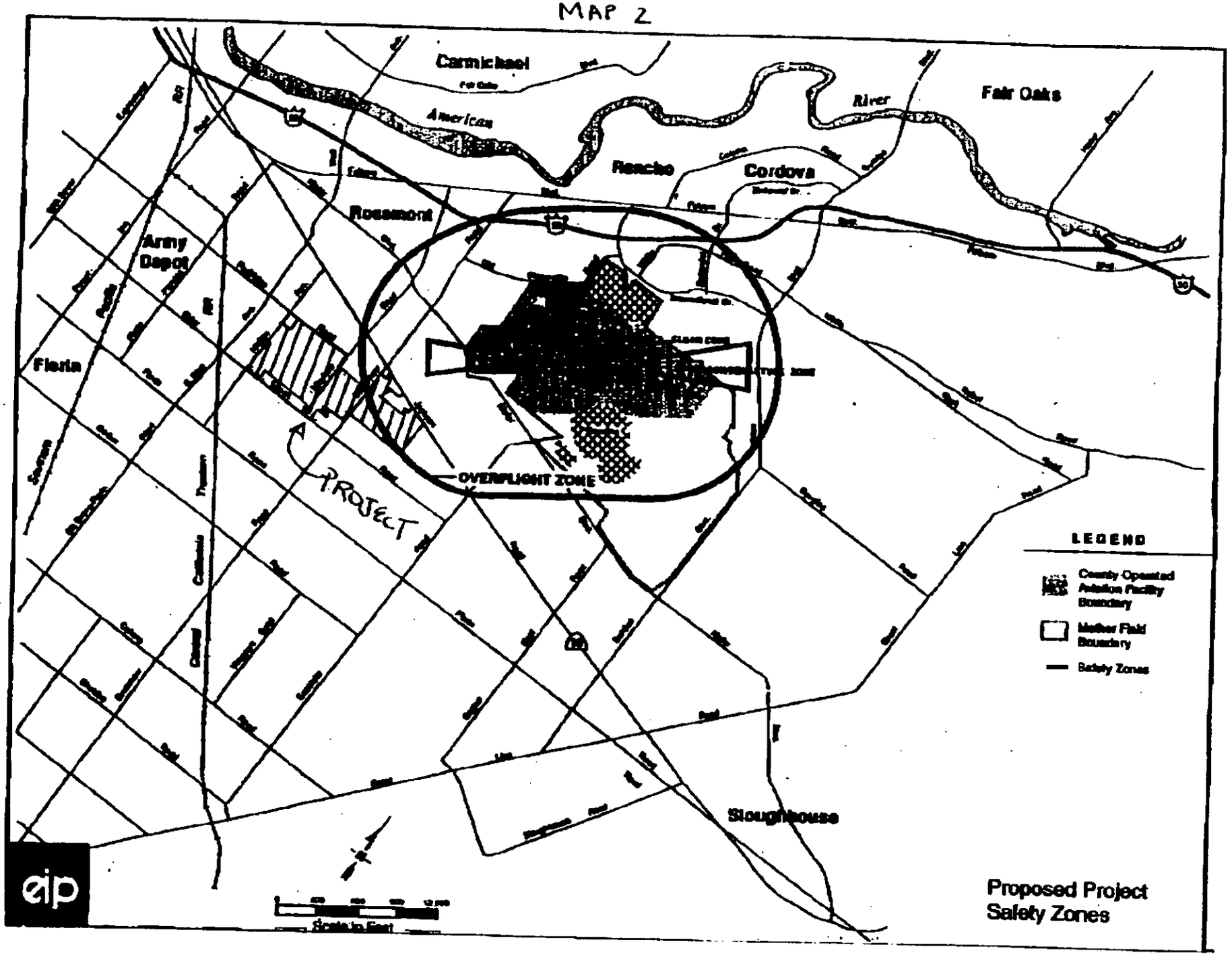
> "Measures to achieve an interior noise level of 50 CNEL must be incorporated into the design and construction of portions of buildings where the public is received, office areas and other areas where people work or congregate."

As with safety areas, the noise contours proposed in the CLUP update are less extensive than those which currently exist (See attached Map 4). Assuming these noise contours are the ones ultimately adopted by the ALUC, only the north central part of the project would be located within the 65-70 CNEL noise contour. Mining and quarrying would be compatible within this noise contour.

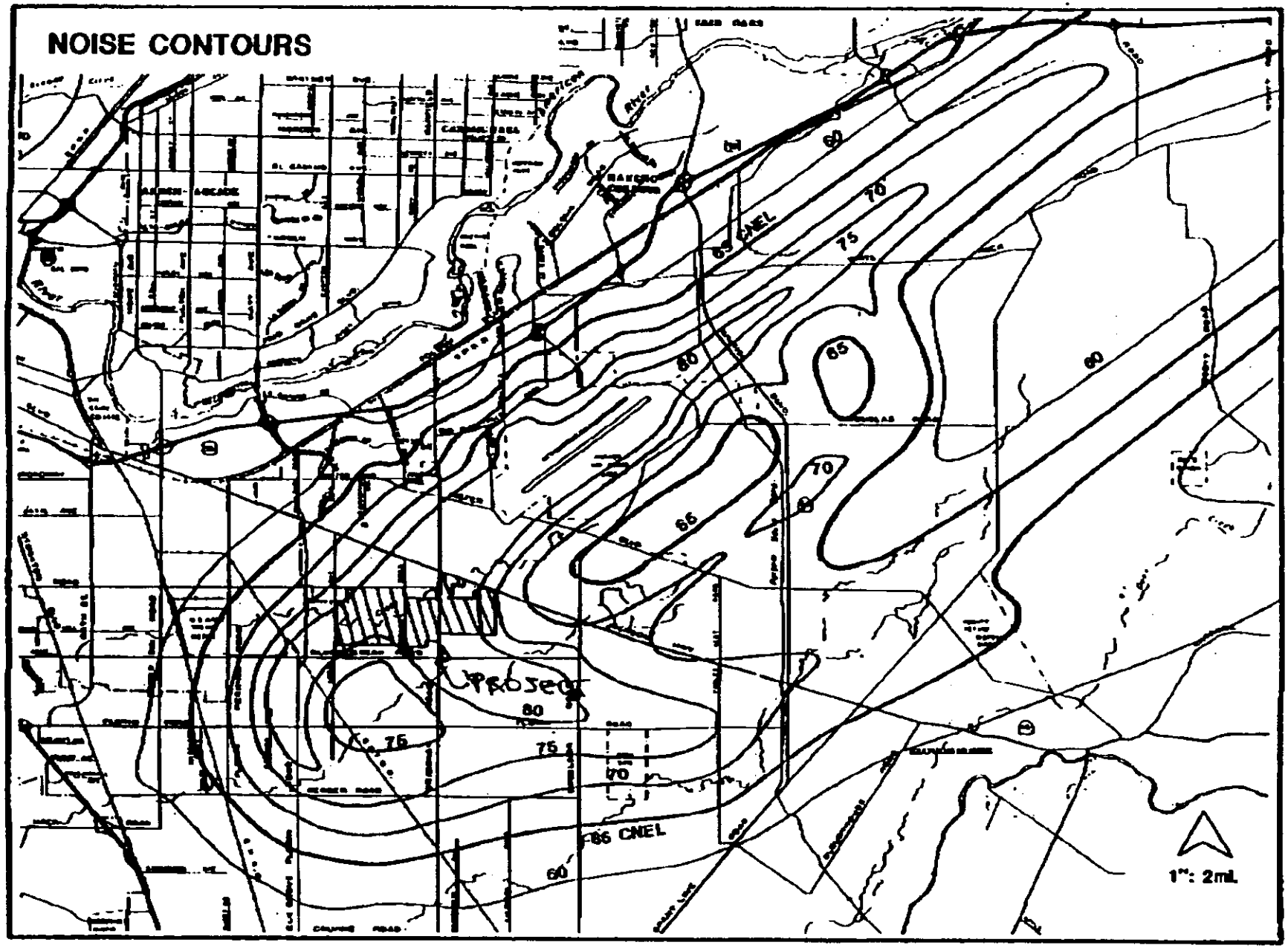
MAP 1


MATHER AFB AREA OF INFLUENCE
65 CNEL
CLEAR ZONE
APPROACH/DEPARTURE ZONE
PROJECT
OVERFLIGHT ZONE
65 CNEL

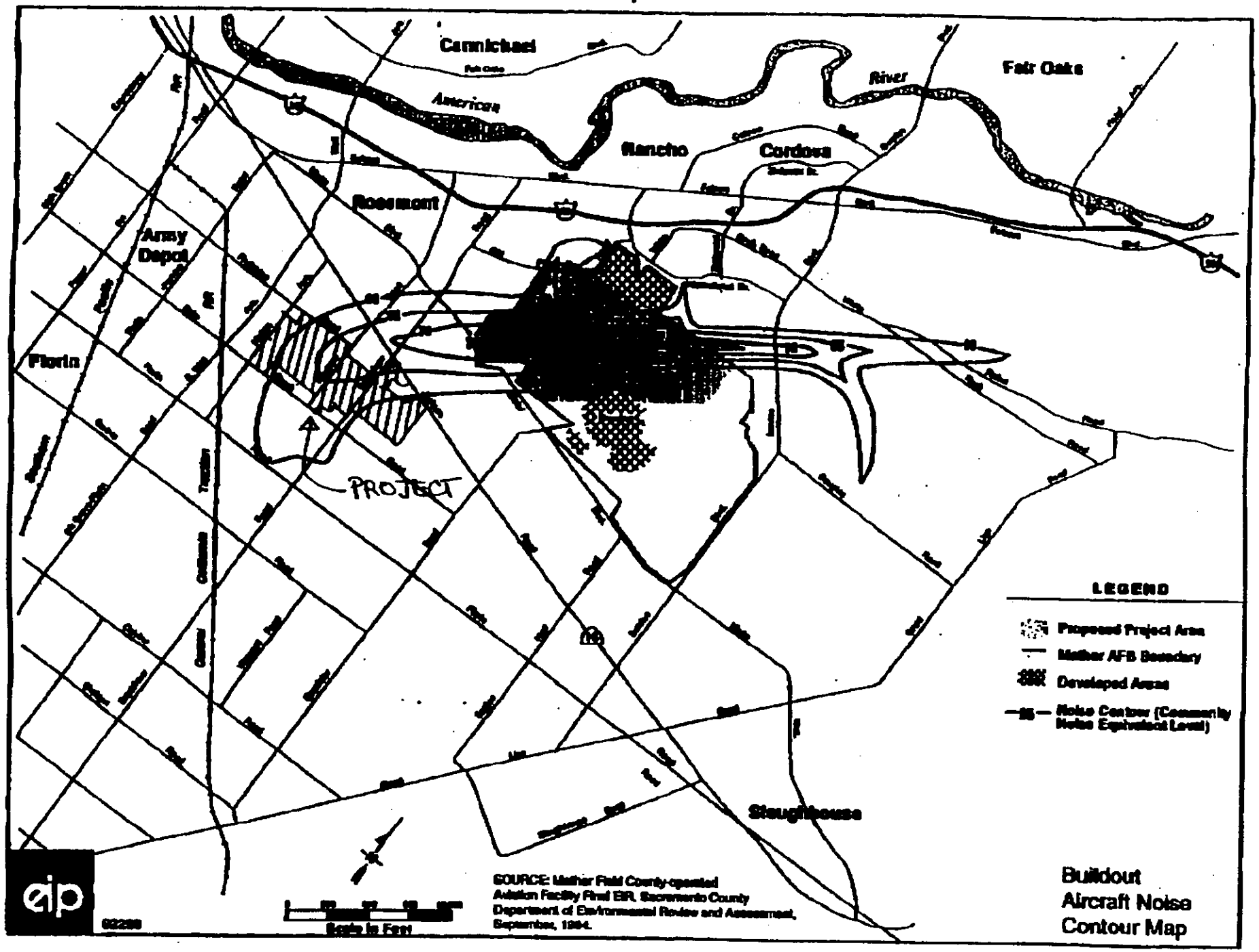
MAP 2


Carmichael
American
River
Fair Oaks
Rancho
Cordova
Rosemont
Army
Depot
Florin
OVERFLIGHT ZONE
PROJECT
Sloughhouse
LEGEND
County Operated Aviation Facility Boundary
Mather Field Boundary
Safety Zones
Scale in Feet
Proposed Project
Safety Zones

MAP 3


NOISE CONTOURS
60
70
75
65 CNEL
80
65
60
70
65
Project
80
75
75
70
65 CNEL
60
1": 2mi.

MAP 4


Carmichael
Fair Oaks
American
River
Rancho
Cordova
Rosemont
Army
Depot
Florin
PROJECT
Sloughhouse
LEGEND
Proposed Project Area
Mather AFB Boundary
Developed Areas
Noise Contour (Community Noise Equivalent Level)
SOURCE: Mather Field County-operated Aviation Facility Final EIR, Sacramento County Department of Environmental Review and Assessment, September, 1984.
Scale in Feet
Buildout
Aircraft Noise
Contour Map

AGENDA

VINEYARD AREA COMMUNITY PLANNING ADVISORY COUNCIL
FLORIN FIRE STATION #55 - 7776 EXCELSIOR ROAD
OCTOBER 7, 1997 - 7:30 P.M. (TUESDAY)

NOTE: Applicant or appointed representative should be present. If unable to attend, please contact the VACPAC Chairman, Stuart Helfand at 689-4130 or the Vice-Chairman, Jeffrey Knezovich at 733-3636.

CALL MEETING TO ORDER
EXPLANATION OF ROLE OF THE COUNCIL
ROLL CALL
INTRODUCTION OF MEMBERS, STAFF, AND COUNTY REPRESENTATIVES:

MEMBERS:

Stuart Helfand (CH)	Jeffrey Knezovich (V-CH)	Ruth Braun
Marilyn Wensrich	Alexander Laiewski	John Urrutia
Randy Sater	Mark Paxson	Suzanne Vejar

(A - ABSENT; EXA - EXCUSED ABSENCE; U - UNEXCUSED ABSENCE; P - PRESENT; R - RESIGNED; TE - TERM EXPIRED)

QUORUM DETERMINATION: Yes No
COUNTY REPRESENTATIVE: Yes No

PLANNING ITEMS FOR REVIEW:

1.
Control No.: 97-XSP-0464 APN: 121-0100-023
(Elk Grove is adjacent CPAC and will review this item on 10/14/97)

Owner: Farmers & Merchants Bank, P. O. Box 30005354, Lodi, CA 95241.

Applicant: MJM Engineering, 9477 Greenback Lane, #525B, Folsom, CA 95630.
Attn: John Masha.

Project Name: Robbins Meadows Unit 1, Extension of Time for a Tentative Subdivision Map.

Location: North side of Robbins Road, 3,100± feet east of Elk Grove-Florin Road, and 1,300± feet north of Calvine Road.

Request: An Extension of time for a Tentative Subdivision Map known as "Robbins Meadows, Unit #1", to divide 13.30± acres into 72 single family lots in the RD-7 zone; and an Exception from Title 22.110.070(d) to reduce the required minimum lot depth of 95 feet on several parcels.

COUNCIL RECOMMENDATION:

Motion by: M W Seconded by: A L

Vote:	Yes	No	Absent	Abstain
Action:	4	0		

Approved

vy100797
9/26/97

4.
Control No.: 97-PAS-0523 APN: 067-0170-003

Owner: Bradville, Inc., 2500 Venture Oaks Way, #125, Sacramento, CA 95833.
Attn: Eva Hill.

Applicant: Evergreen Investment Co., 1029 J Street, #LL-7, Sacramento, CA 95814.
Attn: Ray Gundlach.

Engineer: Howard R. Perkins Architects, 2304 N Street, Sacramento, CA 95816.
Attn: Howard Perkins.

Location: On the NW corner of Granby Drive and Goethe Road.

Request: Development Plan Review for development in the MP zone.

COUNCIL RECOMMENDATION:

Motion by: Seconded by:

Vote: Yes No Absent Abstain

Action:

5.
Control No.: 94-UPB-0484; 91-CZB-UPB-0118; 90-CZB-UPB-1607; 94-CZB-UPB-0671

Project Proponents: Teichert Aggregates, P. O. Box 15001, Sacramento, CA 95851.
Attn: Rob Wainwright.

Granite Construction Company, P. O. Box 15287, Sacramento, CA 95851.
Attn: Scott Wolcott.

Representative: Taylor & Hooper, 1435 River Park Drive, #300, Sacramento, CA 95815.
Attn: B. Demar Hooper.

Location: The site is bounded by Jackson Highway (State Route 16) to the north; Elder Creek Road to the south; Hedge Avenue to the west; and Excelsior Road to the east.

Request: See attachment (Project Description/Overview of Project Site).

COUNCIL RECOMMENDATION:

Motion by: S H Seconded by: M W

Vote: Yes 4 No 0 Absent Abstain

Action: APPROVED SEE ATTACHED

vy100797

STUARTS FARM FRESH

Stuart J. Helfand - Owner
10280 Elder Creek Road
Sacramento, CA 95829-9331

916-689-4130-Voice
1-800-282-4836-Fax
916-655-3897-Pager
shelfand@delphi.com

RECEIVED

OCT 10 1997

PLANNING DEPT.
County of Sacramento

Linda,

Members in attendance for the VCPAC meeting on 10/7/97 were:
Stuart Helfand
Jeffrey Knezovich
Marilyn Wensrich
Alexander Lalewski
Susan Vejar called in sick and was excused

STUARTS FARM FRESH

Stuart J. Helfand - Owner
10280 Elder Creek Road
Sacramento, CA 95829-9331

916-689-4130-Voice
1-800-282-4836-Fax
916-855-3897-Pager
shelfand@delphi.com

VACPAC minutes for October 7, 1997

Robbins Meadows Unit #1 extension of time for subdivision map was approved conditioned that no changes were made to the map from the original application.

The Country Mansion Elderly Residential Care Home Use Permit to allow an increase in beds from 6 to 9 was approved. Applicant stated that the State Agency in charge of care facilities had given its approval.

Lot 1 of Plat of Jackson Tract, Extension of Time for a Tentative Subdivision Map. This was also approved .

Four application for gravel operations. Three applications are from Teichert and one from Granite. As these parcels are adjacent to each other it was deemed in the best interest of the community to consider the four applications as one.

The council, with much input from the concerned residents in attendance, voted to approve the applications under the following conditions:

- No processing plant will be allowed on the Vineyard 1 parcel.
- Both Teichert and Granite will have to get together to formulate a plan for Granite to have conveyer easement to move its harvest to its present processing plant on Bradshaw Rd.
- Mining will not be done in the 100 year floodplane
- Overburden from Vineyard 1 will be trucked North on Mayhew to Jackson Highway It is felt by Council and Community that Elder Creek and the corner of Elder Creek and Bradshaw Rd. will not be able to absorb this increased traffic load of one truck per minute.
- Removal of overburden by truck will occur only during the non commute hours of 10AM to 3PM.
- The handling of Morrison Creek South of Bradshaw will require further review with community members having input prior to decisions being made by County Staff in conjunction with applicants.
- Reclamation of mined pits should have gentle slopes. Landscaping should be pleasing as feasible.
- The Design Standard Review which will deal with slopes, landscape and reclamation problems is to have Community members on the project from day one.
- Mitigation measures to be arrived at between applicants and the residents on the perimeter of the mining operations.

APPENDIX F

ALTERNATIVES ANALYSIS FOR TEICHERT ASPEN IV AND V SOUTH AGGREGATE MINING PROJECT

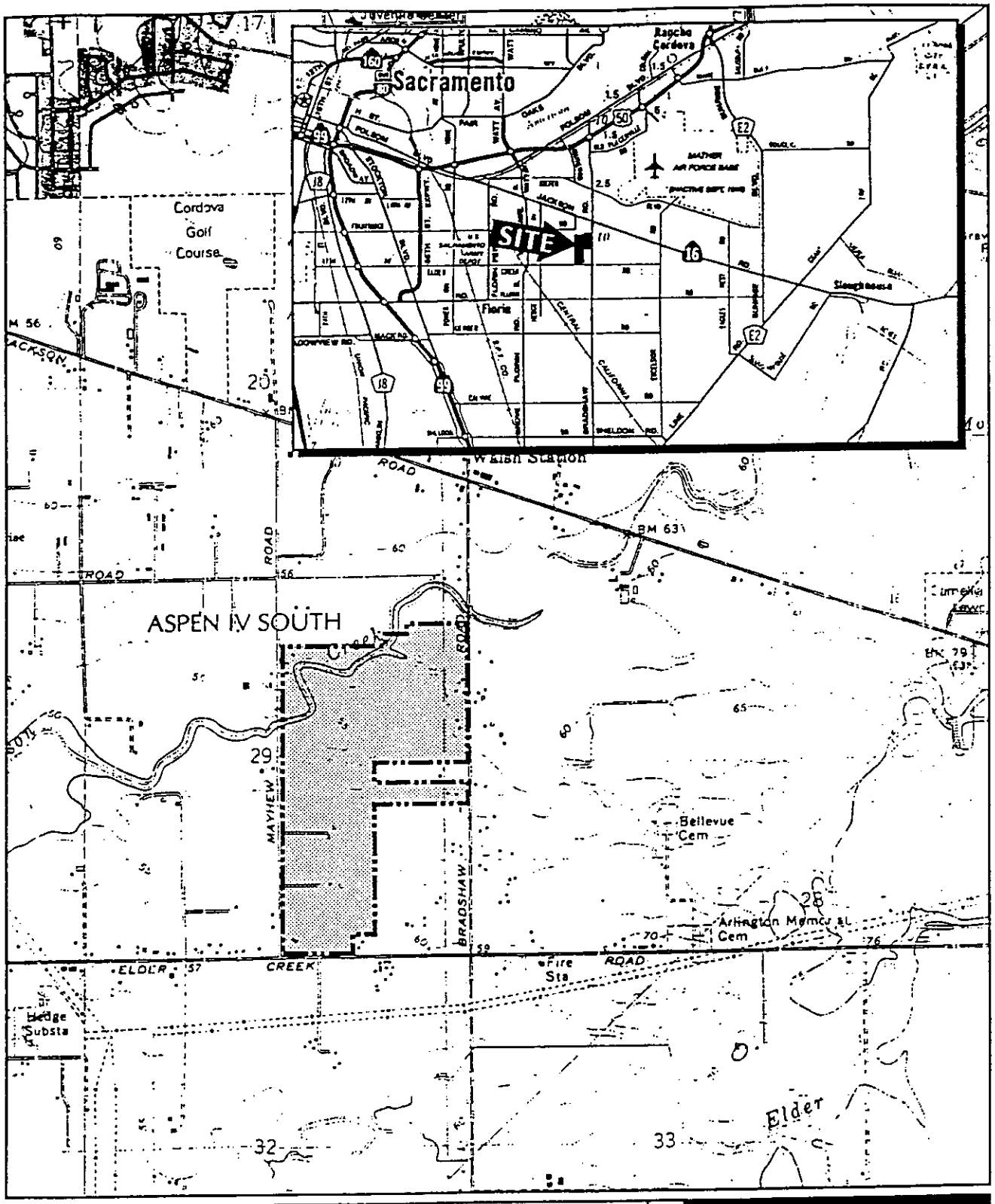
ALTERNATIVES ANALYSIS FOR TEICHERT ASPEN IV SOUTH AGGREGATE MINING PROJECT

General Location:	West of Bradshaw Road, north of Elder Creek Road, east of Mayhew Road and south of State Route 16 (Jackson Highway) in east-central Sacramento County.

I. PROPOSED PROJECT CHARACTERISTICS.

A. Basic Purpose of Proposed Activity. The basic purpose of the proposed activity is the continuation of sand and gravel aggregate mining operations by Teichert Aggregates (hereinafter "Teichert"). The project location is attached hereto as Exhibit "1". Teichert has an existing processing plant in the vicinity of the proposed project site. Teichert has submitted an application for a permit under Section 404 of the Clean Water Act (42 U.S.C. § 1344) to discharge into waters of the United States during reclamation associated with the mining activities. The applicant has also applied for local approval of aggregate mining use permits from the County of Sacramento. Teichert's application would allow extension of the existing operation to contiguous properties to allow aggregate mining in an efficient, economical manner.

EXHIBIT 1



PROJECT SITE AND VICINITY

FIGURE 1-1

SCALE IN FEET 0 1000 2000

SUGNET & ASSOCIATES
ENVIRONMENTAL CONSULTANTS
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"Carmichael Quadrangle" USGS 7.5 minute topographic map.

B. Mining Process. The method of mining and reclamation in this type of placer deposit involves initial removal of soil overburden to expose the aggregate deposit. The deposit, which may vary in thickness from 20 to 35 feet, will then be mined with heavy equipment and transported to the processing plant by a conveyor belt. Mining would occur in phases developed around a concept of minimal disruption to the flow of Morrison Creek. Project duration is estimated to be 2 to 3 years. Concurrent with the removal of aggregate, the mined area will be reclaimed by replacement of overburden.

In the case of the proposed application, the site will be reclaimed to agriculture, drainage mitigation, and habitat/open space, and will include re-establishment of wetland features with no net loss of habitat. Mitigation areas will be constructed to compensate for those wetland impacts associated with the project.

II. BACKGROUND.

A. Use of Aggregate. Aggregates are an important, fundamental building material. In loose form without a cementing binder, aggregates are used as a foundation base material for all types of roads, walks, houses, buildings, parking lots, railroad beds and airport runways. Sand and gravel used with a binder such as portland cement and asphaltic cement comprise from 80 percent to 96 percent of the volume of most concretes and road pavements used in construction activities. Aggregates are essential not only for new construction, but also for the repair and maintenance of existing infrastructure.

B. Aggregate Demand. The demand for aggregates continues to expand with the growth of the Sacramento area and continued maintenance of regional infrastructure. As the road network increases in size and as it ages, local governments struggle to allocate sufficient funds to maintain those roads. It is critical that local sources of aggregates are available in order to avoid the increased costs of non-local aggregates.

In 1986 the Aggregate Technical Advisory Committee (hereinafter "ATAC"), published the "Final Report Sacramento County Aggregate Resources - a Response to the State Aggregate Mineral Land Classification of the Production-Consumption Region" (hereinafter "1986 ATAC Report"). The 1986 ATAC Report projected that the total "likely resources" of 320 million tons of aggregates in the Sacramento region at that time would be depleted within 24 years, or the year 2010. The report further cautioned that "... based upon recent events it is improbable that all these resources will remain available." (p. 14). It is also improbable that all these estimated resources will be permitted. According to the California Division of Mines and Geology Special Report 156 (1985) (hereinafter "Mines and Geology Report"), between 1980 and 1985 an estimated 130 million tons of high grade aggregate in the Sacramento region were precluded from mining due to incompatible land uses. The Mines and Geology Report further projected continued per capita consumption of 8.5 tons of aggregates per year. This means that aggregate use will continue to increase each year as the Sacramento region population continues to grow. Since 1986 the population of the Sacramento Metropolitan area has increased by 368,200 people, a growth of 28.5%.

III. GENERAL TECHNICAL, LOGISTICAL AND SITING CONSIDERATIONS.

A. Transportation Considerations. Importation from out-of-county sources is an inefficient use of resources from both economic and environmental perspectives. From an economic point of view, attempting to satisfy local demand for aggregate construction materials from distant sources would result in significantly higher prices due to transportation costs. For example, based on 1993 PUC Minimum Rate Tariff Area 7 rates, transportation of aggregate 40 miles would increase the cost at least 65 percent over the cost of aggregate not requiring such transportation. In a market geared to buy and sell aggregates based on cost differences of pennies per ton, such an increase would be significant to consumers in the market region. For example, the Sacramento County Main Jail required 65,000 tons of concrete grade aggregate. If a comparable structure were to be built with aggregate transported 40 miles, the additional cost to taxpayers would be almost $300,000.

From an environmental perspective, the importation of aggregate resources would be equally adverse. The Sacramento Metropolitan region's population already exceeds 1.5 million people. The projected annual per capita consumption rate of 8.5 tons suggests an annual demand for about 12.75 million tons of aggregate. The nearest out-of-county source for aggregate that has been suggested is the Marysville area, about 40 miles north. Even assuming that the Marysville area can supply the Sacramento region's needs (Marysville is also suggested as an alternative supply for the San Francisco Bay area, and San Joaquin and Yolo Counties), the presently available methods for importation of aggregate would have a serious

environmental cost. Assuming 25-ton loads, the Sacramento region's 12.75 million ton demand would require 510,000 truck loads, or about 40.8 million vehicle miles per year. Those truck trips and miles traveled would result in tangible environmental effects, including additional expenditure of energy in the form of petrochemical fuels, increased air pollutants in a non-attainment area, and increased congestion and noise on area highways. The table below quantifies the potential emissions from this increased truck traffic.

Table I

Air Quality Emissions
Per Additional Truck Mile*

	Grams	Tons
CO	13,603,000	15.0
Hydrocarbon	5,283,000	5.8
NO	27,518,000	30.3

*Based on 52 million tons hauled in 25 ton truck increments.

Further, to the extent that aggregate resources were secured from an out-of-county source in order to avoid local environmental effects of mining, there is no guarantee that the alternative source would not result in the same or greater site-specific environmental effects.

B. Local Impacts. The importation of aggregate in the Marysville example cited above identifies an anticipated cost increase to local consumers in excess of $4.00/ton. However, combined with the inflationary cost of importation are the losses of regional jobs and revenues. For example, assuming an average sales price of $5.50/ton, gross revenues of $46,750,000 are

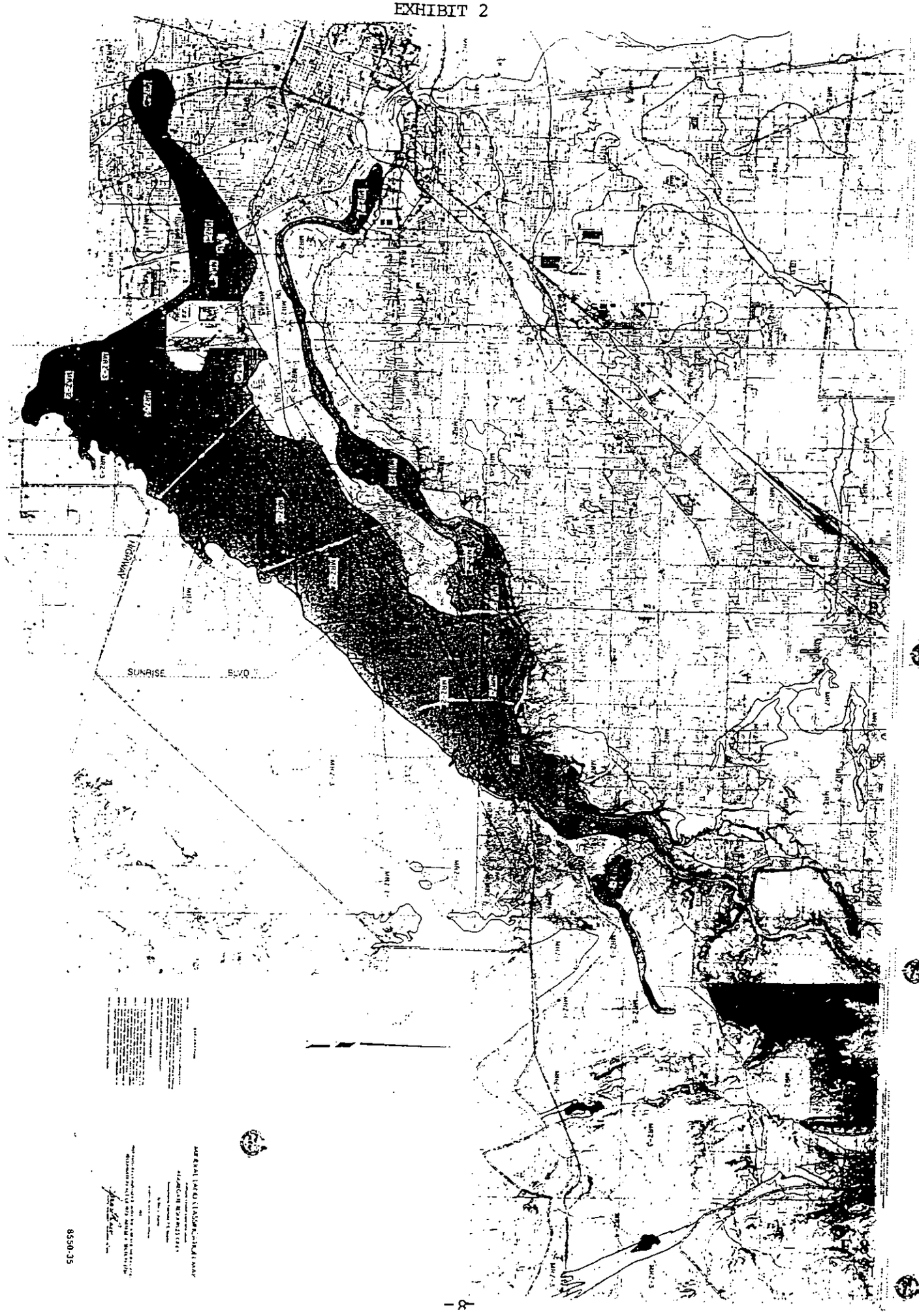
generated by annual sales. A 7.75% sales tax generates $3,623,125 of state and local revenue in addition to property taxes, etc.... Similarly, using a conservative 2:1 multiplier affect on the local economy, regional economic impact is in excess of $92,000,000 per year. This is not a function or a cause of regional growth but an existing contribution to the local economy.

Over 200 skilled workers are currently employed at the Teichert aggregate, concrete and asphalt processing facilities, and tens of millions of dollars are invested in processing equipment. Skilled trades employment opportunities and healthy capital investment programs are critical to balanced regional economies.

C. <u>Supply Considerations</u>. The discussion above describes the economic and environmental effects generally associated with the use of aggregate for building material. It demonstrates the desirability of securing a local source of aggregates. However, the supply of aggregate resources in the Sacramento region is limited to areas of favorable geological formations. Exhibit "2" has been attached to this analysis to identify the location and extent of remaining aggregate resources. In general, aggregate deposits were formed by a combination of glaciation, stream transportation, abrasive action of the stream to smooth the rocks, and natural sorting and washing away of soft particles. In the Sacramento region, the ancestral precursor to the American River shifted its course over the past half-million years, gradually creating a broad wedge of sand, gravel and floodplain materials (soils).

Obviously, aggregate mining cannot occur outside of the area in which deposits have been created. Unfortunately, mining cannot feasibly occur in many of the areas that do contain aggregate deposits. Both geologic factors and political land use decisions limit the amount of available aggregate.

EXHIBIT 2



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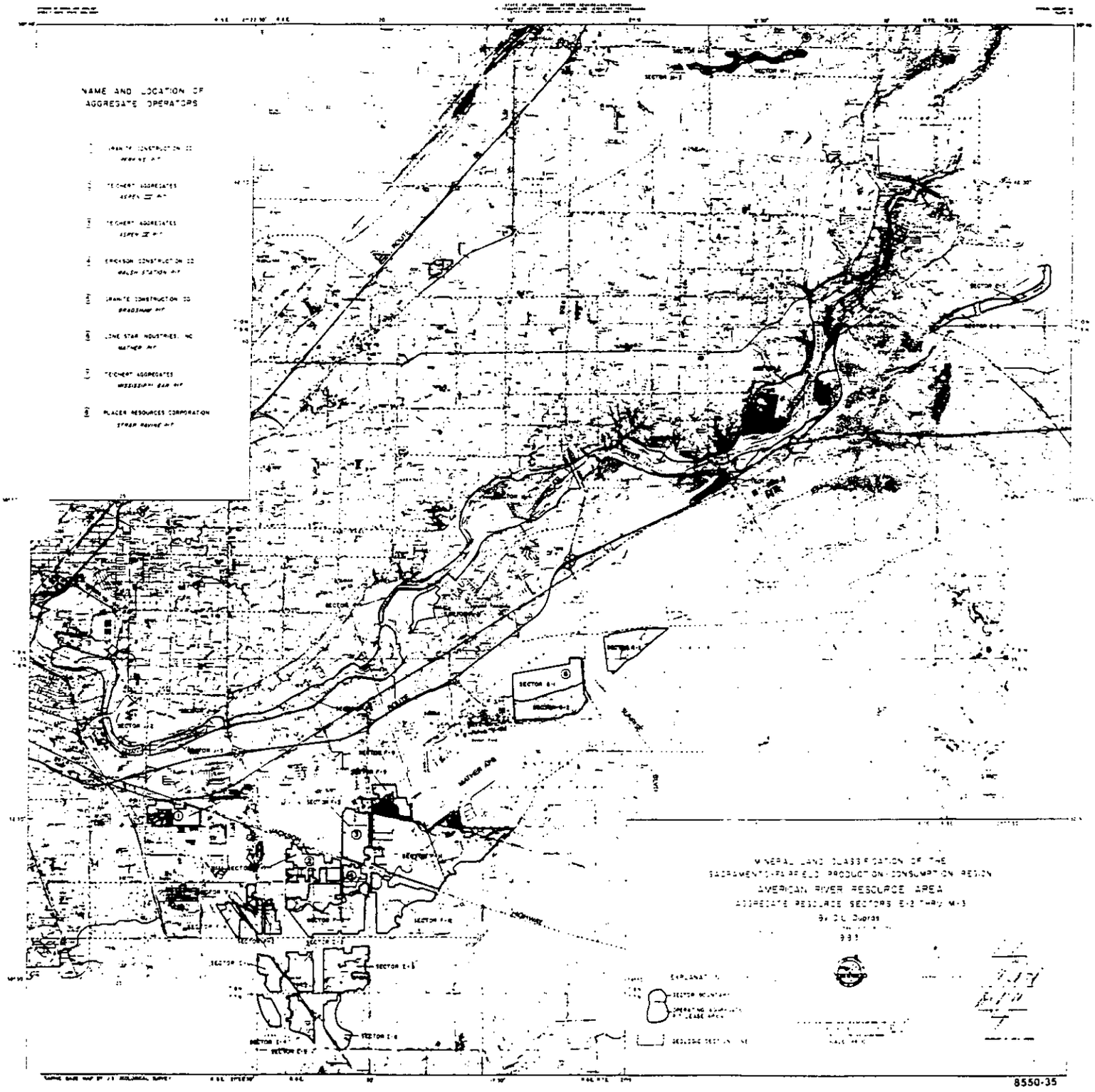
The State of California and local municipal ordinances have established standards and specifications for aggregates used in construction activities. Some stream channel deposits are unsuitable because they contain an unacceptably high proportion of material such as physically unsound rock or severely decomposed material such as peaty soil which do not meet stringent quality specifications. Other factors limiting the deposits that can be mined are undesirable coatings of opaline silica and extensive degrees of weathering. Further, there may be locations containing high quality aggregates that are too deep to be removed by conventional mining practices. Such deposits may be submerged by groundwater, may be so deep that equipment cannot reach and remove the deposit, or may be covered by a layer of overburden (surface soils) too thick to feasibly remove.

In addition to the geological constraints described above, existing deposits of high quality aggregates may be constrained in other ways. Two principal constraints are existing land use, and policy or regulatory constraints. Exhibit "3" identifies the portions of Exhibit "2" that are considered available for mining. This map was developed by the California Department of Mines and Geology to illustrate how rapidly this critical natural resource was being precluded from mining. As is discussed in detail in the "Off-site Alternatives" section of this document, many of the sites shown as available are effectively precluded from mining due to the impacts of development or policy driven land use constraints. Nearby residential development is the principal land use that can effectively deter mining an otherwise acceptable deposit. Existing urban infrastructure (roads, airports and utility easements) further restrict areas in which mining can occur.

EXHIBIT 3



Policy constraints include governmental decisions to preclude areas from mining despite the presence of high quality aggregate deposits. An example is the American River Parkway, where mining occurred at several locations as recently as the early 1970s.

Sacramento County determined that aggregate mining was incompatible with Parkway use, and gradually eliminated mining wherever it had jurisdiction. Another example is found in the City of Folsom where an ordinance has been enacted establishing a very cumbersome procedure requiring approval by two-thirds of voters prior to any surface mining use. The affect of the ordinance has been to essentially preclude aggregate mining at any of the deposits located within that city's limits.

As a result of these geologic, policy, and land use constraints, a relatively small amount of land in the Sacramento region is available for mining. One additional technical consideration further constrains the order in which aggregate sites are mined. As described above, aggregate pricing is very sensitive to transportation costs. Producers exercise considerable effort to minimize the distance between the locations of extraction and processing. For both of the project applicants this is currently being achieved by use of electrically powered conveyor systems which move raw material from mine site to processing plant without the use of trucks on public roads. The main conveyor system for Teichert presently extends from its processing plant at Jackson Highway west of Watt Avenue to its current mine site, Aspen V, located on the north side of Jackson Highway east of Bradshaw road, a distance of about 3.5 miles. A branch conveyor system that will extend from the mid-point of the main conveyer system at the Aspen III site will serve the proposed Aspen IV South mining site. The branch conveyor system will

travel south under Fruitridge road to the Aspen III South mining site. From Aspen III South, the branch conveyer system will travel east under Mayhew Road onto Aspen IV South. The branch conveyer system will then extend under Bradshaw road onto Aspen V South.

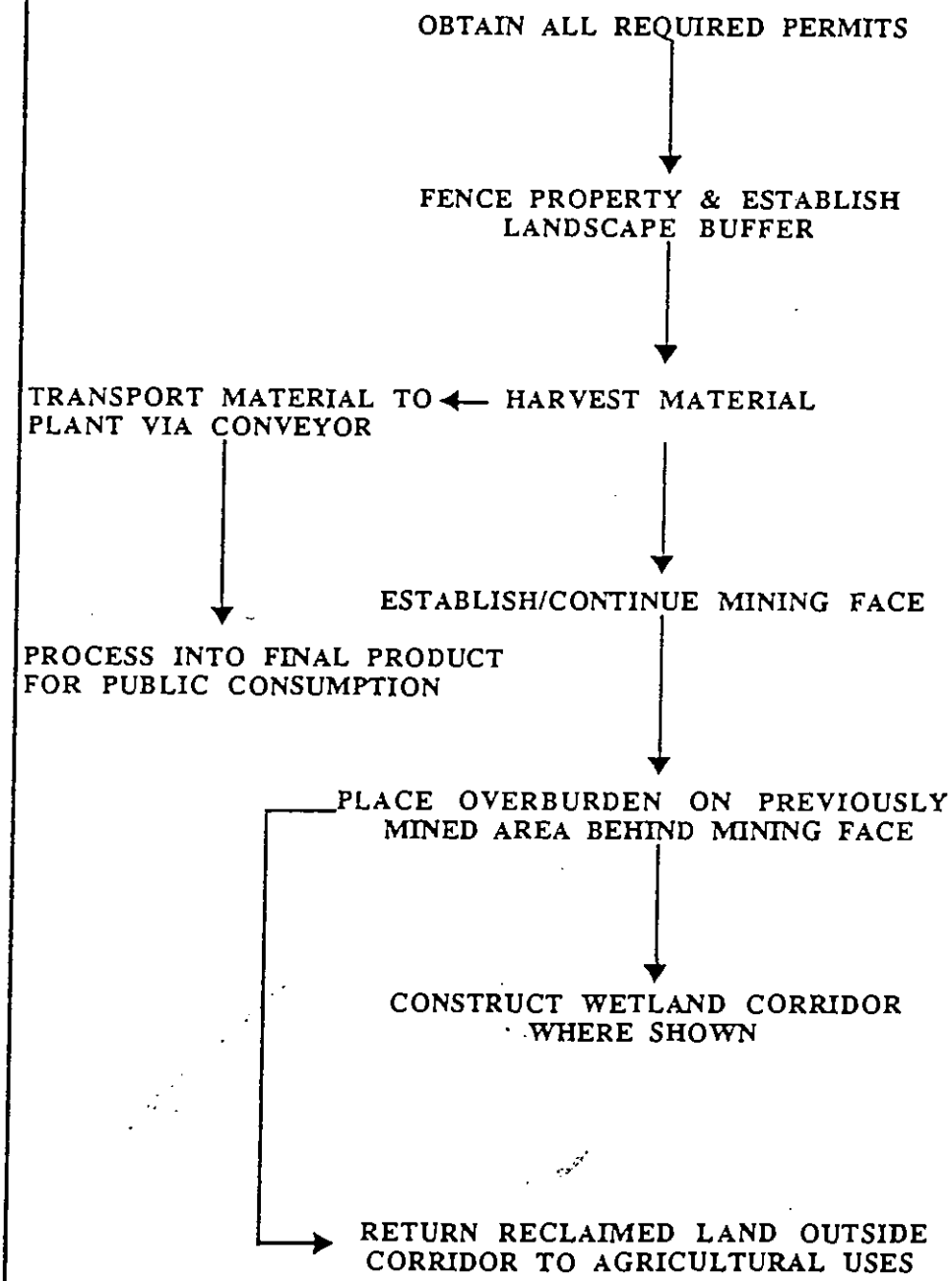
Conveyors are the most efficient and environmentally sound method for transporting aggregate materials, provided sites can be accessed sequentially, as proposed in this project. The mining process is depicted generally on the flow chart attached as Exhibit "4". As noted above, to the extent that sequential mining of adjacent land avoids truck use, it results in a reduction of impacts upon air quality, noise, transportation and energy.

The constraints described above set out the principal reasons that have led to the applicants requesting mining permits for the project site. The project site represents one of the few remaining properties upon which mining a local source adjacent to existing sites can feasibly occur. According to the 1986 ATAC Report, it is estimated that remaining potential aggregate mining sites in the Sacramento region contain a total of only 161 million tons of aggregate. Fifty percent of these sites, however, are listed as "questionable resources," while the other half are listed as "likely resources." At an estimated consumption rate of 5.5± million tons per year, the likely resources are less than a 15 year supply. Given the projected growth in the Sacramento Metropolitan Area, the supply may be consumed in an even shorter period. The project site (Aspen IV South) is estimated to contain about 7.5 million tons, which is about 9 percent of the remaining "likely supply."

It is the basic purpose of the project to mine the limited natural resources at the project site in order to meet the Sacramento region's demand, since it is an available site close to existing mining operations.

MINING PROCESS FLOWCHART

EXHIBIT 4

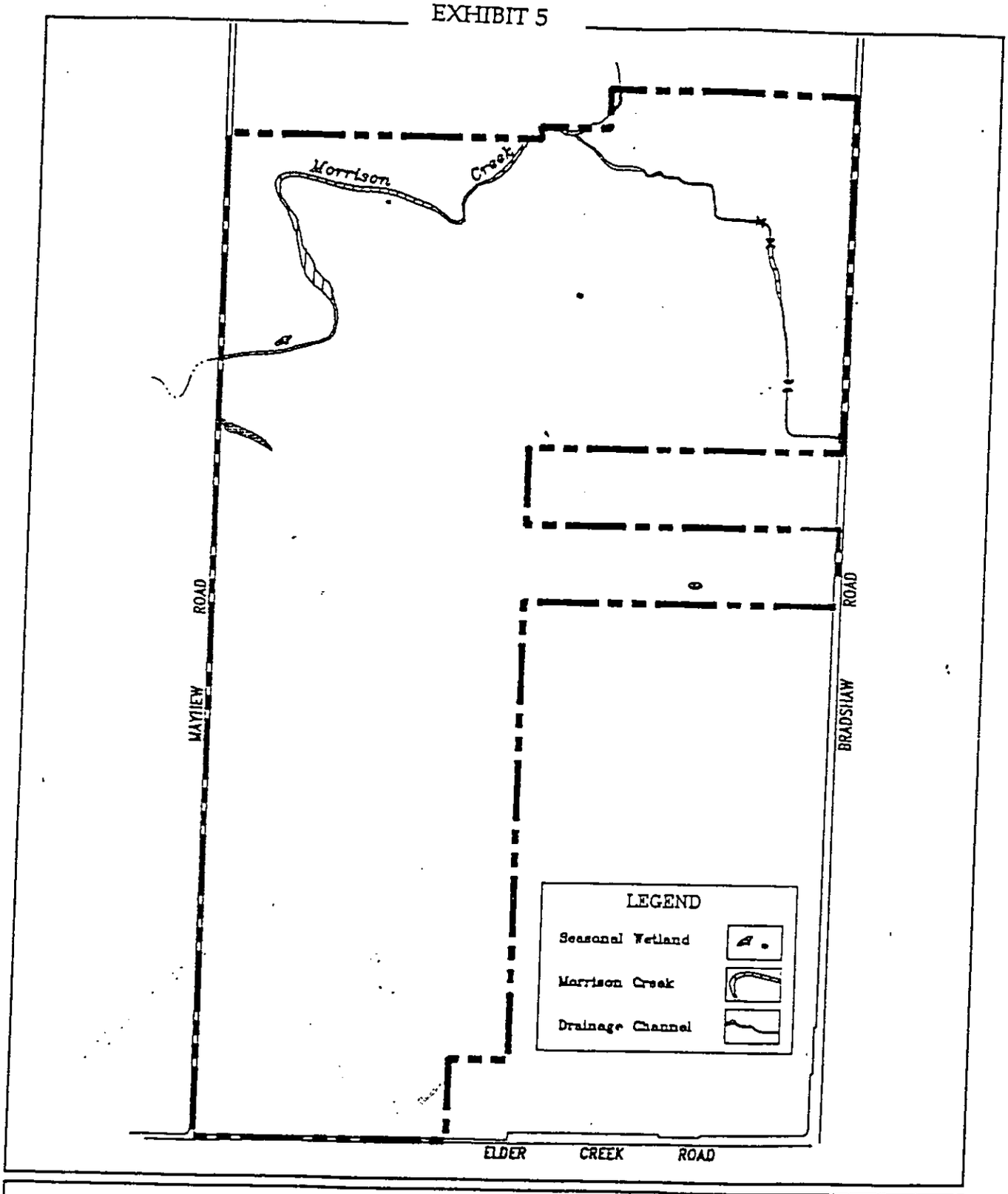


IV. PHYSICAL DESCRIPTION OF THE SITE.

Exhibit "1" indicates the site boundaries of the Aspen IV South property. The property is irregularly shaped, and the property is bounded generally by Elder Creek Road on the south, Mayhew Road on the west, Sacramento Aggregates on the north, and Bradshaw Road on the east. The Aspen IV South property is approximately 180.10 acres in size. The project site is characterized by rolling grasslands. Morrison Creek flows from northeast to southwest across the northwest corner of the site.

In addition to Morrison Creek and a drainage channel, the project site includes a small number of seasonal wetlands, which are illustrated on Exhibit "5". The seasonal wetlands vary in size, depth and distribution. Based on the Corps approved wetland delineation completed in November of 1994, there are 1.78 acres of jurisdictional waters of the United States on the project site. Table II identifies types of waters and respective acreages. Aspen IV South will impact 0.25 acres of Seasonal Wetland; 0.44 acres of Drainage Channel and 1.09 acres of Morrison Creek.

EXHIBIT 5



WETLAND DELINEATION

SUGNET & ASSOCIATES
ENVIRONMENTAL CONSULTANTS
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SCALE IN FEET
0 300 600

File Name: A4SWD811.DWG

F-15

Table II

Existing Water Acreage Aspen IV South	
Wetland	Acreage
Morrison Creek	1.09
Drainage Channel	0.44
Seasonal Wetland	0.25
Total	1.78

Survey performed by Sugnet and Associates, Roseville, CA.
Delineation confirmed by the U.S. Army Corps of Engineers.

V. WATER DEPENDENCE.

The Code of Federal Regulations (CFR) states that:

> Where the activity associated with a discharge which is proposed for a special aquatic site . . . **does not require access or proximity to or siting within the special aquatic site** in question to fulfill its basic purpose . . ., **practicable alternatives** that do not involve special aquatic sites **are presumed to be available,** unless clearly demonstrated otherwise. (40 CFR 230. 10(a)(3)) (Emphasis added.)

This section establishes what is referred to as the "water dependency" test. It basically creates a rebuttable presumption that impacts on "special aquatic sites" (which include wetlands) can be avoided where the project is not "water dependent." Conversely, where a project is determined to be

water dependent, no such presumption is created. In such cases it is relatively easier to demonstrate that there are no practicable alternatives that would avoid wetland impacts.

As described above, and as illustrated in Exhibit "2", aggregate resources for the Sacramento region occur in ancient and present day stream courses. Many of the remaining aggregate deposits are closely associated with surface water features that are geologically associated with underlying stream channel/aggregate deposits. To a certain extent, it is not possible to mine aggregates in the Sacramento region without affecting waters of the United States in some way.

The project is not water dependent in the same sense as a marina. However, to the extent that sand and gravel, valuable and limited resources, are found almost exclusively in association with special aquatic sites that cannot be avoided by existing mining techniques, the project can be considered water dependent. In other words, although the activity of mining is not water dependent, the location of the resources to be mined is water dependent. In a very real sense, aggregate mining requires "proximity to" and "siting within" special aquatic sites, whether at the project site or in other locations in the Sacramento region.

VI. OFF-SITE ALTERNATIVES.

A. Study Area Boundaries. The Code of Federal Regulations sets out the requirement that alternative sites be considered that could result in avoidance of impacts upon waters of the United States (40 CFR Part 230 et seq.). Specifically, 40 CFR 230. 10(a) provides in relevant part that:

> . . . no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, **so long as the alternative does not have other significant adverse environmental consequences.** (Emphasis added.)

Alternative sites to be considered must be practicable and must be capable of achieving the basic purposes of the proposed activity. That is, it is inappropriate to identify an alternative site from which clay or gold could be mined, but not aggregates. According to 40 CFR 230.10(a)(2):

> An alternative is practicable if it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes. If it is otherwise a practicable alternative, an area not presently owned by the applicant which could reasonably be obtained, utilized, expanded or managed in order to fulfill the basic purpose of the proposed activity may be considered.

This portion of the analysis therefore examines sites determined to be practicable according to the definition set out above. Considerations of ". . . cost, existing technology, and logistics . . ." are set out in section III, above. Those factors are used together with geological and land use information to define the study area boundaries, that is, the geographic limits within which the search for alternatives is conducted.

The Mineral Land Classification Map (Exhibit "2") illustrates that aggregate resources do not underlie all of the Sacramento region. These resources are limited to areas of favorable geologic conditions such as the northeast to southwest corridor that represents the old and new American

River stream channels. Most of the land underlain by high quality aggregates has already been committed to urban development, inconsistent zoning, and public uses, severely limiting the availability of alternative sites. Residential, commercial and industrial uses have long been in place along the Highway 50 corridor south of the American River. Sacramento County's American River Parkway precludes aggregate operations on about 4,000 acres. The "Mather Field" region refers to the recently closed Department of Defense installation in Sacramento County, formerly Mather Air Force Base. This site was not analyzed in the Mines and Geology Report in 1985 due to the continued military presence. The total site consists of 5,715 acres, approximately 40% of which are believed to contain high quality aggregates (lying northwest of MRZ-3 demarcation line as developed by the California Department of Mines and Geology). However the majority of that acreage is constrained by the Mather runway, airfield, and attendant facilities. There has been no indication from the current owner, the County of Sacramento, that this site will be available for mining.

As pointed out in Section III.A, above, transportation costs are high relative to other costs of producing aggregates. The study area boundaries have therefore been limited to the Sacramento region. It is environmentally and economically impractical to meet Sacramento County's demand for aggregate from out-of-county sources. Not only would there be an unacceptable increase in aggregate costs, but the added trucking distance would contribute to air pollution, fuel consumption, noise and traffic congestion. Further, it is critical for the Sacramento region to be able to make use of a local aggregate deposit. The region continues to experience growth in demand for aggregates, and is the fastest growing market in the state. Local

governments are required by state law to plan for orderly growth. Part of that planning is the provision for an adequate supply of aggregate materials to meet local needs. This planning has been accomplished in Sacramento County through the 1975 Aggregate Resources Mining Technical Advisory Committee (ARMTAC) report and the Sacramento County's 1986 ATAC Report. Using the study area boundary shown on Exhibit "3", and excluding areas already mined or approved for mining, the study area contains an estimated 126 million tons of aggregate reserves including 7.5 million tons within the project site. This is a sufficient supply to address the region's needs for about 15 years, assuming that all of the aggregates were permitted, mined, and that the population continued to increase at historic rates (2.68 percent annual growth rate). However, not all of the areas within the study boundaries shown on Exhibit "3" are available alternative sites. The following section describes the criteria used for selection of alternative sites to be analyzed, and presents the results of that selection process.

B. Alternative Site Selection Criteria. Each segment of land shown on Exhibit "3" that is believed to contain aggregate resources has been provided a label by the California Division of Mines and Geology, which prepared the map. For convenience, the segment labels have been used to examine areas in determining whether they represent practicable alternative sites. Using criteria set out in 40 CFR 230. 10(a)(2), various segments were rejected. The criteria for rejection can be categorized as follows:

1. The land is unavailable for mining for one of the following reasons:
   a. it is already mined or in the process of being mined;
   b. local governmental policy (i.e., zoning or ordinance) precludes mining; or
   c. proposed or existing residential, commercial or industrial development precludes mining.
2. The land is incapable of being mined after taking into consideration cost, existing technology, and logistics in light of overall project purposes (this applies to oddly shaped, small or inaccessible sites, and shallow, uneconomic deposits).

Figure 1 summarizes the disposition of the various sectors shown in Exhibit "3" that were rejected. Those sites that were not eliminated are discussed below.

C. <u>Description and Evaluation of Alternative Sites</u>. The alternative sites evaluated are as follows:

1. Sectors I-2, I-3 and I-6, comprising 688+ acres and containing about 23.25+ million tons of aggregates;
2. The unmined portion of Sector F-11, comprising 1234+ acres and containing about 52 ± million tons of aggregates;
3. Sector F-12, comprising 370+ acres and containing about 15.4 million tons of aggregates; and
4. Sector H-2, comprising 289+ acres and containing about 11.0 million tons of aggregates.

FIGURE 1

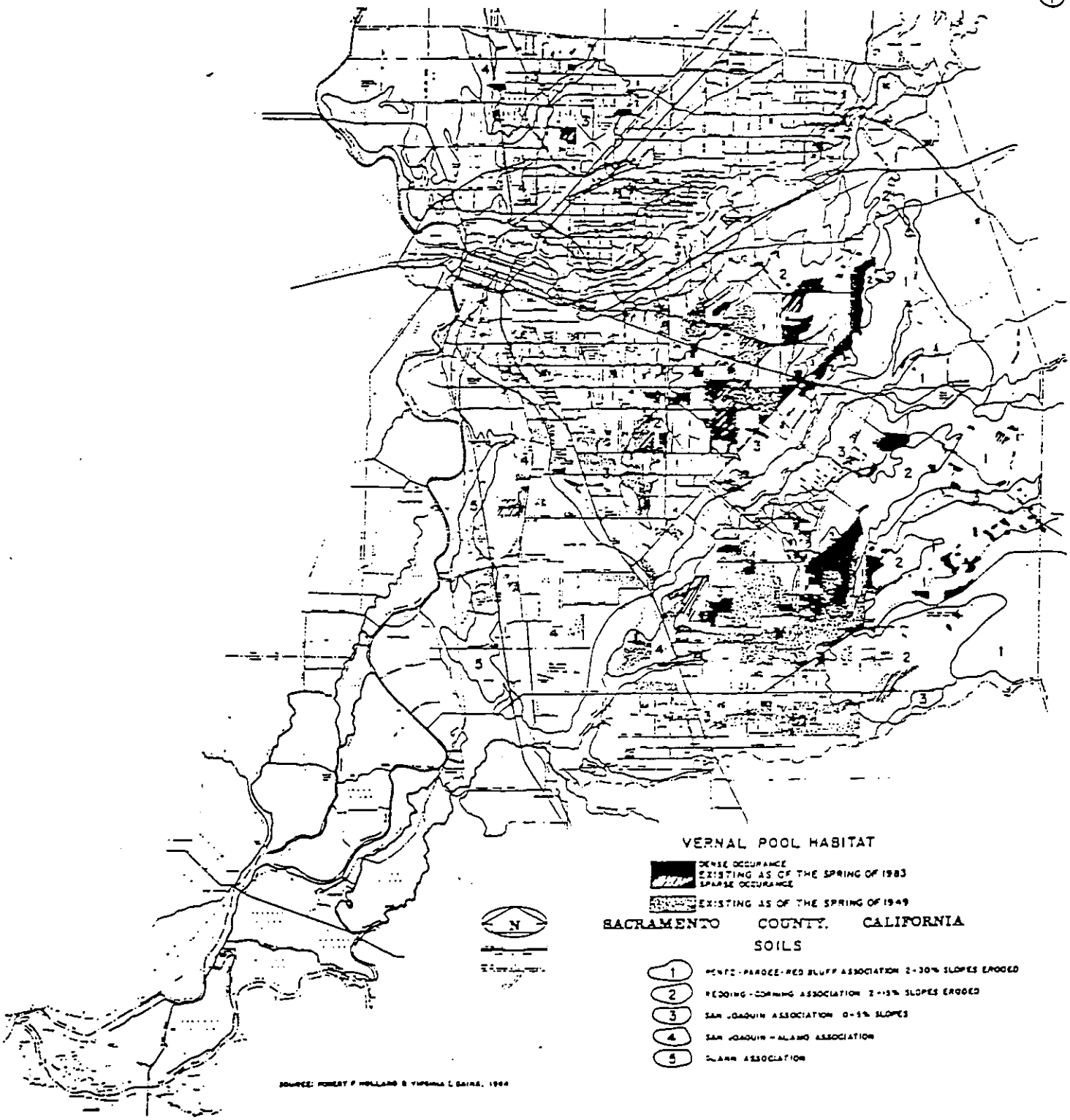
Constraints Affecting Mining Sectors in the Sacramento Region

Constraint	Mining Sector
1. The site has already been mined or is in the process of being mined.	Sectors F-3; F-5; a portion of F-6; F-7; F-9, G-1; G-2; H-5; a portion of L.
2. The site is unavailable for mining because of local governmental policy.	Sectors J, K, and L (American River Parkway); Sectors E-2 and E-3 (City of Folsom Ordinance)
3. The site is unavailable because it contains proposed or existing residential, commercial or industrial developments.	Sectors F-1, F-2 and F-4 (Fruitridge Industrial Park); Sectors M-1, M-2 and M-3 (residential use).

D. Sectors I-2, I-3 and 1-6. As indicated on Exhibit "3", these three sectors are generally located south of Elder Creek Road, east of the California Traction Railroad, and west of Bradshaw Road. An estimated 23.25± tons of aggregates could be mined from these sectors. The Teichert processing plant is between three and five miles from these sectors. The sectors are zoned by the County as agricultural reserve and industrial reserve. Most of the acreage is divided into small parcels under the ownership of over 60 individual landowners. Numerous residences are distributed throughout these sectors. It is highly unlikely that all 60 individual owners would sell their property or otherwise allow mining. Attempting to mine with even a few properties in other ownership could result in serious logistical problems related to access, conveyor layout and the mining sequence. The mining itself would be reduced due to setback and slope requirements. Summarily, increased costs and logistical constraints make mining in multiple ownership areas infeasible.

These three sectors contain a number of wetland constraints. A 1984 map prepared for Sacramento County depicts Vernal Pool Habitat based on review of aerial photographs (Exhibit "6"). According to that map, both Sectors I-3 and I-6 contain vernal pools. Although there are no known wetland features on Sector I-2, it has not been formally surveyed, and it contains only 188± acres of the total 688± acres being considered. Thus it would not be possible to avoid impacts on special aquatic sites by relying on these sectors. Further, Elder Creek traverses the center of Sector I-3, which contains about half of the total acreage being considered for this alternative.

EXHIBIT 6


VERNAL POOL HABITAT
DENSE OCCURANCE
EXISTING AS OF THE SPRING OF 1983
SPARSE OCCURANCE
EXISTING AS OF THE SPRING OF 1949
SACRAMENTO COUNTY, CALIFORNIA
SOILS
1 MENTO-PARDOE-RED BLUFF ASSOCIATION 2-30% SLOPES ERODED
2 REDDING-CORNING ASSOCIATION 2-15% SLOPES ERODED
3 SAN JOAQUIN ASSOCIATION 0-5% SLOPES
4 SAN JOAQUIN-ALAMO ASSOCIATION
5 DUANN ASSOCIATION
N
8550-35

Of more practical importance with respect to the availability of this alternative is whether the properties ". . . could reasonably be obtained . . ." (40 CFR 230. 10(a)(2)). The fact that this land is owned by over 60 different owners seriously affects the ability of an aggregate mining company to assemble the land necessary to begin a mining operation. This concern is magnified by the fact that the sectors are divided by Florin Road and by an 800 foot-wide utility easement, complicating the task of linking sites in order to transport mined aggregates.

On the basis of this analysis, the I-Sector properties should be rejected as practicable alternatives for the following reasons:

1. Because of the presence of Elder Creek and vernal pools (special aquatic sites), mining on these sites would have the same adverse environmental consequences as are contemplated for the project site.
2. Because of the large number of individual property owners for the parcels in these sectors, even if the sites were considered a practicable alternative, they could not be reasonably obtained in a manner that would fulfill the basic purpose of the applicants.

E. **Sector F-11.** This parcel contains 1,234± acres of mineable land. 173± acres are owned and being mined by Teichert under an existing Sacramento County Use Permit. This property, known as "Aspen V," abuts Bradshaw Road. Sector F-11 also contains a 1,061± acre proposed mining site. Granite Construction owns about 308.5 acres, and Teichert owns 752 acres. Granite and Teichert have applied for individual § 404 permits for their

respective properties in sector F-11. Their permit applications are currently under review. The combined mining site is bounded generally by Keifer Boulevard to the north, the H.C. Muddox brickyard and Bradshaw Road on the west, Jackson Highway (State Route 16) on the south, and Excelsior Road on the east.

The mining site is characterized by rolling grasslands. Morrison Creek flows from northeast to southwest across the site. The northeast corner of the Granite property was partially mined several decades ago, and contains some windrows of aggregate.

In addition to Morrison Creek and two smaller drainages, the site's wetland features include vernal pools. Based on analysis conducted by consulting biologists retained by Granite and Teichert and verified by the Corps of Engineers, there are a total of 25± acres of vernal pool habitat from about 642 pools.

A finding may be made that although mining can be accomplished at Sector F-11 (and in fact is ultimately planned for the property owned by Teichert and Granite), such mining would also cause environmental effects. There is no evidence that the impact of mining on the aquatic ecosystem would be any less at Sector F-11 than at the project site. (40 CFR 230. 10(a)).

The main constraint to considering Sector F-11 as a practicable alternative is that it is a portion of the larger area already being considered for mining by both the applicant and Granite Construction. That is, substitution of F-11 for the project site would not address the larger issue of where to obtain long-term aggregate supplies, since both sites are proposed for mining at some time.

F. **Sector F-12.** This is a 370± acre parcel of land bounded on the north by Jackson Road, on the west by Bradshaw Road, and on the south by Elder Creek Road. It is located immediately east of the project site. Teichert owns portions of Sector F-12. Teichert has submitted an application for an individual permit on a portion of F-12.

According to the 1986 ATAC Report, the mineable thickness is estimated at 20 feet with a waste factor of 20 percent. The estimated total resources are about 15.4 million tons. According to the Vernal Pool Habitat Map (Exhibit "6"), there are numerous vernal pools on this site, posing a similar constraint to those found on the project site.

A finding may be made that although mining can be accomplished at Sector F-12 (and is ultimately planned for the property owned by Teichert), such mining would result in environmental consequences similar to what would occur at the project site. There is no evidence that the impact of mining on the aquatic ecosystem would be any less at Sector F-12 than at the project site. (40 CFR 230. 10(a)).

The principal constraint to considering Sector F-12 as a practicable alternative is that it is a portion of the larger area already being considered for mining. Substitution of F-12 for the project site would not address the larger issue of where long-term aggregate supplies would be obtained, since both sites are proposed for mining at some time. As noted above, a portion of the site is being planned for mining by the applicant.

G. **Sector H-2.** This sector is a 289± acre parcel located on the south of White Rock Road east of Sunrise Boulevard. It is located nine miles from the Teichert plant. The site contains several vernal pools, but has not been surveyed for a specific determination of wetland values.

According to the 1986 ATAC Report, Sector H-2 is a "Questionable Resource" due to the proximity of developing urban land uses. It also states that, "This resource [is] already too marginal in quantity and quality to economically consider the capital investment to build a plant." (p. 11) The aggregate resource was calculated at about 11.1 tons, but that estimate may have been high, since the Report noted that one-half of the subsector (H-2) may be the poorer quality Laguna Formation rather than the Riverbank Formation upon which the calculation was based.

The information set out above indicates several reasons for not finding Sector H-2 to be a practicable alternative:

1. The site is remote from the Teichert plant and would result in relatively long hauls by truck. Aggregates in tailings have substantially increased processing costs. Therefore, the site is not available and "capable of being done" after taking into consideration cost and logistics. (40 CFR 230. 10(a))

2. Because of the potential presence of vernal pools having value as special aquatic sites, the presence of land use constraints from proximate developing land, and the environmental effects associated with truck transportation over long distances, the site would have other significant adverse environmental consequences. (40 CFR 230. 10(a))

H. <u>Summary of Off-site Alternatives</u>. The analysis set out above indicates that none of the sites examined survives scrutiny under the criteria set out under 40 CFR 230.10. There is no evidence that mining at any of the

alternative sites would have less adverse impact on the aquatic ecosystem. Nor do the alternative sites contain adequate aggregate reserves to meet local demand.

VII. ON-SITE ALTERNATIVES.

As described in Section IV, special aquatic sites (seasonal wetlands and Morrison Creek) are distributed over the northern portion of the site. Because of the location of the aquatic sites to the aggregate reserves, it is not practicable to fulfill the basic purpose of the activity (aggregate mining) without having an effect upon those aquatic features. Full avoidance would be technologically impossible; reduction of impacts would require substantial expenses in terms of leaving aggregate deposits in the ground and engineering irregular mining areas. Even those "avoided" areas would almost certainly lose some of their functional characteristics as wetlands. There would likely be unavoidable isolation and disruption of hydrologic continuity that would either immediately or over time reduce the values of seasonal wetlands avoided during mining. Further, to the extent that materials were not mined and the region is depleted of aggregates sooner, there would be significant adverse environmental consequences in the form of air quality degradation, noise, traffic congestion and energy use associated with importing aggregates from remote locations. Therefore, the permit application is for mining of the entire 180± acre site. Notwithstanding this conclusion, this section analyzes alternative uses of the project site to assess whether such uses may be considered a practicable alternative that would result in less adverse impact on the aquatic ecosystem, and whether such an alternative would have other significant adverse environmental

consequences. Alternatives analyzed are the "No Project Alternative" and the "Agricultural Use Alternative."

A. <u>No Project Alternative</u>. One alternative is to simply not mine the project site. This would implicitly avoid the impacts to special aquatic sites on the property. However, as described in section II, "Background," the supply of quality aggregate resources in the Sacramento market area is severely limited. Therefore, not mining this area would have a significant impact on both the general economy and the construction industry of the greater Sacramento region. The "No Project Alternative" means that about 7.5 million tons of aggregates would be lost, resulting in a substantial transfer of revenues outside the region in the form of lost sales taxes and reduced local employment.

Section III.A, above, describes an even more important consequence of the "No Project Alternative." Since local demand for aggregate resources would continue despite the unavailability of a local supply, these materials would be imported from remote locations at considerable environmental cost. There would also be a substantial increase in the costs to the consumer such as increased construction costs, higher housing prices, etc. Importation would result in increased air quality degradation in a non-attainment area, traffic congestion, noise impacts and fuel consumption. The "No Project Alternative" is simply another way of examining the alternative of securing aggregates from outside the region, which should be rejected under 40 CFR 230.10(a) as resulting in other significant adverse environmental consequences.

Further, in the event that a Section 404 permit is denied in favor of the No Project Alternative, there is no guarantee that the aquatic ecosystem

would not be harmed by the uses that would be allowed under the property's current zoning designation, as is described below in the "Agricultural Use Alternative."

B. Agricultural Use Alternative. Under the agricultural use alternative, if the owners/applicants could not obtain a Section 404 permit, they could use the land agriculturally, or could sell or lease the property to another party interested in pursuing uses allowed under the current zoning. The property is currently zoned I-R (Industrial Reserve), which allows general agricultural practices.

Among the permitted uses under the current zoning is cattle grazing. Grazing at reasonable levels does not appear to cause long term habitat damage to vernal pools, but also provides minimal income on non-irrigated property. The owners/operators of this site could substantially increase income from the property by using irrigation, which would provide year-round grazing forage. Sprinkle irrigation does not require leveling or grading of a site. The site is relatively flat, and sprinkling technology would allow several types of sprinkle irrigation. It therefore could occur on this site without a discharge of dredged or fill material into waters of the United States and without a Section 404 permit. Summer irrigation, however, could adversely affect the vernal pools on this site. Summer irrigation would alter the hydrology of the site's existing pools by increasing their inundation periods. This would decrease certain values of this resource. Principally, summer irrigation would encourage non-native perennials and annuals over endemic natives associated with unirrigated pools.

Indirect effects associated with the agricultural alternative are described above with respect to the "no project" alternative. To the extent the

agricultural alternative required securing a remote aggregate supply, those same impacts could be expected.

In summary, the agricultural alternative is not a practicable alternative because it would not necessarily result in a reduction of adverse impact upon the aquatic ecosystem. Instead, this alternative has the potential for long-term adverse impacts to the aquatic resources through alterations to the hydrologic regime of existing wetlands

C. Conclusion. Based upon application of the Section 404 (b)(l) guidelines as set out in 40 CFR Part 230 et seq., there are no practicable alternatives to mining the project size. Alternative sites that have been considered fail as alternatives because: l) they would not be available or accessible for mining; 2) they would not have less adverse impact on the aquatic ecosystem as the proposed project; 3) they are already mined or have been permitted for mining; or 4) they would have other significant adverse environmental consequences.

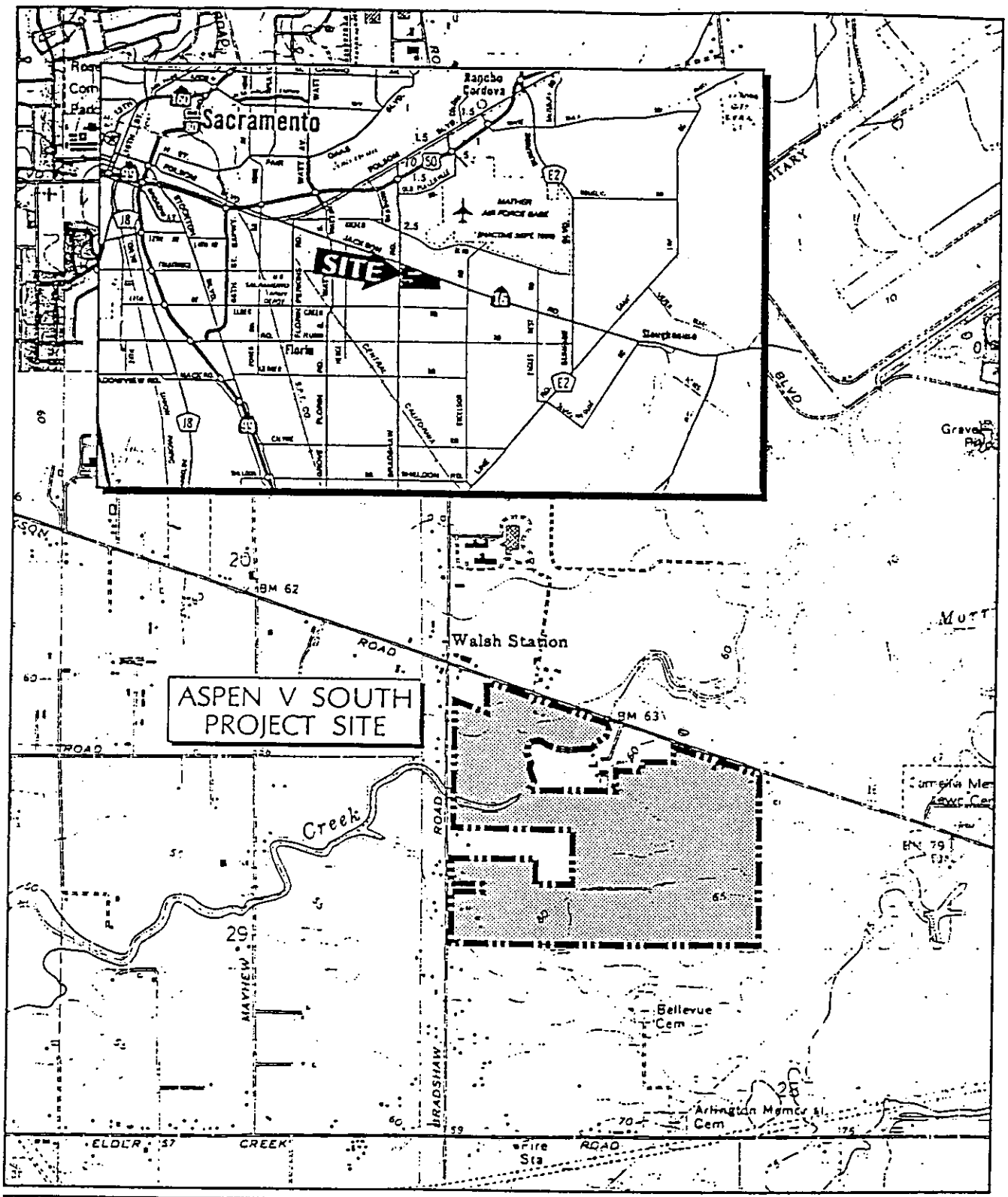
ALTERNATIVES ANALYSIS FOR TEICHERT ASPEN V SOUTH AGGREGATE MINING PROJECT

General Location:	South of Jackson Highway (State Route 16), north of Elder Creek Road, east of Bradshaw Road, and west of Excelsior Road in east-central Sacramento County.

I. PROPOSED PROJECT CHARACTERISTICS.

A. Basic Purpose of Proposed Activity. The basic purpose of the proposed activity is the continuation of sand and gravel aggregate mining operations by Teichert Aggregates (hereinafter "Teichert"). The project location is attached hereto as Exhibit "1". Teichert has an existing processing plant in the immediate vicinity of the proposed project site. Teichert has submitted an application for a permit under Section 404 of the Clean Water Act (42 U.S.C. § 1344) to discharge into waters of the United States during reclamation associated with the mining activities. The applicant has also applied for local approval of aggregate mining use permits from the County of Sacramento. Teichert's application would allow extension of the existing operation to contiguous properties to allow aggregate mining in an efficient, economical manner.

EXHIBIT 1



PROJECT SITE AND VICINITY

FIGURE 2-1

SCALE IN FEET 0 1000 2000

"Carmichael Quadrangle" USGS 7.5 minute topographic map.

SUGNET & ASSOCIATES
ENVIRONMENTAL CONSULTANTS
©1994

WMP: Aspen V South

B. Mining Process. The method of mining and reclamation in this type of placer deposit involves initial removal of soil overburden to expose the aggregate deposit. The deposit, which may vary in thickness from 20 to 35 feet, will then be mined with heavy equipment and transported to the processing plant by a conveyor belt. Mining would occur in phases developed around a concept of minimal disruption to the flow of Morrison Creek. Project duration is estimated to be 3 to 5 years. Concurrent with the removal of aggregate, the mined area will be reclaimed by replacement of overburden.

In the case of the proposed application, the site will be reclaimed to agriculture, drainage mitigation, habitat/ open space and will include re-establishment of wetland features with no net loss of habitat. Mitigation areas will be constructed to compensate for those wetland impacts associated with the project.

II. BACKGROUND.

A. Use of Aggregate. Aggregates are an important, fundamental building material. In loose form without a cementing binder, aggregates are used as a foundation base material for all types of roads, walks, houses, buildings, parking lots, railroad beds and airport runways. Sand and gravel used with a binder such as portland cement and asphaltic cement comprise from 80 percent to 96 percent of the volume of most concretes and road pavements used in construction activities. Aggregates are essential not only for new construction, but also for the repair and maintenance of existing infrastructure.

B. Aggregate Demand. The demand for aggregates continues to expand with the growth of the Sacramento area and continued maintenance of regional infrastructure. As the road network increases in size and as it ages, local governments struggle to allocate sufficient funds to maintain those roads. It is critical that local sources of aggregates are available in order to avoid the increased costs of non-local aggregates.

In 1986 the Aggregate Technical Advisory Committee (hereinafter "ATAC"), published the "Final Report Sacramento County Aggregate Resources - a Response to the State Aggregate Mineral Land Classification of the Production-Consumption Region" (hereinafter "1986 ATAC Report"). The 1986 ATAC Report projected that the total "likely resources" of 320 million tons of aggregates in the Sacramento region at that time would be depleted within 24 years, or the year 2010. The report further cautioned that "... based upon recent events it is improbable that all these resources will remain available." (p. 14). It is also improbable that all these estimated resources will be permitted. According to the California Division of Mines and Geology Special Report 156 (1985) (hereinafter "Mines and Geology Report"), between 1980 and 1985 an estimated 130 million tons of high grade aggregate in the Sacramento region were precluded from mining due to incompatible land uses. The Mines and Geology Report further projected continued per capita consumption of 8.5 tons of aggregates per year. This means that aggregate use will continue to increase each year as the Sacramento region population continues to grow. Since 1986 the population of the Sacramento Metropolitan area has increased by 368,200 people, a growth of 28.5%.

III. GENERAL TECHNICAL, LOGISTICAL AND SITING CONSIDERATIONS.

A. Transportation Considerations. Importation from out-of-county sources is an inefficient use of resources from both economic and environmental perspectives. From an economic point of view, attempting to satisfy local demand for aggregate construction materials from distant sources would result in significantly higher prices due to transportation costs. For example, based on 1993 PUC Minimum Rate Tariff Area 7 rates, transportation of aggregate 40 miles would increase the cost at least 65 percent over the cost of aggregate not requiring such transportation. In a market geared to buy and sell aggregates based on cost differences of pennies per ton, such an increase would be significant to consumers in the market region. For example, the Sacramento County Main Jail required 65,000 tons of concrete grade aggregate. If a comparable structure were to be built with aggregate transported 40 miles, the additional cost to taxpayers would be almost $300,000.

From an environmental perspective, the importation of aggregate resources would be equally adverse. The Sacramento Metropolitan region's population already exceeds 1.5 million people. The projected annual per capita consumption rate of 8.5 tons suggests an annual demand for about 12.75 million tons of aggregate. The nearest out-of-county source for aggregate that has been suggested is the Marysville area, about 40 miles north. Even assuming that the Marysville area can supply the Sacramento region's needs (Marysville is also suggested as an alternative supply for the San Francisco Bay area, and San Joaquin and Yolo Counties), the presently available methods for importation of aggregate would have a serious

environmental cost. Assuming 25-ton loads, the Sacramento region's 12.75 million ton demand would require 510,000 truck loads, or about 40.8 million vehicle miles per year. Those truck trips and miles traveled would result in tangible environmental effects, including additional expenditure of energy in the form of petrochemical fuels, increased air pollutants in a non-attainment area, and increased congestion and noise on area highways. The table below quantifies the potential emissions from this increased truck traffic.

Table I

Air Quality Emissions
Per Additional Truck Mile*

	Grams	Tons
CO	13,603,000	15.0
Hydrocarbon	5,283,000	5.8
NO	27,518,000	30.3

*Based on 52 million tons hauled in 25 ton truck increments.

Further, to the extent that aggregate resources were secured from an out-of-county source in order to avoid local environmental effects of mining, there is no guarantee that the alternative source would not result in the same or greater site-specific environmental effects.

B. Local Impacts. The importation of aggregate in the Marysville example cited above identifies an anticipated cost increase to local consumers in excess of $4.00/ton. However, combined with the inflationary cost of importation are the losses of regional jobs and revenues. For example, assuming an average sales price of $5.50/ton, gross revenues of $46,750,000 are generated by annual sales. A 7.75% sales tax generates $3,623,125 of state and

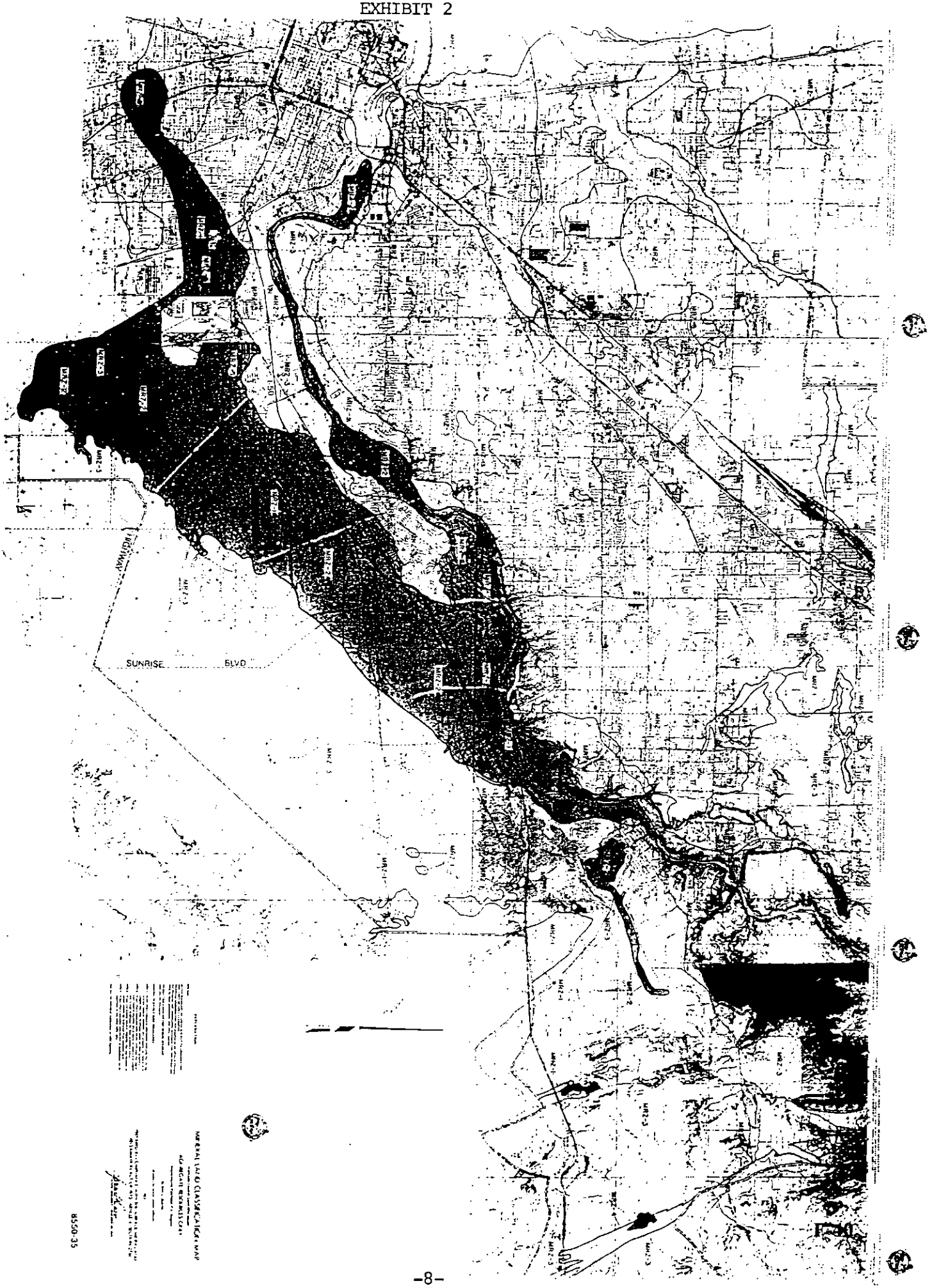
local revenue in addition to property taxes, etc.... Similarly, using a conservative 2:1 multiplier affect on the local economy, regional economic impact is in excess of $92,000,000 per year. This is not a function or a cause of regional growth but an existing contribution to the local economy.

Over 200 skilled workers are currently employed at the Teichert aggregate, concrete and asphalt processing facilities, and tens of millions of dollars are invested in processing equipment. Skilled trades employment opportunities and healthy capitol investment programs are critical to balanced regional economies.

C. Supply Considerations. The discussion above describes the economic and environmental effects generally associated with the use of aggregate for building material. It demonstrates the desirability of securing a local source of aggregates. However, the supply of aggregate resources in the Sacramento region is limited to areas of favorable geological formations. Exhibit "2" has been attached to this analysis to identify the location and extent of remaining aggregate resources. In general, aggregate deposits were formed by a combination of glaciation, stream transportation, abrasive action of the stream to smooth the rocks, and natural sorting and washing away of soft particles. In the Sacramento region, the ancestral precursor to the American River shifted its course over the past half-million years, gradually creating a broad wedge of sand, gravel and floodplain materials (soils).

Obviously, aggregate mining cannot occur outside of the area in which deposits have been created. Unfortunately, mining cannot feasibly occur in many of the areas that do contain aggregate deposits. Both geologic factors and political land use decisions limit the amount of available aggregate.

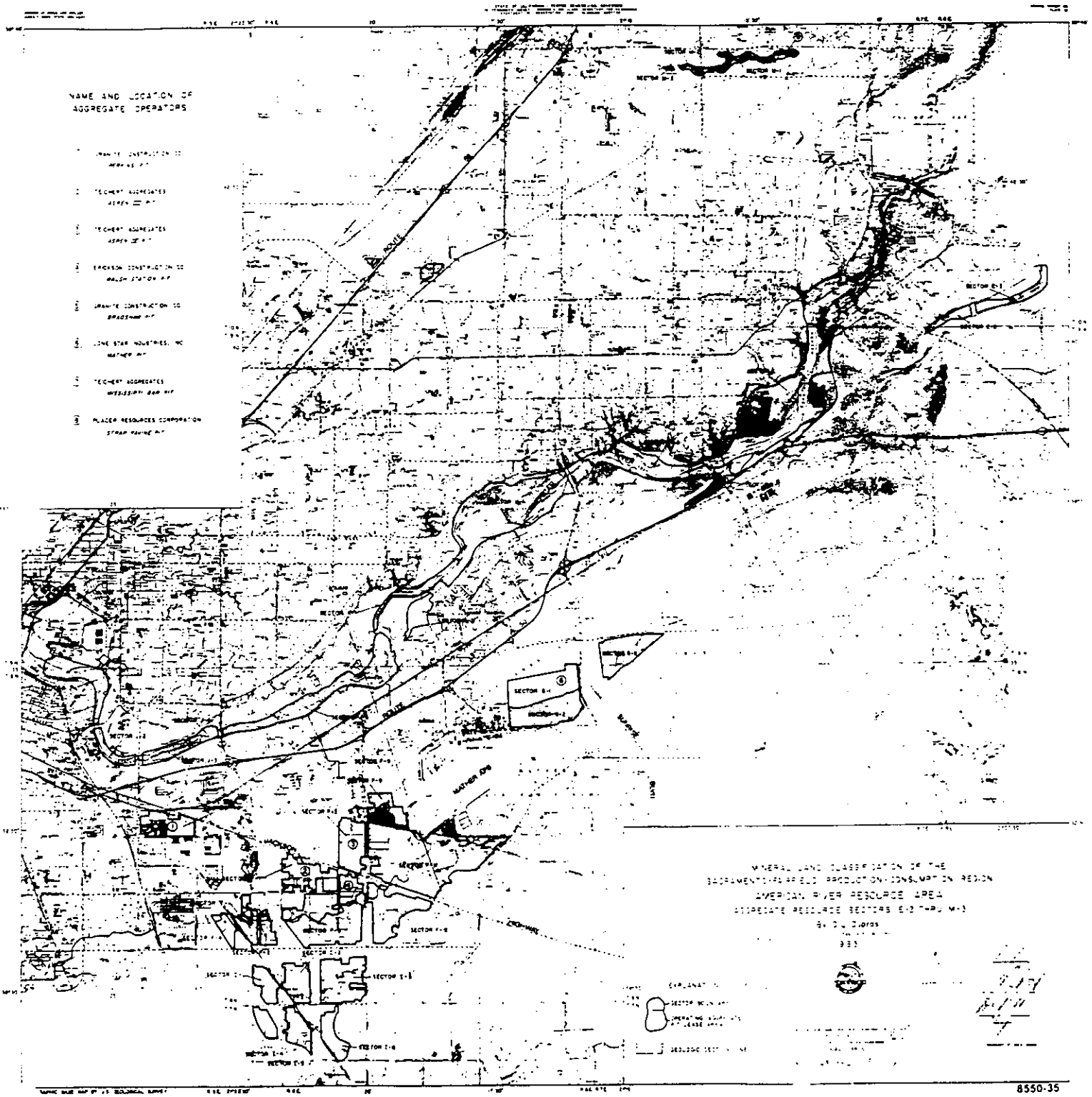
EXHIBIT 2


SUNRISE BLVD
MINERAL LAND CLASSIFICATION MAP
AGGREGATE RESOURCES
8500-35

The State of California and local municipal ordinances have established standards and specifications for aggregates used in construction activities. Some stream channel deposits are unsuitable because they contain an unacceptably high proportion of material such as physically unsound rock or severely decomposed material such as peaty soil which do not meet stringent quality specifications. Other factors limiting the deposits that can be mined are undesirable coatings of opaline silica and extensive degrees of weathering. Further, there may be locations containing high quality aggregates that are too deep to be removed by conventional mining practices. Such deposits may be submerged by groundwater, may be so deep that equipment cannot reach and remove the deposit, or may be covered by a layer of overburden (surface soils) too thick to feasibly remove.

In addition to the geological constraints described above, existing deposits of high quality aggregates may be constrained in other ways. Two principal constraints are existing land use, and policy or regulatory constraints. Exhibit "3" identifies the portions of Exhibit "2" that are considered available for mining. This map was developed by the California Department of Mines and Geology to illustrate how rapidly this critical natural resource was being precluded from mining. As is discussed in detail in the "Off-site Alternatives" section of this document, many of the sites shown as available are effectively precluded from mining due to the impacts of development or policy driven land use constraints. Nearby residential development is the principal land use that can effectively deter mining an otherwise acceptable deposit. Existing urban infrastructure (roads, airports and utility easements) further restrict areas in which mining can occur.

EXHIBIT 3



Policy constraints include governmental decisions to preclude areas from mining despite the presence of high quality aggregate deposits. An example is the American River Parkway, where mining occurred at several locations as recently as the early 1970s.

Sacramento County determined that aggregate mining was incompatible with Parkway use, and gradually eliminated mining wherever it had jurisdiction. Another example is found in the City of Folsom where an ordinance has been enacted establishing a very cumbersome procedure requiring approval by two-thirds of voters prior to any surface mining use. The affect of the ordinance has been to essentially preclude aggregate mining at any of the deposits located within that city's limits.

As a result of these geologic, policy, and land use constraints, a relatively small amount of land in the Sacramento region is available for mining. One additional technical consideration further constrains the order in which aggregate sites are mined. As described above, aggregate pricing is very sensitive to transportation costs. Producers exercise considerable effort to minimize the distance between the locations of extraction and processing. For both of the project applicants this is currently being achieved by use of electrically powered conveyor systems which move raw material from mine site to processing plant without the use of trucks on public roads. The conveyor system for Teichert presently extends from its processing plant at Jackson Highway west of Watt Avenue to its current mine site, Aspen V, located on the north side of Jackson Highway west of Bradshaw road, a distance of about 3.5 miles. A branch conveyor system that will extend from the mid-point of the main conveyor system at the Aspen III Site will serve Aspen IV South mining site. The branch conveyor system will travel south

under Fruitridge road to the Aspen III South mining site. From Aspen III South, the branch conveyor system will travel east under Mayhew Road onto Aspen IV South. The branch conveyer system will then extend under Bradshaw road onto the proposed site, Aspen V South.

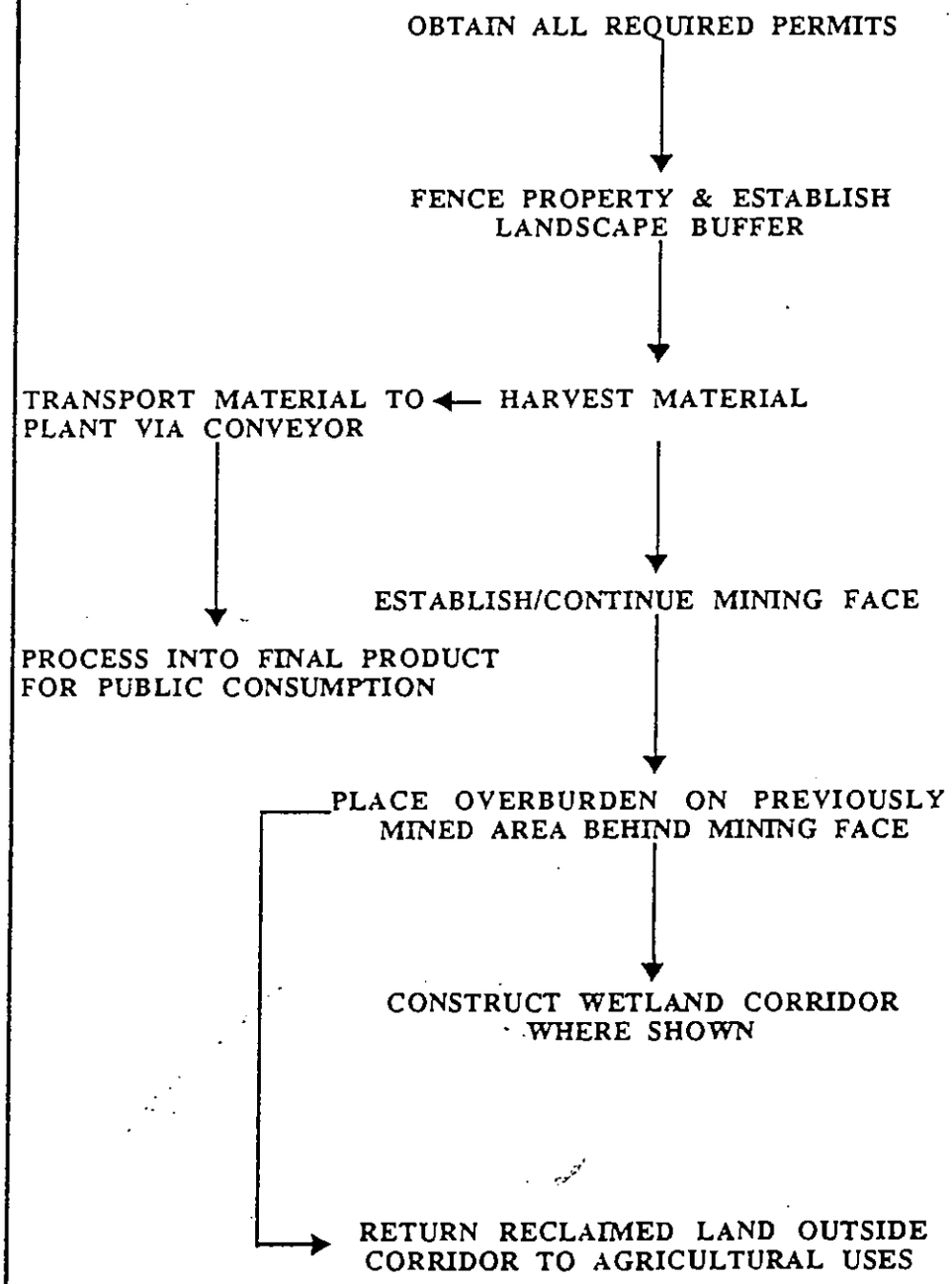
Conveyors are the most efficient and environmentally sound method for transporting aggregate materials, provided sites can be accessed sequentially, as proposed in this project. The mining process is depicted generally on the flow chart attached as Exhibit "4". As noted above, to the extent that sequential mining of adjacent land avoids truck use, it results in a reduction of impacts upon air quality, noise, transportation and energy.

The constraints described above set out the principal reasons that have led to the applicants requesting mining permits for the project site. The project site represents one of the few remaining properties upon which mining a local source adjacent to existing sites can feasibly occur. According to the 1986 ATAC Report, it is estimated that remaining potential aggregate mining sites in the Sacramento region contain a total of only 161 million tons of aggregate. Fifty percent of these sites, however, are listed as "questionable resources," while the other half are listed as "likely resources." At an estimated consumption rate of 5.5 million tons per year, the likely resources are less than a 15 year supply. Given the projected growth in the Sacramento Metropolitan Area, the supply may be consumed in an even shorter period. The project site (Aspen V South) is estimated to contain about 15.4 of the remaining "likely supply."

It is the basic purpose of the project to mine the limited natural resources at the project site in order to meet the Sacramento region's demand, since it is the available site closest to existing mining operations.

MINING PROCESS FLOWCHART

EXHIBIT 4



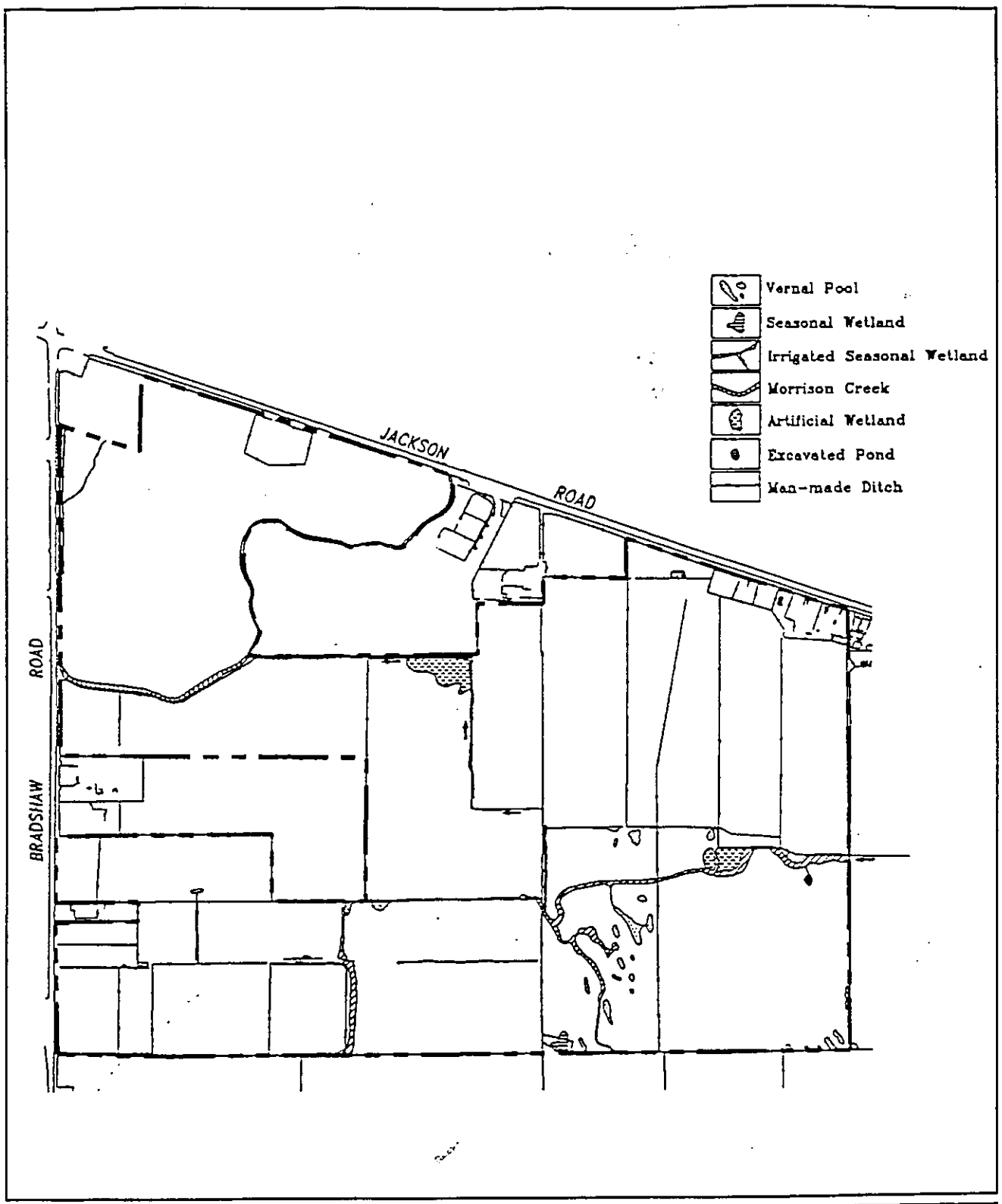
IV. PHYSICAL DESCRIPTION OF THE SITE.

Exhibit "1" indicates the site boundaries of the Aspen V South property. The property is irregularly shaped, and the property is bounded generally by Elder Creek Road on the south, Excelsior Road about 1/2 mile to the east, Jackson Highway (State Route 16) on the north, and Bradshaw Road on the west. The Aspen V South property is approximately 261 acres in size. The project site is characterized by rolling grasslands. Morrison Creek flows from northeast to southwest across the site.

In addition to Morrison Creek, the project site includes vernal pools, an irrigated seasonal wetland, and a small number of seasonal wetlands, which are illustrated on Exhibit "5". The seasonal wetlands vary in size, depth and distribution. Based on the Corps approved wetland delineation completed on November 14, 1994, there are 4.91 acres of jurisdictional waters of the United States on the project site. Table II identifies types of waters and respective acreages. Aspen V South will impact only 0.83 acres of Irrigated Seasonal Wetland.

SEE EXHIBIT 5 OF ASPEN V SOUTH A.A (attached).

EXHIBIT 5



WETLAND DELINEATION

SUGNET & ASSOCIATES
ENVIRONMENTAL CONSULTANTS
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N

FIGURE 2-2

SCALE IN FEET 0 400 800

File Name: A5WD8-2.DWG

WMP: Aspen V South

F-47

Table II

Existing Water Acreage Aspen V South	
Wetland	Acreage
Morrison Creek	1.32
Vernal Pool	0.85
Seasonal Wetland	0.13
Irrigated Seasonal Wetland	2.61
Total	4.91

Survey performed by Sugnet and Associates, Roseville, CA.
Delineation confirmed by the U.S. Army Corps of Engineers.

V. WATER DEPENDENCE.

The Code of Federal Regulations (CFR) states that:

> Where the activity associated with a discharge which is proposed for a special aquatic site . . . **does not require access or proximity to or siting within the special aquatic site** in question to fulfill its basic purpose . . ., **practicable alternatives** that do not involve special aquatic sites **are presumed to be available,** unless clearly demonstrated otherwise. (40 CFR 230. 10(a)(3)) (Emphasis added.)

This section establishes what is referred to as the "water dependency" test. It basically creates a rebuttable presumption that impacts on "special aquatic sites" (which include wetlands) can be avoided where the project is

not "water dependent." Conversely, where a project is determined to be water dependent, no such presumption is created. In such cases it is relatively easier to demonstrate that there are no practicable alternatives that would avoid wetland impacts.

As described above, and as illustrated in Exhibit "2", aggregate resources for the Sacramento region occur in ancient and present day stream courses. Many of the remaining aggregate deposits are closely associated with surface water features that are geologically associated with underlying stream channel/aggregate deposits. To a certain extent, it is not possible to mine aggregates in the Sacramento region without affecting waters of the United States in some way.

The project is not water dependent in the same sense as a marina. However, to the extent that sand and gravel, valuable and limited resources, are found almost exclusively in association with special aquatic sites that cannot be avoided by existing mining techniques, the project can be considered water dependent. In other words, although the activity of mining is not water dependent, the location of the resources to be mined is water dependent. In a very real sense, aggregate mining requires "proximity to" and "siting within" special aquatic sites, whether at the project site or in other locations in the Sacramento region.

VI. OFF-SITE ALTERNATIVES.

A. Study Area Boundaries. The Code of Federal Regulations sets out the requirement that alternative sites be considered that could result in avoidance of impacts upon waters of the United States (40 CFR Part 230 et seq.). Specifically, 40 CFR 230. 10(a) provides in relevant part that:

> . . . no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, **so long as the alternative does not have other significant adverse environmental consequences.** (Emphasis added.)

Alternative sites to be considered must be practicable and must be capable of achieving the basic purposes of the proposed activity. That is, it is inappropriate to identify an alternative site from which clay or gold could be mined, but not aggregates. According to 40 CFR 230.10(a)(2):

> An alternative is practicable if it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes. If it is otherwise a practicable alternative, an area not presently owned by the applicant which could reasonably be obtained, utilized, expanded or managed in order to fulfill the basic purpose of the proposed activity may be considered.

This portion of the analysis therefore examines sites that are determined to be practicable according to the definition set out above. Considerations of ". . . cost, existing technology, and logistics . . ." are set out in section III, above. Those factors are used together with geological and land use information to define the study area boundaries, that is, the geographic limits within which the search for alternatives is conducted.

The Mineral Land Classification Map (Exhibit "2") illustrates that aggregate resources do not underlie all of the Sacramento region. These resources are limited to areas of favorable geologic conditions such as the northeast to southwest corridor that represents the old and new American

River stream channels. Most of the land underlain by high quality aggregates has already been committed to urban development, inconsistent zoning, and public uses, severely limiting the availability of alternative sites. Residential, commercial and industrial uses have long been in place along the Highway 50 corridor south of the American River. Sacramento County's American River Parkway precludes aggregate operations on about 4,000 acres. The "Mather Field" region refers to the recently closed Department of Defense installation in Sacramento County, formerly Mather Air Force Base. This site was not analyzed in the Mines and Geology Report in 1985 due to the continued military presence. The total site consists of 5,715 acres, approximately 40% of which are believed to contain high quality aggregates (lying northwest of MRZ-3 demarcation line as developed by the California Department of Mines and Geology). However the majority of that acreage is constrained by the Mather runway, airfield, and attendant facilities. There has been no indication from the current owner, the County of Sacramento, that this site will be available for mining.

As pointed out in Section III.A, above, transportation costs are high relative to other costs of producing aggregates. The study area boundaries have therefore been limited to the Sacramento region. It is environmentally and economically impractical to meet Sacramento County's demand for aggregate from out-of-county sources. Not only would there be an unacceptable increase in aggregate costs, but the added trucking distance would contribute to air pollution, fuel consumption, noise and traffic congestion. Further, it is critical for the Sacramento region to be able to make use of a local aggregate deposit. The region continues to experience growth in demand for aggregates, and is the fastest growing market in the state. Local

governments are required by state law to plan for orderly growth. Part of that planning is the provision for an adequate supply of aggregate materials to meet local needs. This planning has been accomplished in Sacramento County through the 1975 Aggregate Resources Mining Technical Advisory Committee (ARMTAC) report and the Sacramento County's 1986 ATAC Report. Using the study area boundary shown on Exhibit "3", and excluding areas already mined or approved for mining, the study area contains an estimated 126 million tons of aggregate reserves including 15.4 million tons within the project site. This is a sufficient supply to address the region's needs for about 15 years, assuming that all of the aggregates were permitted, mined, and that the population continued to increase at historic rates (2.68 percent annual growth rate). However, not all of the areas within the study boundaries shown on Exhibit "3" are available alternative sites. The following section describes the criteria used for selection of alternative sites to be analyzed, and presents the results of that selection process.

B. Alternative Site Selection Criteria. Each segment of land shown on Exhibit "3" that is believed to contain aggregate resources has been provided a label by the California Division of Mines and Geology, which prepared the map. For convenience, the segment labels have been used to examine areas in determining whether they represent practicable alternative sites. Using criteria set out in 40 CFR 230. 10(a)(2), various segments were rejected. The criteria for rejection can be categorized as follows:

1. The land is unavailable for mining for one of the following reasons:
   a. it is already mined or in the process of being mined;
   b. local governmental policy (i.e., zoning or ordinance) precludes mining; or
   c. proposed or existing residential, commercial or industrial development precludes mining.
2. The land is incapable of being mined after taking into consideration cost, existing technology, and logistics in light of overall project purposes (this applies to oddly shaped, small or inaccessible sites, and shallow, uneconomic deposits).

Figure 1 summarizes the disposition of the various sectors shown in Exhibit "3" that were rejected. Those sites that were not eliminated are discussed below.

C. <u>Description and Evaluation of Alternative Sites</u>. The alternative sites evaluated are as follows:

1. Sectors I-2, I-3 and I-6, comprising 688+ acres and containing about 23.25+ million tons of aggregates;
2. The unmined portion of Sector F-11, comprising 1234+ acres and containing about 52+ million tons of aggregates;
3. Sector F-6 comprising 752+ acres and containing about 39 million tons of aggregates; and
4. Sector H-2, comprising 289+ acres and containing about 11.0 million tons of aggregates.

FIGURE 1

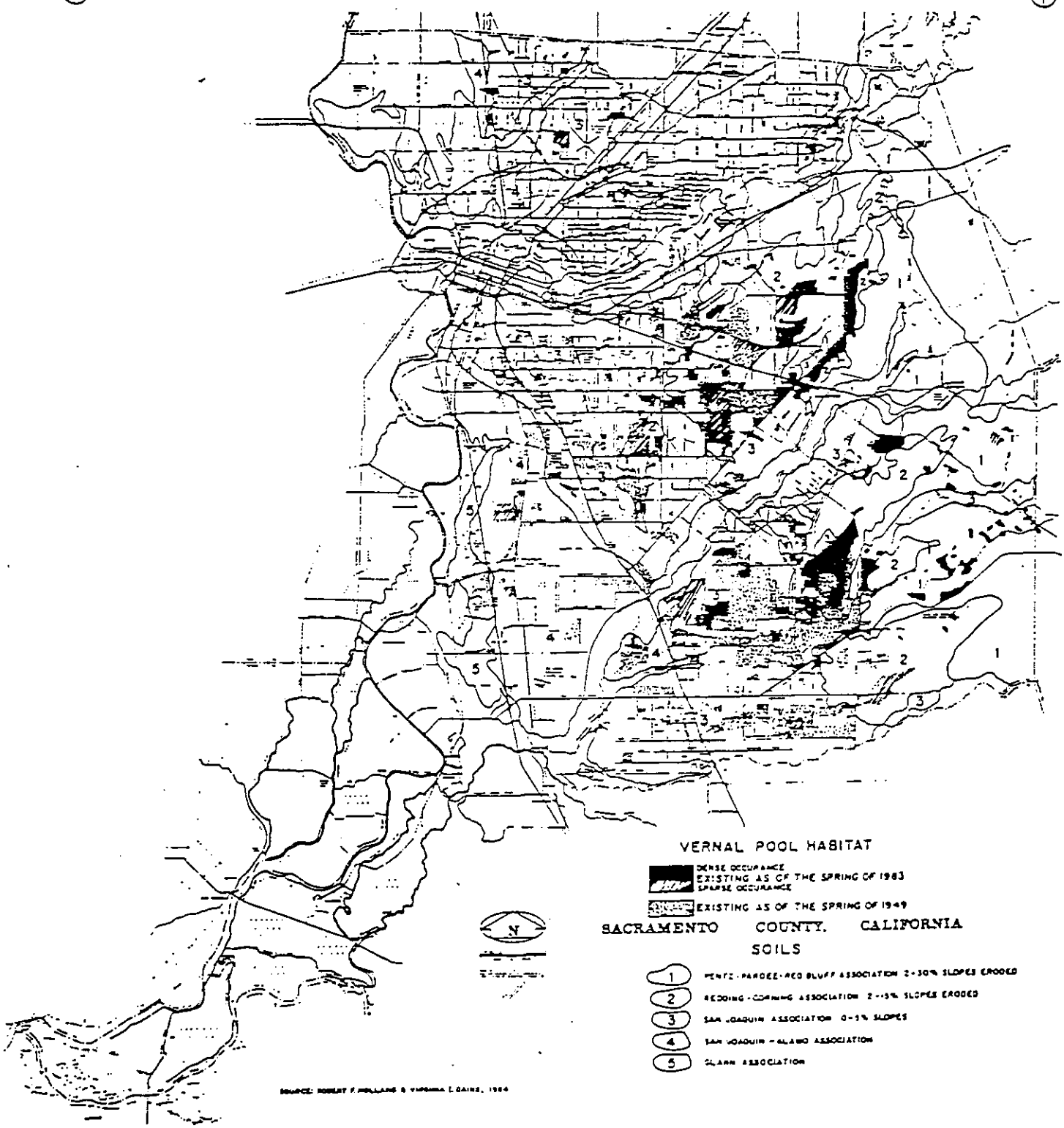
Constraints Affecting Mining Sectors in the Sacramento Region

Constraint	Mining Sector
1. The site has already been mined or is in the process of being mined.	Sectors F-3; F-5; a portion of F-6; F-7; F-9, G-1; G-2; H-5; a portion of L.
2. The site is unavailable for mining because of local governmental policy.	Sectors J, K, and L (American River Parkway); Sectors E-2 and E-3 (City of Folsom Ordinance)
3. The site is unavailable because it contains proposed or existing residential, commercial or industrial developments.	Sectors F-1, F-2 and F-4 (Fruitridge Industrial Park); Sectors M-1, M-2 and M-3 (residential use).

D. Sectors I-2, I-3 and 1-6. As indicated on Exhibit "3", these three sectors are generally located south of Elder Creek Road, east of the California Traction Railroad, and west of Bradshaw Road. The combined acreage is 688± acres. An estimated 23.25+ tons of aggregates could be mined from these sectors. The Teichert processing plant is between three and five miles from these sectors. The sectors are zoned by the County as agricultural reserve and industrial reserve. Most of the acreage is divided into small parcels under the ownership of over 60 individual landowners. Numerous residences are distributed throughout these sectors. It is highly unlikely that all 60 individual owners would sell their property or otherwise allow mining. Attempting to mine with even a few properties in other ownership could result in serious logistical problems related to access, conveyor layout and the mining sequence. The mining itself would be reduced due to setback and slope requirements. Summarily, increased costs and logistical constraints make mining in multiple ownership areas infeasible.

These three sectors contain a number of wetland constraints similar to the constraints on the project site. A 1984 map prepared for Sacramento County depicts Vernal Pool Habitat based on review of aerial photographs (Exhibit "6"). According to that map, both Sectors I-3 and I-6 contain vernal pools. Although there are no known wetland features on Sector I-2, it has not been formally surveyed, and it contains only 188+ acres of the total 688+ acres being considered. Thus it would not be possible to avoid impacts on special aquatic sites by relying on these sectors. Further, Elder Creek traverses the center of Sector I-3, which contains about half of the total acreage being considered for this alternative.

EXHIBIT 6



8550-35

Of more practical importance with respect to the availability of this alternative is whether the properties ". . . could reasonably be obtained . . ." (40 CFR 230. 10(a)(2)). The fact that this land is owned by over 60 different owners seriously affects the ability of an aggregate mining company to assemble the land necessary to begin a mining operation. This concern is magnified by the fact that the sectors are divided by Florin Road and by an 800 foot-wide utility easement, complicating the task of linking sites in order to transport mined aggregates.

On the basis of this analysis, the l-Sector properties should be rejected as practicable alternatives for the following reasons:

1. Because of the presence of Elder Creek and vernal pools (special aquatic sites), mining on these sites would have the same adverse environmental consequences as are contemplated for the project site.
2. Because of the large number of individual property owners for the parcels in these sectors, even if the sites were considered a practicable alternative, they could not be reasonably obtained in a manner that would fulfill the basic purpose of the applicants.

E. **Sector F-11.** This parcel contains 1,234± acres of mineable land. 173± acres are owned and being mined by Teichert under an existing Sacramento County Use Permit. This property, known as "Aspen V," abuts Bradshaw Road. Sector F-11 also contains a 1,061± acre proposed mining site. Granite Construction owns about 308.5 acres, and Teichert owns 752 acres. Granite and Teichert have applied for individual § 404 permits for their respective properties in sector F-11. Their permit applications are currently

under review. The combined mining site is bounded generally by Keifer Boulevard to the north, the H.C. Muddox brickyard and Bradshaw Road on the west, Jackson Highway (State Route 16) on the south, and Excelsior Road on the east.

The mining site is characterized by rolling grasslands. Morrison Creek flows from northeast to southwest across the site. The northeast corner of the Granite property was partially mined several decades ago, and contains some windrows of aggregate.

In addition to Morrison Creek and two smaller drainages, the site's wetland features include vernal pools. Based on analysis conducted by consulting biologists retained by Granite and Teichert and verified by the Corps of Engineers, there are a total of 25± acres of vernal pool habitat from about 642 pools.

A finding may be made that although mining can be accomplished at Sector F-11 (and in fact is ultimately planned for the property owned by Teichert and Granite), such mining would also cause environmental effects. There is no evidence that the impact of mining on the aquatic ecosystem would be any less at Sector F-11 than at the project site. (40 CFR 230. 10(a)).

The main constraint to considering Sector F-11 as a practicable alternative is that it is a portion of the larger area already being considered for mining by both the applicant and Granite Construction. That is, substitution of F-11 for the project site would not address the larger issue of where to obtain long-term aggregate supplies, since both sites are proposed for mining at some time.

F. Sector F-6

Sector F-6 is a 752+ acre region located to the south of Teichert's Aspen III mining depression. Sacramento Aggregate's Walsh Station mining area is depleted. In general, the sector is bounded by Hedge Avenue to the west, Elder Creek Road to the south, and Bradshaw Road to the east. Ownership is divided between Teichert (about 60 acres) and Granite Construction(403 acres) and a number of smaller private property owners typically located on the perimeters. (Granite and Teichert have both submitted applications in 1991 to Sacramento County to mine their portions of the property.) This sector is located about two miles from the processing plants and is traversed by almost two miles of the stream course of Morrison Creek. According to the 1986 ATAC Report, the mineable thickness is estimated at 25 feet with a waste factor estimated at 20 percent. Total resources are estimated at about 39.1 million tons.

The principal constraint to considering Sector F-6 as a practicable alternative is that it is a portion of the larger area already being considered for mining. That is, substitution of Sector F-6 for the project site would not address the larger issue of where long-term aggregate supplies would be obtained, since both sites are proposed for mining at some time. As noted above, a portion of the site is already being mined by an operator different from the permit applicants.

G. Sector H-2. This sector is a 289+ acre parcel located on the south of White Rock Road east of Sunrise Boulevard. It is located nine miles from the Teichert plant. The site contains several vernal pools, but has not been surveyed for a specific determination of wetland values.

According to the 1986 ATAC Report, Sector H-2 is a "Questionable Resource" due to the proximity of developing urban land uses. It also states that, "This resource [is] already too marginal in quantity and quality to economically consider the capital investment to build a plant." (p. 11). The aggregate resource was calculated at about 11.1 tons, but that estimate may have been high, since the Report noted that one-half of the subsector (H-2) may be the poorer quality Laguna Formation rather than the Riverbank Formation upon which the calculation was based.

The information set out above indicates several reasons for not finding Sector H-2 to be a practicable alternative:

1. The site is remote from the Teichert plant and would result in relatively long distances by truck. Aggregates in tailings have substantially increased processing costs. Therefore, the site is not available and "capable of being done" after taking into consideration cost and logistics. (40 CFR 230. 10(a))
2. Because of the potential presence of vernal pools having value as special aquatic sites, the presence of land use constraints from proximate developing land, and the environmental effects associated with truck transportation over long distances, the site would have other significant adverse environmental consequences. (40 CFR 230. 10(a))

H. <u>Summary of Off-site Alternatives</u>. The analysis set out above indicates that none of the sites examined survives scrutiny under the criteria set out under 40 CFR 230.10. There is no evidence that mining at any of the

alternative sites would have less adverse impact on the aquatic ecosystem. Nor do the alternative sites contain adequate aggregate reserves to meet local demand.

VII. ON-SITE ALTERNATIVES.

As described in Section IV, special aquatic sites (irrigated seasonal wetland, seasonal wetland, vernal pool, and Morrison Creek) are distributed over the site. Because of the location of the aquatic sites to the aggregate reserves, it is not practicable to fulfill the basic purpose of the activity (aggregate mining) without having an effect upon some of those aquatic features, namely the irrigated seasonal wetland. Full avoidance would be technologically impossible; reduction of impacts would require substantial expenses in terms of leaving aggregate deposits in the ground and engineering irregular mining areas. Even those "avoided" areas would almost certainly lose some of their functional characteristics as wetlands. There would likely be unavoidable isolation and disruption of hydrologic continuity that would either immediately or over time reduce the values of seasonal wetlands avoided during mining. Further, to the extent that materials were not mined and the region is depleted of aggregates sooner, there would be significant adverse environmental consequences in the form of air quality degradation, noise, traffic congestion and energy use associated with importing aggregates from remote locations. Therefore, the permit application is for mining of the entire 261± acre site. Notwithstanding this conclusion, this section analyzes alternative uses of the project site to assess whether such uses may be considered a practicable alternative that would result in less adverse impact on the aquatic ecosystem, and whether such an

alternative would have other significant adverse environmental consequences. Alternatives analyzed are the "No Project Alternative" and the ""Agricultural Use Alternative."

A. No Project Alternative. One alternative is to simply not mine the project site. This would implicitly avoid the impacts to special aquatic sites on the property. However, as described in section II, "Background," the supply of quality aggregate resources in the Sacramento market area is severely limited. Therefore, not mining this area would have a significant impact on both the general economy and the construction industry of the greater Sacramento region. The "No Project Alternative" means that about 15.4 million tons of aggregates would be lost, resulting in a substantial transfer of revenues outside the region in the form of lost sales taxes and reduced local employment.

Section III.A, above, describes an even more important consequence of the "No Project Alternative." Since local demand for aggregate resources would continue despite the unavailability of a local supply, these materials would be imported from remote locations at considerable environmental cost. There would also be a substantial increase in the costs to the consumer such as increased construction costs, higher housing prices, etc. Importation would result in increased air quality degradation in a non-attainment area, traffic congestion, noise impacts and fuel consumption. The "No Project Alternative" is simply another way of examining the alternative of securing aggregates from outside the region, which should be rejected under 40 CFR 230.10(a) as resulting in other significant adverse environmental consequences.

Further, in the event that a Section 404 permit is denied in favor of the No Project Alternative, there is no guarantee that the aquatic ecosystem would not be harmed by the uses that would be allowed under the property's current zoning designation, as is described below in the "Agricultural Use Alternative."

B. Agricultural Use Alternative. Under the agricultural use alternative, if the owners/applicants could not obtain a Section 404 permit, they could use the land agriculturally, or could sell or lease the property to another party interested in pursuing uses allowed under the current zoning. The property is currently zoned M-1 and M-1(F)(Light Industrial and Light Industrial-Flood Combining), which allows general agricultural practices as an interim use while the area awaits long term urban development.

Among the permitted uses under the current zoning is cattle grazing. Grazing at reasonable levels does not appear to cause long term habitat damage to vernal pools, but also provides minimal income on non-irrigated property. The owners/operators of this site could substantially increase income from the property by using irrigation, which would provide year-round grazing forage. Sprinkle irrigation does not require leveling or grading of a site. The site is relatively flat, and sprinkling technology would allow several types of sprinkle irrigation. It therefore could occur on this site without a discharge of dredged or fill material into waters of the United States and without a Section 404 permit. Summer irrigation, however, could adversely affect the vernal pools on this site. Summer irrigation would alter the hydrology of the site's existing pools by increasing their inundation periods. This would decrease certain values of this resource. Principally, summer irrigation would encourage non-native perennials and annuals over

endemic natives ciated with unirrigated pools.

Indirect effects associated with the agricultural alternative are described above with respect to the "No Project" alternative. To the extent the agricultural alternative required securing a remote aggregate supply, those same impacts could be expected.

In summary, the agricultural alternative is not a practicable alternative because it would not necessarily result in a reduction of adverse impact upon the aquatic ecosystem. Instead, this alternative has the potential for long-term adverse impacts to the aquatic resources through alterations to the hydrologic regime of existing wetlands.

C. Conclusion. Based upon application of the Section 404 (b)(l) guidelines as set out in 40 CFR Part 230 et seq., there are no practicable alternatives to mining the project size. Alternative sites that have been considered fail as alternatives because: l) they would not be available or accessible for mining; 2) they would not have less adverse impact on the aquatic ecosystem as the proposed project; 3) they are being mined or are permitted for mining; or 4) they would have other significant adverse environmental consequences.

**BEFORE THE BOARD OF SUPERVISORS
OF THE COUNTY OF SACRAMENTO**

Control No. 05-CZB-UPB-REB-ZGB-0062
State Clearing House No. 1995102057

Re: Granite Construction Company: Vineyard Community Plan Amendment, Rezone, Use Permit, Reclamation Plan Amendment, and Zoning Agreement Amendments	))))))	**CEQA FINDINGS OF FACT AND STATEMENT OF OVERRIDING CONSIDERATIONS**

CEQA FINDINGS OF FACT AND STATEMENT OF OVERRIDING CONSIDERATIONS

I. INTRODUCTION

The Final Supplemental Environmental Impact Report (FSEIR) prepared for the Granite Construction Company Vineyard I Community Plan Amendment, Rezone, Use Permit, Reclamation Plan Amendment, and Zoning Agreement Amendments (collectively the "Granite Project") and Teichert Aggregate's Aspen III South Reclamation Plan and Use Permit Amendments and Aspen IV South Reclamation Plan, Use Permit and Zoning Agreement Amendments (collectively the "Teichert Project") address the environmental effects associated with the proposed changes to the Reclamation Plans for the Vineyard I, Aspen III and Aspen IV sites, as well as the inclusion of mining an additional 5.6 acres on the Vineyard I site. (The Granite Project and Teichert Project are referenced collectively herein as the "Project.")

The Granite Project and the Teichert Project comprise separate applications, but are so closely related in geographic proximity that they have been incorporated together for purposes of the evaluation of environmental impacts. (FSEIR at 1-1) The Granite Project has a separate Findings of Fact and Statement of Overriding Considerations from the Teichert Project's Findings of Fact (collectively the "Findings") due to the identification of separate and distinct environmental impacts and mitigation measures for each project.

The existing Reclamation Plans for the Granite Project and the Teichert Project were each the subject of a previously certified Final Environmental Impact Report/Environmental Impact Statement (FEIR/FEIS) titled *Morrison Creek Mining Reach (South) of Jackson Highway* (Control Nos. 94-UPB-0484, 91-CZB-UPB-01118, 90-CZB-UPB-1607 and 94-CZB-UPB-0671) (State Clearinghouse No. 95102057) (the "Morrison Creek FEIR/FEIS"). The Morrison Creek

FEIR/FEIS considered the reach of Morrison Creek that included four mining and reclamation proposals (known as Vineyard I, Aspen III South, Aspen IV South and Aspen V South), as well as an on-site processing plant. The Aspen V South mining project is not included in this Project. (FSEIR at 1-1)

The FSEIR for this Project addresses environmental impacts and mitigation measures associated with the proposed Reclamation Plan Amendments, either resulting from proposed changes to the Vineyard I and Aspen mining permits and/or reclamation plans or from new impacts and/or mitigation measures that result from changed circumstances. The FSEIR also addresses environmental impacts and mitigation measures associated with the request for mining an additional 5.6 acres on the Vineyard I site ("Vineyard Expansion Site").

These Findings of Fact and Statement of Overriding Considerations ("Findings") for the Granite Project have been prepared to comply with the requirements of the California Environmental Quality Act ("CEQA") (Public Resources Code section 21000 et seq.) and the CEQA Guidelines (14 Cal. Code Regs., tit. 14 section 15000 et seq.), and are supported by information and analysis in the FSEIR, the Morrison Creek FEIR/FEIS, the responses to all public comments, and technical appendices, together comprising the FSEIR, and other evidence presented as part of the administrative record at the public hearings on the Project.

II. DEFINITIONS

In addition to any and all definitions stated in the FSEIR, which are hereby incorporated by reference, the following definitions shall apply:

"Aspen" or "Aspen Project" refers to the Aspen III, Aspen IV and Aspen V mining and reclamation plan approved by the Board on December 15, 1999.

"Board" means Board of Supervisors of Sacramento County, California.

"CDFG" means the California Department of Fish and Game.

"CEQA" means the California Environmental Quality Act.

"CEQA Guidelines" means those administrative regulations contained in 14 California Code of Regulations, title 14, section 15000 et seq.

"CLUP" means the Sacramento County Airport Comprehensive Airport Land Use Master Plan.

"Corps" or "Army Corps" means the United States Army Corps of Engineers.

"CPAC" means Community Planning Advisory Council.

"DERA" means the Sacramento County Department of Environmental Review and Assessment, predecessor entity of the Department of Community Development Planning and Environmental Review Division.

"Draft SEIR" means the Draft Supplemental Environmental Impact Report for the Project.

"EIR" is a generic reference to an Environmental Impact Report.

"EMD" means Environmental Management Department.

"FEMA" means the Federal Emergency Management Agency.

"Findings" means these Findings of Fact and Statement of Overriding Considerations.

"FSEIR" means the Final Supplemental Environmental Impact Report for the Project.

"Granite Project" means the proposed Vineyard I Community Plan Amendment, Rezone, Use Permit, Reclamation Plan Amendment, and Zoning Agreement Amendments requested by Granite Construction Company.

"Morrison Creek FEIR/FEIS" means the previously certified Final Environmental Impact Report/Environmental Impact Statement titled *Morrison Creek Mining Reach (South) of Jackson Highway* (Control Nos. 94-UPB-0484, 91-CZB-UPB-01118, 90-CZB-UPB-1607 and 94-CZB-UPB-0671) (State Clearinghouse No. 95102057).

"Morrison Creek Realigned Channel" means the channel alignment depicted at Plate PD-3, FSEIR at 3.7.

"MSL" means Mean Sea Level.

"Project" means the combined applications by Granite Construction Company and Teichert, Inc. for the proposed Vineyard I Community Plan Amendment, Rezone, Use Permit, Reclamation Plan Amendment, and Zoning Agreement Amendments and the proposed Aspen III South Reclamation Plan and Use Permit Amendments and Aspen IV South Reclamation Plan, Use Permit and Zoning Agreement Amendments.

"Raised Bank Channel" means the raised bank flood control berms proposed to be constructed outside the floodway of Morrison Creek on the Aspen IV South mining site.

"Reclamation Plan Amendment" means the proposed Vineyard I, Aspen III South, and/or Aspen IV South Reclamation Plan Amendments.

"SMAQMD" means the Sacramento Air Quality Management District.

"Teichert Project" means the Aspen III South Reclamation Plan and Use Permit Amendments and Aspen IV South Reclamation Plan, Use Permit and Zoning Agreement Amendments requested by Teichert Aggregates.

"USFWS" means the United States Fish and Wildlife Service.

"Vineyard I" or "Vineyard I Project" includes the Granite Project, and the mining permit and reclamation plan approved by the Board on January 12, 2000.

"Vineyard Expansion Site" means the 5.6 acre site identified for additional mining on Plate PD-2 of the FSEIR at 3-6.

Any additional terms or phrases note defined herein shall have the definitions set forth in the FSEIR.

III. PROJECT DESCRIPTION

Project Location

The Granite Project site is located within the Vineyard Community in the unincorporated area of Sacramento County, with the Vineyard I Project parcels located at the northeast corner of Hedge Road and Elder Creek Road, as identified on Plate PD-2 of the FSEIR at 3-6. The Granite Project parcels are part of a larger aggregate mining area, adjacent to properties mined by Teichert Aggregates.

Most of the entire Project site is disturbed from mining activities. The Assessor's Parcel Numbers for all of the Granite Project parcels which are the subject of the identified entitlement requests are APNs 063-0080-010 through 013; 063-0090-001 through 003; 063-0090-006; 063-0090-009 through 011; 063-0090-015 through 019; 063-0110-001 through 006; 063-0110-012; 063-0110-028; and 063-0110-029.

Project Setting

As described in the Morrison Creek FEIR/FEIS, the Project site is located within the upper Morrison Creek watershed, in the reach between Jackson Highway and Hedge Road. Morrison Creek flows from the low foothills of eastern Sacramento County to the Sacramento River Delta at Snodgrass Slough. Elevations range between 170 feet above Mean Sea Level ("MSL") in the headwaters to below MSL at Snodgrass Slough. The watershed terrain is characterized by low, rolling hills with an annual grassland cover, agricultural and urban development, vernal pools, and seasonal wetland swales. The Morrison Creek corridor occupies a shallow valley with sparse riparian vegetation. The lower water is highly urbanized and Morrison Creek has been channelized. The majority of the Project site is located within a federally designated floodplain.

The majority of the Granite Project site is located south of the existing Morrison Creek. This area has been partially mined and the area north of Morrison Creek has been mostly mined under existing entitlements and is proposed to be filled and reclaimed after mining is complete.

Downstream of the Project site, Morrison Creek flows westerly through the City of Sacramento before entering the Beach-Stone Lakes area at the Sacramento River. The proposed Reclamation Plan will create a natural low-flow channel on the Granite Project site and will construct raised channel banks outside the effective FEMA floodway on all Project mining sites.

The Applicants already have constructed a majority of the Morrison Creek Realigned Channel, and the channel has been vegetated with grasses and tree saplings have been planted throughout. A drainage channel has been cut in a meandering fashion throughout the constructed portion of this corridor. The stream corridor has been elevated back to nearly the original grade prior to mining consistent with the requested reclamation plan amendment.

The Vineyard Expansion Site consists of two small parcels, totaling 5.61 acres and identified as Assessor's Parcel Numbers 063-0090-009 and 063-0090-18, identified on Plate PD-2 at FSEIR 3-6, and Plate PD-4 at FSEIR 3-10. These two parcels are surrounded on all sides by other areas covered by the existing Vineyard I and Aspen III South mining entitlements.

A recreation trail is proposed through the Vineyard I, Aspen III South and Aspen IV South properties, along the proposed Morrison Creek Realigned Channel and Raised Bank Channel.

Project Description and Requested Entitlements

The mining sites in this Project include Vineyard I, Aspen III South and Aspen IV South. The Project proposes to amend existing approved mining and reclamation plans to be consistent with the Applicants' amended federal stream restoration and mitigation plans. The Reclamation Plan Amendments for each of the three mining sites consists of eliminating the previously approved wetland mitigation plan/reclamation plan to construct instead a 600-foot wide riparian corridor/low-flow channel at the bottom of the mining pits in generally the same location as the existing creek. This replaces the previously approved drainage mitigation plan to construct an at-grade trapezoidal bypass channel around the perimeter of the mining permits.

Granite will construct an at-grade mitigation corridor (referred to as the Morrison Creek Realigned Channel) on the Vineyard I and Aspen III South mining properties. The Morrison Creek Realigned Channel has been designed to contain the 100-year flows and to be a self-sustaining stream corridor, and it will be constructed to mimic a natural meandering stream with varied slopes ranging from 3:1 to 7:1 (horizontal:vertical). In addition, a low flow channel with varying widths and depths (not less than ten feet wide), and a native riparian/upland buffer area with varying widths will be constructed. The area north of the corridor will be brought back to within five feet of original grade over time and the area south of the corridor will be reclaimed with available overburden and include a retention pond for storm water drainage from the surrounding areas. The Morrison Creek Realigned Channel will connect upstream with the

existing Morrison Creek on the Aspen IV South property and downstream at Hedge Road (on the Vineyard I property) at the boundary of the City of Sacramento and Sacramento County.

Additionally, Granite seeks to mine the Vineyard Expansion Site, which is enclosed on four sides by the existing mining operations. This property was not owned by Granite during the Vineyard I Project approval.

The following are the requested entitlements for the Granite Project:

1. A Community Plan Amendment and corresponding Rezone to change the designations from Industrial Reserve with Surface Mining Combining (IR (SM)) and Industrial Reserve with Flood combining (IR (F)) to Industrial Reserve with Surface Mining/Flood Combining (IR (SM)(F)) for 5.61 acres (i.e., APN: 063-0090-009 and -018) of the Project site.

2. A Use Permit Amendment for an aggregate mining operation known as Vineyard I, approved in 2000 (Control Number: 91-CZB-UPB-0118) to allow aggregate mining on an additional 5.61 acres, and to incorporate this new area into the previously approved mining plan.

3. A Reclamation Plan Amendment to the Vineyard I approval to allow:

   a. The additional 5.61 acre area proposed for mining to be incorporated into the previously approved reclamation plan.

   b. A revision to the drainage and wetland mitigation plans for the Project site that will include the construction of a new Morrison Creek Realigned Channel (mining of the creek bed was approved in 2000) that will be approximately 300 feet in width at or near original grade, and will include adjacent buffer lands for a total width of 650 feet. This new Morrison Creek Realigned Channel will accommodate 100-year flood flows and incorporate wetland/riparian habitat mitigation elements.

   c. The previously approved elevated bypass channel for Morrison Creek, and the 600-foot wide pit floor riparian corridor would be superseded with the construction of the new Morrison Creek Realigned Channel, as described above.

   d. Fill (overburden) will be added to portions of the pit floor to bring the areas north of the creek to within 5 feet of original grade.

   e. A storm water retention basin designed to accommodate 297-acre feet of water will be added to a portion of the pit floor.

4. A Use Permit Amendment and Zoning Agreement Amendment to the

Vineyard I approval to allow:

a. Amendments to several of the conditions of the Vineyard I approval that reference an approved elevated bypass channel for Morrison Creek and a 600-foot wide pit floor riparian corridor, and instead reference the new Morrison Creek Realigned Channel, as described above.

b. An update of several conditions to reflect the 2011 Morrison Creek Hydrology and Hydraulic Analysis prepared for the Project.

c. An update of several conditions to reflect new wetland and oak woodland mitigation consistent with recent approvals by the U.S. Army Corps of Engineers.

d. A revision to conditions requiring the dedication of a public trail easement corresponding to the alignment of Morrison Creek.

5. A Release from the prior Zoning Ordinance, adopted by Ordinance No. SZC 2000-0001, to be replaced by an amended Zoning Ordinance.

The Project also proposes temporary diversions at Morrison Creek in order to construct the connections of existing Morrison Creek (offsite) with the recreated Morrison Creek Realigned Channel (on Vineyard I property). The temporary Morrison Creek diversions to convey dry season (summer) creek flows are proposed at Hedge Avenue and at Mayhew Road, as shown on Plate PD-7 in the FSEIR at 3-16. The temporary Morrison Creek diversion at Hedge Avenue is expected to occur in 2013 or 2014, and will divert a portion of Morrison Creek flows south of the proposed Hedge Connection Segment (as shown on Plate PD-3, FSEIR at 3-7). The diversion at Mayhew Road is also expected to occur in 2013 or 2014 and an earth berm or other diversion structure will be placed within Morrison Creek and dry season creek flows will be piped north and then west, or south and then west, into the proposed Morrison Creek Realigned Channel. This diversion is necessary so that the Mayhew Connection Segment (as shown on Plate PD-3, FSEIR at 3-7) can be mined and reclaimed consistent with the proposed realigned Morrison Creek.

Project Objectives

The Granite Project will allow Granite to consolidate the currently approved pit floor mitigation corridor and enhanced bypass channel from the Vineyard I project into a single recreated creek channel that more closely mirrors Morrison Creek's natural condition. Approval of the Vineyard Expansion Site for mining will maximize the production of vital aggregate resources.

IV. BACKGROUND

County Morrison Creek Mining Reach Drainage Plan.

In 1989, prior to the original approval of any mining permits for Vineyard I or Aspen, the County determined to undertake and prepare a comprehensive drainage mitigation plan for Morrison Creek prior to approval by the County of any mining within the Morrison Creek floodplain. The purpose was to prepare a plan that would accurately assess the cumulative effects of mining projects within the 100-year floodplain. The intent of the drainage mitigation plan was and is to mitigate the drainage impacts of mining on the Morrison Creek 100-year floodplain, as required by the County floodplain management policies.

As a result, proposed mining projects at the time (including the original Vineyard I application) were placed on hold while the County prepared the *Morrison Creek Mining Reach Drainage Mitigation Plan.* The boundary of the drainage plan is the portion of Morrison Creek located between Mather Airport and Hedge Avenue (referred to as the "Morrison Creek Mining Reach"). The miners' (i.e., Granite and Teichert) preferred alternative of the *Morrison Creek Mining Reach Drainage Mitigation Plan* was referred to as Part A which consisted of the construction of an unlined trapezoidal bypass channel. The bypass channel would be at-grade and convey the bulk of the flows of Morrison Creek through the reclaimed aggregate mining areas and lower pit. The bypass channel would begin/meet the natural Morrison Creek drainage on the Aspen IV South site. The bypass channel would be located along the alignment shown in Plate ALT -1, FSEIR at 4-2.

The bypass channel would be sized to contain the 100-year peak flows which would allow the majority of Morrison Creek to continue downstream through the project site with minimal disruption. When the drainage exceeded the capacity of the bypass channel, the excess flows would be diverted into one of the pit floor detention areas via a weir or outfall structure constructed in the bypass channel. The lower pit was proposed to provide 306 acre-feet of detention/storage volume. The upper pit (located at the upstream portion of the mining reach) would be substantially larger, providing 1,469 acre-feet of detention/storage volume. A small variable speed pump station was also proposed to be located on the Aspen V South mining site. The purpose of the pump station is to evacuate water that does not percolate, evaporate, or transpire from the ponding/detention area located north of Jackson Highway (the upstream portion of the mining reach). The bypass channel, pit floor detention and small pump station was to be fully financed and constructed by the mining companies which would relieve the County of any involvement in the operation and maintenance of the bypass channel. The drainage mitigation plan Part A was a component of the project evaluated in the Morrison Creek FEIR/FEIS.

Vineyard I and Aspen Approvals

After completion of the *Morrison Creek Mining Reach Drainage Mitigation Plan*, Granite and Teichert re-submitted applications, those applications underwent full environmental review and extensive public outreach and public hearing processes, and the Vineyard I

application was ultimately approved by the Board in February 1991. The *Morrison Creek FEIR/FEIS* imposed extensive mitigation measures, incorporated into the conditions of approval. Furthermore, following approval of the Vineyard I and Aspen entitlements, the Board later approved "protocols" to address neighborhood issues pertaining to landscaping, noise, dust and air quality.

Background of the Current Project

This Project is a result of revisions to the previously approved reclamation plan consistent with permits received from the county, state and federal regulatory agencies on both the Vineyard I and Aspen projects. The prior approved reclamation plan was not favored by the state and federal agencies from a biological standpoint. The Applicants worked with the regulatory agencies in designing the proposed project so that it would have fewer biological impacts.

Granite's Project history includes:

In February 1991, Granite submitted the original Vineyard I mining entitlement application. This application was revised and resubmitted in 1994 after the County's preparation of the *Morrison Creek Mining Reach Drainage Mitigation Plan.*

On October 20, 1999, the Sacramento County Board of Supervisors certified the Morrison Creek FEIR/EIS. The Board approved the Aspen III South and Aspen IV South mining projects on December 15, 1999 and the Vineyard I mining project on January 12, 2000.

On November 7, 2001, the Sacramento County Board of Supervisors approved the following "Protocols" pertaining to the Vineyard Project: Ground Water Monitoring Protocol, Air Quality Monitoring Protocol, Landscaping Protocol, and Noise Monitoring Protocol.

On February 1, 2005, Granite submitted an application for a Community Plan Amendment, Rezone, Use Permit, Reclamation Plan Amendment, and Zoning Agreement Amendments and Release from Prior Zoning Ordinance provisions.

On May 22, 2009 the County issued a Notice of Preparation for the project http://www.dera.saccounty.net/tabid/71/Default.aspx?ProjectID=33759. The Notice of Preparation was circulated through the State Clearinghouse for a 30-day public review period, which ended on June 22, 2009.

Along with a Notice of Completion, the Draft SEIR was released to the Governor's Office of Planning and Research to begin the public review period (Public Resources Code section 21161) on February 24, 2012. Concurrent with the Notice of Completion, the County also provided public notice of the availability of the Draft SEIR for public review through publication in a newspaper of general circulation, publication on the County Department of Environmental Review and Assessment (DERA) website, and with notices sent to individuals who had requested such notification. The public review and written comment period closed on

April 9, 2012. Four comment letters were received on the Project, with two of the four submitted by Granite and Teichert, respectively. The Response to Comments chapter of the FSEIR contains all the written comments received during the public comment period on the Draft SEIR (see FSEIR at 19-1 to 19-28).

On April 10, 2012, the Vineyard Community Planning Advisory Council ("CPAC") considered the Project. After hearing public comments on the Project, the three CPAC members present voted to recommend approval of the Project.

A public hearing on the Draft SEIR and project was held before the Sacramento County Planning Commission on May 21, 2012. The opportunity for oral comments on the Draft SEIR was provided during this hearing; however, none were made at which time the Planning Commission closed the public comment period on the Draft SEIR and directed DERA to prepare the Final SEIR.

On September 5, 2012, the FSEIR for the Project was published. (FSEIR Cover Letter.)

On December 4, 2012, the Board held a public hearing concerning the Project and the FSEIR, received oral comments from the applicants, one neighbor, and the Southgate Parks and Recreation District, and certified the FSEIR for the Project as adequate and complete, and tentatively approved the Project (including the Community Plan Amendment, the Rezone, the Amended Use Permit and the Reclamation Plan Amendment), with conditions.

On January 8, 2013, the Board formally approved the Project (including the Mitigation Monitoring and Reporting Program, Community Plan Amendment, Rezone, Use Permit, Reclamation Plan Amendment and a Rezone Agreement) with conditions and adopted these Findings.

V. RECORD OF PROCEEDINGS

The Record of Proceedings for the Board's decision on the Granite Project consists of the following documents, at a minimum:

1. The Morrison Creek FEIR/FEIS, including all Findings of Fact and Statement of Overriding Considerations, the Mitigation and Monitoring Program approved by the Board in connection thereto, and all documents, exhibits, studies and/or written materials attached to any of these documents.

2. All conditions of approval on the Vineyard I Project.

3. All findings and resolutions of the Board in connection with the Vineyard I Project not otherwise specified in paragraph V-1, including all documents, exhibits, studies and/or written materials attached to any of these findings or resolutions, as well as the "Protocols" approved by the Board on November 7, 2001 pertaining to ground water monitoring, air quality monitoring, landscaping, and noise monitoring.

4. The Granite Project application package, including written documentation, maps and subsequent amendments and submittals.

5. Any and all portions of the Teichert Project application package, including written documentation, maps and subsequent amendments and submittals that relate or pertain to the Reclamation Plan Amendment.

6. All Notices of Preparation and other public notices issued by the County in conjunction with the Project.

7. The Draft SEIR for the Project, dated February 23, 2012 (Draft SEIR Cover Letter).

8. All comments submitted by agencies or members of the public during the comment period on the Draft SEIR and responses to those comments.

9. The Final SEIR prepared for the Project (September 5, 2012), including comments received on the Draft SEIR and responses to those comments.

10. All comments and correspondence submitted to the County with respect to the Project, in addition to the timely comments on the Draft SEIR.

11. The Mitigation, Monitoring and Reporting Program for the Project.

12. All findings and resolutions of the Board in connection with the Project, and all documents cited or referred to therein.

13. All reports, studies, memoranda, maps, staff reports or other planning documents relating to the Project prepared by the County, consultants to the County, or responsible or trustee agencies with respect to the County's compliance with the requirements of CEQA and with respect to the County's action on the Project.

14. Any minutes and/or verbatim transcripts of all information sessions, public meetings, and public hearings held by the County in connection with the Project.

15. Any documentary or other evidence submitted to the County at such information sessions, public meetings and public hearings.

16. Matters of common knowledge to the Board, including but not limited to the following:

    a. Federal, state and local laws and regulations

    b. The County General Plan

    c. The Zoning Code of Sacramento County

    d. The Sacramento County Code

e. Other formally adopted policies and ordinances

17. All documents expressly cited in these Findings, in addition to those cited above; and

18. Any other materials required for the record of proceedings by Public Resources Code section 21167.6(e) and applicable case law.

The official custodian of the record is the Clerk of the Sacramento County Board of Supervisors, 700 H Street, Sacramento, California 95814.

VI. FINDINGS REQUIRED UNDER CEQA

Supplemental Environmental Impact Reports

If circumstances change after the certification of an Environmental Impact Report, a "Supplemental" Environmental Impact Report may be prepared in order to allow the originally approved project to be modified to respond to those changed circumstances. See Public Resources Code section 21166; CEQA Guidelines section 11563. "The CEQA reporting process is not designed to freeze the ultimate proposal in the precise mold of the initial project; indeed, new and unforeseen insights may emerge during investigation, evoking revision of the original proposal." *County of Inyo v. City of Los Angeles,* 71 Cal. App. 3d 185, 199 (1977).

A Supplement to an Environmental Impact Report "augments a previously certified EIR to the extent necessary to address the conditions described in [CEQA Guidelines] section 15162 and to examine mitigation and project alternatives accordingly. It is intended to revise the previous EIR through supplementation." CEQA Guidelines section 15163 (discussion following). The Supplemental EIR is appropriate when "[o]nly minor additions or changes would be necessary to make the previous EIR adequately apply to the project in the changed situation." CEQA Guidelines section 15163(a). The decision making body considers the Supplemental EIR in conjunction with the original project EIR, and a "finding under Section 15091 [of the CEQA Guidelines] must be made for each significant effect shown in the previous EIR as revised." CEQA Guidelines section 15163(c).

The Supplemental Environmental Impact Report is appropriate for both the Project and the Granite Project (i.e., the inclusion of the Vineyard Expansion Site into the original mining application) because (a) the requested changes to the Reclamation Plan were not anticipated at the time of the original project approvals and (b) the addition of 5.61 acres of land for mining does not change the Vineyard I project impacts from those originally considered by the Board. Through negotiations with regulatory agencies, the Reclamation Plan Amendment results in enhanced mitigation to Morrison Creek that more closely aligns with the natural corridor. Given the limited amount of additional acreage and the short duration anticipated to complete the mining operations, this is considered a "minor change" as that phrase is interpreted in CEQA Guidelines section 15163(a).

CEQA Findings

Pursuant to Sections 21002 and 20112.1 of the Public Resources Code, no public agency shall approve or carry out a project for which an environmental impact report has been certified which identifies one or more significant effects on the environment that would occur if the project is approved or carried out unless both of the following occur:

(a) The public agency makes one or more of the following findings with respect to each significant effect:

(1) Changes or alterations have been required in, or incorporated into, the project which mitigate or avoid the significant effects on the environment.

(2) Those changes or alterations are within the responsibility and jurisdiction of another public agency and have been, or can and should be, adopted by that other agency.

(3) Specific economic, legal, social, technological or other considerations, including the considerations for provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or alternatives identified in the environmental impact report.

(b) With respect to significant effects which were subject to a finding under paragraph (3) of subdivision (a), the public agency finds that the specific overriding economic, legal, social, technological, or other benefits of the project outweigh the significant effects on the environment.

CEQA Guidelines section 15091 requires the following:

(a) No public agency shall approve or carry out a project for which an EIR has been certified which identifies one or more significant environmental effects of the project unless the public agency makes one or more written findings for each of those significant effects, accompanied by a brief explanation of the rationale for each finding. The possible findings are:

(1) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the final EIR.

(2) Such changes or alterations are within the responsibility and jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such agency.

(3) Specific economic, legal, social, technological, or other considerations, including provision of employment opportunities for highly trained

workers, making infeasible the mitigation measures or project alternatives identified in the final EIR.

Accordingly, for each significant impact identified herein, a finding has been made as to one or more of the following, as appropriate in accordance with Public Resources Code section 20181 and CEQA Guidelines section 15091:

A. Changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the significant environmental effect as identified in the FSEIR. Such changes or alterations reduce the significant environmental effect identified in the FSEIR to a level of less than significant;

B. Such changes or alterations are within the responsibility and jurisdiction of another public agency and not the County. Such changes have been adopted by such other agency or can and should be adopted by such other agency; and/or

C. Specific economic, legal, social, technological or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or Project alternatives identified in the FSEIR.

A narrative of supporting facts follows the appropriate finding. For many of the impacts, one or more of the findings have been made. Finding (B) appears because, although the County is the lead agency, it has limitations on its power to require or enforce certain mitigation. Whenever finding (B) occurs, agencies with jurisdiction to impose certain mitigation measures have been identified. It is these agencies, within their respective scopes of authority, which would have the ultimate responsibilities to adopt, implement and enforce the mitigation discussed within each type of impact that could result from Project implementation.

Whenever finding (C) was made, the County has determined that there will be, even after mitigation, an unavoidable significant level of impact due to the Project, and sufficient mitigation is not feasible to reduce the impact to a level of less than significant. Such impacts are always specifically identified in the supporting discussions. The Statement of Overriding Considerations applies to all such unavoidable significant impacts, as required by sections 15092 and 15093 of the CEQA Guidelines.

The concept of "feasibility" also encompasses the question of whether a particular alternative or mitigation measure promotes the underlying goals and objectives of a project. (*City of Del Mar v. City of San Diego,* 133 Cal. App. 3d 410, 417 (1982)). "Feasibility" under CEQA encompasses 'desirability' to the extent that desirability is based on a reasonable balancing of the relevant economic, environmental, social, and technological factors." (Id.; see also *Sequoyah Hills Homeowners Ass'n v. City of Oakland*, 23 Cal. App. 4th 704, 715 (1993)).

The CEQA Guidelines do not define the difference between "avoiding" a significant environmental effect and merely "substantially lessening" such an effect. The County must therefore glean the meaning of these terms from the other context in which the terms are used. Public Resources Code section 21081, on which CEQA Guidelines section 15091 is based, uses the term "mitigate" rather than "substantially lessen." The CEQA Guidelines therefore equate "mitigating" with "substantially lessening." Such an understanding of the statutory term is

consistent with the policies underlying CEQA, which include the policy that "public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects." (Public Resources Code section 21002)

For purposes of these findings, the term "avoid" refers to the effectiveness of one or more mitigation measures to reduce an otherwise significant effect to a less than significant level. In contrast, the term "substantially lessen" refers to the effectiveness of such measure or measures to substantially reduce the severity of a significant effect, but not to reduce the effect to a less than significant level. These interpretations appear to be mandated by a holding in *Laurel Hills Homeowners Ass'n v. City Council*, 83 Cal. App. 3d 515, 519-21 (1978), in which the Court of Appeal held that an agency had satisfied its obligation to substantially lessen or avoid significant effects by adopting numerous mitigation measures, not all of which rendered the significant impacts in question less than significant.

Although CEQA Guidelines section 15091 requires only that the approving agencies specify that a particular significant effect is "avoid(ed) or substantially lessen(ed)," these findings, for purposes of clarity, in each case will specify whether the effect in question has been reduced to a less than significant level, or has simply been substantially lessened but remains significant.

Additionally, although section 15091, read literally, does not require findings to address environmental effects that an EIR identifies as merely "potentially significant," these findings will nevertheless fully account for all such effects identified in the FSEIR.

CEQA requires that the lead agency adopt mitigation measures or alternatives, where feasible, to substantially lessen or avoid significant environmental impacts that would otherwise occur. Project modification or alternatives are not required, however, where such changes are infeasible or where the responsibility for modifying the project lies with some other agency. (CEQA Guidelines section 15091(a), (b)).

With respect to a project for which significant impacts are not avoided or substantially lessened, a public agency, after adopting proper findings, may nevertheless approve the project if the agency first adopts a statement of overriding considerations setting forth the specific reasons why the agency found that the project's "benefits" rendered "acceptable" the project's "unavoidable adverse environmental effects." (CEQA Guidelines sections 15043, 15093; see also Public Resources Code section 21080(b)). The California Supreme Court has stated "[t]he wisdom of approving...any development project, a delicate task which requires the balancing of interests, is necessarily left to the sound discretion of the local officials and their constituents who are responsible for such decisions. The law as we interpret and apply it simply requires that those decisions be informed, and therefore balanced." *Citizens of Goleta Valley v. Board of Supervisors*, 52 Cal. 3d 553, 576 (1990).

These Findings constitute the Board's best efforts to set forth the evidentiary and policy basis for its decision to approve both the Project as a whole and the Granite Project entitlements for the Vineyard Expansion Site in a manner consistent with the requirements of CEQA. To the extent that these findings conclude that various proposed mitigation measures outlined in the

FSEIR are feasible and have not been modified, superseded or withdrawn, the County hereby binds itself to implement these measures. These Findings, in other words, are not merely informational, but constitute a binding set of obligations that will come into effect when the Board adopts a resolution approving the Project and the Granite Project.

VII. MITIGATION AND MONITORING PROGRAM

A Mitigation and Monitoring Program ("MMRP") was prepared for the Project and was approved by the Board as required by Public Resources Code section 21081.6(a)(1) and CEQA Guidelines section 15097. The County will use the MMRP to track compliance with Project mitigation measures, and will remain available for public review during the compliance period.

VIII. SIGNIFICANT EFFECTS AND MITIGATION MEASURES

Impacts that were identified in the prior Morrison Creek FEIR/FEIS as significant and unavoidable remain so for the Project. Impacts that are now identified as significant and reduced to less than significant for the Project, due to either completed mitigations or changed circumstances, are stated as such. Impacts identified as less than significant, remain so.

As noted in Section VI, these Findings do not address impacts that are considered less than significant or beneficial prior to mitigation. These Findings do not address the following impacts because they were determined to be less than significant in the FSEIR and therefore the FSEIR does not identify or require mitigation measures for these issues:

1. Surface Water Hydrology and Drainage (FSEIR p. 2-3, 5-1 to 5-19,18-5)

2. Groundwater Hydrology and Quality (the impact identified as less than significant at FSEIR p. 2-4, 6-1 to 6-6, 18-5)

3. Cultural Resources (the impact identified as less than significant at FSEIR 2-4, 7-1 to 7-16, 18-6)

4. Air Quality (the impact identified as less than significant at FSEIR 2-7, 8-1 to 8-17, 18-6)

5. Geology and Slope Stability (the impact identified as less than significant at FSEIR 2-9, 9-1 to 9-8, 18-6)

6. Biological Resources (the impacts identified as less than significant at FSEIR 2-14 to 2-15, 2-18, 10-1 to 10-51, 18-5)

7. Traffic and Circulation (the impacts identified as less than significant at FSEIR 2-19, 11-6 to 11-7, 18-7)

8. Noise (the impacts identified as less than significant at FSEIR 2-20, 13-4 to 13-6)

9. Land Use (the impact identified as less than significant at FSEIR 2-21, 12-9 to 12-10, 18-7)

10. Public Safety (the impact identified as less than significant at FSEIR 2-22, 14-1 to 14-4, 18-7)

11. Aesthetics and Visual Resources (the impact identified as less than significant at FSEIR 2-22, 15-1 to 15-6, 18-5)

12. Public Facilities and Services (FSEIR 2-23 to 2-24, 16-1 to 16-9, 18-7) (Note a mitigation measure that was identified in the FSEIR for impact to Park Services at 16-8 and for which Granite has voluntarily agreed to although the conclusion was that impacts were less than significant.)

13. Climate Change (FSEIR 2-24, 17-1 to 17-15, 18-6)

The FSEIR identified some significant or potentially significant environmental effects (or impacts) that the Project will or may cause. Some of these significant effects can be fully avoided through adoption of feasible mitigation measures. Other effects cannot be substantially lessened or avoided by the adoption of feasible mitigation measures and are, therefore, considered significant and unavoidable. However, for reasons set forth in Section XI, below, the Board has determined that such significant, unavoidable effects of the Granite Project are outweighed by overriding economic, social, environmental, and other considerations.

The Granite Project would result in significant or potentially significant environmental effects, prior to mitigation, with respect to the following issues or resources:

1. Groundwater Hydrology and Drainage: alteration of drainage and groundwater flow and quality (FSEIR 2-3, 6-4 to 6-5, 18-3)

2. Cultural Resources: mining of the Vineyard Expansion Site could uncover subsurface archaeological materials (FSEIR 2-4, 7-15 to 7-16, 18-3)

3. Geology and Slope Stability: reclaimed slopes subject to slope instability; mining pit slopes and recreated channel subject to erosion and slope instability; loss of existing natural vegetation communities (FSEIR 2-7 to 2-11, 9-3 to 9-8, 18-3 to 18-4)

4. Biological Resources: removal of native oak and walnut trees as a result of mining at Vineyard Expansion Site and connection of the Morrison Realigned Channel and the Raised Bank Channel; wetlands; wildlife; special status vernal pool invertebrates; Swainson's Hawk and other special status birds (FSEIR 2-10 to 2-14, 2-16 to 2-18, 10-16 to 10-51, 18-2 to 18-3)

5. Traffic and Circulation: haul trucks (FSEIR 2-19, 11-4 to 11-5, 18-4)

6. Land Use: disturbing farmland (FSEIR 2-21, 12-8 to 12-9 , 18-4); airport compatibility - bird airstrike hazard (FSEIR 2-21, 12-10 to 12-19, 18-4)

7. Public Safety: public access to pit (FSEIR 2-23, 14-2 to 14-3, 18-4)

8. Aesthetics and visual resources: light and glare from mining (FSEIR 2-22, 15-4 to 15-5, 18-2)

The FSEIR identified mitigation measures to reduce all of the above effects to a less than significant level. With respect to some of the foregoing impacts that are significant prior to mitigation, several of the mitigation measures of the Morrison Creek FEIR/FEIS as they pertain to mining activities remain applicable to the Vineyard I, Aspen III South and Aspen IV South mining sites. Mitigation measures of the Morrison Creek FEIR/FEIS as they pertain to mining and as applicable to the Vineyard Expansion Site are reiterated in FSEIR for this Project, and it is clearly specified that the mitigation measure is applicable to the Vineyard Expansion Site. Mitigation measures that apply to the Morrison Creek Realigned Channel or the Raised Bank Channel (the Reclamation Plan Amendments) are specified as such, and the responsible party (i.e., Granite or Teichert, or both) is identified within the measure. (FSEIR at 1-1 to 1-2)

Mitigation measures of the FEIR/EIS that remain applicable to the proposed Project are summarized in the Executive Summary of the FSEIR. A copy of the Morrison Creek FEIR/EIS is attached to the FSEIR in CD format (back cover) and is available online as Appendix A at:

http://www.dera.saccounty.net/PublicNotices/SQLView/ProjectDetails/tabid/71/Default.a spx?ProjectID=33759)

The Project also would result in significant and unavoidable effects with respect to the following impacts:

1. Air Quality: increase of exhaust emissions for mining the Vineyard Expansion Site due to continued use of heavy off-road equipment for an additional 3-6 months (FSEIR 2-5 to 2-6, 8-14 to 8-15, 18-1)

2. Geology and Slope Stability: permanent alteration of the site's landform due to mining (FSEIR 2-7, 9-3 to 9-5, 18-1)

3. Land Use: potential conflict with on-site and nearby land uses (FSEIR 2-20, 12-7 to 12-8, 18-1)

A. GROUND WATER HYDROLOGY AND WATER QUALITY

1. **Impact: Alter drainage and groundwater flow and affect groundwater quality.** The Vineyard I FEIR/FEIS concluded that gravel extraction may alter drainage and groundwater flow and quality which could affect surrounding properties and domestic septic leachfield systems on adjacent properties. Mitigation from the Morrison Creek FEIR/FEIS remains applicable to require the storage of contaminants in a manner that

will contain any spills and that any spills in the operating areas should be cleaned up immediately. (FSEIR 2-3, 6-4 to 6-5, 18-3)

Finding: Changes or alterations have been required or incorporated into the Project which avoid or substantially lessen the potentially significant environmental effect on drainage and groundwater flow and effects on groundwater quality as identified in the FSEIR.

Mitigation: Mitigation from the Morrison Creek FEIR/FEIS is incorporated into the Project as conditions of approval to reduce this impact to a less than significant level as follows:

This mitigation is from the prior FEIR/EIS and is applicable to the Vineyard I mining expansion site of the proposed project:

GW-1 The Vineyard I operator shall store contaminants in the gravel operation area in a manner that will contain any spills (i.e., containment berms). Any spills occurring in operational areas should be cleaned up immediately. (FSEIR 2-3, 6-5, 18-3)

Level of Significance After Mitigation: Less Than Significant (FSEIR 2-3, 6-5, 18-3)

B. CULTURAL RESOURCES

1. **Impact: Impact to Buried Resources on the Vineyard Expansion Site (Potentially Significant).** Although no additional cultural resources management is recommended for the Vineyard Expansion Site, there is a possibility of uncovering subsurface archaeological materials during the implementation phases of the Granite Project. Buried resources may consist of historic remains such as structural features (foundations, cellars, etc.) or buried trash deposits containing glass, ceramics and metal, or the resources may be of prehistoric origin containing chipped stone, shell, bone and other remains. (FSEIR 2-4 to 2-5, 7-15 to 7-16, 18-3)

Finding: Changes or alterations have been required in, or incorporated into, the Granite Project which avoid or substantially lessen the significant environmental effect regarding impact to buried resources on the Vineyard Expansion Site.

Mitigation: The following mitigation measure has been incorporated into the Granite Project as a condition of approval to reduce this potentially significant impact to a less than significant level:

CR-1 On the Vineyard I mining expansion site, if subsurface deposits believed to be cultural or human in origin are discovered during any mining and reclamation-related project activities, then all work must halt within a 200-foot radius of the discovery. A qualified professional archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for prehistoric and historic archaeology, shall be retained at the

Vineyard I mining operator's expense to evaluate the significance of the find. If it is determined due to the types of deposits discovered that a Native American monitor is required, the Guidelines for Monitors/Consultants of Native American Cultural, Religious, and Burial Sites as established by the Native American Heritage Commission shall be followed, and the monitor shall be retained at the mining operator's expense. Work cannot continue within the 200-foot radius of the discovery site until the archaeologist conducts sufficient research and data collection to make a determination that the resource is either 1) not cultural in origin; or 2) not potentially eligible for listing on the National Register of Historic Places or California Register of Historical Resources. If a potentially-eligible resource is encountered, then the archaeologist, the Environmental Coordinator, and project proponent shall arrange for either 1) total avoidance of the resource, if possible; or 2) test excavations or total data recovery as mitigation. The determination shall be formally documented in writing and submitted to the Environmental Coordinator as verification that the provisions of CEQA for managing unanticipated discoveries have been met.

CR-2 Pursuant to Section 5097.98 of the State Public Resources Code and Section 7050.5 of the State Health and Safety Code, in the event of the discovery of human remains on the Vineyard I mining expansion site, all work is to stop and the County Coroner shall be immediately notified. If the remains are determined to be Native American, guidelines of the Native American Heritage Commission shall be adhered to in the treatment and disposition of the remains. (FSEIR 2-4 to 2-5, 7-15 to 7-16, 18-3)

Level of Significance After Mitigation: Less Than Significant. (FSEIR 2-4 to 2-5, 7-15, 18-3)

C. AIR QUALITY

1. **Impact: Increase of Exhaust and Emissions.** The Reclamation Plan Amendment portion of the Project consists of a revised Morrison Creek Realigned Channel on the Vineyard and Aspen mining sites and a Raised Bank Channel on the Aspen IV South mining site. There are no new air quality impacts associated with this mitigation corridor since it is being constructed in phases and is occurring at the same time as the previously approved mining and reclamation activities and is consistent with the mass grading expected with the previously approved project. (FSEIR 8-11)

However, the Vineyard Expansion Site would have some air quality impacts associated with the use of heavy equipment on the new 5.6 acre site associated with the overburden removal and gravel extraction. (FSEIR 2-5 to 2-7, 8-11 to 18-15, 18-1). The Granite Project includes clearing/grubbing, overburden stripping, gravel extraction, and use of a move feeder and conveyor, resulting in NOx emissions that exceed the significance thresholds provided by staff of the Sacramento Air Quality Management District. (FSEIR 8-13)

Finding: There is no feasible mitigation measure to reduce this potentially significant impact to air quality. Regardless, the Board approves this project for the reasons set forth in Section XI.

Mitigation: The following mitigation measures have been incorporated into the Granite Project as conditions of approval to lessen this significant impact:

AQ-1 Category 1: Reducing NO_x emissions from off-road diesel powered equipment. The Vineyard I mining expansion operator shall provide a plan, for approval of the lead agency and the Sacramento Metropolitan Air Quality Management District (SMAQMD), demonstrating that the heavy-duty (50 horsepower or more) off-road vehicles to be used in the project (mining of the Vineyard I expansion site), including owned or leased and subcontracted vehicles, will achieve a project wide fleet-average 20 percent NO_x reduction and 45 percent particulate reduction[1] compared to the most recent California Air Resource Board (ARB) fleet average at time of each annual report; and

The mining operator shall submit to the lead agency and SMAQMD a comprehensive inventory of all off-road equipment, equal to or greater than 50 horsepower, that will be used an aggregate of 40 or more hours per year during any portion of the project. The inventory shall include the horsepower rating, engine production year, and project hours of use or fuel throughput for each piece of equipment. The inventory shall be updated and submitted annually throughout the duration of the project. The mining operator shall provide SMAQMD with the name and phone number of the project manager and/or on-site foreman. Due to the long term nature of this project, the requirement for the emission reduction plan referenced herein will sunset on month/date/year[2] due to existing SMAQMD and ARB rules that will affect ARB fleet averages at that time.

And:

Category 2: Controlling visible diesel emissions from off-road diesel powered equipment.

Emissions from all off-road diesel powered equipment used on the project site shall not exceed 40 percent opacity for more than three minutes in any one hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be repaired immediately, and the lead agency and SMAQMD shall be notified within 48 hours of identification of non-compliant equipment. The SMAQMD and/or other officials may conduct periodic site inspections to determine compliance. Nothing in this mitigation measure shall supersede other applicable SMAQMD or State rules or regulations.

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[1] Acceptable options for reducing emissions may include use of late model engines, low-emissions diesel products, alternative fuels, engine retrofit technology, after-treatment products and/or other options as they become available.

[2] Project proponent should contact SMAQMD staff to determine appropriate sunset period.

AQ-2 All vehicles utilized as part of the Vineyard I mining expansion shall be maintained in accordance with the manufacturers' recommendations, and all stationary equipment used on the site shall be maintained in compliance with emissions limitations established by a permit issued by the SMAQMD. The Vineyard I mining operator shall maintain records of equipment maintenance activities and records shall be provided to the County upon request.

AQ-3 Particulate filters and catalysts should be used where technically feasible to reduce NOx emissions from off-road heavy duty equipment associated with the Vineyard I mining expansion. The mining operator should contact SMAQMD and/or ARB for assistance in determining appropriate emission reducing technologies.

(FSEIR 2-5 to 2-7, 8-14 to 8-15)

Level of Significance After Mitigation: Significant and Unavoidable. (FSEIR 2-5 to 2-7, 8-15)

D. GEOLOGY AND SLOPE STABLITY

1. **Impact: Permanently Alter the Landform.** The Vineyard Expansion Site will increase the land permanently altered by mining. The Morrison Creek FEIR/FEIS concluded that the permanent alteration to the land as a result of mining is a significant and unavoidable impact. This conclusion remains applicable to the Granite Project as there are no mitigation measures available to reduce impacts to less than significant. (FSEIR 9-3)

   Finding: There is no feasible mitigation measure to reduce this significant impact to the landform. Regardless, the Board approves the Granite Project for the reasons set forth in Section XI.

   Mitigation: There is no feasible mitigation measure to reduce this significant impact. (FSEIR 2-7, 9-3, 18-1)

   Level of Significance After Mitigation: Significant and Unavoidable. (FSEIR 2-7, 9-3, 18-1)

2. **Impact: Slope Stability.** The Morrison Creek FEIR/FEIS concluded that the Project's reclaimed slopes (ranging from 1.5:1 to 2:1) would potentially be subject to slope instability, including potential instability induced by earthquakes and/or ground shaking. This was considered a significant impact that could be reduced to less than significant with mitigation. (FSEIR 2-7 to 2-8, 9-3 to 9-6, 18-3 to 18-4)

   The Morrison Creek FEIR/FEIS indicated that the mining pits were to have slopes of 1.5:1. However, the conditions placed on the use permit for the Vineyard mining site required that the finished side slopes of the mining pits must be 2:1 (horizontal:vertical)

or flatter. Therefore, the finished slopes for the mining pits specified in Mitigation Measure GS-1 have been updated to be 2:1 for the Vineyard Expansion Site as well as proper soil compaction. (FSEIR 2-7 to 2-8, 9-4, 18-3)

Finding: Changes or alterations have been required in, or incorporated into the project which avoid or substantially lessen the significant environmental effect from unstable slopes as identified in the FSEIR.

Mitigation: The following mitigation measures from the Morrison Creek FEIR/FEIS (as updated) have been incorporated into the Granite Project as conditions of approval to reduce the impact to a less than significant level:

GS-1 For the Vineyard I mining expansion site, the mining operator shall limit the finished side slopes of the Morrison Creek Realigned Channel and mining pit slopes to 2:1 (horizontal:vertical) to ensure stability for existing soil conditions. For the slopes of the Morrison Creek Realigned Channel, soils shall be placed and compacted to 90 percent of the maximum dry density, at or near optimum moisture conditions, in all finished slopes. Since local stability of the slope is critically dependent upon proper compaction of the overburden soils, a qualified soils engineer shall be regularly present throughout grading operations to determine compliance with job specifications.

GS-2 Prior to allowing re-directed stream flows to the Morrison Creek Realigned Channel, the Vineyard I mining operator, shall submit a report prepared by a California registered professional engineer certifying the channel and embankment engineering and foundation soils of the Morrison Creek Realigned Channel. The engineer's report shall address slope stability, soil compaction rates, foundation soils, potential failure mechanisms and contingences for repairing failures. The report shall be submitted to the Department of Community Development for approval. No flows shall be directed to the new channel until approval is granted by the Department of Community Development.

(FSEIR 2-7 to 2-8, 9-5 to 9-6)

Level of Significance After Mitigation: Less Than Significant. (FSEIR 2-7 to 2-8, 9-6, 18-3 to 18-4)

3. **Impact: Erosion.** The Morrison Creek FEIR/FEIS concluded that the project's reclaimed slopes would be subject to erosion if not adequately constructed and vegetated. It was determined that this was a significant impact that could be reduced to less than significant with mitigation. The Project will result in similar reclaimed slopes. Mitigation from the Morrison Creek FEIR/FEIS remains applicable to the Vineyard Expansion Site. (FSEIR 2-9, 9-6 to 9-7, 18-3 to 18-4)

Finding: The following mitigation measure has been required in, or incorporated into, the Project which avoids or substantially lessens the significant environmental effect from unstable slopes as identified in the FSEIR.

Mitigation: The following mitigation measures have been incorporated in the project as conditions of approval to reduce this impact to a less than significant level:

GS-5 The Vineyard I mining expansion operator shall comply with the approved Erosion Control Plan to ensure that the side slopes of the pit are vegetated following final slope placement to prevent excessive erosion and enhance slope stability.

GS-6 The mining operator for Vineyard I shall submit to the Environmental Coordinator a ten-year monitoring plan that outlines monitoring requirements and identifies mitigating steps for any significant erosion that may occur at a specific location in the Morrison Creek Realigned Channel (flow channel). If significant erosion is identified during monitoring, the mining operator shall contact the Environmental Coordinator and submit proof of corrective actions. Appropriate mitigation includes, but is not limited to; strengthening of the channel, re-grading the channel, widening the channel to reduce scour velocities, or any other revision as approved by County staff to mitigate significant erosion.

(FSEIR 2-9, 9-7 to 9-8. 18-3 to 18-4)

Level of Significance After Mitigation: Less Than Significant. (FSEIR 2-9, 9-8, 18-3 to 18-4)

E. BIOLOGICAL RESOURCES

1. **Impact: Vegetation.** The Morrison Creek FEIR/FEIS concluded that the proposed project would result in loss of existing natural vegetation on approximately 881.7 acres of the 966.3 project site. Plant communities adversely affected would be riparian/forest riparian scrub habitat, wetland habitat and waters of the United States, ruderal habitats, pastures and cultivated areas. This was found to be a significant impact. (FSEIR 10-16 to 10-17)

   The Morrison Creek FEIR/FEIS required implementation of a wetland mitigation plan. In consultation with the USFWS, the Corps, CDFG and the County, it was determined that flows were to be regulated and maintained within the mitigation corridor (now the Morrison Creek Realigned Channel). The proposed Morrison Creek Realigned Channel accomplishes this mitigation, and was created at the request of the regulatory agencies as well as environmental groups. (FSEIR 2-10 to 2-11, 10-16 to 10-19, 18-2 to 18-3)

   Finding: Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect loss of vegetation and impact on specified plant communities as identified in the FSEIR.

Mitigation: The following mitigation measures have been incorporated into the Project as conditions of approval to reduce this impact to a less than significant level:

BR-1 Granite Construction shall submit to the Department of Community Development the recorded Conservation Easements for the Morrison Creek Realigned Channel by the date set in the issued U.S. Army Corps of Engineers Section 404 permit (November 30, 2013). In the event that the U.S. Army Corps of Engineers changes the date for the permit, a copy of the recorded Conservation Easement shall be submitted within five (5) days of the new approved date. (FSEIR 2-10, 10-19)

BR-2 The mining operator for Vineyard I shall implement the *Wetland, Oak Woodland and Riparian Mitigation Monitoring Plan* (refer to Appendix D1) and submit to the Department of Community Development the annual monitoring reports as specified in the *Wetland, Oak Woodland and Riparian Mitigation Monitoring Plan*. The reports shall present the status of the creek, wetlands, drainage, oak woodland and riparian habitats, including individual wetland data, photo-documentation, status of the riparian and oak woodland plantings, and any recommended remediation. The reports shall also include an assessment of the monitoring results against the success criteria described in the *Wetland, Oak Woodland and Riparian Mitigation Monitoring Plan*.

The monitoring report shall be prepared and submitted to the Department of Community Development (and Corps and CDFG) for each of the monitoring years by December 31st of each monitoring year. The reports shall include:

a. A map showing the Preserve including wetland locations, location of various monitoring activities, and photo points;

b. Hydrology, vegetation, and photographic monitoring results as described in the *Wetland, Oak Woodland and Riparian Mitigation Monitoring Plan*;

c. An assessment of the monitoring results against the established success criteria;

d. A description of the overall site conditions and any management actions taken during that year; and

e. Any recommended management or remediation actions to be conducted (if necessary, a contingency plan, as described in Section 8.2 of the *Wetland, Oak Woodland and Riparian Mitigation Monitoring Plan* will be prepared).

If any revisions to the construction plans for the Morrison Creek Realigned Channel occur during the firstten years, a letter indicating proposed changes shall be submitted to the Department of Community Development. If changes require approval by either the

Corps or CDFG, an approval letter from the respective agency shall be submitted to the Department of Community Development.

At the end of the ten-year monitoring periods, monitoring will cease if the Morrison Creek Realigned Channel is found by the Department of Community Development, Corps and CDFG to be in substantial compliance with the established success criteria. Monitoring will be extended beyond the ten-year period only for those habitats that are not meeting success criteria. (FSEIR 2-10 to 2-11, 10-19 to 10-20)

Level of Significance After Mitigation: Less Than Significant. (FSEIR 2-10 to 2-11, 10-20, 18-2 to 18-3)

2. **Impact: Native Trees.** Prior approval of mining of the Vineyard I site resulted in the loss of 3,562 inches of native oak and black walnut trees. This impact is fully mitigated with the incorporation oak tree planting plan within the Morrison Creek Realigned Channel across the Vineyard I and Aspen III South mining sites. The Vineyard Expansion Site also would result in an additional 40 inches of native oak and black walnut trees to be removed. (FSEIR 2-11 to 2-13, 10-20 to 10-26, 18-2 to 18-3)

Finding: Changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the significant environmental effect on removal of native trees.

Mitigation: The following mitigation measures have been incorporated into the Project as conditions of approval to reduce this impact to a less than significant level:

BR-3 The mining operators for Vineyard I and Aspen IV South shall implement Mitigation Measure BR-1 (submittal of recorded conservation easements) and BR-2 (implement the *Wetland, Oak Woodland, and Riparian Mitigation and Monitoring Plan for Vineyard I* [refer to Appendix D1] and the *Oak Tree Mitigation and Monitoring Plan for Aspen IV South* [refer to Appendix D2]). (FSEIR 2-11, 10-34 to 10-35)

BR-4 The removal of 40 inches of diameter breast height (dbh) of native oak trees by Granite for the Vineyard I expansion site shall be compensated by planting native oak trees (either valley oak/*Quercus lobata*, blue oak/ *Quercus douglasii* and/or interior live oak/*Quercus wislizenii*) equivalent to the dbh inches lost, based on the ratios listed below, at locations that are authorized by the Environmental Coordinator. On-site preservation of native oak trees that are less than 6 inches (<6 inches) dbh, may also be used to meet this compensation requirement. A total of 40 inches will require compensation. Equivalent compensation based on the following ratio is required:

- One preserved native oak tree < 6 inches dbh on-site = 1 inch dbh
- One D-pot seedling (40 cubic inches or larger) = 1 inch dbh
- One 15-gallon tree = 1 inch dbh
- One 24-inch box tree = 2 inches dbh

- One 36-inch box tree = 3 inches dbh

Replacement tree planting shall be completed prior to tree removal or a bond shall be posted by the Vineyard I mining expansion operator in order to provide funding for purchase, planting, irrigation, and 3-year maintenance period, should the mining operator default on replacement tree mitigation. The bond shall be in an amount equal to the prevailing rate of the County Tree Preservation Fund and will be due within one year of posting the bond.

Prior to the issuance of a Work Authorization Permit for the Vineyard I expansion site, a Replacement Oak Tree Planting Plan shall be prepared by a certified arborist or licensed landscape architect and shall be submitted to the Environmental Coordinator for approval. The Replacement Oak Tree Planting Plan(s) shall include the following minimum elements:

1. Species, size and locations of all replacement plantings and < 6-inch dbh trees to be preserved;

2. Method of irrigation;

3. If planting in soils with a hardpan/duripan or claypan layer, include the Sacramento County Standard Tree Planting Detail L-1, including the 10-foot deep boring hole to provide for adequate drainage;

4. Planting, irrigation, and maintenance schedules;

5. Identification of the maintenance entity and a written agreement with that entity to provide care and irrigation of the trees for a 3-year establishment period, and to replace any of the replacement oak trees which do not survive during that period; and
6. Designation of 20 foot root zone radius and landscaping to occur within the radius of oak trees < 6-inches dbh to be preserved on-site.

No replacement tree shall be planted within 15 feet of the driplines of existing oak trees or landmark size trees that are retained on-site. The minimum spacing for replacement oak trees shall be 20 feet on-center.

If oak tree replacement plantings are demonstrated to the satisfaction of the Environmental Coordinator to be infeasible for any or all trees removed, then compensation shall be through payment into the County Tree Preservation Fund. Payment shall be made at a rate of $325.00 per dbh inch removed but not otherwise compensated, or at the prevailing rate at the time payment into the fund is made.

(FSEIR 2-11 to 2-13, 10-34 to 10-36)

Level of Significance After Mitigation: Less Than Significant. (FSEIR 2-11 to 2-13, 10-36, 18-2 to 18-3)

4. **Impact: Wetlands.** The Morrison Creek FEIR/FEIS concluded that the project would result in the phased destruction of all waters/wetlands on the Vineyard I and Aspen IV South sites. Impacts as reported in the prior document to waters of the United States 19.0 acres. The revisions to the Project result in an overall decrease in impacts to the waters of the United States. Although impacts to the creek on the Aspen IV South site are eliminated, impacts to wetlands and drainage features have increased under the Project. This difference could be attributed to updated acreages of features since the last wetland delineation ten years ago. The impact to waters of the United States on the Aspen IV South site has decreased by 0.436 acres. (FSEIR 10-36 to 10-37)

To mitigate these impacts the Applicants have obtained a Streambed Alteration Permit from the CDFG, a Section 404 Permit from the Corps, and a Section 401 Water Quality Certification from the Regional Water Quality Control Board. (FSEIR 10-37)

The Reclamation Plan Amendment will change the previously approved corridor and bypass channel to what is now the proposed Morrison Creek Realigned Channel on the Vineyard I and Aspen III South sites, and the Morrison Creek Raised Bank Channel on the Aspen IV South site. The Morrison Creek Realigned Channel eliminates the bypass channel around the mining site and places the recreated stream corridor "at grade" rather than at the bottom of the mining pit (as previously proposed). The Morrison Creek Realigned Channel has been approved by the Corps as adequate compensation for impacts the waters of the United States. In addition, the Morrison Creek Realigned Channel has been designed to meet the requirements outlined in the Biological Opinion from the USFWS. (FSEIR 10-39)

In the wetland delineation prepared by Zeitner and Zeitner (1997) for the prior project, there were no wetlands identified on the Vineyard Expansion Site, therefore the current proposal to mine the Vineyard Expansion Site will not have any impacts to waters of the United States. (FSEIR 2-14, 10-39)

Finding: Changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the significant environmental effect from elimination of wetlands.

Mitigation: The following mitigation measures have been incorporated into the Project as conditions of approval to reduce this impact to a less than significant level:

BR-5 Implement Mitigation Measures BR-1 and BR-2. (FSEIR 2-14, 10-39)

Level of Significance After Mitigation: Less than Significant. (FSEIR 2-14, 10-39, 18-2 to 18-3)

5. **Impact: Wildlife.** The Morrison Creek FEIR/FEIS concluded that the mining the properties would result in habitat loss and wildlife displacement. Habitat destruction and disturbance would displace species into adjacent areas, which may result in increased mortality due to competition for limited resources. (FSEIR 2-14, 10-40)

   Mining the Vineyard Expansion Site will not change the prior conclusion that mining activities would result in habitat loss and wildlife displacement. The Morrison Creek Realigned Channel will replace lost habitats. (FSEIR 2-14, 10-40, 18-2 to 18-3).

   Finding: Changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the significant environmental effect on habitat loss and wildlife displacement.

   Mitigation: The following mitigation measures have been incorporated into the Project as conditions of approval to reduce this impact to a less than significant level:

   BR-6 Implement Mitigation Measures BR-1 and BR-2 (FSEIR 2-14, 10-40)

   Level of Significance After Mitigation: Less than Significant. (FSEIR 2-14, 10-40, 18-2 to 18-3)

6. **Special Status Vernal Pool Invertebrates.** The Morrison Creek FEIR/FEIS concluded that the previous project would eliminate some of the existing potential habitat for the federally listed threatened and endangered fairy shrimp and tadpole shrimp, and may result in the loss of individuals of these species. This was considered a significant impact. Under the Biological Opinion for Granite's Vineyard I site, the USFWS required Granite to purchase 1.06 acres of vernal pool preservation credits and 0.53 acres of vernal pool creation credits from a Service-approved conservation bank. Granite has complied with this requirement. (FSEIR 2-16, 10-45, 18-2 to 18-3)

   In the wetland delineation prepared by Zeitner and Zeitner (1997) for the prior project, there were no wetlands on the proposed Vineyard Expansion Site, therefore mining the Vineyard Expansion Site will not have any impacts to vernal pool fairy shrimp or tadpole shrimp not previously identified. The proposed Granite Project will not have an impact to special status vernal pool invertebrates. (FSEIR 2-16, 10-45, 18-2 to 18-3)

   Finding: Changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the significant environmental effect on special status vernal pool invertebrates.

   Mitigation: The following mitigation measures have been incorporated into the Project as conditions of approval to reduce this impact to a less than significant level:

   BR-7 Implement Mitigation Measures BR-1 and BR-2. (FSEIR 2-16, 10-46, 18-2 to 18-3)

Level of Significance After Mitigation: Less than Significant. (FSEIR 2-16, 10-46, 18-2 to 18-3)

7. **Impact: Swainson's Hawk and Other Special Status Birds.** Impacts to Swainson's Hawk and other special status birds (burrowing owl and tricolored blackbird) were found to be a potentially significant impact under the prior project. The Project does not change this impact; however the recreated Morrison Creek Realigned Channel will recreate suitable habitats for these birds/raptors in the post-reclamation condition and will, therefore, not result in an adverse impact to these birds/raptors. The Vineyard Expansion Site is surrounded by mining activities. A portion of Morrison Creek is located along the eastern boundary of the Vineyard Expansion Site (on APN 063-0090-009) and riparian habitat along this creek provides potential habitat for the tri-colored blackbird. This portion of Morrison Creek eventually will be mined; however, not until the recreated Morrison Creek Realigned Channel is in place. Mitigation requiring pre-construction surveys remains applicable to the Project. (FSEIR 2-16 to 2-18, 10-46, 18-3)

Finding: Changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the significant environmental effect on Swainson's Hawk and other Special Status Birds.

Mitigation: The following mitigation measures have been incorporated into the Project as conditions of approval to reduce this impact to a less than significant level:

BR-8 Prior to the issuance of a Work Authorization Permit, if mining the Vineyard expansion site is to occur between March 1 and September 15, a focused survey for Swainson's hawk nests on the site and on nearby trees shall take place within ½ mile for rural sites and ¼ mile for urban sites, and shall be conducted by a qualified biologist within 14 days prior to the start of construction work (including clearing and grubbing). If active nests are found, the California Department of Fish and Game (CDFG) shall be contacted to determine appropriate protective measures. If no active nests are found during the focused survey, no further mitigation will be required. (FSEIR 2-16, 10-47)

BR-9 Burrowing Owl Survey: Prior to mining activities on the Vineyard I Expansion Site, a focused survey shall be conducted by a qualified biologist for burrowing owls where suitable habitat is present in the project area. Suitable habitat includes agricultural field margins, drainage ditches and fallow fields. Surveys shall be conducted no less than 14 days and no more than 30 days prior to commencement of construction activities. Surveys shall be conducted in accordance with CDFG protocol (CDFG, 1995).

a. If no occupied burrows are found in the survey area, a letter report documenting survey methods and findings shall be submitted to the County and no further mitigation is necessary.

b. If an occupied burrow is found, the Vineyard I expansion mining operator shall contact the Environmental Coordinator and consult with CDFG, prior to construction or mining activities, to determine if avoidance is possible or if burrow relocation will be required.

c. If owls are to remain on-site, a minimum of 6.5 acres of foraging habitat for each occupied burrow needs to be permanently preserved according to CDFG guidelines.

d. In order to avoid direct impacts to owls, no activity shall take place within 160 feet of an active burrow from September 1 to January 31 (wintering season) or 250 feet from February 1 through August 31 (breeding season). Protective fencing shall be placed, at the distances above, around the active burrows and no activity shall occur within the protected buffer areas.

e. Any impact to active owl burrows, relocation of owls or mitigation for habitat loss shall be done in accordance with CDFG guidelines. Written evidence from CDFG staff shall be provided to the Environmental Coordinator attesting to the permission to remove burrows, relocated owls, mitigate for lost habitat and provide a method for preservation habitat in perpetuity. (FSEIR 2-16 to 2-17, 10-47 to 10-48)

BR-10 Survey for Tricolored Blackbirds: If mining activities on the Vineyard I mining expansion site occur between March 1 and July 31, a pre-construction survey for nesting tricolored blackbird shall be performed by a qualified biologist. Surveys shall include the project site and areas of appropriate habitat within 300 feet of the site. Surveys shall be conducted no less than 14 days and no more than 30 days prior to commencement of mining activities. The biologist shall supply a brief written report (including date, time of survey, survey method, name of surveyor and survey results) to the Environmental Coordinator prior to ground disturbing activity. If no tricolored blackbirds are found during the preconstruction survey, no further mitigation will be required. If an active tricolored blackbird colony is found on-site or within 300 feet of the project site, the Vineyard I expansion mining operator project proponent shall do the following:

a. Consult with the CDFG to determine if project activity will impact the tricolored blackbird colony(s). Provide to the Environmental Coordinator written evidence of the consult or a contact name and number from CDFG.

b. With CDFG permission, the mining operator may avoid impacts to tricolored blackbirds by establishing a 300-foot temporary setback with fencing that prevents any project activity within 300 feet of the colony. A qualified biologist shall verify that setbacks and fencing are adequate and will determine when the colonies are no longer dependent on the nesting habitat (i.e., nestling have fledged and are no longer using habitat). The breeding season typically ends in July.

c. If the tricolored blackbird habitat is permanently destroyed, follow CDFG procedure to mitigate for habitat loss. (FSEIR 2-17 to 2-18, 10-47 to 10-48)

Level of Significance After Mitigation: Less than Significant. (FSEIR 2-16 to 2-18, 10-48, 18-3)

F. TRAFFIC AND CIRCULATION

1. **Impact: Additional Haul Trucks on the Roadway System.** The Morrison Creek FEIR/FEIS concluded that additional haul trucks on the roadway system would significantly degrade the existing level of service. Granite estimates that mining the Vineyard Expansion Site will take approximately 6 months. Due to that abbreviated time period, removal of the overburden from the Vineyard Expansion Site would not result in additional haul trucks on the roadway system, and would not result in a significant increase in worker trips. In order to ensure that there is not an increase in haul trucks on the roadways related to overburden removal and mined aggregate material, mitigation is recommended requiring that the mined material be transported to the processing plant by conveyor only. (FSEIR 2-19, 11-4, 18-4)

Finding: Changes or alterations have been require in, or incorporated into, the Granite Project which avoid or substantially lessen the potentially significant environmental effect from traffic and circulation at the Vineyard Expansion Site.

Mitigation: The following mitigation measures have been incorporated into the Granite Project as conditions of approval to reduce this potentially significant impact to a less than significant level:

TC-1 The Vineyard I expansion mining operator shall transport mined aggregate material to the processing plants only by conveyor and not by on-road trucks. (FSEIR 2-19, 11-5)

TC-2 If overburden from the Vineyard I mining expansion site is to be removed from the site, overburden transport shall be by conveyor and internal vehicles only and not by on-road haul trucks. (FSEIR 2-19, 11-5)

Level of Significance After Mitigation: Less than Significant. (FSEIR 2-19, 11-5, 18-4)

G. LAND USE

1. **Impact: Conflict with Nearby Land Uses.** The Morrison Creek FEIR/FEIS concluded that the mining area would potentially conflict with on-site and nearby land uses and that this was considered a significant and unavoidable impact. The adjacent uses would be directly exposed to increased noise associated with the aggregate mining and processing,

increased heavy truck traffic and traffic noise during initial overburden removal and throughout the life of the project, windblown dust from mining operations and access roads, and adverse visual or aesthetic impacts resulting from changes in adjacent landform. (FSEIR 2-20, 12-7, 18-1)

The Vineyard Expansion Site request does not result in a conflict with onsite and nearby land uses since the expansion site is currently surrounded by mining operations. However, as the Vineyard Expansion Site will be added to the approved Vineyard I mining site, the prior conclusion remains valid. Although mitigation was recommended in the Morrison Creek FEIR/FEIS and is applicable to the Granite Project, the mitigation measure does not reduce impacts to less than significant. (FSEIR 2-20, 12-7, 18-1)

Finding: Although mitigation measures have been required for the Granite Project that substantially lessen the significant environmental effect on nearly land uses, there is no feasible mitigation measure to reduce this significant impact to nearby land uses. Regardless, the Board approves the Granite Project for the reasons set forth in Section XI.

Mitigation: The following mitigation measures have been incorporated into the Granite Project as conditions of approval to reduce this impact:

LU-1 In order to mitigate potential impacts to surrounding land uses, the Vineyard I expansion mining operator shall be required to comply fully with mitigation measures identified in the Noise; Traffic and Circulation; Air Quality; and Visual Resources sections of the prior FEIR/EIS and SEIR, unless otherwise amended by the conditions set forth herein.. These mitigation measures will employ appropriate state-of-the-art techniques for erosion control, reclamation, nuisance prevention, and environmental impact mitigation relative to surface mining operations. (FSEIR 2-20, 12-7, 18-1)

In addition, several protocols adopted by the Board in November 2001 provide additional opportunities to evaluate compatibility with adjacent land uses. See Protocols on Air Quality, Noise, Dust and Landscaping, approved by the Board of Supervisors on November 7, 2001, which remain in effect for the Granite Project.

Level of Significance After Mitigation: Significant and Unavoidable. (FSEIR 2-20, 12-7, 18-1)

2. **Impact: Conversion of Prime Farmland, Farmland of Statewide Importance, and Farmland of Local Importance.** The prior project was found to disturb 31 acres of Prime Farmland, 435 acres of Farmland of Statewide Importance, and 419 acres of Farmland of Local Importance. The Vineyard Expansion Site will disturb an additional 5.6 acres of Prime Farmland and Farmland of Statewide Importance. Mitigation to prepare/revise a plan for the preservation and salvage of topsoil resources suitable for sustaining economically viable agricultural uses has been recommended, consistent with the state Mining and Geology Board's Reclamation Regulations. (FSEIR 2-21, 12-8, 18-4)

Finding: Changes or alterations have been required in, or incorporated into, the Granite Project which avoid or substantially lessen the significant environmental effect on Prime Farmland, Farmland of Statewide Importance, and Farmland of Local Importance.

Mitigation: The following mitigation measure has been incorporated into the Granite Project as conditions of approval to reduce this impact to a less than significant level:

LU-2 In order to mitigate potential impacts to agricultural uses, prior to issuance of the work authorization permit for the Vineyard I mining expansion site, the mining operator shall revise/prepare a plan, that includes the Vineyard I mining expansion site (5.6 acres), for the preservation and salvage of topsoil resources suitable for sustaining economically viable agricultural uses, consistent with the performance standards set forth in Sections 3708 and 3711 of the State Mining and Geology Board Reclamation Regulations. (FSEIR 2-21, 12-8 to 12-9)

Level of Significance After Mitigation: Less Than Significant. (FSEIR 2-21, 12-9, 18-1)

3. **Impact: Post Project.** The Morrison Creek FEIR/FEIS found that the proposed mining activities would restrict the possibility of utilizing the project site for future (post-project) development, including recreational open space uses and recommended mitigation to reduce the impact to less than significant levels. The Project includes a Reclamation Plan Amendment for the Morrison Creek Realigned Channel that will be approximately 300 feet in width, at or near original grade (rather than at the bottom of the mining pit), and will include adjacent buffer lands for a total width of 650 feet (compared to the previously approved 600 foot wide pit floor riparian corridor). This Reclamation Plan Amendment and the new design better mirrors natural creek conditions and will not require the need of a pump system.

The Morrison Creek FEIR/FEIS required as a mitigation measure the dedication of a 600-foot wide open space easement so as to guarantee sufficient area to allow for regeneration of the riparian corridor and subsequent establishment of a public trail system when deemed appropriate by the County. As part of the permit received by the Applicants from the Corps, a trail is now required and the County is therefore no longer requesting the open space easement. The Applicants, the County and the Southgate Park and Recreation District have negotiated provisions regarding the trail construction that are incorporated as conditions of approval for the Project. With the addition of these requirements, impacts regarding post-project development are now considered less than significant. (FSEIR 2-21, 12-9 to 12-10, 18-7)

Finding: Although the impacts before mitigation were deemed Less Than Significant (FSEIR 2-21, 12-10), the Applicants have voluntarily agreed to mitigation measures and conditions of approval that require the dedication of land and installation of a trail in a

location approved by the Southgate Park and Recreation District. These mitigation measures and conditions of approval shall be incorporated into the Project.

Mitigation: The following mitigation measure (as amended by condition of approval 56) has been incorporated into the Project to maintain this impact at a less than significant level:

LU-3 Upon request by the SRPD, the Vineyard I mining operator agrees to provide a trail and setback easement (hereafter the "Trail Easement"), not to exceed 20 feet in width, so long as said easement does not conflict with any requirements or easements stemming from any permit issued, or that may be issued, by an agency of the State of California or the federal government. Said easement shall be located coincident with the maintenance road on the north levee within the Morrison Creek Preserve (as approved by the ACOE in an e-mail dated September 26, 2012) and shall be consistent with the attached Public Trail Map (Exhibit A).

a. *Trail Improvements.* At the request of the SRPD and after acceptance of the Trail Easement by SRPD, the Operator shall improve the Trail Easement area by constructing a trail surface not exceeding 12-feet in width. Operator's responsibilities with respect to improvement of the Trail Easement area shall be limited to the installation of a suitably compacted base rock foundation as the trail surface, the grade and slopes of which shall be designed to provide for safe use, entry and exit by members of the public. The cost of other improvements of the Trail Easement area, including the installation of asphalt or other overlay paving, shall be the responsibility of SRPD. SRPD shall also bear the cost of installing fencing around the Trail Easement area (hereafter "Trail Fencing") and interpretive signage on said fencing (hereafter "Trail Signage") to the satisfaction of ACOE.

b. *Trail Maintenance.* As a condition of allowing the trail to be located within the Morrison Creek Preserve, the SRPD shall provide for funding necessary for the removal of trash from the Trail Easement area and all other maintenance of the Trail Easement area, Trail Fencing and Trail Signage required by ACOE to keep the trail in good repair.

c. *Modification or Termination of Condition.* This condition shall cease to be binding in the event (a) the requirement for an easement dedication and/or trail installation is superseded by a condition of approval for a trail easement on a development application covering the same property; (b) the Operator and the SRPD enter into an agreement rendering all or part of this condition null and void or, (c) at the latest, upon expiration of the use permit and any extensions that may be granted thereto, unless SRPD has previously requested the dedication of a Trail Easement.

Level of Significance After Mitigation: Less Than Significant. (FSEIR 2-21, 12-10, 18-7)

4. **Impact: Consistency with Mather Airport Comprehensive Land Use Plan (CLUP). Potentially Significant.** The Project is consistent with the CLUP. A Bird Airstrike Hazard Analysis has been completed for the Project and the potential for bird airstrikes over the Project site is low. Mitigation that outlines design standards for the stormwater detention basin has been included to reduce this potentially significant impact to less than significant. (FSEIR 2-21, 12-10 to 12-18, 18-4)

Finding: Changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the potentially significant effect of the Project and consistency with the CLUP.

Mitigation: The following mitigation measures have been incorporated into the Project as conditions of approval to reduce this potentially significant impact to a less than significant level.

LU-4 The retention basin on Vineyard I shall include the following design criteria to the maximum extent practicable, while still adhering to the federal agency regulations:

a. The basin shall incorporate steep side slopes (3:1 or greater)

b. The basin shall be designed to remain clear of vegetation that may provide nesting, roosting or foraging opportunities for birds. Only herbaceous vegetation necessary for erosion control purposes will be allowed.

(FSEIR 2-21, 12-18)

Level of Significance After Mitigation: Less than Significant. (FSEIR 2-21, 12-18, 18-4)

H. PUBLIC SAFETY

1. **Impact: Hazardous Conditions During Mining Activity.** The use of heavy equipment, the creation of a 25+/- foot deep, steep-sided pit and the inadvertent public entry to the mining site could create a public safety hazard. Mitigation from the prior project requiring fences and warning/trespass signs around the perimeter of the mining site has been completed. Mitigation requiring perimeter fencing until the post-reclamation development of future use of the site occurs remain applicable to the Project and would reduce the impact to less than significant. (FSEIR 2-22, 14-2 to 14-3, 18-4)

Finding: Changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the significant environmental effect from hazardous conditions during mining activity.

Mitigation: The following mitigation measure has been incorporated into the Project as conditions of approval to reduce the impact to a less than significant level:

PS-1 All perimeter fencing shall be retained until post-reclamation development/ future use of the project site occurs. (FSEIR 2-22, 14-3)

Level of Significance After Mitigation: Less than Significant. (FSEIR 2-22, 14-3, 18-4)

I. AESTHETICS AND VISUAL RESOURCES

1. **Impact: Substantial Light or Glare Affecting Nighttime Views in the Area.** The Morrison Creek FEIR/FEIS concluded that the prior project would have a significant impact as a result of creating a new source of substantial light or glare affecting nighttime views in the area. The Reclamation Plan Amendment will not require any lighting and the Vineyard Expansion Site will be located in the existing Vineyard I mining site, which is currently being mined. There are lights currently associated with the mining activities, therefore there are no new impacts associated with the Project. However, mitigation measures included in the prior project approvals remain applicable to the Project. (FSEIR 2-22, 15-4 to 15-5, 18-2)

Finding: Changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the significant environmental effect of substantial light or glare affecting nighttime views in the area.

Mitigation: The following mitigation measure has been incorporated into the Project as conditions of approval to reduce this impact to a less than significant level:

With minor changes, the mitigation measure from the FEIR/EIS below is applicable to the Vineyard I mining expansion site the proposed Project.

AV-1 Any lighting shall be arranged and controlled so as not to illuminate public rights of way or adjacent properties. In order to reduce direct and reflected light pollution, lighting at the project site shall be equipped with shields that concentrate the illumination downward such that no direct light is cast off the site. Energy efficient lights shall be used, similar to the types used as residential outdoor security lights. The candle power of the illumination at ground level shall not exceed what is required by any safety or security regulations of any government agency with regulatory oversight of the mining operation. (FSEIR 2-22, 15-5)

Level of Significance After Mitigation: Less Than Significant. (FSEIR 2-22, 15-5, 18-2)

J. PUBLIC SERVICES

1. **Impact: Park Services.** The Project is within the boundaries of the Southgate Park and Recreation District. The Project will provide trails through the mitigation corridor for public use. The provision of trails and open space on the project site is addressed in the Land Use Chapter of the SFEIR. The use of the Project site as open space was found to not have a significant impact on the post development and use of the project site. The provision of park services to the project site is considered a less than significant impact. Although impacts are considered less than significant, mitigation consistent with the Land Use Chapter has been included. (FSEIR 2-23, 16-8, 18-7)

   Finding: Although the impacts before mitigation were deemed Less Than Significant (FSEIR 2-23, 16-8, 18-7), the Applicants have voluntarily agreed to mitigation measures and conditions of approval that require the dedication of a trail easement in a location approved by the Southgate Park and Recreation District. These mitigation measures and conditions of approval shall be incorporated into the Project.

   Mitigation: The following mitigation measure has been incorporated into the Project as conditions of approval to maintain this impact at a less than significant level: Implement Mitigation Measure LU-3. (FSEIR 2-23, 16-9)

   Level of Significant Before and After Mitigation: Less Than Significant. (FSEIR 2-23, 16-9, 18-7)

IX. PROJECT ALTERNATIVES

The Granite Project will cause unavoidable significant environmental effects to air quality, geology and slope stability and land use as discussed above. (FSEIR 2-5, 2-7, 2-20, 18-1). Thus the County must consider the feasibility of any environmentally superior alternatives to the Project, as proposed. The County must evaluate whether one or more of these alternatives could substantially lessen or avoid these unavoidable significant environmental effects. *Citizens for Quality Growth v. City of Mount Shasta,* 198 Cal. App. 3d 433, 443-45 (1988); see also Public Resources Code section 21002).

Under the CEQA Guidelines, an EIR must describe a reasonable range of alternatives to the project which would feasibly attain most of the basic project objectives but would avoid or substantially lessen any of the significant effects of the project. Under CEQA, "(f)easible means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors." CEQA Guidelines section 15364.

The concept of feasibility permits agency decision-makers to consider the extent to which an alternative is able to meet some or all of the project's objectives. In addition, the definition of feasibility encompasses "desirability" to the extent the agency's determination of feasibility represents a reasonable balancing of competing economic, environmental, social and technological factors supported by substantial evidence. *City of Del Mar v. City of San Diego,*

133 Cal. App. 3d 410, 417 (1982); see also *Sequoyah Hills Homeowners Ass'n v. City of Oakland,* 23 Cal. App. 4th 704, 715 (1993).

A. PROJECT OBJECTIVES

The Project is an amalgamation of the alternatives that were analyzed in the Morrison Creek FEIR/FEIS, and is a result of revisions to the previously approved reclamation plan consistent with permits received from the County, state and federal regulatory agencies. The prior approved reclamation plan was not favored by the State and federal agencies from a biological standpoint. The Applicants worked with regulatory agencies in designing the Project so that it would have fewer biological impacts. The FSEIR evaluated previously identified alternatives and compared the Project as proposed to those alternatives and the prior approved project. (FSEIR 4-1)

The objectives of the Granite Project are as follows:

1. Allow Granite to consolidate the currently approved pit floor mitigation corridor and enhanced bypass channel from the Vineyard I project into a single recreated creek channel that more closely mirrors Morrison Creek's natural condition.

2. Maximize the production of vital aggregate resources by allowing mining of the additional 5.61 acres identified as the Vineyard Expansion Site.

(FSEIR 3-25)

B. PROJECT ALTERNATIVES

The alternatives to mining the Vineyard Expansion Site are the same as the alternatives that were analyzed in the Morrison Creek FEIR/FEIS (pages 4-1 to 4-16) regarding the original mining application:

1. Proposed Project Without the Vineyard I Processing Plant. The Proposed Project Without the Vineyard I Processing Plant Alternative was included to allow for flexibility in land use decisions during the application review process and following the potential approval of entitlements. This alternative does not include processing facilities on the Vineyard I mining site; it was assumed that Granite would use a conveyor to transfer mined material from the site to an existing processing facility located off site. Subsequent to the release of the Draft EIR/EIS, Granite obtained conveyor access, thus this alternative became a part of the proposed project. (FSEIR 4-3)

2. Proposed Project with County Drainage Alternatives (Part B Options). The Proposed Project with County Drainage Alternative (Part B Options) was developed as part of the Sacramento County Water Resources Division's 1994

Morrison Creek Mining Reach Drainage Mitigation Plan which was developed to go beyond the minimum requirements for drainage mitigation, in order to provide additional flood control and stormwater detention benefits. However, it was stated in the FEIR/FEIS that following additional consideration and evaluation of the County Drainage Alternatives (Part B) subsequent to the release of the Draft EIR/EIS, the County of Sacramento determined that the incremental downstream flood control benefits would be minimal and decided to forego additional consideration of this alternative at the time of writing the Morrison Creek FEIR/FEIS. (FSEIR 4-3)

3. 100-Year Floodplain Protection Alternative. The Floodplain and Creek Protection Alternative was considered so as to minimize the cumulative effects of mining inside the 100-year floodplain. Under this alternative, the 100-year floodplain protection alternative, the natural character of the 100-year floodplain for the creek would be maintained by avoiding aggregate extraction within the floodplain. (FSEIR 4-4)

4. Creek Buffer Alternative. The Creek Buffer Alternative was included in the Morrison Creek FEIR/FEIS since during the comment period on the Draft EIR/EIS there were several comments requesting that a modified floodplain protection alternative be considered in the FEIR/FEIS. This alternative was to include a 150-foot buffer area on either side of Morrison Creek similar to the condition of approval placed on the north project by the U.S. Army Corps of Engineers. As a result of these comments, the "Creek Buffer Alternative" was incorporated into the Morrison Creek FEIR/FEIS. Under this alternative, the natural creek channel and associated riparian vegetation would be preserved by precluding mining activities within 150 feet of the lateral extent of Corps jurisdiction associated with the main stem of Morrison Creek. Mining and reclamation would occur up to the edge of the 150-foot buffer and the perimeter would be back filled with 2:1 slopes. The Morrison Creek channel would be retained at existing grade throughout the project site. Under this alternative, a 350-foot corridor of land, including the creek, would be preserved and surrounded on both sides by the proposed mining and reclamation areas. (FSEIR 4-4)

5. No Project Alternative. The No Project Alternative assumed that the project sites would not be mined for aggregate and that the sites would have remained in their present condition or be used consistent with existing zoning, which was general agricultural. (FSEIR 4-4)

The FEIR/FEIS also considered the following alternatives, but the alternatives were rejected due to not meeting the project objective or because they were infeasible:

- Recycling Alternative
- Off-site Alternative
- Mather Field Alternative

(FSEIR 4-4)

Detailed analysis of the considerations of each of the identified alternatives is found at the Morrison Creek FEIR/FEIS 4-1 to 4-16, and was incorporated by reference in the Project FSEIR. (FSEIR 4-1 to 4-4). The Board also adopted CEQA Findings and Statement of Overriding Considerations for the original Vineyard I mining permit (Control No. 91-CZB-0118) on or about January 12, 2000 to evaluate the various alternatives and to adopt a finding that the project as proposed was the Environmentally Superior Alternative. See Vineyard I CEQA Findings and Statement of Overriding Considerations at 67-72.

C. ENVIRONMENTALLY SUPERIOR ALTERNATIVE

The Morrison Creek FEIR/FEIS identified the following as the Environmentally Superior Alternative: (page 6-8 of FEIR/FEIS):

> Based on the alternatives analysis in the individual sections in Chapter 5 (Affected Environment and Environmental Consequences), the 100-Year Floodplain Protection Alternative is the environmentally superior alternative. Under this alternative, the natural character of the 100-year floodplain for Morrison Creek would be maintained by avoiding aggregate extraction within the floodplain. Unlike the other mining alternatives, this alternative would not require reconstruction of the floodplain, would not alter flows downstream, and would not result in hydrologic and landform changes to the existing floodplain. Thus, impacts to biological resources, open space, and aesthetic values inherently associated with the streambed, floodplain and uplands under natural conditions would be avoided.

None of the alternatives were chosen over the proposed project; accordingly, the project, as proposed, was approved. Approval of the prior project allowed for mining operations through Morrison Creek and the construction of the at-grade trapezoidal bypass channel, pump station and a riparian/low-flow corridor at the bottom of the mining pit. (FSEIR 4-5)

D. PROPOSED PROJECT

The Project is mostly consistent with the identified environmentally superior alternative of the Morrison Creek FEIR/FEIS. (FSEIR 4-6), and makes changes requested through consultation with regulatory agencies that reduces biological impacts. (FSEIR 4-1)

The Project eliminates the previously approved bypass channel around the perimeter of the Aspen IV South, Aspen III South and Vineyard I mining sites. The previously approved 600-foot wide riparian corridor/ low-flow channel at the bottom of the mining pit has been revised to be an at-grade Morrison Creek Realigned Channel on the Aspen III South and Vineyard I mining sites. As the Morrison Creek Realigned Channel does not require a pump station, it will maintain the hydroconnectivity of Morrison Creek, compared to an at pit-bottom channel. The Morrison Creek Realigned Channel has also been designed to contain the 100-year flows of Morrison Creek, and will mirror a meandering creek; therefore, biological functions of this design are

superior to the prior approved bypass channel and pit-bottom creek corridor. (FSEIR 4-5 and 10- to 10-14).

Morrison Creek on the Aspen IV South site will not be impacted under the Project. A flood control channel (Raised Bank Channel) will be constructed outside the effective floodway of Morrison Creek on the Aspen IV South site. The Raised Bank Channel on Aspen IV South portion of the Project is very similar to the 100-year Floodplain Protection Alternative and the Creek Buffer Alternative, both previously proposed in the Morrison Creek FEIR/FEIS. This component of the proposed project will not mine through the existing Morrison Creek (similar to the Creek Buffer Alternative) and will not mine through the Morrison Creek floodplain since the Raised Bank Channel will be constructed outside the floodplain which will preclude mining within the channel (similar to the 100-year floodplain protection alternative). (FSEIR 4-5 to 4-6)

Finding: Incorporating by reference the findings adopted by the Board in support of the original project approval, the Board finds that the identified alternatives (a) do not meet the Project objectives, (b) would not substantially lessen any identified environmental effects, and (c) are not environmentally superior to the Project as proposed. The Project is the environmentally superior alternative. (FSEIR 4-5 to 4-6)

X. GROWTH INDUCING AND CUMULATIVE IMAPCTS

The FSEIR evaluated growth-inducing and cumulative impacts of the Project as required under CEQA Guidelines sections 15126(g) and 15130. The FSEIR concludes that although located in close proximity to urban growth areas, [t]he contribution of growth to the region resulting from the project is considered minimal and since extension of urban infrastructure would not be necessary to facilitate the project, growth-inducing impacts would be considered less than significant. In addition, there would not be a growth-inducing impact associated with the Reclamation Plan amendment...." FSEIR 18-7 to 18-8. Similarly, the FSEIR concluded that there were no significant cumulative impacts from the Project. FSEIR 18-8 to 18-11.

XI. STATEMENT OF OVERRIDING CONSIDERATIONS

As set forth in the preceding sections, the Board's approval of the Vineyard Expansion Site as part of the Granite Project will result in significant adverse environmental effects on air quality, geology and slope stability and land use that cannot be avoided even with the adoption of all feasible mitigation measures. In addition, there is no feasible alternative to the approval of the Vineyard Expansion Site that could avoid or substantially lessen those three impacts, none of which is different from the significant, unmitigated impacts identified in the Morrison Creek FEIR/FEIS for the Vineyard I mining site. The Board chooses to approve the Vineyard Expansion Site as part of the Granite Project because, in the Board's view, the economic, social, and other benefits that the Project will produce render the significant effects acceptable.

The following statement identifies the reasons why, in the Board's judgment, the benefits of the Project, as approved, outweigh the significant and unavoidable effects from the expansion of mining to the additional 5.61 acres. Any one of these reasons is sufficient to justify approval

of the Granite Project. Thus, even if a court were to conclude that not every reason is supported by substantial evidence, the Board would stand by its determination that each individual reason is sufficient. The substantial evidence supporting the various benefits can be found in the preceding Findings, which are incorporated by reference into this Section XI, in the evidence and testimony presented at the public hearings on this matter, and in the documents found in the Record of Proceedings as defined in Section V.

The Board finds that the Granite Project would have the following economic, social, and environmental benefits:

A. The Granite Project (Vineyard Expansion Site) will implement the County General Plan Policies for Providing Local Sources of High Quality Aggregate.

By amending the mining permit to include the additional 5.61 acres in the Vineyard Expansion Site, an area adjacent to other areas already mined or that will be mined as a result of the original project, the Granite Project (Vineyard Expansion Site) will continue to provide a much needed local source of high-quality aggregate. A portion of the 5.61 acres is presently designated as an Aggregate Resource Area within the "Surface Mining Combining Zone," which means it is designated as suitable for mining. See County General Plan, Conservation Element at p. 15. The County's General Plan identifies as an "Objective" that "Known mineral resources [be] protected from land uses which would preclude or inhibit timely mineral extraction to meet market demand." County 2011 General Plan, Conservation Element, p. 15, and also "Sequential timing for mining of aggregate areas linked to the timing of urban development." County 2011 General Plan, Conservation Element, p. 18. The mining of 5.61 acres that is surrounded by other mining operations achieves these General Plan Objectives.

The Granite Project (Vineyard Expansion Site) also serves to meet County General Plan Policy CO-44, which states that "[d]ue to predicted shortages of aggregate in Sacramento County, mining of mineral resources within the Urban Services Boundary (USB) is encouraged where consistent with Habitat Conservation Plans or other County initiated conservation programs and where such mining does not preclude successful completion of these plans, to avoid the potential loss of these mineral resources as a result of potential urban development." County 2011 General Plan, Conservation Element, Policy CO-48, p. 18. The Vineyard Expansion Site is within the Urban Services Boundary (see General Plan, Land Use Element, p. 21), and as a result furthers General Plan Policy CO-48.

The Granite Project (Vineyard Expansion Site) also contains high quality sand and gravel aggregates that are suitable for the production of a full-range of construction products, including but not limited to road base, crushed products, PCC aggregates used in the production of concrete, and asphaltic concrete.

B. The Project will implement the County General Plan Policies related to extraction of minerals and reclamation activities.

The County General Plan identifies as an objective the "orderly extraction of materials and subsequent reclamation of mined areas with minimal adverse impacts on aquifers, streams, scenic values, and surrounding residential uses." County 2011 General Plan Conservation Element, p. 16. Granite incorporated all applicable prior mitigation measures from the Morrison Creek FEIR/FEIS, plus additional mitigation measures specific to the Project as a whole and the Granite Project (Vineyard Expansion Site), contained in the 84 Conditions of Approval for the Amended Reclamation Plan and Vineyard Expansion Site. These mitigation measures significantly reduced the majority of the Granite Project's environmental impacts to a less than significant level. (FSEIR 18-1 to 18-11)

C. The Project's Amended Reclamation Plan will implement the County General Plan Policies for Habitat Preservation, Open Space Preservation and Trails.

The Project also helps to meet the General Plan goals related to habitat preservation, open space preservation and trails. The prior approved reclamation plan resulted in a separation of habitat restoration and hydrologic functions, and was not favored from a biological standpoint. (FSEIR 4-1) The Morrison Creek Realigned Channel in the Amended Reclamation Plan maintains the hydro-connectivity of Morrison Creek in an at-grade channel and has been designed to contain 100-year flows of Morrison Creek and will mirror a meandering creek, with biological functions of this design superior to the prior approved trapezoidal bypass channel. (FSEIR 4-5) Additionally, the Project provides for the dedication of a trail easement to Southgate Recreation and Park District, which will ultimately provide public access to a trail adjacent to Morrison Creek and the designated preserve area.

The 2011 County General Plan includes the following relevant policies:

"Goal: Preserve and manage natural habitats and their ecological functions throughout Sacramento County." (Conservation Element, Habitat Protection and Management, p. 34)

"Objective: Mitigate and restore for natural habitat and special status species loss." (Conservation Element, Habitat Mitigation, p. 34)

"Policy CO-62: Permanently protect land required as mitigation." (Conservation Element, Policies, p. 35)

"Objective: Establishment of trails and greenbelts to provide for recreational opportunities and community separators." (Open Space Element, Trails and Greenbelts, p. 19)

The Project is consistent with and achieves each of these goals, objectives and policies of the County's 2011 General Plan.

D. The Granite Project (Vineyard Expansion Site) would maintain and create jobs for the County.

By allowing the additional mining of 5.61 acres at the Vineyard Expansion Site, the Granite Project would maintain existing company employment associated with Granite's current aggregate extraction on site for the additional time period associated with this increased mining activity. In addition to providing direct employment, the mining of the additional 5.61 acres will continue to contribute to the jobs associated with the County's construction industry. Although the additional area proposed for mining activity in the Vineyard Expansion Site is relatively small in comparison to the area approved for mining in the original project approval, in the current economic recession it is critically important to sustain employment opportunities and support business expansion.

In the Sacramento Region, Granite employs more than 70 construction/materials operations personnel and an additional ~200 skilled craft personnel. Granite's most significant aggregate operation in Sacramento County is the Bradshaw facility, where raw materials are fed from the Vineyard I mine site. Mining reserves that support the Bradshaw operation are anticipated to be depleted within the next 5 to 10 years. Granite's aggregate operations in the Sacramento region also include the White Rock Road Plant, which is a small sand and gravel operation located on Aerojet property in the City of Rancho Cordova. Granite continues to see the Sacramento region as a prime resource area for aggregate resource development.

E. The Granite Project (Vineyard Expansion Site) is an enhancement to the originally improved reclamation plan, will continue to preserve open space in perpetuity and will provide the opportunity for a recreational trail amenity along Morrison Creek.

The Granite Project (Vineyard Expansion Site), as part of the overall Project and subject to the Amended Reclamation Plan, will increase the preserved acreage at Morrison Creek from approximately 49.24 acres to approximately 89 acres (FSEIR at 10-16, Plate BR-1). The Morrison Creek Realigned Channel more closely parallels the natural drainage patterns and is an enhanced mitigation corridor that was preferred by County, state and federal regulatory agencies. FSEIR at 10-17 to 10-19. In addition, although not required to mitigate any identified environmental impacts, the Applicants negotiated with and agreed to the dedication of a trail easement along the Morrison Creek preserve area as more specifically identified in the conditions of approval. FSEIR at 12-10.

F. The Granite Project (Vineyard Expansion Site) would continue to provide a reliable stream of tax revenue to the County.

The Granite Project (Vineyard Expansion Site) would maintain a reliable source of County tax revenue over the period of time required to mine this site. There is no current planned use of the 5.61 acre site and without the entitlements there likely would be no additional tax revenue to the County in the near-term.

G. Additional Findings from the Vineyard I Project approval are incorporated by reference.

In the original Vineyard I Project approval, the Board adopted CEQA Findings and Statement of Overriding Considerations after evaluating the environmental impacts, as well as

the economic, social and environmental benefits of the project. Those factors remain applicable to the Vineyard Expansion Site and are hereby incorporated by reference as additional Findings in support of the Granite Project. See Vineyard I CEQA Findings and Statement of Overriding Considerations (Control No. 91-CZB-UPB-0118) adopted by the Board on or about January 12, 2000 at 78-80.

ADOPTION OF FINDINGS

The Board hereby recognizes and adopts the Findings of Fact and Statement of Overriding Considerations for the Granite Project.

DATE: January 8, 2013

BY: Susan Peter

CHAIR OF THE BOARD OF SUPERVISORS
COUNTY OF SACRAMENTO
STATE OF CALIFORNIA

COUNTY OF SACRAMENTO
INTER-OFFICE CORRESPONDENCE

January 16, 2013

TO: COMMUNITY DEVELOPMENT DEPARTMENT

FROM: CYNDI LEE, Clerk
Board of Supervisors

SUBJECT: 2005-0062. Granite - Vineyard I. Request For Community Plan Amendment, Rezone, Use Permit Amendment, Reclamation Plan Amendment, Zoning Agreement Amendment, And Release From The Prior Zoning Ordinance For The Vineyard I Mining Project Approved In 2000 For The Property Located At The Northeast Corner Of Hedge Road And Elder Creek Road, In The Vineyard Community. Applicant: Granite Construction Company; APNs: 063-0080-010 Through 013; 063-0090-001 Through 003, 006, 009, 010, 011, 015 Through 019; And 063-0110-001 Through 006, 012, 028, 029; Environmental Document: Final Supplemental Environmental Impact Report

The Board of Supervisors, meeting in regular session on December 4, 2012, certified the Final Environmental Impact Report as adequate and complete.

The Board of Supervisors, meeting in regular session on January 8, 2013, approved the Findings of Fact and Statement of Overriding Considerations, adopted the Mitigation Monitoring and Reporting Program and took the following actions on the above referenced matter:

REZONE

Approved a Rezone by Ordinance No. **SZC-2013-0001** to change the designations from Industrial Reserve with Surface Mining Combining (IR(SM)) and Industrial Reserve with Flood Combining (IR(F)) to Industrial Reserve with Surface Mining/Flood Combining (IR(SM)(F)) for 5.61 acres (i.e., APN: 063-0090-009 and 18) of the project site subject to the findings recommended by staff in the County Planning Commission Staff Report and revised conditions as outlined in Attachment 3 of the Board Report.

COMMUNITY PLAN AMENDMENT

Approved a Community Plan Amendment by Resolution No. **2013-0020** to change the designations from Industrial Reserve with Surface Mining Combining (IR(SM)) and Industrial Reserve with Flood Combining (IR(F)) to Industrial Reserve with Surface Mining/Flood Combining (IR(SM)(F)) for 5.61 acres (i.e., APN: 063-0090-009 and 18) of the project site, subject to the findings recommended by staff in the County Planning Commission Staff Report.

USE PERMIT

Approved a Use Permit Amendment for an aggregate mining operation known as Vineyard I approved in 2000 (Control No. 91-CZB-UPB-0118) to allow aggregate mining on an additional 5.61 acres, and to incorporate this new area into the previously approved mining plan, subject to the findings recommended by staff in the County Planning Commission Staff Report and revised conditions as outlined in Attachment 3 of the Board Report.

Approved a Use Permit Amendment to the Vineyard I approval, subject to the findings recommended by staff in the County Planning Commission Staff Report and revised conditions as outlined in Attachment 3 of the Board Report, to allow:

a. Amendments to several of the conditions of the original approval that reference an approved elevated bypass channel for Morrison Creek and a 600-foot wide pit floor riparian corridor, and instead reference the new Morrison Creek Realigned Channel, as described above.

b. An update of several conditions to reflect the 2011 Morrison Creek Hydrology and Hydraulic Analysis prepared for the project.

c. An update of several conditions to reflect new wetland and oak woodland mitigation consistent with recent approvals by the U.S. Army Corps of Engineers.

d. A revision to conditions requiring the dedication of a public trail easement corresponding to the alignment of Morrison Creek.

RECLAMATION PLAN AMENDMENT

Approved a Reclamation Plan Amendment to the Vineyard I approval, subject to the findings recommended by staff in the County Planning Commission Staff Report, to allow:

a. The additional 5.61 areas proposed for mining to be incorporated into the previously approved reclamation plan.

b. A revision to the drainage and wetland mitigation plans for the project site that will include the construction of a Morrison Creek Realigned Channel (mining of the creek bed was approved in 2000) that will be approximately 300 feet in width at or near original grade, and will include adjacent buffer lands for a total width of 650 feet. This new Morrison Creek Realigned Channel will accommodate 100-year flood flows and incorporate wetland/riparian habitat mitigation elements.

c. The previously approved elevated bypass channel for Morrison Creek, and the 600-foot wide pit floor riparian corridor would be superseded with the construction of the new Morrison Creek Realigned Channel, as described above.

d. Fill (overburden) will be added to portions of the pit floor to bring these areas to within 5 feet of original grade.

e. A stormwater retention basin designed to accommodate 297-acre feet of water will be added to a portion of the pit floor.

ZONING AGREEMENT AMENDMENT

Approved a Zoning Agreement Amendment by Ordinance No. **SZC-2013-0001** to the Vineyard I approval, subject to the findings recommended by staff in the County Planning Commission Staff Report and revised conditions as outlined in Attachment 3 of the Board Report, to allow:

a. Amendments to several of the conditions of the original approval that reference an approved elevated bypass channel for Morrison Creek and a 600-foot wide pit floor riparian corridor, and instead reference the new Morrison Creek Realigned Channel, as described above.

b. An update of several conditions to reflect the 2011 Morrison Creek Hydrology and Hydraulic Analysis prepared for the project.

c. An update of several conditions to reflect new wetland and oak woodland mitigation consistent with recent approvals by the U.S. Army Corps of Engineers.

d. A revision to conditions requiring the dedication of a public trail easement corresponding to the alignment of Morrison Creek.

RELEASE FROM A PRIOR ZONING AGREEMENT

Approved a Release from the prior Zoning Ordinance by Resolution No. **2013-0021**, adopted by Ordinance No. SZC 2000-0001, to be replaced by an amended Zoning Ordinance subject to the findings recommended by staff in the County Planning Commission Staff Report.

The complete file and copies of all documents are attached.

CL:am

Attachments: Ordinance No. SZC-2013-0001
Resolution No. 2013-0020
Use Permit
Release and Discharge Resolution No. 2013-0021

cc: In house

Vineyard I
20050062
063-0080-010 through 013; 063-0090-001 through 003, 006, 009, 010, 011, 015 through 019; and 063-0110-001 through 006, 012, 028, 029

ORDINANCE NO. SZC-2013-0001

AN ORDINANCE OF THE BOARD OF SUPERVISORS OF SACRAMENTO COUNTY AMENDING THE ZONING CODE OF SACRAMENTO COUNTY, ORDINANCE NO. 83-10, AS AMENDED, CHANGING THE LAND USE ZONE OF CERTAIN PROPERTY KNOWN AS ASSESSOR'S PARCEL NOS. 063-0080-010 through 013; 063-0090-001 through 003, 006, 009, 010, 011, 015 through 019; and 063-0110-001 through 006, 012, 028, 029

The Board of Supervisors of the County of Sacramento, State of California, ordains as follows:

SECTION 1: Section 101-116 of the Zoning Code of Sacramento County, Ordinance No. SZC 83-10, as amended, which incorporates Comprehensive Zoning Plan Unit No. 308/176 is amended to change the land use zone of the property shown in Exhibit "B" (APN: 063-0090-009 and 018) from the IR(SM) Industrial Reserve with Surface Mining Combining and IR(F) Industrial Reserve with Flood Combining to IR(SM)(F) Industrial Reserve with Surface Mining/Flood Combining Land Use Zone for 5.61± acres being a portion of property described in Exhibits "A" and "A-1", which are attached hereto and incorporated herein as though set forth in full, and which is also commonly referred to and known as Assessor Parcel Nos. 063-0080-010 through 013; 063-0090-001 through 003, 006, 009, 010, 011, 015 through 019; and 063-0110-001 through 006, 012, 028, 029 ("Subject Property"). Approximately 408± acres of the Subject Property was previously rezoned from IR(F) Industrial Reserve Flood Combining, IR(SM) Industrial Reserve Surface Mining Combining, M-1 Light Industrial, and M-1(F) Light Industrial Flood Combining Land Use Zone to the IR(F)(SM) Industrial Reserve Flood/Surface

Mining Combining and M-1(F)(SM) Light Industrial Flood/Surface Mining Combining Land Use Zone by the Board of Supervisors on January 12, 2000 by Ordinance No. SZC-2000-0001, and that zoning remains in place, subject to Section 2, below.

SECTION 2: The change in the Land Use Zone for the Subject Property provided for in Section 1 hereof shall be subject to, and conditioned upon, compliance with all the conditions set forth in Exhibit "C", which is attached hereto and incorporated herein as though set forth in full. In addition, the conditions set forth in Ordinance No. SZC-2000-0001 are superseded by the conditions set forth in Exhibit "C" for the Subject Property described in Exhibits "A" and "A-1", and shall have no further force and effect.

SECTION 3: The conditions set forth in Exhibit "C" and incorporated herein shall run with the land and shall be directly enforceable by the County against the owner(s), successors and assigns of the Subject Property.

SECTION 4: The Board of Supervisors finds in connection with its adoption of this ordinance, and the imposition of the conditions enumerated in Exhibit "C" hereof and incorporated herein, that the owners of the Subject Property have consented to the imposition of the conditions enumerated in Exhibit "C" hereof. This consent is memorialized in Exhibit "D" which is attached hereto and incorporated herein as though set forth in full.

SECTION 5: This ordinance shall take effect and be in full force on thirty (30) days from the date of its passage, and before expiration of fifteen (15) days from the date of its passage it shall be published once with the names of the members of the Board of Supervisors voting for and against the same, said publication to be made in a newspaper of general circulation published within the County of Sacramento, State of California.

On a motion by Supervisor Nottoli, seconded by Supervisor Serna, the foregoing ordinance was passed and adopted by the Board of Supervisors of the County of Sacramento, State of California, this 8th day of January, 2013, by the following vote, to wit:

AYES: Supervisors, MacGlashan, Nottoli, Serna, Yee, Peters
NOES: Supervisors, None
ABSENT: Supervisors, None
ABSTAIN: Supervisors, None

Susan Peters
CHAIR OF THE BOARD OF SUPERVISORS
OF SACRAMENTO COUNTY, CALIFORNIA

ATTEST: Cyndi Lee

In accordance with Section 25103 of the Government Code of the State of California a copy of the document has been delivered to the Chairman of the Board of Supervisors. County Of Sacramento on:

By: Alyson Mally
Deputy Clerk, Board of Supervisors

FILED
BOARD OF SUPERVISORS
JAN 08 2013
BY Cyndi Lee
CLERK OF THE BOARD

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

CIVIL CODE § 1189

State of California

County of Sacramento

On 1/25/2013 (Date) before me, Alyson Murphy, Notary Public, (Here Insert Name and Title of the Officer)

personally appeared Cyndi Lee (Name(s) of Signer(s))

who proved to me on the basis of satisfactory evidence to be the person(~~s~~) whose name(~~s~~) is/~~are~~ subscribed to the within instrument and acknowledged to me that he/~~she/they~~ executed the same in his/~~her/their~~ authorized capacity(~~ies~~), and that by his/~~her/their~~ signature(~~s~~) on the instrument the person(~~s~~), or the entity upon behalf of which the person(~~s~~) acted, executed the instrument.

ALYSON MURPHY
Commission # 1989659
Notary Public - California
Sacramento County
My Comm. Expires Aug 20, 2016

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature: _____ (Signature of Notary Public)

Place Notary Seal Above

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

Description of Attached Document

Title or Type of Document: Ordinance SZC-2013-0001

Document Date: _____ Number of Pages: _____

Signer(s) Other Than Named Above: _____

Capacity(ies) Claimed by Signer(s)

Signer's Name: _____	Signer's Name: _____
☐ Corporate Officer — Title(s): _____	☐ Corporate Officer — Title(s): _____
☐ Individual	☐ Individual
☐ Partner — ☐ Limited ☐ General	☐ Partner — ☐ Limited ☐ General
☐ Attorney in Fact	☐ Attorney in Fact
☐ Trustee	☐ Trustee
☐ Guardian or Conservator	☐ Guardian or Conservator
☐ Other: _____	☐ Other: _____
Signer Is Representing: _____	Signer Is Representing: _____
RIGHT THUMBPRINT OF SIGNER — Top of thumb here	RIGHT THUMBPRINT OF SIGNER — Top of thumb here

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Item #5907

EXHIBIT "A"
PROPERTY DESCRIPTION
SHEET 1 OF 1

The following property description was prepared as an exhibit to accompany the Vineyard Community Plan Amendment, Rezone, Use Permit, Reclamation Plan Amendment, and Zoning Agreement Amendments tentatively approved by the Sacramento Board of Supervisors on December 4, 2012.

All that certain real property situated in the County of Sacramento, State of California, described as follows:

All that portion of Section 29 and all that portion of Section 30, Township 8 North, Range 6 East, M.D.M., situated in the County of Sacramento, State of California, described as follows:

Beginning at the South quarter corner of said Section 30 located at the intersection of Elder Creek Road and Hedge Road; thence, from said point of beginning, northerly along the North-South centerline of said Section 30, 3960 feet more or less, to the southwest corner of Lot 4 as shown on the Plat of George W. Artz Subdivision filed in Book 9 of Maps, Map No. 45 in the Recorder's office of Sacramento County; thence easterly 1320 feet more or less to the southwest corner of Lot 5 as shown on said Plat; thence northerly 1317.70 feet more or less to the northwest corner of said Lot 5; thence easterly 1322.29 feet more or less to the northeast corner of Lot 8 as shown on said Plat; thence southerly 1318.20 feet more or less to the southeast corner of said Lot 8 being the southeast corner of the North 1/2 of the Northeast 1/4 of said Section 30; thence southerly 660 feet more or less to the northwest corner of the West 1/4 of the South 1/2 of the South 1/2 of the Northwest 1/4 of said Section 29; thence easterly 613.1 feet more or less to a point located west 46.9 feet from the northeast corner of the West 1/4 of the South 1/2 of the South 1/2 of the Northwest 1/4 of said Section 29; thence easterly 1369 feet more or less to the northeast corner of the West 3/4 of the South 1/2 of the South 1/2 of the Northwest 1/4 of said Section 29; thence northerly 184 feet more or less; thence easterly 660.90 feet more or less to a point on the north-south centerline of said Section 29 also being on the centerline of Mayhew Road; thence southerly 2826.83 feet more or less to the southeast corner of the North 1/2 of the Southeast 1/4 of the Southwest 1/4 of said Section 29; thence westerly 1320 feet more or less to the southwest corner of the North 1/2 of the Southeast 1/4 of the Southwest 1/4 of said Section 29; thence northerly to the northeast corner of the property shown on that certain Record of Survey filed in Book 18 of Surveys, Page 22 in the Recorder's Office of said County; thence westerly 1320 feet more or less to a point on the section line common to said Sections 29 and 30; thence southerly to the southeast corner of said Section 30 on the centerline of Elder Creek Road; thence westerly 20.00 feet; thence northerly 660 feet more or less; thence westerly 970 feet more or less; thence southerly 660 feet more or less to the centerline of Elder Creek Road also being the south line of said Section 30; thence westerly 1651.08 feet more or less to the point of beginning.

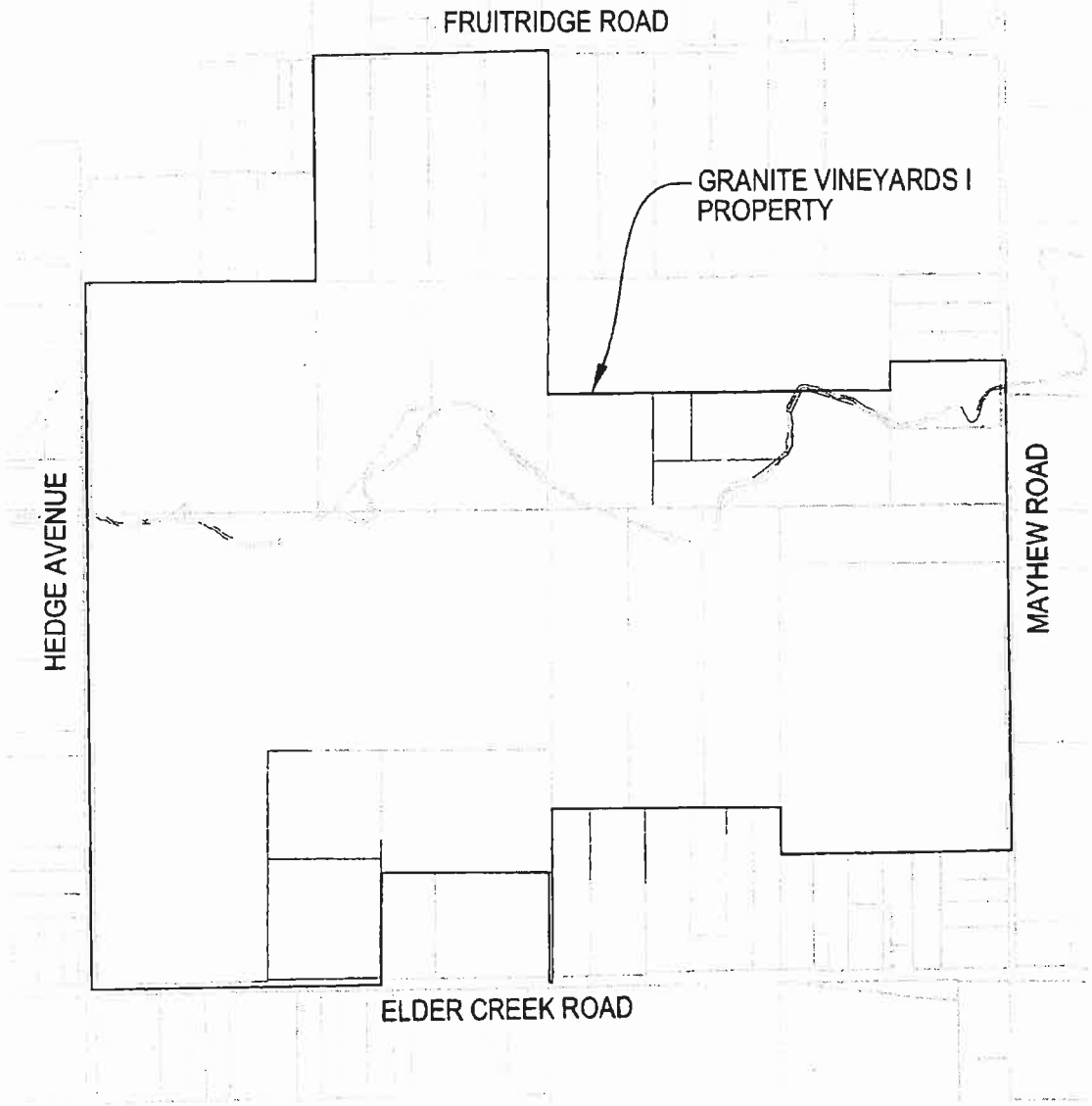
End of Property Description

January 2, 2013
Prepared by Cunningham Engineering Corp.

REGISTERED PROFESSIONAL ENGINEER
CHARLES W. CUNNINGHAM
No. C30339
CIVIL
STATE OF CALIFORNIA

01/02/13

Exhibit "A-1"



1000 500 0 1000

SCALE: 1" = 1000'

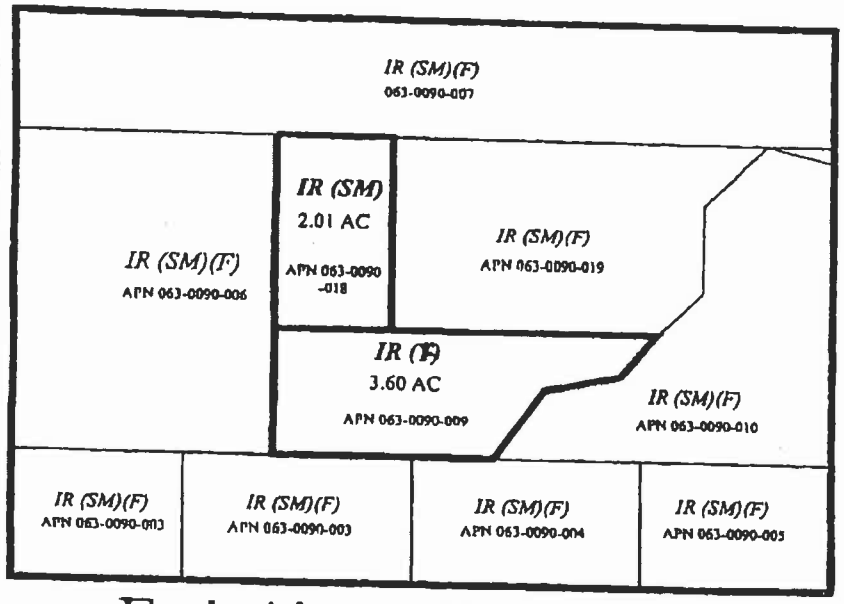
REGISTERED PROFESSIONAL ENGINEER
CHARLES W. CUNNINGHAM
No. C30339
CIVIL
STATE OF CALIFORNIA

1/02/13

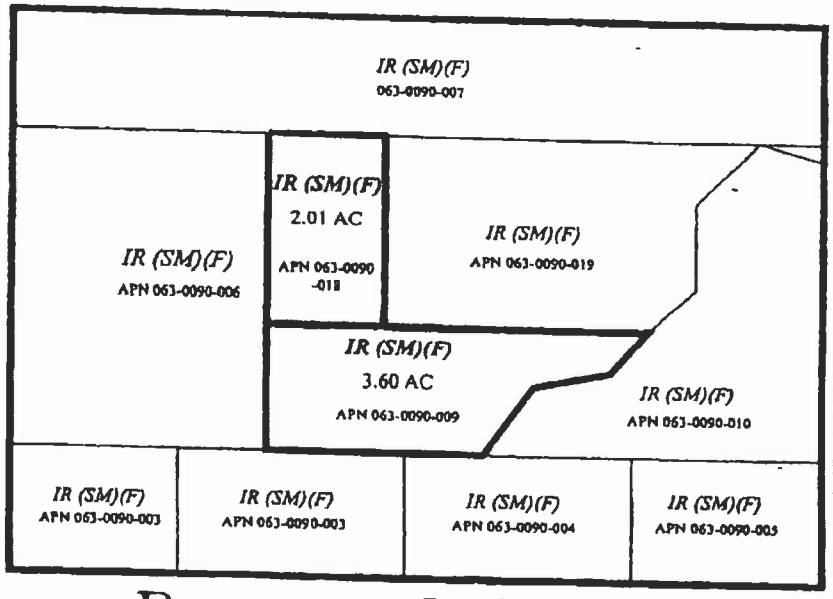
DESIGNED —	**VINEYARDS PROPERTY MAP**	CUNNINGHAM ENGINEERING — CECWEAT.COM — Project Planning • Civil Engineering • Landscape Architecture	SCALE 1" = 1000'
DRAWN LE		• Sacramento Office 2120 20th Street, Suite Three Sacramento, CA 95818 (916) 455-2026 • Davis Office 2940 Spafford Street, Suite 200 Davis, CA 95618 (530) 758-2026	SHEET 1
CHECKED SG			OF
DATE: 01/02/13			1
JOB No: 330.42	SACRAMENTO COUNTY CALIFORNIA		

S:\AutoCAD\300\330 Granite Vineyards\330-42 PROPERTY DESCRIPTION\SHEETS\330-42-C1-PROP.dwg - plot 1/02/2013 - 10:37AM Plotted by lu

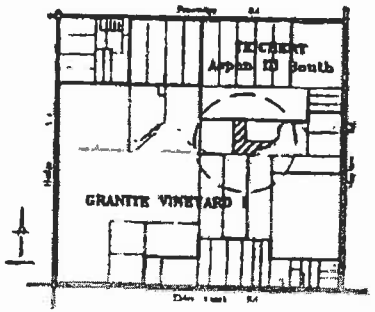
EXHIBIT B



Existing Zoning



Proposed Zoning



Vicitinity Map

RECEIVED

05 0062

FEB 10 2005

PLANNING DEPT
County of Sacramento

APN	AREA	EXISTING ZONE	PROPOSED ZONE
063-0090-009	3.60-AC	IR(SM)	IR(SM)(F)
063-0090-018	2.01-AC	IR(F)	IR(SM)(F)

GRANITE CONSTRUCTION COMPANY

Drawn by: Tyler Chatriand
Date: 02/02/05

EXHIBIT "C"

The conditions with which Owners shall comply are as follows:

Surface Water Hydrology and Quality

1. Given the risks involved to surface and groundwater contamination, measures shall be implemented to minimize the risk of toxic contamination of surface and/or groundwater during mining, reclamation or post-reclamation activities. These activities shall include an aggressive policy to restrict use of toxic contaminants on the project site to those absolutely necessary to conduct operations. Any form of pollutant shall be immediately contained, removed from the project site, and safely disposed. No storage of toxic materials shall be allowed in the gravel pits; storage will be allowed only in restricted upland areas where the opportunity for containment over less permeable ground exists. Any mining equipment associated with mining or reclamation operations shall be protected from flooding and from contact with surface water. *(Original Condition)*

2. The Vineyard I operator shall comply with the agricultural management plan approved by the Agricultural Commissioner and the Environmental Management Department to ensure that post-mining agricultural practices do not result in groundwater or surface water contamination. The Environmental Management Department shall be notified of any changes in the plan. *(Original Condition)*

3. The proponent shall obtain and comply with all permits required by the SWRCB and RWQCB. The proponent shall also prepare and implement a Stormwater Pollution Prevention Plan. Consistency with the adopted Water Quality Control Plan will be required and administered by the SWRCB and RWQCB during their review of the proposed project. *(Original Condition)*

4. The proposed mining operations shall be consistent with the *Aspen IIIS, IVS and Granite Vineyard I Post Reclamation Plan Hydrology & Hydraulic Analysis*, prepared by Wood Rodgers, dated June 2011, and the technical memo for the *Granite Vineyard I/ Aspen VI Weir Sensitivity Analysis*, dated July 6, 2011; which can be found and are on file with the Department of Community Development. *(Planning Division Condition)*

5. Prior to diversion of Morrison Creek into the Morrison Creek Realigned Channel (post-reclamation channel), or no later than October 31, 2013, the proponent shall enter into an agreement with the Sacramento County Department of Water Resources requiring that Granite and Teichert maintain and operate the weir on Granite I in the existing "As-Built Condition" in perpetuity. If the proponent wants to change the operation or function of the weir, they must first conduct or fully fund a hydrology and hydraulic analysis deemed satisfactory by the Sacramento County Department of Water Resources. Any proposed changes must receive approval from the Sacramento County Department of Water Resources and undergo any necessary permitting and CEQA analysis at the proponents' expense. *(Department of Water Resources Condition)*

6. All applicable State Fish & Game and U.S. Army Corps of Engineers permits shall be obtained prior to grading or building permit issuance. *(Original Condition)*

7. In order to mitigate erosion and sediment control impacts within the project site, all mining plans shall be required to comply with the County's Land Grading and Erosion Control Ordinance. *(Original Condition)*

Groundwater Hydrology and Quality

8. The Vineyard I operator shall store contaminants in the gravel operation area in a manner that will contain any spills (i.e., containment berms). Any spills occurring in operational areas should be cleaned up immediately. *(Original Condition as modified by Mitigation Measure GW-1)*

9. The proponent shall obtain all necessary permits for the construction or removal/abandonment of any water wells and septic systems from the Sacramento County Environmental Management Department, Environmental Health Division. *(Original Condition)*

10. Maintain compliance with the minimum mining setback from any adjacent sewage disposal systems as may be required by the Sacramento County Environmental Management Department, Environmental Health Division and the California Regional Water Quality Control Board. *(Original Condition)*

11. The proponent shall coordinate mining activities with the Air Force to avoid potential disruption of the ongoing Mather Field groundwater cleanup program to ensure that vital data collection is not disrupted. *(Original Condition)*

12. The Vineyard I operator shall comply with the groundwater monitoring protocol (Control No. 01-PAB-0371) approved by the Board of Supervisors on November 7, 2001. *(Original Condition as amended by the Planning Division)*

Cultural Resources

13. On the Vineyard I mining site, if subsurface deposits believed to be cultural or human in origin are discovered during any mining and reclamation-related project activities, then all work must halt within a 200-foot radius of the discovery. A qualified professional archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for prehistoric and historic archaeology, shall be retained at the Vineyard I mining operator's expense to evaluate the significance of the find. If it is determined due to the types of deposits discovered, that a Native American monitor is required, the Guidelines for Monitors/Consultants of Native American Cultural, Religious, and Burial Sites as established by the Native American Heritage Commission shall be followed, and the monitor shall be retained at the mining operator's expense.

    Work cannot continue within the 200-foot radius of the discovery site until the archaeologist conducts sufficient research and data collection to make a determination that the resource is either 1) not cultural in origin; or 2) not potentially eligible for listing on the National Register of Historic Places or California Register of Historical Resources.

    If a potentially-eligible resource is encountered, then the archaeologist, the Environmental Coordinator, and project proponent shall arrange for either 1) total avoidance of the resource, if possible; or 2) test excavations or total data recovery as mitigation. The determination shall be formally documented in writing and submitted to the Environmental

Coordinator as verification that the provisions of CEQA for managing unanticipated discoveries have been met. *(Original Condition as modified by Mitigation Measure CR-1)*

14. Pursuant to Section 5097.98 of the State Public Resources Code and Section 7050.5 of the State Health and Safety Code, in the event of the discovery of human remains on the Vineyard I mining site, all work is to stop and the County Coroner shall be immediately notified. If the remains are determined to be Native American, guidelines of the Native American Heritage Commission shall be adhered to in the treatment and disposition of the remains. *(Original Condition as modified by Mitigation Measure CR-2)*

Air Quality

15. <u>Category 1: Reducing NOx emissions from off-road diesel powered equipment.</u>

    The Vineyard I mining operator shall provide a plan, for approval of the lead agency and the Sacramento Metropolitan Air Quality Management District (SMAQMD), demonstrating that the heavy-duty (50 horsepower or more) off-road vehicles to be used in the project (mining of the Vineyard I site), including owned or leased and subcontracted vehicles, will achieve a project wide fleet-average 20 percent NOx reduction and 45 percent particulate reduction (acceptable options for reducing emissions may include use of late model engines, low-emissions diesel products, alternative fuels, engine retrofit technology, after-treatment products and/or other options as they become available) compared to the most recent California Air Resource Board (ARB) fleet average at time of each annual report; and

    The mining operator shall submit to the lead agency and SMAQMD a comprehensive inventory of all off-road equipment, equal to or greater than 50 horsepower, that will be used an aggregate of 40 or more hours per year during any portion of the project. The inventory shall include the horsepower rating, engine production year, and project hours of use or fuel throughput for each piece of equipment. The inventory shall be updated and submitted annually throughout the duration of the project. The mining operator shall provide SMAQMD with the name and phone number of the project manager and/or on-site foreman.

    Due to the long term nature of this project, the requirement for the emission reduction plan referenced herein will sunset on month/date/year (project proponent should contact SMAQMD staff to determine appropriate sunset period) due to existing SMAQMD and ARB rules that will affect ARB fleet averages at that time.

    And:

    <u>Category 2: Controlling visible diesel emissions from off-road diesel powered equipment.</u>

    Emissions from all off-road diesel powered equipment used on the project site shall not exceed 40 percent opacity for more than three minutes in any one-hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be repaired immediately, and the lead agency and SMAQMD shall be notified within 48 hours of identification of non-compliant equipment. The SMAQMD and/or other officials may conduct periodic site inspections to determine compliance. Nothing in this mitigation measure shall supersede other applicable SMAQMD or State rules or regulations. *(Mitigation Measure AQ-1)*

16. All vehicles utilized as part of the Vineyard I mining shall be maintained in accordance with the manufacturers' recommendations, and all stationary equipment used on the site shall be maintained in compliance with emissions limitations established by a permit issued by the SMAQMD. The Vineyard I mining operator shall maintain records of equipment maintenance activities and records shall be provided to the County upon request. *(Mitigation Measure AQ-2)*

17. Particulate filters and catalysts should be used where technically feasible to reduce NOx emissions from off-road heavy duty equipment associated with the Vineyard I mining. The mining operator should contact SMAQMD and/or ARB for assistance in determining appropriate emission reducing technologies. *(Mitigation Measure AQ-3)*

18. Carry-out of mud or dirt onto public roads during initial overburden removal shall be controlled by creating either a gravel apron or a mud trap (series of metal bars or grating with space underneath to accumulate material) to remove mud or dust from truck tires. Public roads near project site access points shall be regularly swept to avoid accumulation of dust on the road surface. *(Original Condition)*

19. Unpaved haul roads shall be regularly treated with appropriate dust suppressants (e.g., water or chemical dust palliatives). The frequency of application shall vary according to the weather and moisture level of the soils on the site, but shall be frequent enough to avoid visible dust plumes. *(Original Condition)*

20. Overburden stockpiles shall be treated with appropriate dust suppressants, regularly watered or otherwise treated to minimize wind erosion. *(Original Condition)*

21. Every effort shall be made to remove overburden during the period of the year when surface soils are moist. If overburden is removed when surface soils are dry, water spraying equipment shall be used to reduce dust emission. Water spraying equipment shall likewise be used, as needed, when removing aggregate. The duration and timing of water spraying shall be determined by the Municipal Services Agency. *(Original Condition)*

22. The moisture content of material being conveyed on and off-site shall be maintained at a level sufficient to avoid visible dust from the conveyor loading and transfer points. *(Original Condition)*

23. The Vineyard I operator shall comply with the air quality monitoring protocol (Control No. 01-PAB-0371) approved by the Board of Supervisors on November 7, 2001. *(Original Condition as amended by the Planning Division)*

Geologic and Slope Stability

24. For the Vineyard I mining site, the mining operator shall limit the finished side slopes of the Morrison Creek Realigned Channel and mining pit slopes at the Vineyard I mining site to 2:1 (horizontal:vertical) to ensure stability for existing soil conditions. For the slopes of the Morrison Creek Realigned Channel, soils shall be placed and compacted to 90 percent of the maximum dry density, at or near optimum moisture conditions, in all finished slopes. Since local stability of the slope is critically dependent upon proper compaction of the overburden soils, a qualified soils engineer shall be regularly present throughout grading operations to determine compliance with job specifications. *(Original Condition as modified by Mitigation Measure GS-1)*

25. Prior to allowing re-directed stream flows to the Morrison Creek Realigned Channel, the Vineyard I mining operator shall submit a report prepared by a California registered professional engineer certifying the channel and embankment engineering and foundation soils of the Morrison Creek Realigned Channel. The engineer's report shall address slope stability, soil compaction rates, foundation soils, potential failure mechanisms and contingencies for repairing failures. The report shall be submitted to the Department of Community Development for approval. No flows shall be directed to the new channel until approval is granted by the Department of Community Development. *(Mitigation Measure GS-2)*

26. The Vineyard I mining operator shall comply with the approved Erosion Control Plan to ensure that the side slopes of the pit are vegetated following final slope placement to prevent excessive erosion and enhance slope stability. *(Original Condition as modified by Mitigation Measure GS-5)*

27. The mining operator for Vineyard I shall submit to the Environmental Coordinator, a ten-year monitoring plan that outlines monitoring requirements and identifies mitigating steps for any significant erosion that may occur at a specific location in the Morrison Creek Realigned Channel (flow channel). If significant erosion is identified during monitoring, the mining operator shall contact the Environmental Coordinator and submit proof of corrective actions. Appropriate mitigation includes, but is not limited to; strengthening of the channel, re-grading the channel, widening the channel to reduce scour velocities, or any other revision as approved by County staff to mitigate significant erosion. *(Mitigation Measure GS-6)*

Paleontological Resources

28. Should fossils be discovered on the project site, the proponent shall terminate work in the immediate area of the discovery and contact the County Department of Environmental Review and Assessment and the University of California at Davis or California State University Sacramento to jointly develop an action plan to assess and/or preserve the fossil resources. *(Original Condition)*

Biological Resources

29. The proponent shall secure a Streambed Alteration Agreement (CDFG 1601-1607) with the California Department of Fish and Game before re-routing existing stream channels. The Streambed Alteration Agreement should include a program and appropriate plans to protect upstream and downstream habitats. Best Management Practices should be employed to minimize alterations of natural water flows and reduce downstream sediment. *(Original Condition)*

30. Granite Construction shall submit to the Department of Community Development the recorded Conservation Easements for the Morrison Creek Realigned Channel by the date set in the issued U.S. Army Corps of Engineers Section 404 permit (November 30, 2013). In the event that the U.S. Army Corps of Engineers changes the date for the permit, a copy of the recorded Conservation Easement shall be submitted within five (5) days of the new approved date. *(Mitigation Measure BR-1)*

31. The proponent shall develop and implement a water quality and erosion control plan for all mining and reclamation related project activities. The plan shall include the following:

a. Control disposal of runoff during mining and reclamation-related project activities as well as any water encountered during such activities. There must not be any discharge to state waters unless authorized under permit by the California Department of Fish and Game and the Central Valley Regional Water Quality Control Board;

b. Methods to control surface discharge away from disturbed areas and along roadways;

c. Methods to be used for slope stabilization and to limit erosion on disturbed areas or any other area subject to erosion;

d. Methods to be implemented that ensure proper operation, maintenance, and use of erosion control devices;

e. Seasonal variation in use of erosion control measures must be addressed, including winterizing all areas from October 15 through May 15 of each calendar year; and

f. A detailed revegetation and slope stabilization plan. *(Original Condition)*

32. The proposed project (through the Lead Agencies) shall comply with the consultation requirements set forth in Section 7 of the Federal Endangered Species Act (per 16 USC Sec. 1531 et seq.), and the Fish and Wildlife Coordination Act (16 USC Sec. 661 et seq.). *(Original Condition)*

33. The mining operator for Vineyard I shall implement the *Wetland, Oak Woodland and Riparian Mitigation Monitoring Plan* (refer to Appendix D1 of the SEIR) and submit to the Department of Community Development annual monitoring reports as specified in the *Wetland, Oak Woodland and Riparian Mitigation Monitoring Plan.* The report shall present the status of the creek, wetlands, drainage, oak woodland and riparian habitats, including individual wetland data, photo-documentation, status of the riparian and oak woodland plantings, and any recommended remediation. The report shall also include an assessment of the monitoring results against the success criteria described in the *Wetland, Oak Woodland and Riparian Mitigation Monitoring Plan.*

The monitoring report shall be prepared and submitted to the Department of Community Development (and Corps and CDFG) for each of the monitoring years by December 31st of each monitoring year. The report shall include:

a. A map showing the Preserve including wetland locations, location of various monitoring activities and photo points;

b. Hydrology, vegetation, and photographic monitoring results as described in the *Wetland, Oak Woodland and Riparian Mitigation Monitoring Plan*;

c. An assessment of the monitoring results against the established success criteria;

d. A description of the overall site conditions and any management actions taken during that year; and

e. Any recommended management or remediation actions to be conducted (if necessary, a contingency plan, as described in Section 8.2 of the *Wetland, Oak Woodland and Riparian Mitigation Monitoring Plan* will be prepared).

If any revisions to the construction plans for the Morrison Creek Realigned Channel occur during the first ten years, a letter indicating proposed changes shall be submitted to the

Department of Community Development. If changes require approval by either the Corps or CDFG an approval letter from the respective agency shall be submitted to the Department of Community Development.

At the end of the ten-year monitoring period, monitoring will cease if the Morrison Creek Realigned Channel is found by the Department of Community Development, Corps and CDFG to be in substantial compliance with the established success criteria. Monitoring will be extended beyond the ten-year period for those habitats that are not meeting success criteria. *(Mitigation Measure BR-2)*

34. The following mitigation is recommended to minimize the potential impacts to the Swainson's hawk, burrowing owl, and other special status raptor species. The measures listed below are related to the aforementioned species only.

    a. Prior to issuance of any grading permits, the proponent shall submit, to the Department of Environmental Review and Assessment, a current survey conducted by a qualified wildlife biologist indicating the location and status of any active nest on the project site.

    b. Prior to disturbance of any nest, the proponent shall secure the required permits from the U.S. Fish and Wildlife Service for such removal, pursuant to the Migratory Bird Treaty Act.

    c. No construction shall be allowed within 150 feet from any active nest site until all of the young have fledged, or a permit has been secured from the appropriate resource agency to allow disturbance or removal of the active nests. The 150-foot "no construction" buffer zone must be adequately fenced and signed.

    d. The post-reclamation agricultural areas shall be planted only with crops that are suitable for Swainson's hawk foraging; these crops shall be approved by the California Department of Fish and Game.

    e. The post-reclamation project site shall not be operated with any rodent or small mammal control program that would eliminate all rodents and small mammals from the project site. The proponent shall ensure that any rodent or small mammal control program is approved by the California Department of Fish and Game, U.S. Army Corps of Engineers, and County prior to its implementation. *(Original Condition)*

35. Prior to the issuance of a Work Authorization Permit, if mining on the Vineyard I expansion site is to occur between March 1 and September 15, a focused survey for Swainson's hawk nests on the site and on nearby trees shall take place within ½ mile for rural sites and ¼ mile for urban sites, and shall be conducted by a qualified biologist within 14 days prior to the start of any mining and reclamation-related project activities (including clearing and grubbing). If active nests are found, the California Department of Fish and Game (CDFG) shall be contacted to determine appropriate protective measures. If no active nests are found during the focused survey, no further mitigation will be required. *(Mitigation Measure BR-8)*

36. Prior to mining activities on the Vineyard I mining expansion site, a focused survey shall be conducted by a qualified biologist for burrowing owls where suitable habitat is present in the project area. Suitable habitat includes agricultural field margins, drainage ditches and fallow fields. Surveys shall be conducted no less than 14 days and no more than 30

days prior to commencement of any mining and reclamation-related project activities. Surveys shall be conducted in accordance with CDFG protocol (CDFG, 1995).

a. If no occupied burrow is found in the survey area, a letter report documenting survey methods and findings shall be submitted to the County and no further mitigation is necessary.

b. If an occupied burrow is found, the Vineyard I expansion mining operator shall contact the Environmental Coordinator and consult with the CDFG, prior to any mining and reclamation-related project activities, to determine if avoidance is possible or if burrow relocation will be required.

c. If owls are to remain on-site, a minimum of 6.5 acres of foraging habitat for each occupied burrow needs to be permanently preserved according to CDFG guidelines.

d. In order to avoid direct impacts to owls, no activity shall take place within 160 feet of an active burrow from September 1 to January 31 (wintering season) or 250 feet from February 1 through August 31 (breeding season). Protective fencing shall be placed, at the distances above, around the active burrows and no activity shall occur within the protected buffer areas.

e. Any impact to active owl burrows, relocation of owls or mitigation for habitat loss shall be done in accordance with CDFG guidelines. Written evidence from CDFG staff shall be provided to the Environmental Coordinator attesting to the permission to remove burrows, relocated owls, mitigate for lost habitat and provide a method for preservation habitat in perpetuity. *(Mitigation Measure BR-9)*

37. Survey for Tricolored blackbirds: If mining activities on the Vineyard I mining expansion site occur between March 1 and July 31, a pre-construction survey for nesting tricolored blackbird shall be performed by a qualified biologist. Surveys shall include the project site and areas of appropriate habitat within 300 feet of the site. Surveys shall be conducted no less than 14 days and no more than 30 days prior to commencement of mining activities. The biologist shall supply a brief written report (including date, time of survey, survey method, name of surveyor and survey results) to the Environmental Coordinator prior to ground disturbing activities. If no tricolored blackbirds are found during the pre-construction survey, no further mitigation will be required. If an active tricolored blackbird colony is found on-site or within 300 feet of the project site, the Vineyard I expansion mining operator shall do the following:

a. Consult with CDFG to determine if project activity will impact the tricolored blackbird colony(s). Provide to the Environmental Coordinator with written evidence of the consult or a contact name and number from CDFG.

b. With CDFG permission, the mining operator may avoid impacts to tricolored blackbirds by establishing a 300-foot temporary setback with fencing that prevents any project activity within 300 feet of the colony. A qualified biologist shall verify that setbacks and fencing are adequate and will determine when the colonies are no longer dependent on the nesting habitat (i.e., nesting have fledged and are no longer using habitat). The breeding season typically ends in July.

c. If the tricolored blackbird habitat is permanently destroyed, follow CDFG procedure to mitigate for habitat loss. *(Mitigation Measure BR-10)*

38. The removal of 40 inches of diameter breast-height (dbh) of native oak trees for the Vineyard I expansion site shall be compensated by planting native oak trees (either valley oak/Quercus lobata, blue oak/ Quercus douglasii and/or interior live oak/ Quercus wislizenii) equivalent to the dbh inches lost, based on the ratios listed below, at locations that are authorized by the Environmental Coordinator. On-site preservation of native oak trees that are less than 6 inches (<6 inches) dbh, may also be used to meet this compensation requirement. A total of 40 inches will require compensation.

Equivalent compensation based on the following ratio is required:

- One preserved native oak tree < 6 inches dbh on-site = I inch dbh
- One D-pot seedling (40 cubic inches or larger) = 1 inch dbh
- One 15-gallon tree = 1 inch dbh
- One 24-inch box tree = 2 inches dbh
- One 36-inch box tree = 3 inches dbh

Replacement tree plantings shall be completed prior to tree removal or a bond shall be posted by the Vineyard I mining expansion operator in order to provide funding for purchase, planting, irrigation, and 3-year maintenance period, should the mining operator default on replacement tree mitigation. The bond shall be in an amount equal to the prevailing rate of the County Tree Preservation Fund and will be due within one year of posting the bond.

Prior to the issuance of a Work Authorization Permit for the Vineyard I expansion site, a Replacement Oak Tree Planting Plan shall be prepared by a certified arborist or licensed landscape architect and shall be submitted to the Environmental Coordinator for approval. The Replacement Oak Tree Planting Plan(s) shall include the following minimum elements:

a. Species, size and locations of all replacement plantings and < 6 inch dbh trees to be preserved;

b. Method of irrigation;

c. If planting in soils with a hardpan/duripan or clayplan layer, include the Sacramento County Standard Tree Planting Detail L-1, including the 10-foot deep boring hole to provide for adequate drainage;

d. Planting, irrigation and maintenance schedules;

e. Identification of the maintenance entity and a written agreement with that entity to provide care and irrigation of the trees for a 3-year establishment period, and to replace any of the replacement oak trees which do not survive during that period; and

f. Designation of a 20-foot root zone radius and landscaping to occur within the radius of oak trees < 6 inches dbh to be preserved on-site.

No replacement tree shall be planted within 15 feet of the driplines of existing oak trees or landmark size trees that are retained onsite. The minimum spacing for replacement oak trees shall be 20 feet on-center.

If oak tree replacement plantings are demonstrated to the satisfaction of the Environmental Coordinator to be infeasible for any or all trees removed, then compensation shall be through payment into the County Tree Preservation Fund. Payment shall be made at a rate of $325.00 per dbh inch removed but not otherwise compensated, or at the prevailing rate at the time payment into the fund is made. *(Mitigation Measure BR-4)*

Traffic and Circulation

39. The proponent shall limit material to be removed from the project site by truck to 1,000,000 cubic yards of overburden. *(Original Condition)*

40. If overburden from the Vineyard I mining expansion site is to be removed from the site, overburden transport shall be by conveyor and internal vehicles only and not by on-road haul trucks. *(Mitigation Measure TC-2)*

41. The Vineyard I mining operator shall transport mined aggregate material to the processing plants only by conveyor, and not by trucks. *(Original Condition as modified by Mitigation Measure TC-1)*

42. All overburden removed from the site by trucks shall be routed onto Mayhew Road north to Jackson Road. If an on-site crossing of Morrison Creek is required, the creek crossing shall be consistent with all U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, and California Department of Fish and Game permits required for the project. Any temporary private bridge crossing of Morrison Creek shall be removed prior to completion of the project reclamation plan. Overburden hauling (truck trips) shall not exceed 30 per hour during peak traffic periods. *(Original Condition)*

43. Grant the County right-of-way for Fruitridge Road, Mayhew Road, and Elder Creek Road based on an 84-foot standard, pursuant to the Sacramento County Improvement Standards. *(Original Condition)*

44. Grant the County right-of-way for Hedge Avenue based on a 60-foot standard, pursuant to the Sacramento County Improvement Standards. *(Original Condition)*

45. Grant the County additional right-of-way on Elder Creek Road/Hedge Avenue for intersection widening per standard drawings H-24 and H-25 of the Sacramento County Improvement Standards. *(Original Condition)*

46. The proposed conveyor tunnels under various roadways shall be designed to accommodate the ultimate roadway cross-section to the satisfaction of the Transportation Division of the Public Works Agency/Caltrans. *(Original Condition)*

47. Prior to initiation of overburden removal from the project site, the proponent shall install a right-turn on the northbound Mayhew Road approach to the Jackson Road intersection. The cost of this improvement shall be split on a fair-share basis between Teichert Aggregates and Granite Construction. Within 6 months of the use permit approval, the proponent shall submit improvement plans to the County of Sacramento Transportation Division for review and approval. *(Original Condition)*

48. The location, number and design of project access driveways for the project site shall be to the satisfaction of the Department of Transportation. *(Original Condition)*

49. The proponent shall agree to repair any damages to structural paving material along sections of project site roadway segments upon which loaded trucks are routed, to the extent such damage is caused by traffic which occurs during the period of hauling operations. Such agreement with the Department of Transportation shall be formalized prior to issuance of the work authorization permit. *(Original Condition)*

50. No mining shall take place within 25 feet of the ultimate right-of-way of Fruitridge Road and Mayhew Road, except that the Public Works Director may authorize mining to proceed up to 12 feet from the ultimate right-of-way, with appropriate backfill and compaction to preexisting grade to the required 25-foot setback line (with a slope no steeper than 2:1). The mining and backfilling proposal shall be supported by a soils report prepared by a qualified soils engineer, certifying that the overburden and underlying aggregate can support the proposed activity and anticipated traffic levels of Fruitridge Road and Mayhew Road without adversely affecting the County right-of-way. The 25-foot setback area adjacent to the right-of-way of Fruitridge Road and Mayhew Road shall be backfilled and compacted prior to the onset of the rainy season, and a soil engineer shall certify the compaction to at least 90 percent. *(Original Condition)*

Land Use

51. The proponent shall maintain the following setbacks:

    a. A 25-foot minimum setback from adjoining rural residential land uses, the first 10 feet of which shall consist of undisturbed land.

    b. No mining may occur within 50 feet of any habitable structures in existence on adjacent properties at the time of mining.

    c. No mining may occur within 50 feet of the west property line of the Buddhist Temple (APN: 063-0110-008), except for the northern most 250 feet as referenced on "Option 3", where mining may occur within 50 feet of, but not closer than 10 feet, to the west property line. These northern most 250 feet shall be reclaimed to original grade with backfilling to a minimum of 50 feet once mining is complete in the area. Duration of operations in this reduced setback area shall not exceed 2 weeks for overburden removal, 3 weeks for mining, and 6 weeks for reclamation. These operations may or may not be sequential. Each operation shall be preceded by a 3-week advance written notification to the Temple.

    d. A 25-foot minimum landscaped setback from all public streets consisting entirely of unmined land, or unless otherwise specified herein.

    e. The setback area consisting of mined land shall be reclaimed to original grade within one year or less of completion of mining. *(Original Condition)*

52. In order to mitigate potential impacts to surrounding land uses, the proponent shall be required to comply fully with mitigation measures identified in the Noise, Traffic and Circulation; Air Quality; and Visual Impacts sections of the EIR/EIS and SEIR, unless otherwise amended by the conditions set forth herein. These mitigation measures will employ appropriate state-of-the-art techniques for erosion control, reclamation, nuisance prevention, and environmental impact mitigation relative to surface mining operations. *(Mitigation Measure LU-1)*

53. In order to mitigate potential impacts to agricultural uses, prior to the issuance of the work authorization permit for the Vineyard I mining expansion site, the mining operator shall revise/prepare a plan, that includes the Vineyard I mining expansion site (5.6 acres), for the preservation and salvage of topsoil resources suitable for sustaining economically viable agricultural uses, consistent with the performance standards set forth in Sections 3708 and 3711 of the State Mining and Geology Board Reclamation Regulations. *(Mitigation Measure LU-2)*

54. Provide the Southgate Recreation & Park District (SRPD) copies of all Army Corps of Engineers (ACOE), U.S. Fish and Wildlife Service, California Department of Fish and Game and any other permitting agency final permits, conditions and restrictions, management plans, and/or wetland delineations as they pertain to the bicycle/pedestrian trails within Vineyard I. *(Southgate Recreation & Park District Condition)*

55. Upon request by the SRPD, the Vineyard I mining operator agrees to provide a trail and setback easement (hereafter the "Trail Easement"), not to exceed 20 feet in width, so long as said easement does not conflict with any requirements or easements stemming from any permit issued, or that may be issued, by an agency of the State of California or the federal government. Said easement shall be located coincident with the maintenance road on the north levee within the Morrison Creek Preserve (as approved by the ACOE in an e-mail dated September 26, 2012) and shall be consistent with the attached Public Trail Map (Exhibit A).

    a. *Trail Improvements.* At the request of the SRPD and after acceptance of the Trail Easement by SRPD, the Operator shall improve the Trail Easement area by constructing a trail surface not exceeding 12 feet in width. Operator's responsibilities with respect to improvement of the Trail Easement area shall be limited to the installation of a suitably compacted base rock foundation as the trail surface, the grade and slopes of which shall be designed to provide for safe use, entry and exit by members of the public. The cost of other improvements of the Trail Easement area, including the installation of asphalt or other overlay paving, shall be the responsibility of SRPD. SRPD shall also bear the cost of installing fencing around the Trail Easement area (hereafter "Trail Fencing") and interpretive signage on said fencing (hereafter "Trail Signage") to the satisfaction of ACOE.

    b. *Trail Maintenance.* As a condition of allowing the trail to be located within the Morrison Creek Preserve, the SRPD shall provide for funding necessary for the removal of trash from the Trail Easement area and all other maintenance of the Trail Easement area, Trail Fencing and Trail Signage required by ACOE to keep the trail in good repair.

    c. *Modification or Termination of Condition.* This condition shall cease to be binding in the event (a) the requirement for an easement dedication and/or trail installation is superseded by a condition of approval for a trail easement on a development application covering the same property; (b) the Operator and the SRPD enter into an agreement rendering all or part of this condition null and void or, (c) at the latest, upon expiration of the use permit and any extensions that may be granted thereto, unless SRPD has previously requested the dedication of a Trail Easement. *(Southgate Recreation & Park District Condition and Mitigation Measure LU-3)*

56. The Vineyard I mining operator shall comply with all requirements of its ACOE permits and Operator shall also (through the Preserve Manager) comply with all Operations and Management (O&M) Plans related to the ACOE permits and related Morrison Creek Preserves, including but not limited to the monitoring and general inspection of the Preserves. *(Southgate Recreation & Park District Condition)*

Noise

57. Comply with the following operation hours for the on-site mining, unless modified on an interim basis by the Zoning Administrator of the Department of Community Development:

    a. Monday through Friday: 6:00 a.m. until 10:00 p.m.

    b. Saturday: 8:00 a.m. through 5:00 p.m.

    c. Sunday and labor union holidays: No mining.

    d. Asian New Year: No mining within 500 feet of the Buddhist Temple property. *(Original Condition)*

58. For all other common residential/project property lines, the proponent shall provide noise barriers consisting of 8-foot high earthen berms or temporary portable barriers installed and moved along property boundaries as mining progresses. The noise barriers shall be maintained at least until sufficient pit excavation has occurred to block the line of sight between nearby residences and mining activities. If temporary portable barriers are used, they shall either be constructed with 4 x 8 sheets of 3/4-inch plywood, placed side by side with an overlap of 1-2 inches to prevent gapping, or shall be constructed with other materials which achieve equivalent or greater sound attenuation as verified by a qualified acoustical consultant. (Note: While the above cited 3/4-inch plywood can provide acceptable temporary noise attenuation, this method as currently practiced is subject to weather damage, and lack of maintenance severely limits its effectiveness and aesthetic appeal. Alternatives that provide durability and improved aesthetics for nearby residents and passersby should be explored.) *(Original Condition)*

59. The proponent shall provide for continuous movement of the excavation along the mining face of all common residential/project property lines to prevent noise from concentrating on any one receptor. *(Original Condition)*

60. The Vineyard I operator shall comply with the noise monitoring protocol (Control No. 01-PAB-0371) approved by the Board of Supervisors on November 7, 2001. *(Original Condition as amended by the Planning Division)*

Airport Compatibility

61. The retention basin on Vineyard I shall include the following design criteria to the maximum extent practicable, while still adhering to the federal agency regulations:

    a. The basin shall incorporate steep side slopes (3:1 or greater)

    b. The basin shall be designed to remain clear of vegetation that may provide nesting, roosting or foraging opportunities for birds. Only herbaceous vegetation necessary for erosion control purposes will be allowed. *(Mitigation Measure LU-4)*

Public Safety

62. Except along boundaries contiguous with approved mining operations, the proponent shall install fences and provide warning/trespass signs to comply with the Zoning Code. *(Original Condition)*

63. All perimeter fencing shall be retained until post-reclamation development of the project site occurs. *(Mitigation Measure PS-1)*

64. Existing public infrastructure (roads, water and sewer, electrical, etc.) shall be protected from undermining and collapse. To protect the roadway and other public infrastructure, the proponent shall construct adjacent pit sides to standards approved by Water Resources Division (WRD). *(Original Condition)*

Aesthetics and Visual Resources

65. The proponent shall screen mining operations from public roadways, private property, and other sensitive receptors by providing an appropriate combination of visual enhancements. Unless otherwise specified herein, these enhancements may include a combination of 25-foot minimum buffers, chain-link fencing, berming, and landscaping with fast-growing, closely spaced shrubs. To the extent possible, earthen berms shall meander and be contoured to reflect a more natural pattern with variations in width, height and direction. *(Original Condition)*

66. All landscaping shall be installed within one year of issuance of the use permit to allow plant establishment and sufficient screening growth. Plantings shall be irrigated by trenching or with individual bubblers on an automatic irrigation system. Along public streets, landscaping shall be installed exterior to earthen berms or chain-link fencing to provide the least "industrial" appearance and the highest compatibility with neighboring uses. Slats may be used in the fencing only if mining occurs before vegetation has reached screening height and density. *(Original Condition)*

67. Landscaping shall be provided adjacent to residential properties within one year of issuance of the use permit. Landscaping along residential properties shall consist of fast growing, closely spaced shrubs and shall be irrigated and maintained over the life of the project. *(Original Condition)*

68. Landscaping along the public streets and adjacent to residential properties shall be consistent with the Landscape Plan (Control No. 00-PAB-0752) as approved by the Board of Supervisors on May 23, 2001. *(Original Condition as amended by the Planning Division)*

69. Any lighting shall be arranged and controlled so as not to illuminate public rights-of-way or adjacent properties. In order to reduce direct and reflected light pollution, lighting at the project site shall be equipped with shields that concentrate the illumination downward such that no direct light is cast off the site. Energy efficient lights shall be used, similar to the types used as residential outdoor security lights. The candle power of the illumination at ground level shall not exceed what is required by any safety or security regulations of any government agency with regulatory oversight of the mining operation. *(Mitigation Measure AV-1)*

Public and Private Utilities

70. The proponent shall submit for review by the Environmental Management Department a site plan showing the exact locations of the wells proposed for use during the mining operation, the wells and/or septic systems proposed for abandonment, and the proposed locations for any new wells. *(Original Condition)*

71. The proponent shall abandon any existing septic systems according to the Environmental Management Department and Building Department procedures and standards. Use of the system to be excavated shall be discontinued six months prior to excavation, and the tanks shall be pumped at that time. Should any septic system be uncovered during mining activities, it shall be destroyed as per the requirements of the Environmental Management Department. *(Original Condition)*

72. The proponent shall ensure that water wells located in each phase of mining shall be abandoned to the satisfaction of the Environmental Management Department prior to initiation of the mining of that phase. Any existing wells shall be abandoned according to the Environmental Management Department and Building Department procedures and standards. Should any well be uncovered during mining activities, it shall be destroyed as per the requirements of the Environmental Management Department. *(Original Condition)*

73. The proponent shall contact the SMUD Distribution Planning Department and consult with SMUD through project planning and development so that any required facilities and easements would be developed in a coordinated manner. The proponent shall keep SMUD informed of all decisions or changes in schedules that pertain to the proposed project, including setbacks, landscaped corridors, or any other planning efforts which may affect SMUD electrical facilities. The proponent shall coordinate with SMUD for the construction of SMUD facilities during the different phases of development. *(Original Condition)*

74. All new wells constructed on the project site shall be located and designed to minimize interference with existing wells within and outside the project site, to the satisfaction of the Environmental Management Department. *(Original Condition)*

75. Any existing overhead power lines shall remain and/or, if necessary, be relocated at the proponent's expense as the operation proceeds. *(Original Condition)*

Miscellaneous

76. This action does not relive the proponent of the obligation to comply with all ordinances, statutes, regulations and procedures applicable at the time of development. Any required subsequent procedural actions (e.g., issuance of a Work Authorization Permit) shall take place within 36 months of the date on which the use permit became effective or this action shall automatically be null and void. *(Original Condition)*

77. This use permit shall expire on December 15, 2025 (i.e., all mining shall cease on December 15, 2025). Any additional reclamation work shall be completed within 24 months of the completion of mining. *(Original Condition as amended by the County Planning Commission)*

78. Prior to issuance of the work authorization permit, provide Sacramento County with a performance bond for each of the projects made payable to the County of Sacramento and

the Department of Conservation of the State of California in the amount of $173,077 to financially guarantee reclamation of the property. The amount of the bond shall be subject to annual review and adjustment pursuant to the requirements of SMARA. *(Original Condition)*

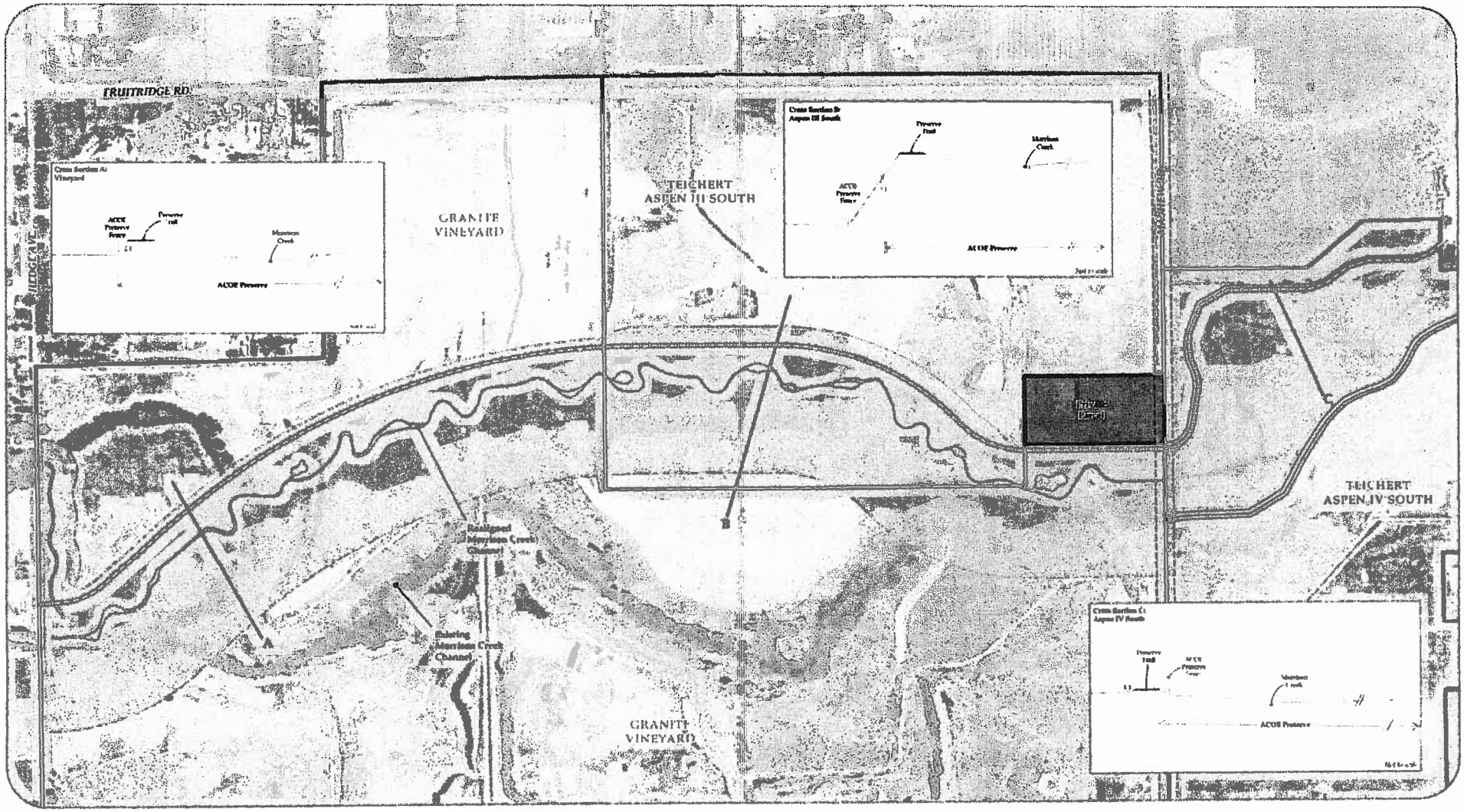
79. Provide a sign at the main entry to the project with a primary contact and phone number in case of emergency or nuisance problems. *(Original Condition)*

80. Comply with the Mitigation Monitoring and Reporting Program (MMRP) for this project as follows:

    a. It shall be the responsibility of the Vineyard I mining operator to reimburse the County for all expenses incurred in the implementation of the Mitigation Monitoring and Reporting Program (MMRP), including any necessary enforcement actions. The mining operator shall pay an initial deposit of $6,000.00. Over the course of the project, DERA will regularly conduct cost accountings and submit invoices to the mining operator when the County monitoring costs exceed the initial deposit.

    b. Until the MMRP has been recorded and initial deposit paid, no work authorization permit, grading permit or encroachment permit from Sacramento County shall be approved. *(Original Condition as amended by the Division of Environmental Review and Assessment)*

81. Prior to diversion of Morrison Creek into the Morrison Creek bypass pursuant to Permit Number SPK-1994-00102 issued by the USACE on April 16, 2004, revised March 12, 2010, the Vineyard I mining operator shall provide the Department of Community Development a copy of any permit(s) (e.g., an Encroachment Permit) that may be required from the Central Valley Flood Protection Board. *(Planning Division Condition)*



LEGEND:

- Realigned Morrison Creek
- Existing Morrison Creek
- ACOE Preserve Fence
- Trail Easement: 12' Trail/ 20' Easement
- Preserves
- Granite & Teichert Property Boundaries

SOURCE:

- Morrison Creek Realignment Provided by GC Wallace (2008)
- Aspen IV South Provided by Cunningham Engineering (2012)
- Aerial Photography Provided by USDA FSA (2010)

200 100 0 200 400 Feet

DISCLAIMER:

The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

TEICHERT MATERIALS

EXHIBIT A
SOUTHGATE TRAIL EASEMENT
MORRISON CREEK REALIGNMENT
SACRAMENTO COUNTY, CALIFORNIA

EXHIBIT "D"

CONSENT OF OWNER(S) TO IMPOSITION OF REZONE CONDITIONS

I am one of the owners of that real property which is described in Exhibits "A" and "A-1" of this Zoning Ordinance, which is attached thereto and incorporated therein as though set forth in full ("Subject Property"), and which is also commonly referred to and known as Assessor Parcel Nos. 063-0080-010 through 013; 063-0090-001 through 003, 006, 009, 010, 011, 015 through 019; and 063-0110-001 through 006, 012, 028, 029. As the record owner of the Subject Property, I have applied to have a portion of the Subject Property described in Exhibits "A" and "A-1" rezoned as shown in Exhibit "B" from the from the IR(SM) Industrial Reserve with Surface Mining Combining and IR(F) Industrial Reserve with Flood Combining to IR(SM)(F) Industrial Reserve with Surface Mining/Flood Combining Land Use Zone for 5.61± acres (APN: 063-0090-009 and 018). Approximately 408± acres of the Subject Property was previously rezoned from IR(F) Industrial Reserve Flood Combining, IR(SM) Industrial Reserve Surface Mining Combining, M-1 Light Industrial, and M-1(F) Light Industrial Flood Combining Land Use Zone to the IR(F)(SM) Industrial Reserve Flood/Surface Mining Combining and M-1(F)(SM) Light Industrial Flood/Surface Mining Combining Land Use Zone by the Board of Supervisors on January 12, 2000 by Ordinance No. SZC-2000-0001, and that zoning remains in place, but the conditions attached thereto are amended and superseded by Exhibit "C".

On behalf of myself and all other record owners of the Subject Property, I hereby represent that I have received a copy of the Zoning Ordinance, including Exhibits "A", "A-1", "B", and "C" in their entirety, and have carefully reviewed and fully understand the Rezone conditions set forth in Exhibit "C". In my capacity as owner, and authorized representative of all other record owners, of the Subject Property, I consent to the imposition of the Rezone Conditions and agree to fully comply with the Rezone Conditions.

GRANITE CONSTRUCTION COMPANY

DATED: 1-3-13

By: Scott Wolcott

Scott Wolcott, Vice President Land & Quarry

"Owner"

SDL
20050062sigpg – Ex D

RESOLUTION NO. 2013-0020

RESOLUTION OF THE BOARD OF SUPERVISORS OF THE
COUNTY OF SACRAMENTO, STATE OF CALIFORNIA,
AMENDING THE VINEYARD COMMUNITY PLAN
Assessor's Parcel Nos. 063-0080-010 through 013; 063-0090-001 through 003, 006, 009, 010, 011, 015 through 019; 063-0110-001 through 006, 012, 028, 029

WHEREAS, the County of Sacramento has adopted the Vineyard Community Plan for the purpose of guiding the County of Sacramento, relative to the development of said communities; and

WHEREAS, on May 21, 2012, public hearings were held before the County Planning Commission; and

WHEREAS, the County Planning Commission forwarded its recommendation of approval to this Board.

NOW, THEREFORE, BE IT RESOLVED that the Vineyard Community Plan is amended as shown on Exhibit "B" attached to corresponding Rezone Ordinance **SZC-2013-0001**.

BE IT FURTHER RESOLVED that the Clerk of the Board of Supervisors is directed to endorse said Community Plan to show that such plan has been amended, and that such amendment has been approved by the Board of Supervisors.

On a motion by Supervisor Nottoli, and seconded by Supervisor Serna, the foregoing Resolution was passed and adopted by the Board of Supervisors of the County of Sacramento, State of California, this 8th day of January, 2013, by the following vote, to wit:

AYES: SUPERVISORS: MacGlashan, Nottoli, Serna, Yee, Peters
NOES: SUPERVISORS: None
ABSTAIN: SUPERVISORS: None
ABSENT: SUPERVISORS: None

Susan Peters
Chairman of the Board of Supervisors
of Sacramento County, California

COUNTY OF SACRAMENTO CALIFORNIA

ATTEST: Cyndi Lee
Clerk of the Board of Supervisors

In accordance with Section 25103 of the Government Code of the State of California a copy of the document has been delivered to the Chairman of the Board of Supervisors. County Of Sacramento on:

By: Alyn M
Deputy Clerk, Board of Supervisors

FILED
BOARD OF SUPERVISORS
JAN 08 2013
BY Cyndi Lee
CLERK OF THE BOARD

THE FOLLOWING IS A COMPLETE SET OF CONDITIONS, INCLUDING APPLICABLE AMENDMENTS, APPROVED BY THE BOARD OF SUPERVISORS ON JANUARY 8, 2013.

USE PERMIT
County of Sacramento
Board of Supervisors

Control Number:
2005-CZB-UPB-REB-ZGB-0062 **Hearing Date**: January 8, 2013

Assessor's Parcel Nos. 063-0080-010 through 013; 063-0090-001 through 003, 006, 009, 010, 011, 015 through 019; 063-0110-001 through 006, 012, 028, 029

OWNER/APPLICANT:

Granite Construction Company
P.O. Box 15287
Sacramento, CA 95851-0287
Attn: Yasha Saber

REPRESENTATIVE:

David Temblador
Harrison Temblador Hungerford & Johnson, LLP
980 9th Street, Suite 1400
Sacramento, CA 95814

PERMISSION IS GRANTED TO USE THE SUBJECT PREMISES FOR THE FOLLOWING DESCRIBED USE: A Use Permit for an aggregate mining operation known as Vineyard I approved in 2000 (Control No. 91-CZB-UPB-0118) to allow aggregate mining on an additional 5.61 acres, and to incorporate this new area into the previously approved mining plan.

A Use Permit Amendment to the Vineyard I approval to allow:

a. Amendments to several of the conditions of the original approval that reference an approved elevated bypass channel for Morrison Creek and a 600-foot wide pit floor riparian corridor, and instead reference the new Morrison Creek Realigned Channel, as described above.

b. An update of several conditions to reflect the 2011 Morrison Creek Hydrology and Hydraulic Analysis prepared for the project.

c. An update of several conditions to reflect new wetland and oak woodland mitigation consistent with recent approvals by the U.S. Army Corps of Engineers.

d. A revision to conditions requiring the dedication of a public trail easement corresponding to the alignment of Morrison Creek.

DESCRIPTION OF PREMISES: The property is located at the northeast corner of Hedge Road and Elder Creek Road, in the Vineyard community.

CONDITIONS OF APPROVAL:

Surface Water Hydrology and Quality

1. Given the risks involved to surface and groundwater contamination, measures shall be implemented to minimize the risk of toxic contamination of surface and/or groundwater during mining, reclamation or post-reclamation activities. These activities shall include an aggressive policy to restrict use of toxic contaminants on the project site to those absolutely necessary to conduct operations. Any form of pollutant shall be immediately contained, removed from the project site,

and safely disposed. No storage of toxic materials shall be allowed in the gravel pits; storage will be allowed only in restricted upland areas where the opportunity for containment over less permeable ground exists. Any mining equipment associated with mining or reclamation operations shall be protected from flooding and from contact with surface water. *(Original Condition)*

2. The Vineyard I operator shall comply with the agricultural management plan approved by the Agricultural Commissioner and the Environmental Management Department to ensure that post-mining agricultural practices do not result in groundwater or surface water contamination. The Environmental Management Department shall be notified of any changes in the plan. *(Original Condition)*

3. The proponent shall obtain and comply with all permits required by the SWRCB and RWQCB. The proponent shall also prepare and implement a Stormwater Pollution Prevention Plan. Consistency with the adopted Water Quality Control Plan will be required and administered by the SWRCB and RWQCB during their review of the proposed project. *(Original Condition)*

4. The proposed mining operations shall be consistent with the *Aspen IIIS, IVS and Granite Vineyard I Post Reclamation Plan Hydrology & Hydraulic Analysis*, prepared by Wood Rodgers, dated June 2011, and the technical memo for the *Granite Vineyard I/ Aspen VI Weir Sensitivity Analysis*, dated July 6, 2011; which can be found and are on file with the Department of Community Development. *(Planning Division Condition)*

5. Prior to diversion of Morrison Creek into the Morrison Creek Realigned Channel (post-reclamation channel), or no later than October 31, 2013, the proponent shall enter into an agreement with the Sacramento County Department of Water Resources requiring that Granite and Teichert maintain and operate the weir on Granite I in the existing "As-Built Condition" in perpetuity. If the proponent wants to change the operation or function of the weir, they must first conduct or fully fund a hydrology and hydraulic analysis deemed satisfactory by the Sacramento County Department of Water Resources. Any proposed changes must receive approval from the Sacramento County Department of Water Resources and undergo any necessary permitting and CEQA analysis at the proponents' expense. *(Department of Water Resources Condition)*

6. All applicable State Fish & Game and U.S. Army Corps of Engineers permits shall be obtained prior to grading or building permit issuance. *(Original Condition)*

7. In order to mitigate erosion and sediment control impacts within the project site, all mining plans shall be required to comply with the County's Land Grading and Erosion Control Ordinance. *(Original Condition)*

Groundwater Hydrology and Quality

8. The Vineyard I operator shall store contaminants in the gravel operation area in a manner that will contain any spills (i.e., containment berms). Any spills occurring in operational areas should be cleaned up immediately. *(Original Condition as modified by Mitigation Measure GW-1)*

9. The proponent shall obtain all necessary permits for the construction or removal/abandonment of any water wells and septic systems from the Sacramento County Environmental Management Department, Environmental Health Division. *(Original Condition)*

10. Maintain compliance with the minimum mining setback from any adjacent sewage disposal systems as may be required by the Sacramento County Environmental Management Department, Environmental Health Division and the California Regional Water Quality Control Board. *(Original Condition)*

11. The proponent shall coordinate mining activities with the Air Force to avoid potential disruption of the ongoing Mather Field groundwater cleanup program to ensure that vital data collection is not disrupted. *(Original Condition)*

12. The Vineyard I operator shall comply with the groundwater monitoring protocol (Control No. 01-PAB-0371) approved by the Board of Supervisors on November 7, 2001. *(Original Condition as amended by the Planning Division)*

Cultural Resources

13. On the Vineyard I mining site, if subsurface deposits believed to be cultural or human in origin are discovered during any mining and reclamation-related project activities, then all work must halt within a 200-foot radius of the discovery. A qualified professional archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for prehistoric and historic archaeology, shall be retained at the Vineyard I mining operator's expense to evaluate the significance of the find. If it is determined due to the types of deposits discovered, that a Native American monitor is required, the Guidelines for Monitors/Consultants of Native American Cultural, Religious, and Burial Sites as established by the Native American Heritage Commission shall be followed, and the monitor shall be retained at the mining operator's expense.

    Work cannot continue within the 200-foot radius of the discovery site until the archaeologist conducts sufficient research and data collection to make a determination that the resource is either 1) not cultural in origin; or 2) not potentially eligible for listing on the National Register of Historic Places or California Register of Historical Resources.

    If a potentially-eligible resource is encountered, then the archaeologist, the Environmental Coordinator, and project proponent shall arrange for either 1) total avoidance of the resource, if possible; or 2) test excavations or total data recovery as mitigation. The determination shall be formally documented in writing and submitted to the Environmental Coordinator as verification that the provisions of CEQA for managing unanticipated discoveries have been met. *(Original Condition as modified by Mitigation Measure CR-1)*

14. Pursuant to Section 5097.98 of the State Public Resources Code and Section 7050.5 of the State Health and Safety Code, in the event of the discovery of human remains on the Vineyard I mining site, all work is to stop and the County Coroner shall be immediately notified. If the remains are determined to be Native American, guidelines of the Native American Heritage Commission shall be adhered to in the treatment and disposition of the remains. *(Original Condition as modified by Mitigation Measure CR-2)*

Air Quality

15. Category 1: Reducing NOx emissions from off-road diesel powered equipment.

    The Vineyard I mining operator shall provide a plan, for approval of the lead agency and the Sacramento Metropolitan Air Quality Management District (SMAQMD), demonstrating that the heavy-duty (50 horsepower or more) off-road vehicles to be used in the project (mining of the Vineyard I site), including owned or leased and subcontracted vehicles, will achieve a project wide fleet-average 20 percent NOx reduction and 45 percent particulate reduction (acceptable options for reducing emissions may include use of late model engines, low-emissions diesel products, alternative fuels, engine retrofit technology, after-treatment products and/or other options as they become available) compared to the most recent California Air Resource Board (ARB) fleet average at time of each annual report; and

    The mining operator shall submit to the lead agency and SMAQMD a comprehensive inventory of all off-road equipment, equal to or greater than 50 horsepower, that will be used an aggregate of 40 or more hours per year during any portion of the project. The inventory shall include the horsepower rating, engine production year, and project hours of use or fuel throughput for each piece of equipment. The inventory shall be updated and submitted annually throughout the duration of the project. The mining operator shall provide SMAQMD with the name and phone number of the project manager and/or on-site foreman.

    Due to the long term nature of this project, the requirement for the emission reduction plan referenced herein will sunset on month/date/year (project proponent should contact SMAQMD staff to determine appropriate sunset period) due to existing SMAQMD and ARB rules that will affect ARB fleet averages at that time.

    And:

    Category 2: Controlling visible diesel emissions from off-road diesel powered equipment.

    Emissions from all off-road diesel powered equipment used on the project site shall not exceed 40 percent opacity for more than three minutes in any one-hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be repaired immediately, and the lead agency and SMAQMD shall be notified within 48 hours of identification of non-compliant equipment. The SMAQMD and/or other officials may conduct periodic site inspections to determine compliance. Nothing in this mitigation measure shall supersede other applicable SMAQMD or State rules or regulations. *(Mitigation Measure AQ-1)*

16. All vehicles utilized as part of the Vineyard I mining shall be maintained in accordance with the manufacturers' recommendations, and all stationary equipment used on the site shall be maintained in compliance with emissions limitations established by a permit issued by the SMAQMD. The Vineyard I mining operator shall maintain records of equipment maintenance activities and records shall be provided to the County upon request. *(Mitigation Measure AQ-2)*

17. Particulate filters and catalysts should be used where technically feasible to reduce NOx emissions from off-road heavy duty equipment associated with the Vineyard I mining. The mining operator should contact SMAQMD and/or ARB for assistance in determining appropriate emission reducing technologies. *(Mitigation Measure AQ-3)*

18. Carry-out of mud or dirt onto public roads during initial overburden removal shall be controlled by creating either a gravel apron or a mud trap (series of metal bars or grating with space underneath to accumulate material) to remove mud or dust from truck tires. Public roads near project site access points shall be regularly swept to avoid accumulation of dust on the road surface. *(Original Condition)*

19. Unpaved haul roads shall be regularly treated with appropriate dust suppressants (e.g., water or chemical dust palliatives). The frequency of application shall vary according to the weather and moisture level of the soils on the site, but shall be frequent enough to avoid visible dust plumes. *(Original Condition)*

20. Overburden stockpiles shall be treated with appropriate dust suppressants, regularly watered or otherwise treated to minimize wind erosion. *(Original Condition)*

21. Every effort shall be made to remove overburden during the period of the year when surface soils are moist. If overburden is removed when surface soils are dry, water spraying equipment shall be used to reduce dust emission. Water spraying equipment shall likewise be used, as needed, when removing aggregate. The duration and timing of water spraying shall be determined by the Municipal Services Agency. *(Original Condition)*

22. The moisture content of material being conveyed on and off-site shall be maintained at a level sufficient to avoid visible dust from the conveyor loading and transfer points. *(Original Condition)*

23. The Vineyard I operator shall comply with the air quality monitoring protocol (Control No. 01-PAB-0371) approved by the Board of Supervisors on November 7, 2001. *(Original Condition as amended by the Planning Division)*

Geologic and Slope Stability

24. For the Vineyard I mining site, the mining operator shall limit the finished side slopes of the Morrison Creek Realigned Channel and mining pit slopes at the Vineyard I mining site to 2:1 (horizontal:vertical) to ensure stability for existing soil conditions. For the slopes of the Morrison Creek Realigned Channel, soils shall be placed and compacted to 90 percent of the maximum dry density, at or near optimum moisture conditions, in all finished slopes. Since local stability of the slope is critically dependent upon proper compaction of the overburden soils, a qualified soils engineer shall be regularly present throughout grading operations to determine compliance with job specifications. *(Original Condition as modified by Mitigation Measure GS-1)*

25. Prior to allowing re-directed stream flows to the Morrison Creek Realigned Channel, the Vineyard I mining operator shall submit a report prepared by a California registered professional engineer certifying the channel and embankment engineering and foundation soils of the Morrison Creek Realigned Channel. The engineer's report shall address slope stability, soil compaction rates, foundation soils, potential failure mechanisms and contingencies for repairing failures. The report shall be submitted to the Department of Community Development for approval. No flows shall be directed to the new channel until approval is granted by the Department of Community Development. *(Mitigation Measure GS-2)*

26. The Vineyard I mining operator shall comply with the approved Erosion Control Plan to ensure that the side slopes of the pit are vegetated following final slope placement to prevent excessive erosion and enhance slope stability. *(Original Condition as modified by Mitigation Measure GS-5)*

27. The mining operator for Vineyard I shall submit to the Environmental Coordinator, a ten-year monitoring plan that outlines monitoring requirements and identifies mitigating steps for any significant erosion that may occur at a specific location in the Morrison Creek Realigned Channel (flow channel). If significant erosion is identified during monitoring, the mining operator shall contact the Environmental Coordinator and submit proof of corrective actions. Appropriate mitigation includes, but is not limited to; strengthening of the channel, re-grading the channel, widening the channel to reduce scour velocities, or any other revision as approved by County staff to mitigate significant erosion. *(Mitigation Measure GS-6)*

Paleontological Resources

28. Should fossils be discovered on the project site, the proponent shall terminate work in the immediate area of the discovery and contact the County Department of Environmental Review and Assessment and the University of California at Davis or California State University Sacramento to jointly develop an action plan to assess and/or preserve the fossil resources. *(Original Condition)*

Biological Resources

29. The proponent shall secure a Streambed Alteration Agreement (CDFG 1601-1607) with the California Department of Fish and Game before re-routing existing stream channels. The Streambed Alteration Agreement should include a program and appropriate plans to protect upstream and downstream habitats. Best Management Practices should be employed to minimize alterations of natural water flows and reduce downstream sediment. *(Original Condition)*

30. Granite Construction shall submit to the Department of Community Development the recorded Conservation Easements for the Morrison Creek Realigned Channel by the date set in the issued U.S. Army Corps of Engineers Section 404 permit (November 30, 2013). In the event that the U.S. Army Corps of Engineers changes the date for the permit, a copy of the recorded Conservation Easement shall be submitted within five (5) days of the new approved date. *(Mitigation Measure BR-1)*

31. The proponent shall develop and implement a water quality and erosion control plan for all mining and reclamation related project activities. The plan shall include the following:

    a. Control disposal of runoff during mining and reclamation-related project activities as well as any water encountered during such activities. There must not be any discharge to state waters unless authorized under permit by the California Department of Fish and Game and the Central Valley Regional Water Quality Control Board;

    b. Methods to control surface discharge away from disturbed areas and along roadways;

    c. Methods to be used for slope stabilization and to limit erosion on disturbed areas or any other area subject to erosion;

d. Methods to be implemented that ensure proper operation, maintenance, and use of erosion control devices;

e. Seasonal variation in use of erosion control measures must be addressed, including winterizing all areas from October 15 through May 15 of each calendar year; and

f. A detailed revegetation and slope stabilization plan. *(Original Condition)*

32. The proposed project (through the Lead Agencies) shall comply with the consultation requirements set forth in Section 7 of the Federal Endangered Species Act (per 16 USC Sec. 1531 et seq.), and the Fish and Wildlife Coordination Act (16 USC Sec. 661 et seq.). *(Original Condition)*

33. The mining operator for Vineyard I shall implement the *Wetland, Oak Woodland and Riparian Mitigation Monitoring Plan* (refer to Appendix D1 of the SEIR) and submit to the Department of Community Development annual monitoring reports as specified in the *Wetland, Oak Woodland and Riparian Mitigation Monitoring Plan.* The report shall present the status of the creek, wetlands, drainage, oak woodland and riparian habitats, including individual wetland data, photo-documentation, status of the riparian and oak woodland plantings, and any recommended remediation. The report shall also include an assessment of the monitoring results against the success criteria described in the *Wetland, Oak Woodland and Riparian Mitigation Monitoring Plan.*

The monitoring report shall be prepared and submitted to the Department of Community Development (and Corps and CDFG) for each of the monitoring years by December 31st of each monitoring year. The report shall include:

a. A map showing the Preserve including wetland locations, location of various monitoring activities and photo points;

b. Hydrology, vegetation, and photographic monitoring results as described in the *Wetland, Oak Woodland and Riparian Mitigation Monitoring Plan*;

c. An assessment of the monitoring results against the established success criteria;

d. A description of the overall site conditions and any management actions taken during that year; and

e. Any recommended management or remediation actions to be conducted (if necessary, a contingency plan, as described in Section 8.2 of the *Wetland, Oak Woodland and Riparian Mitigation Monitoring Plan* will be prepared).

If any revisions to the construction plans for the Morrison Creek Realigned Channel occur during the first ten years, a letter indicating proposed changes shall be submitted to the Department of Community Development. If changes require approval by either the Corps or CDFG an approval letter from the respective agency shall be submitted to the Department of Community Development.

At the end of the ten-year monitoring period, monitoring will cease if the Morrison Creek Realigned Channel is found by the Department of Community Development, Corps and CDFG to be in substantial compliance with the established success criteria. Monitoring will be extended beyond the ten-year period for those habitats that are not meeting success criteria. *(Mitigation Measure BR-2)*

34. The following mitigation is recommended to minimize the potential impacts to the Swainson's hawk, burrowing owl, and other special status raptor species. The measures listed below are related to the aforementioned species only.

    a. Prior to issuance of any grading permits, the proponent shall submit, to the Department of Environmental Review and Assessment, a current survey conducted by a qualified wildlife biologist indicating the location and status of any active nest on the project site.

    b. Prior to disturbance of any nest, the proponent shall secure the required permits from the U.S. Fish and Wildlife Service for such removal, pursuant to the Migratory Bird Treaty Act.

    c. No construction shall be allowed within 150 feet from any active nest site until all of the young have fledged, or a permit has been secured from the appropriate resource agency to allow disturbance or removal of the active nests. The 150-foot "no construction" buffer zone must be adequately fenced and signed.

    d. The post-reclamation agricultural areas shall be planted only with crops that are suitable for Swainson's hawk foraging; these crops shall be approved by the California Department of Fish and Game.

    e. The post-reclamation project site shall not be operated with any rodent or small mammal control program that would eliminate all rodents and small mammals from the project site. The proponent shall ensure that any rodent or small mammal control program is approved by the California Department of Fish and Game, U.S. Army Corps of Engineers, and County prior to its implementation. *(Original Condition)*

35. Prior to the issuance of a Work Authorization Permit, if mining on the Vineyard I expansion site is to occur between March 1 and September 15, a focused survey for Swainson's hawk nests on the site and on nearby trees shall take place within ½ mile for rural sites and ¼ mile for urban sites, and shall be conducted by a qualified biologist within 14 days prior to the start of any mining and reclamation-related project activities (including clearing and grubbing). If active nests are found, the California Department of Fish and Game (CDFG) shall be contacted to determine appropriate protective measures. If no active nests are found during the focused survey, no further mitigation will be required. *(Mitigation Measure BR-8)*

36. Prior to mining activities on the Vineyard I mining expansion site, a focused survey shall be conducted by a qualified biologist for burrowing owls where suitable habitat is present in the project area. Suitable habitat includes agricultural field margins, drainage ditches and fallow fields. Surveys shall be conducted no less than 14 days and no more than 30 days prior to commencement of any mining and reclamation-related project activities. Surveys shall be conducted in accordance with CDFG protocol (CDFG, 1995).

    a. If no occupied burrow is found in the survey area, a letter report documenting survey methods and findings shall be submitted to the County and no further mitigation is necessary.

    b. If an occupied burrow is found, the Vineyard I expansion mining operator shall contact the Environmental Coordinator and consult with the CDFG, prior to any mining and reclamation-related project activities, to determine if avoidance is possible or if burrow relocation will be required.

c. If owls are to remain on-site, a minimum of 6.5 acres of foraging habitat for each occupied burrow needs to be permanently preserved according to CDFG guidelines.

d. In order to avoid direct impacts to owls, no activity shall take place within 160 feet of an active burrow from September 1 to January 31 (wintering season) or 250 feet from February 1 through August 31 (breeding season). Protective fencing shall be placed, at the distances above, around the active burrows and no activity shall occur within the protected buffer areas.

e. Any impact to active owl burrows, relocation of owls or mitigation for habitat loss shall be done in accordance with CDFG guidelines. Written evidence from CDFG staff shall be provided to the Environmental Coordinator attesting to the permission to remove burrows, relocated owls, mitigate for lost habitat and provide a method for preservation habitat in perpetuity. *(Mitigation Measure BR-9)*

37. Survey for Tricolored blackbirds: If mining activities on the Vineyard I mining expansion site occur between March 1 and July 31, a pre-construction survey for nesting tricolored blackbird shall be performed by a qualified biologist. Surveys shall include the project site and areas of appropriate habitat within 300 feet of the site. Surveys shall be conducted no less than 14 days and no more than 30 days prior to commencement of mining activities. The biologist shall supply a brief written report (including date, time of survey, survey method, name of surveyor and survey results) to the Environmental Coordinator prior to ground disturbing activities. If no tricolored blackbirds are found during the pre-construction survey, no further mitigation will be required. If an active tricolored blackbird colony is found on-site or within 300 feet of the project site, the Vineyard I expansion mining operator shall do the following:

a. Consult with CDFG to determine if project activity will impact the tricolored blackbird colony(s). Provide to the Environmental Coordinator with written evidence of the consult or a contact name and number from CDFG.

b. With CDFG permission, the mining operator may avoid impacts to tricolored blackbirds by establishing a 300-foot temporary setback with fencing that prevents any project activity within 300 feet of the colony. A qualified biologist shall verify that setbacks and fencing are adequate and will determine when the colonies are no longer dependent on the nesting habitat (i.e., nesting have fledged and are no longer using habitat). The breeding season typically ends in July.

c. If the tricolored blackbird habitat is permanently destroyed, follow CDFG procedure to mitigate for habitat loss. *(Mitigation Measure BR-10)*

38. The removal of 40 inches of diameter breast-height (dbh) of native oak trees for the Vineyard I expansion site shall be compensated by planting native oak trees (either valley oak/Quercus lobata, blue oak/ Quercus douglasii and/or interior live oak/ Quercus wislizenii) equivalent to the dbh inches lost, based on the ratios listed below, at locations that are authorized by the Environmental Coordinator. On-site preservation of native oak trees that are less than 6 inches (<6 inches) dbh, may also be used to meet this compensation requirement. A total of 40 inches will require compensation.

Equivalent compensation based on the following ratio is required:

- One preserved native oak tree < 6 inches dbh on-site = I inch dbh

- One D-pot seedling (40 cubic inches or larger) = 1 inch dbh
- One 15-gallon tree = 1 inch dbh
- One 24-inch box tree = 2 inches dbh
- One 36-inch box tree = 3 inches dbh

Replacement tree plantings shall be completed prior to tree removal or a bond shall be posted by the Vineyard I mining expansion operator in order to provide funding for purchase, planting, irrigation, and 3-year maintenance period, should the mining operator default on replacement tree mitigation. The bond shall be in an amount equal to the prevailing rate of the County Tree Preservation Fund and will be due within one year of posting the bond.

Prior to the issuance of a Work Authorization Permit for the Vineyard I expansion site, a Replacement Oak Tree Planting Plan shall be prepared by a certified arborist or licensed landscape architect and shall be submitted to the Environmental Coordinator for approval. The Replacement Oak Tree Planting Plan(s) shall include the following minimum elements:

a. Species, size and locations of all replacement plantings and < 6 inch dbh trees to be preserved;

b. Method of irrigation;

c. If planting in soils with a hardpan/duripan or clayplan layer, include the Sacramento County Standard Tree Planting Detail L-1, including the 10-foot deep boring hole to provide for adequate drainage;

d. Planting, irrigation and maintenance schedules;

e. Identification of the maintenance entity and a written agreement with that entity to provide care and irrigation of the trees for a 3-year establishment period, and to replace any of the replacement oak trees which do not survive during that period; and

f. Designation of a 20-foot root zone radius and landscaping to occur within the radius of oak trees < 6 inches dbh to be preserved on-site.

No replacement tree shall be planted within 15 feet of the driplines of existing oak trees or landmark size trees that are retained onsite. The minimum spacing for replacement oak trees shall be 20 feet on-center.

If oak tree replacement plantings are demonstrated to the satisfaction of the Environmental Coordinator to be infeasible for any or all trees removed, then compensation shall be through payment into the County Tree Preservation Fund. Payment shall be made at a rate of $325.00 per dbh inch removed but not otherwise compensated, or at the prevailing rate at the time payment into the fund is made. *(Mitigation Measure BR-4)*

Traffic and Circulation

39. The proponent shall limit material to be removed from the project site by truck to 1,000,000 cubic yards of overburden. *(Original Condition)*

40. If overburden from the Vineyard I mining expansion site is to be removed from the site, overburden transport shall be by conveyor and internal vehicles only and not by on-road haul trucks. *(Mitigation Measure TC-2)*

41. The Vineyard I mining operator shall transport mined aggregate material to the processing plants only by conveyor, and not by trucks. *(Original Condition as modified by Mitigation Measure TC-1)*

42. All overburden removed from the site by trucks shall be routed onto Mayhew Road north to Jackson Road. If an on-site crossing of Morrison Creek is required, the creek crossing shall be consistent with all U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, and California Department of Fish and Game permits required for the project. Any temporary private bridge crossing of Morrison Creek shall be removed prior to completion of the project reclamation plan. Overburden hauling (truck trips) shall not exceed 30 per hour during peak traffic periods. *(Original Condition)*

43. Grant the County right-of-way for Fruitridge Road, Mayhew Road, and Elder Creek Road based on an 84-foot standard, pursuant to the Sacramento County Improvement Standards. *(Original Condition)*

44. Grant the County right-of-way for Hedge Avenue based on a 60-foot standard, pursuant to the Sacramento County Improvement Standards. *(Original Condition)*

45. Grant the County additional right-of-way on Elder Creek Road/Hedge Avenue for intersection widening per standard drawings H-24 and H-25 of the Sacramento County Improvement Standards. *(Original Condition)*

46. The proposed conveyor tunnels under various roadways shall be designed to accommodate the ultimate roadway cross-section to the satisfaction of the Transportation Division of the Public Works Agency/Caltrans. *(Original Condition)*

47. Prior to initiation of overburden removal from the project site, the proponent shall install a right-turn on the northbound Mayhew Road approach to the Jackson Road intersection. The cost of this improvement shall be split on a fair-share basis between Teichert Aggregates and Granite Construction. Within 6 months of the use permit approval, the proponent shall submit improvement plans to the County of Sacramento Transportation Division for review and approval. *(Original Condition)*

48. The location, number and design of project access driveways for the project site shall be to the satisfaction of the Department of Transportation. *(Original Condition)*

49. The proponent shall agree to repair any damages to structural paving material along sections of project site roadway segments upon which loaded trucks are routed, to the extent such damage is caused by traffic which occurs during the period of hauling operations. Such agreement with the Department of Transportation shall be formalized prior to issuance of the work authorization permit. *(Original Condition)*

50. No mining shall take place within 25 feet of the ultimate right-of-way of Fruitridge Road and Mayhew Road, except that the Public Works Director may authorize mining to proceed up to 12 feet from the ultimate right-of-way, with appropriate backfill and compaction to preexisting grade to the required 25-foot setback line (with a slope no steeper than 2:1). The mining and backfilling

proposal shall be supported by a soils report prepared by a qualified soils engineer, certifying that the overburden and underlying aggregate can support the proposed activity and anticipated traffic levels of Fruitridge Road and Mayhew Road without adversely affecting the County right-of-way. The 25-foot setback area adjacent to the right-of-way of Fruitridge Road and Mayhew Road shall be backfilled and compacted prior to the onset of the rainy season, and a soil engineer shall certify the compaction to at least 90 percent. *(Original Condition)*

Land Use

51. The proponent shall maintain the following setbacks:

    a. A 25-foot minimum setback from adjoining rural residential land uses, the first 10 feet of which shall consist of undisturbed land.

    b. No mining may occur within 50 feet of any habitable structures in existence on adjacent properties at the time of mining.

    c. No mining may occur within 50 feet of the west property line of the Buddhist Temple (APN: 063-0110-008), except for the northern most 250 feet as referenced on "Option 3", where mining may occur within 50 feet of, but not closer than 10 feet, to the west property line. These northern most 250 feet shall be reclaimed to original grade with backfilling to a minimum of 50 feet once mining is complete in the area. Duration of operations in this reduced setback area shall not exceed 2 weeks for overburden removal, 3 weeks for mining, and 6 weeks for reclamation. These operations may or may not be sequential. Each operation shall be preceded by a 3-week advance written notification to the Temple.

    d. A 25-foot minimum landscaped setback from all public streets consisting entirely of unmined land, or unless otherwise specified herein.

    e. The setback area consisting of mined land shall be reclaimed to original grade within one year or less of completion of mining. *(Original Condition)*

52. In order to mitigate potential impacts to surrounding land uses, the proponent shall be required to comply fully with mitigation measures identified in the Noise, Traffic and Circulation; Air Quality; and Visual Impacts sections of the EIR/EIS and SEIR, unless otherwise amended by the conditions set forth herein. These mitigation measures will employ appropriate state-of-the-art techniques for erosion control, reclamation, nuisance prevention, and environmental impact mitigation relative to surface mining operations. *(Mitigation Measure LU-1)*

53. In order to mitigate potential impacts to agricultural uses, prior to the issuance of the work authorization permit for the Vineyard I mining expansion site, the mining operator shall revise/prepare a plan, that includes the Vineyard I mining expansion site (5.6 acres), for the preservation and salvage of topsoil resources suitable for sustaining economically viable agricultural uses, consistent with the performance standards set forth in Sections 3708 and 3711 of the State Mining and Geology Board Reclamation Regulations. *(Mitigation Measure LU-2)*

54. Provide the Southgate Recreation & Park District (SRPD) copies of all Army Corps of Engineers (ACOE), U.S. Fish and Wildlife Service, California Department of Fish and Game and any other permitting agency final permits, conditions and restrictions, management plans, and/or wetland

delineations as they pertain to the bicycle/pedestrian trails within Vineyard I. *(Southgate Recreation & Park District Condition)*

55. Upon request by the SRPD, the Vineyard I mining operator agrees to provide a trail and setback easement (hereafter the "Trail Easement"), not to exceed 20 feet in width, so long as said easement does not conflict with any requirements or easements stemming from any permit issued, or that may be issued, by an agency of the State of California or the federal government. Said easement shall be located coincident with the maintenance road on the north levee within the Morrison Creek Preserve (as approved by the ACOE in an e-mail dated September 26, 2012) and shall be consistent with the attached Public Trail Map (Exhibit A).

    a. *Trail Improvements.* At the request of the SRPD and after acceptance of the Trail Easement by SRPD, the Operator shall improve the Trail Easement area by constructing a trail surface not exceeding 12 feet in width. Operator's responsibilities with respect to improvement of the Trail Easement area shall be limited to the installation of a suitably compacted base rock foundation as the trail surface, the grade and slopes of which shall be designed to provide for safe use, entry and exit by members of the public. The cost of other improvements of the Trail Easement area, including the installation of asphalt or other overlay paving, shall be the responsibility of SRPD. SRPD shall also bear the cost of installing fencing around the Trail Easement area (hereafter "Trail Fencing") and interpretive signage on said fencing (hereafter "Trail Signage") to the satisfaction of ACOE.

    b. *Trail Maintenance.* As a condition of allowing the trail to be located within the Morrison Creek Preserve, the SRPD shall provide for funding necessary for the removal of trash from the Trail Easement area and all other maintenance of the Trail Easement area, Trail Fencing and Trail Signage required by ACOE to keep the trail in good repair.

    c. *Modification or Termination of Condition.* This condition shall cease to be binding in the event (a) the requirement for an easement dedication and/or trail installation is superseded by a condition of approval for a trail easement on a development application covering the same property; (b) the Operator and the SRPD enter into an agreement rendering all or part of this condition null and void or, (c) at the latest, upon expiration of the use permit and any extensions that may be granted thereto, unless SRPD has previously requested the dedication of a Trail Easement. *(Southgate Recreation & Park District Condition and Mitigation Measure LU-3)*

56. The Vineyard I mining operator shall comply with all requirements of its ACOE permits and Operator shall also (through the Preserve Manager) comply with all Operations and Management (O&M) Plans related to the ACOE permits and related Morrison Creek Preserves, including but not limited to the monitoring and general inspection of the Preserves. *(Southgate Recreation & Park District Condition)*

Noise

57. Comply with the following operation hours for the on-site mining, unless modified on an interim basis by the Zoning Administrator of the Department of Community Development:

a. Monday through Friday: 6:00 a.m. until 10:00 p.m.

b. Saturday: 8:00 a.m. through 5:00 p.m.

c. Sunday and labor union holidays: No mining.

d. Asian New Year: No mining within 500 feet of the Buddhist Temple property. *(Original Condition)*

58. For all other common residential/project property lines, the proponent shall provide noise barriers consisting of 8-foot high earthen berms or temporary portable barriers installed and moved along property boundaries as mining progresses. The noise barriers shall be maintained at least until sufficient pit excavation has occurred to block the line of sight between nearby residences and mining activities. If temporary portable barriers are used, they shall either be constructed with 4 x 8 sheets of 3/4-inch plywood, placed side by side with an overlap of 1-2 inches to prevent gapping, or shall be constructed with other materials which achieve equivalent or greater sound attenuation as verified by a qualified acoustical consultant. (Note: While the above cited 3/4-inch plywood can provide acceptable temporary noise attenuation, this method as currently practiced is subject to weather damage, and lack of maintenance severely limits its effectiveness and aesthetic appeal. Alternatives that provide durability and improved aesthetics for nearby residents and passersby should be explored.) *(Original Condition)*

59. The proponent shall provide for continuous movement of the excavation along the mining face of all common residential/project property lines to prevent noise from concentrating on any one receptor. *(Original Condition)*

60. The Vineyard I operator shall comply with the noise monitoring protocol (Control No. 01-PAB-0371) approved by the Board of Supervisors on November 7, 2001. *(Original Condition as amended by the Planning Division)*

Airport Compatibility

61. The retention basin on Vineyard I shall include the following design criteria to the maximum extent practicable, while still adhering to the federal agency regulations:

a. The basin shall incorporate steep side slopes (3:1 or greater)

b. The basin shall be designed to remain clear of vegetation that may provide nesting, roosting or foraging opportunities for birds. Only herbaceous vegetation necessary for erosion control purposes will be allowed. *(Mitigation Measure LU-4)*

Public Safety

62. Except along boundaries contiguous with approved mining operations, the proponent shall install fences and provide warning/trespass signs to comply with the Zoning Code. *(Original Condition)*

63. All perimeter fencing shall be retained until post-reclamation development of the project site occurs. *(Mitigation Measure PS-1)*

64. Existing public infrastructure (roads, water and sewer, electrical, etc.) shall be protected from undermining and collapse. To protect the roadway and other public infrastructure, the proponent shall construct adjacent pit sides to standards approved by Water Resources Division (WRD). *(Original Condition)*

Aesthetics and Visual Resources

65. The proponent shall screen mining operations from public roadways, private property, and other sensitive receptors by providing an appropriate combination of visual enhancements. Unless otherwise specified herein, these enhancements may include a combination of 25-foot minimum buffers, chain-link fencing, berming, and landscaping with fast-growing, closely spaced shrubs. To the extent possible, earthen berms shall meander and be contoured to reflect a more natural pattern with variations in width, height and direction. *(Original Condition)*

66. All landscaping shall be installed within one year of issuance of the use permit to allow plant establishment and sufficient screening growth. Plantings shall be irrigated by trenching or with individual bubblers on an automatic irrigation system. Along public streets, landscaping shall be installed exterior to earthen berms or chain-link fencing to provide the least "industrial" appearance and the highest compatibility with neighboring uses. Slats may be used in the fencing only if mining occurs before vegetation has reached screening height and density. *(Original Condition)*

67. Landscaping shall be provided adjacent to residential properties within one year of issuance of the use permit. Landscaping along residential properties shall consist of fast growing, closely spaced shrubs and shall be irrigated and maintained over the life of the project. *(Original Condition)*

68. Landscaping along the public streets and adjacent to residential properties shall be consistent with the Landscape Plan (Control No. 00-PAB-0752) as approved by the Board of Supervisors on May 23, 2001. *(Original Condition as amended by the Planning Division)*

69. Any lighting shall be arranged and controlled so as not to illuminate public rights-of-way or adjacent properties. In order to reduce direct and reflected light pollution, lighting at the project site shall be equipped with shields that concentrate the illumination downward such that no direct light is cast off the site. Energy efficient lights shall be used, similar to the types used as residential outdoor security lights. The candle power of the illumination at ground level shall not exceed what is required by any safety or security regulations of any government agency with regulatory oversight of the mining operation. *(Mitigation Measure AV-1)*

Public and Private Utilities

70. The proponent shall submit for review by the Environmental Management Department a site plan showing the exact locations of the wells proposed for use during the mining operation, the wells and/or septic systems proposed for abandonment, and the proposed locations for any new wells. *(Original Condition)*

71. The proponent shall abandon any existing septic systems according to the Environmental Management Department and Building Department procedures and standards. Use of the system to

be excavated shall be discontinued six months prior to excavation, and the tanks shall be pumped at that time. Should any septic system be uncovered during mining activities, it shall be destroyed as per the requirements of the Environmental Management Department. *(Original Condition)*

72. The proponent shall ensure that water wells located in each phase of mining shall be abandoned to the satisfaction of the Environmental Management Department prior to initiation of the mining of that phase. Any existing wells shall be abandoned according to the Environmental Management Department and Building Department procedures and standards. Should any well be uncovered during mining activities, it shall be destroyed as per the requirements of the Environmental Management Department. *(Original Condition)*

73. The proponent shall contact the SMUD Distribution Planning Department and consult with SMUD through project planning and development so that any required facilities and easements would be developed in a coordinated manner. The proponent shall keep SMUD informed of all decisions or changes in schedules that pertain to the proposed project, including setbacks, landscaped corridors, or any other planning efforts which may affect SMUD electrical facilities. The proponent shall coordinate with SMUD for the construction of SMUD facilities during the different phases of development. *(Original Condition)*

74. All new wells constructed on the project site shall be located and designed to minimize interference with existing wells within and outside the project site, to the satisfaction of the Environmental Management Department. *(Original Condition)*

75. Any existing overhead power lines shall remain and/or, if necessary, be relocated at the proponent's expense as the operation proceeds. *(Original Condition)*

Miscellaneous

76. This action does not relive the proponent of the obligation to comply with all ordinances, statutes, regulations and procedures applicable at the time of development. Any required subsequent procedural actions (e.g., issuance of a Work Authorization Permit) shall take place within 36 months of the date on which the use permit became effective or this action shall automatically be null and void. *(Original Condition)*

77. This use permit shall expire on December 15, 2025 (i.e., all mining shall cease on December 15, 2025). Any additional reclamation work shall be completed within 24 months of the completion of mining. *(Original Condition as amended by the County Planning Commission)*

78. Prior to issuance of the work authorization permit, provide Sacramento County with a performance bond for each of the projects made payable to the County of Sacramento and the Department of Conservation of the State of California in the amount of $173,077 to financially guarantee reclamation of the property. The amount of the bond shall be subject to annual review and adjustment pursuant to the requirements of SMARA. *(Original Condition)*

79. Provide a sign at the main entry to the project with a primary contact and phone number in case of emergency or nuisance problems. *(Original Condition)*

80. Comply with the Mitigation Monitoring and Reporting Program (MMRP) for this project as follows:

    a. It shall be the responsibility of the Vineyard I mining operator to reimburse the County for all expenses incurred in the implementation of the Mitigation Monitoring and Reporting Program (MMRP), including any necessary enforcement actions. The mining operator shall pay an initial deposit of $6,000.00. Over the course of the project, DERA will regularly conduct cost accountings and submit invoices to the mining operator when the County monitoring costs exceed the initial deposit.

    b. Until the MMRP has been recorded and initial deposit paid, no work authorization permit, grading permit or encroachment permit from Sacramento County shall be approved. *(Original Condition as amended by the Division of Environmental Review and Assessment)*

81. Prior to diversion of Morrison Creek into the Morrison Creek bypass pursuant to Permit Number SPK-1994-00102 issued by the USACE on April 16, 2004, revised March 12, 2010, the Vineyard I mining operator shall provide the Department of Community Development a copy of any permit(s) (e.g., an Encroachment Permit) that may be required from the Central Valley Flood Protection Board. *(Planning Division Condition)*

FINDINGS:

1. The project is consistent with the County General Plan in that the project site has been designated as an Aggregate Resource Area (ARA). The project will result in the responsible extraction of important aggregate resources in a manner that will minimize any mining-related impacts, consistent with the intent of the ARA designation. And further, the resulting reclamation modifications to the Morrison Creek Corridor will provide for resource management, open space protection and conservation, consistent with goals of the Conservation Element.

2. The granting an amendment to the use permit will not, under the circumstances of this particular case, be detrimental to the health, safety, peace, morals, comfort or general welfare of persons working or residing in the neighborhood of such proposed use or be detrimental or injurious to property or improvements, in the neighborhood or to the general welfare of the County, in that:

    a. The original conditions of approval (2000) will be amended only as necessary to reference the revised plans for modifications to Morrison Creek.

    b. Modifications to the Morrison Creek represent a minor change to the original mining plan approval granted in 2000, and provide for superior hydrological, habitat value, and recreational uses for the creek.

    c. The additional mining area (5.6 acres) represent a minor change to the original mining plan approval granted in 2000, and all applicable Zoning Code standards for aggregate mining operations will be met.

d. Application data required by Section 235-51 of the Zoning Code for all aggregate mining proposals, including the mining and reclamation plans, hydrological and geologic studies, adequately describe the project.

e. The plans and reports submitted pursuant to the requirements of Section 235-51 of the Zoning Code for all aggregate mining proposals incorporate all reasonable measures to the extent feasible to mitigate significant adverse environmental effects of the project.

f. The plans and reports submitted pursuant to the requirements of Section 235-51 of the Zoning Code for all aggregate mining proposals incorporate adequate measures to restore the site to a usable condition compatible with adjacent uses.

3. The proposed reclamation plan amendment is consistent with the purpose and intent of the Sacramento County Code, and will ensure continued availability of important mineral resources, while regulating surface mining operations as required by the Surface Mining and Reclamation Act of 1975 (SMARA), the Public Resources Code, and California Code of Regulations, in that:

a. The reclamation plan amendment complies with the requirements of SMARA Sections 2772 and 2773, and other applicable provisions that pertain to the information and documentation that must be included in the plan, and site-specific criteria (e.g., topography, erosion control and revegetation) that will help evaluate compliance with the approved plan.

b. The reclamation plan amendment complies with the requirements of California Code of Regulations Sections 3500-3505, and Sections 3700-3713, and other applicable provisions that pertain to information and documentation that must be included as part of the plan, and performance standards (e.g., slope stability, topsoil management, and groundwater protection) that will help evaluate compliance with the approved plan.

c. The reclamation plan amendment and potential use of reclaimed land pursuant to the plan are consistent with the General Plan and those applicable elements described above.

d. The reclamation plan amendment has been reviewed pursuant to CEQA and the County environmental review guidelines, and all significant adverse impacts from the reclamation of the surface mining proposal will be mitigated to the maximum extent feasible.

e. The reclamation plan amendment demonstrates that land and/or resources to be reclaimed will be restored to a condition that is compatible with, and blends with, the surrounding natural environment, topography, and other resources. In addition, suitable off-site mitigation will compensate for on-site related disturbance to resource values.

f. The reclamation plan amendment will restore the mined lands to a usable condition (i.e., agricultural) that is readily adaptable for alternative land uses consistent the General Plan and those applicable elements described above.

g. The Department of Conservation Office of Mine Reclamation (OMR) has reviewed the reclamation plan amendment, and indicated that the project represents a minor amendment, and no comments or concerns were forwarded.

4. The environmental document (DSEIR) prepared for the project was considered in the project analysis, and suggested mitigation measures have been incorporated into the recommended conditions of approval.

ENVIRONMENTAL DOCUMENT: Final Supplemental Environmental Impact Report

THIS ACTION DOES NOT RELIEVE THE APPLICANT OF THE OBLIGATION TO COMPLY WITH ALL ORDINANCES, STATUTES, REGULATIONS AND PROCEDURES. ALL COSTS INCURRED BY THE COUNTY TO ENFORCE THE CONDITIONS LISTED IN THIS PERMIT SHALL BE THE RESPONSIBILITY OF THE PERMIT HOLDER AND/OR PROPERTY OWNER. THE ABOVE USE WILL NOT BE CONDUCTED TO CONSTITUTE EITHER A PUBLIC OR PRIVATE NUISANCE. VIOLATION OF ANY OF THE FOREGOING CONDITIONS WILL CONSTITUTE GROUNDS FOR REVOCATION OF THIS PERMIT. BUILDING PERMITS ARE REQUIRED IN THE EVENT ANY BUILDING IS PLANNED. A CONDITIONAL USE PERMIT, IF NOT USED FOR THE PURPOSE FOR WHICH IT WAS GRANTED, SHALL LAPSE AND SHALL BECOME VOID THREE YEARS FOLLOWING THE DATE ON WHICH THE PERMIT BECAME EFFECTIVE, UNLESS BY CONDITION OF THE PERMIT A GREATER TIME IS ALLOWED, OR UPON THE EXPIRATION DATE OF A VALID BUILDING PERMIT OBTAINED AFTER THE GRANT OF THE CONDITIONAL USE PERMIT, WHICHEVER DATE IS LAST TO OCCUR.

SACRAMENTO COUNTY BOARD OF SUPERVISORS

By Cyndi Lee
Cyndi Lee, Clerk

TO: COUNTY RECORDER
MAIL CODE: 11-112

RECORDING REQUESTED BY
AND WHEN RECORDED MAIL TO:
08-2450, ATTENTION: Alyson Murphy
Phone: 874-8170

NO FEE RECORDING
GOVERNMENT CODE
SECTION 6103

SPACE ABOVE THIS LINE RESERVED FOR RECORDER'S USE

RESOLUTION NO. 2013-0021

RELEASE AND DISCHARGE

RELEASES ZONING AGREEMENT
RECORDED IN BOOK 20000121 AT PAGE 0604 et seq.
OFFICIAL RECORDS

BE IT RESOLVED AND ORDERED that the Chair of the Board of Supervisors be and is hereby authorized and directed to execute a **RELEASE** on behalf of the COUNTY OF SACRAMENTO relating to that certain Agreement executed on January 12, 2000 and adopted by Ordinance No. SZC 2000-0001 with

GRANITE CONSTRUCTION COMPANY

and to do and perform everything necessary to carry out the purpose of this resolution.

AND BE IT FURTHER RESOLVED that the Board of Supervisors does hereby consent to, authorize, and direct the Clerk of the Board of Supervisors to record this Release, attached hereto, in the office of the Recorder of Sacramento County.

On a motion by Supervisor Nottoli, seconded by Supervisor Serna, the foregoing resolution was passed and adopted by the Board of Supervisors of the County of Sacramento, State of California, at a regular meeting thereof this 8th day of January, 2013, by the following vote, to wit:

AYES: Supervisors: MacGlashan, Peters, Serna, Yee, Nottoli
NOES: Supervisors: None
ABSENT: Supervisors: None
ABSTAIN: Supervisors: None

CHAIR OF THE BOARD OF SUPERVISORS
OF SACRAMENTO COUNTY, CALIFORNIA

ATTEST: CLERK OF THE
BOARD OF SUPERVISORS

In accordance with Section 25103 of the Government Code of the State of California a copy of the document has been delivered to the Chairman of the Board of Supervisors, County Of Sacramento on:

By: Deputy Clerk, Board of Supervisors

FILED
BOARD OF SUPERVISORS
JAN 08 2013
BY CLERK OF THE BOARD

2005-0062 Vineyard I Release Reso

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

CIVIL CODE § 1189

State of California

County of Sacramento

On 1/25/13 (Date) before me, Alyson Murphy, Notary Public (Here Insert Name and Title of the Officer)

personally appeared Cyndi Lee (Name(s) of Signer(s))

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

ALYSON MURPHY
Commission # 1988650
Notary Public - California
Sacramento County
My Comm. Expires Aug 20, 2016

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature: Alyson Murphy (Signature of Notary Public)

Place Notary Seal Above

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

Description of Attached Document

Title or Type of Document: Resolution No 2013-0021

Document Date: 1/8/2013 Number of Pages: _____

Signer(s) Other Than Named Above: _____

Capacity(ies) Claimed by Signer(s)

Signer's Name: _____	Signer's Name: _____
☐ Corporate Officer — Title(s): _____	☐ Corporate Officer — Title(s): _____
☐ Individual	☐ Individual
☐ Partner — ☐ Limited ☐ General	☐ Partner — ☐ Limited ☐ General
☐ Attorney in Fact	☐ Attorney in Fact
☐ Trustee	☐ Trustee
☐ Guardian or Conservator	☐ Guardian or Conservator
☐ Other: _____	☐ Other: _____
Signer Is Representing: _____	Signer Is Representing: _____
RIGHT THUMBPRINT OF SIGNER — Top of thumb here	RIGHT THUMBPRINT OF SIGNER — Top of thumb here

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Item #5907

Vineyard I
20050062
063-0080-010 through 013; 063-0090-001 through 003, 006, 009, 010, 011, 015 through 019; and 063-0110-001 through 006, 012, 028, 029

RELEASE AND DISCHARGE
(Upon Rezone)

THIS RELEASE AND DISCHARGE, made this 8th day of January, 2013, by the County of Sacramento, a political subdivision of the State of California:

W I T N E S S E T H

WHEREAS, on January 12, 2000 the COUNTY OF SACRAMENTO entered into an Agreement with:

GRANITE CONSTRUCTION COMPANY

which Agreement was adopted by Ordinance No. SZC 2000-0001 and was recorded in Book 20000121 at Page 0604 *et seq.*, on January 21, 2000, Official Records of Sacramento County, and affecting certain real property situated in the County of Sacramento, State of California, wherein GRANITE CONSTRUCTION COMPANY was obligated to comply with certain conditions regarding said real property; and

WHEREAS, the Board of Supervisors, in connection with a rezone to change the zoning of the property subject to the above-referenced Agreement, has determined to release that portion of said property from the conditions imposed thereon by the aforesaid Agreement.

NOW, THEREFORE, the County of Sacramento, acting by and through its governing body, the Board of Supervisors, hereby releases the following described property from the conditions and obligations imposed thereon by that certain Agreement adopted on January 12, 2000, by Ordinance No. SZC 2000-0001 and recorded in Book 20000121 at Page 0604 *et seq.*, in the Office of the Recorder of Sacramento County:

All that certain real property situated in the County of Sacramento, State of California described as follows:

See Exhibit "A"

EXHIBIT "A"

All that certain real property situated in the County of Sacramento, State of California, described as follows:

AT that portion of Section 29 and all that portion of Section 30, Township 8 North, Range 6 East, M.D.M. situated in the County of Sacramento, State of California, described as follows:

Beginning at the South quarter corner of said Section 30 located at the intersection of Elder Creek Road and Hedge Road; thence, from said point of beginning, northerly along the North-South centerline of said Section 30 3960 feet more or less, to the southwest corner of Lot 4 as shown on the Plat of George W. Artz Subdivision filed in Book 9 of Maps, Map No. 45 in the Recorder's office of Sacramento County; thence easterly 1320 feet more or less to the southwest corner of Lot 5 as shown on said Plat; thence northerly 1317.70 feet more or less to the northwest corner of said Lot 5; thence easterly 1322.29 feet more or less to the northeast corner of Lot 8 as shown on said Plat; thence southerly 1318.20 feet more or less to the southeast corner of said Lot 8 being the southeast corner of the North ½ of the Northeast ¼ of said Section 30; thence southerly 660 feet more or less to the northwest corner of the West ¼ of the South ½ of the South ½ of the Northwest ¼ of said Section 29; thence easterly 613.1 feet more or less to a point located west 46.9 feet from the northeast corner of the West ¼ of the South ½ of the South ½ of the Northwest ¼ of said Section 29; thence southerly 660 feet more or less to a point located west 46.9 feet from the southeast corner of the West ¼ of the South ½ of the South ½ of the Northwest ¼ of said Section 29; thence easterly 415.70 feet more or less to the southeast corner of that certain 0.25 acre tract described in the deed to Henry C. Dixon, Et Ux. recorded in Book 1905, Page 86 Official Records; thence along the southeasterly bank of Elder Creek as described in said deed the following three courses and distances: (1) North 39°09'00" East 150.50 feet, (2) North 60°09'00" East 137.20 feet, and (3) North 45°48'00" East 146.60 feet to a point located North 270.00 feet from the east-west quarter section line of said Section 29; thence, parallel to said east-west quarter section line, West 518.2 feet more or less; thence, parallel to the east line of the West ½ of the South ½ of the South ½ of the Northwest ¼ of said Section 29, northerly 290 feet more or less to the north line of the South ½ of the South ½ of the Northwest ¼ of said Section 29; thence easterly 1144 feet more or less to the northeast corner of the West 1/4 of the South ½ of the South ½ of the Northwest ¼ of said Section 29; thence northerly 184 feet more or less; thence easterly 660.90 feet more or less to a point on the north-south centerline of said Section 29 also being on the centerline of Mayhew Road; thence southerly 2826.83 feet more or less to the southeast corner of the North ½ of the Southeast ¼ of the Southwest ¼ said Section 29; thence westerly 1320 feet more or less to the southwest corner of the North ½ of the Southeast ¼ of the Southwest ¼ said Section 29; thence northerly to the northeast corner of the property shown on that certain Record of Survey filed in Book 18 of Surveys, Page 22 in the Recorder's Office of said County; thence westerly 1320 feet more or less to a point on the section line common to said Sections 29 and 30; thence southerly to the southeast corner of said Section 30 on the centerline of Elder Creek Road; thence westerly 20.00 feet; thence northerly 660 feet more or less; thence westerly 970 feet more or less; thence southerly 660 feet more or less to the centerline of Elder Creek Road also being the south line of said Section 30; thence westerly 1651.08 feet more or less to the point of beginning.

CHAIR OF THE BOARD OF SUPERVISORS
OF SACRAMENTO COUNTY, CALIFORNIA

ATTEST:
ASST. CLERK OF THE
BOARD OF SUPERVISORS

In accordance with Section 25103 of the Government Code of the State of California a copy of the document has been delivered to the Chairman of the Board of Supervisors, County Of Sacramento on:

By _____
Deputy Clerk, Board of Supervisors

FILED
BOARD OF SUPERVISORS
JAN 08 2013
BY _____
CLERK OF THE BOARD

RECORDING REQUESTED
WHEN RECORDED MAIL TO:

ENDORSED
SACRAMENTO COUNTY
JAN 09 2013
CRAIG A. KNOWLES, CLERK RECORDER
BY _____ DEPUTY

COUNTY OF SACRAMENTO
DEPARTMENT OF COMMUNITY DEVELOPMENT
PLANNING AND ENVIRONMENTAL REVIEW DIVISION
827 SEVENTH STREET, ROOM 220
SACRAMENTO, CA 95814

CONTACT PERSON: CATHERINE HACK
TELEPHONE: (916) 874-7914

SPACE ABOVE RESERVED FOR RECORDER'S USE

NOTICE OF DETERMINATION

SUBJECT:
Filing of Notice of Determination in compliance with SECTION 21108 or 21152 of the Public Resources Code

PROJECT TITLE:
VINEYARD I COMMUNITY PLAN AMENDMENT, REZONE, USE PERMIT, RECLAMATION PLAN AND ZONING AGREEMENT AMENDMENTS

CONTROL NUMBER:
2005-CZB-UPB-REB-ZGB-0062

STATE CLEARINGHOUSE NUMBER (IF SUBMITTED):
1995102057

PROJECT LOCATION:
The property is located at the northeast corner of Hedge Road and Elder Creek Road, in the Vineyard community.

APN:
063-0080-010 thru 013; 063-0090-001 thru 003, 006, 009 thru 011, 015 thru 019; and 063-0110-001 thru 006, 012, 028, 029

DESCRIPTION OF PROJECT:
The proposed project consists of three separate projects, known as Vineyard I project, Aspen III South project and Aspen IV South project. Since the three projects are so closely related, they were processed and analyzed under one Supplemental EIR and were collectively referred to as the proposed project.

The following are the requested entitlements for the Vineyard I project site:

1. A **Community Plan Amendment** and corresponding **Rezone** to change the designations from Industrial Reserve with Surface Mining Combining (IR (SM)) and Industrial Reserve with Flood combining (IR (F)) to Industrial Reserve with Surface Mining/Flood Combining (IR (SM)(F)) for 5.61 acres (i.e., APN: 063-0090-009 and -018) of the project site.

2. A **Use Permit Amendment** for an aggregate mining operation known as Vineyard I, approved in 2000 (Control Number: 91-CZB-UPB-0118) to allow aggregate mining on an additional 5.61 acres, and to incorporate this new area into the previously approved mining plan.

3. A **Reclamation Plan Amendment** to the Vineyard I approval to allow:

    a. The additional 5.61 acre area proposed for mining to be incorporated into the previously approved reclamation plan.

    b. A revision to the drainage and wetland mitigation plans for the project site that will include the construction of a new Morrison Creek Realigned Channel (mining of the creek bed was approved in 2000) that will be approximately 300 feet in width at or near original grade, and will include adjacent buffer lands for a total width of 650 feet. This new Morrison Creek Realigned Channel will accommodate 100-year flood flows and incorporate wetland/riparian habitat mitigation elements.

    c. The previously approved elevated bypass channel for Morrison Creek, and the 600-foot wide pit floor riparian corridor would be superseded with the construction of the new Morrison Creek Realigned Channel, as described above.

    d. Fill (overburden) will be added to portions of the pit floor to bring the areas north of the creek to within 5 feet of original grade.

    e. A stormwater retention basin designed to accommodate 297-acre feet of water will be added to a portion of the pit floor.

4. A **Use Permit Amendment** and **Zoning Agreement Amendment** to the Vineyard I approval to allow:

Wetland, Oak Woodland, and Riparian Mitigation Monitoring Plan

For The

Granite Vineyard I Project

Sacramento County, California

Regulatory Branch Number 199400102

Submitted Date:
21 April 2006
5 June 2007
21 June 2007

Revised Date:
20 July 2007

Prepared for:
Granite Construction Company
Teichert Aggregates

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

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SUMMARY

This Wetland, Oak Woodland, and Riparian Mitigation Monitoring Plan ("Plan") has been prepared for the Granite Vineyard I project ("Project") to satisfy Special Condition 1 of the U.S. Army Corps of Engineers ("Corps") Individual Permit (Regulatory Branch Number 199400102) included as Attachment A. In addition, this Plan is being submitted pursuant to requirements of the County of Sacramento ("County"), and in anticipation of the requirements by the California Department of Fish and Game (CDFG) 1602 permit.

As mitigation for Project impacts, the portion of Morrison Creek between Hedge Avenue and Mayhew Road will be completely realigned and restored and an ephemeral drainage will be constructed ("Mitigation Project"). The Mitigation Project bisects the Granite Vineyard I project site owned by Granite Construction Company ("Granite") as well as a portion of the Aspen III South site, owned by Teichert Aggregates ("Teichert") (Figure 1. *Project Site and Vicinity*). The Mitigation Project boundary is outlined on the graphic in green.

Prior to mining operations, 17.22 acres of Waters of the United States were located on the Project, including 12.24 acres of perennial creek (Morrison Creek), 3.84 acres of tributaries (including seasonal wetland swale and ephemeral drainage), and 1.14 acres of seasonal marsh. As mitigation for Project impacts 4.32 acres of seasonal wetland/marsh and vernal pool credits were purchased; in addition, 16.09 acres of creek, wetlands and ephemeral drainage will be constructed within the Mitigation Project. This acreage is made up of 14.44 acres of creek and wetlands constructed within a 300-foot at grade creek corridor, and 1.65 acres of ephemeral drainage constructed in the southern portion of the Mitigation Project, south of the corridor as mitigation for loss of Morrison Creek channel length. Pursuant to County tree mitigation requirements, 2,515 oak woodland trees and associated riparian trees/shrubs will be planted along the creek, within the 300-foot corridor. Pursuant to County and Corps requirements, an additional 1,055 riparian trees, and associated shrubs will be planted adjacent to the constructed ephemeral drainage.

The on-site mitigation wetlands and riparian/oak woodland plantings will be monitored for a ten-year period. This Plan describes the methods by which this mitigation will be accomplished and defines how the success of the creation/restoration will be monitored and judged.

1.0 PROJECT DESCRIPTION

1.1 Responsible Parties

Applicant:

Attn: Mr. Grant Williams
Granite Construction Company
4001 Bradshaw Road
Sacramento, California 95827

Phone: (916) 855-4400
Fax: (916) 855-4590

Additional Mitigation Project Participant

Attn: Mr. John Lane
Teichert Aggregates
3500 American River Drive
Sacramento, California 95864

Phone: (916) 484-3256
Fax: (916) 484-7012

Agent:

Attn: Ms. Sarah Egan
ECORP Consulting, Inc.
2525 Warren Drive
Rocklin, California 95678

Phone: (916) 782-9100
Fax: (916) 782-9134

1.1.1 Parties Having Financial Responsibility

Both Granite Construction and Teichert Aggregates have financial responsibility for the Mitigation Project.

1.1.2 Present Owner of the Mitigation Site

Both Granite Construction and Teichert Aggregates have ownership responsibility for the portion of the Mitigation Project that falls on their respective property.

1.1.3 Expected Long-Term Owner of the On-Site Mitigation Area

Granite and Teichert will each own the portions of the Mitigation Project that fall on their respective properties.

1.1.4 Parties Responsible for Long-Term Maintenance of the On-Site Mitigation Area

Granite Construction Company
4001 Bradshaw Road
Sacramento, California 95827

Teichert Land Company
3500 American River Drive
Sacramento, California 95864

Corps-approved Conservation Easement Holder
Contact information to be submitted when determined.

1.2 Location and Description of the Project and Mitigation Project

The Granite Vineyard I project ("Project") is located in the County of Sacramento ("County") (see Figure 1). The site is generally bordered by Mayhew Road to the east, Hedge Avenue to the west, Fruitridge Road to the north, and Elder Creek Road to the south. Coordinates of the site are Lat.: 38° 31′ 00″ N, Long.: 121° 21′ 10″ W, which corresponds to portions of Sections 29 and 30, Township 8 North, Range 6 East, MDBM in Sacramento County of the "Carmichael, California" 7.5 minute quadrangles (U.S. Department of the Interior, Geological Survey 1992).

As mitigation for Project impacts, the portion of Morrison Creek between Hedge Avenue and Mayhew Road will be completely realigned and restored, an ephemeral drainage will be constructed, native plantings will be installed, and associated buffers will be established ("Mitigation Project"). The Mitigation Project bisects the Project site owned by Granite Construction Company ("Granite") as well as a portion of the Aspen III South site, owned by Teichert Aggregates ("Teichert"). The realigned channel will retain as many of the "natural" characteristics of the existing stream channel as possible (e.g., main channel, stream length, sinuosity) while significantly increasing the quality of wildlife habitat. A variety of features have been incorporated to the realigned channel in order to provide areas for different plant communities and wetland types. Backwaters, split-channel areas with islands, off-channel wetlands, benches of varying heights, as well as deeper pools, were included.

The purpose of the Project is to mine aggregate resources on the site to a depth of approximately 50 to 60 feet below existing site grade. At the completion of each phase of mining, the overburden (soils overlying the aggregate) will be replaced. Additional overburden material provided by Teichert will be used to recreate the creek, ephemeral drainage, and associated habitats.

The Mitigation Project encompasses approximately 89 acres, including approximately 14.44 acres of wetlands and creek, 1.65 acres of ephemeral drainage, 10 acres of riparian woodland

and marsh in the lowest portions of the channel and the ephemeral drainage, approximately 30 acres of Valley oak woodland, and approximately 36 acres of grassland. The oak woodland and riparian plantings will compensate for losses to the limited woody vegetation found at the site.

1.3 Regulatory History of the Project

The U.S. Army Corps of Engineers ("Corps") issued a Department of the Army Individual Permit ("Permit") to Granite for the Project on April 16, 2004 (Regulatory Branch Number 199400102) (Attachment A). The Permit authorizes the fill of 17.22 acres of waters of the United States ("Waters") including the approximately 1.5 miles of Morrison Creek between Mayhew Road and Hedge Avenue. When it was issued, the Permit referenced the construction of an enhanced Morrison Creek bypass channel and on-site wetland (pit-bottom) mitigation corridor.

After the permit was approved, Granite retained ECORP Consulting, Inc. ("ECORP") to review the approved mitigation plan for the Project and to develop a revised mitigation plan that incorporated a more natural creek alignment. The initial suggestions made were to straighten the 90 degree turns in the Enhanced Bypass Channel and to eliminate the need for an artificial system for providing and then removing water from the mitigation corridor (i.e., mechanical diversion and pump system). This began the discussion regarding the potential for a greatly expanded at-grade bypass channel design that eventually led to the conclusion that the creek should be realigned and recreated at grade. Therefore, the revised mitigation proposal for the Project is a 650-foot Preserve including an at grade 300-foot wide restored creek corridor; the construction of an ephemeral drainage within the 300-foot south restricted area (currently proposed at the pit bottom, final grade to be determined); a 50-buffer buffer comprising the north restricted area; and the planting of associated riparian, oak woodland, and grassland habitat.

The Mitigation Project presented in this *Wetland, Oak Woodland and Riparian Mitigation Monitoring for the Granite Vineyard I Project* ("Plan"), addresses many of the comments and concerns voiced during the permitting process by the Environmental Protection Agency (EPA), Corps, and conservation organizations. The revised mitigation plan embodies Alternative #2 (Reconstructed Creek Alternative) as suggested in written correspondence with the EPA and Corps. This alternative allows Granite to mine the entire site and reconstruct the creek at the natural, existing grade. The Mitigation Project addresses the agencies concern of loss of creek function/habitat separation, since the creek and mitigation will no longer be separate, but will be one continuous habitat corridor. A variety of other agency comments and concerns are addressed throughout this Plan.

The channel realignment and ability to restore the creek at grade requires a collaborative effort involving Teichert, which owns the adjacent Aspen III South property. The corridor is now proposed to pass through the Aspen III South property and the connection will be made on the Vineyard I site, just west of Mayhew Road (see Figure 1). (Note: Teichert was not required to obtain a permit from the Corps to mine their Aspen III South property due to an absence of wetlands on the site as reflected in the Final EIR/EIS for the 'Morrison Creek Mining Reach Downstream (South) of Jackson Highway'.

1.4 Jurisdictional Areas Affected by Project

Zentner and Zentner (1997) determined that a total of 17.22 acres of wetlands exist at the Project site, as shown in Table 1 below and in Attachment B. The impacts include 12.24 acres of Morrison Creek, 3.84 acres of seasonal wetland swale/ephemeral drainage, and 1.14 acres of seasonal marsh. As shown in Table 1 below, 3.79 acres of seasonal wetland/marsh and 0.53 acres of vernal pool credits have been purchased at an off-site mitigation bank. The acreages to be created/restored for the Mitigation Project are 13.33 acres of Morrison Creek, 1.11 acres of seasonal/perennial wetland, and 1.65 acres of ephemeral drainage. Including the purchased credits, the mitigation totals 20.41 acres.

Table 1 – Impact and Mitigation Acreages

Waters of the U.S.	Impact Acreage	Credits Purchased	On-Site Mitigation	Total Mitigation Acreage
Riparian (Morrison Creek)	12.24		13.33	13.33
Tributaries (Seasonal Wetland Swale/Ephemeral Drainage)	3.84	3.79 – Seasonal Wetland/Marsh 0.53 – Vernal Pool		4.32
Seasonal Marsh/Wetland	1.14		1.11	1.11
Ephemeral Drainage			1.65	1.65
Total:	**17.22**	**4.32**	**16.09**	**20.41**

1.5 Hydrology and Topography

The topography of the Project is gently rolling, with a centrally located low area containing Morrison Creek. Morrison Creek is the predominant drainage feature on site, crossing the Project in an east-west direction.

1.6 Geology and Soils

The geology of the Project is Riverbank Formations (Figure 2. *Regional Geology*). According to the *Soil Survey of Sacramento County, California* (U.S. Department of Agriculture, Soil Conservation Service 1993), seven soil units, or types, have been mapped for the Project (Figure 3. *Natural Resources Conservation Service Soil Types*). These are: (118) Columbia sandy loam, drained (0 to 2% slopes), (157) Hedge loam (0 to 2% slope), (164) Kimball silt loam (0 to 2% slope), (213) San Joaquin silt loam, leveled (0-1% slopes), (214) San Joaquin silt loam (0 to 3% slope); (215) San Joaquin-Durixeralfs complex (0-1% slopes); (221) San Joaquin-Xerarents complex, leveled (0 to 1% slope). Because the Project will be mined, these soil types will no longer be distinct within the Mitigation Project.

1.7 Waters of the U.S.

The Project is permitted to impact 17.22 acres of Waters. The following paragraphs describe the various wetlands/waters types present at the Project site prior to mining operations.

1.7.1 Riparian (Morrison Creek)

Morrison Creek is the predominant drainage feature on site, crossing the Project site in an east-west direction. Morrison Creek is intermittent within the Property. Riparian trees occur in scattered patches along the creek. The creek bed varies from bare to densely vegetated. Common dominant plants in the riparian areas include willows (*Salix* spp.), cottonwoods (*Populus fremontii*), water grass (*Echinochloa crus-galli*), broad-leaved cattail (*Typha latifolia*), curly doc (*Rumex crispus*), Himalayan blackberry (*Rubus procerus*), wild rye (*Leymus triticoides*), flat-head sedge (*Cyperus eragrostis*), Italian ryegrass (*Lolium multiflorum*), cocklebur (*Xanthium strumarium*), meadow barley (*Hordeum brachyantherum*), yellow waterweed (*Ludwigia repens*), and Baltic rush (*Juncus balticus*).

1.7.2 Tributaries (Seasonal Wetland Swale/Ephemeral Drainage)

Three small tributary channels feed into Morrison Creek from the surrounding uplands. These areas are dominated by herbaceous wetland species and shrubs. Plant species composition within seasonal wetland swales is typically comprised of non-native species such as Mediterranean barley (*Hordeum marinum*), Ryegrass (*Lolium multiflorum*), meadow barley, rabbitfoot grass (*Polypogon monspeliensis*), tules (*Scirpus acutus*), cattails (*Typha*), yellow waterweed, and rice cutgrass (*Leerzia oryzoides*).

1.7.3 Seasonal Marsh (Seasonal Wetland)

Seasonal marsh features are located in several locations throughout the Project site. These shallow depressions catch and hold winter/spring rains, sustaining marsh vegetation. Plants within the marsh are typical seasonal wetland and moist soil species such as ryegrass, Mediterranean barley, curly doc, annual hairgrass (*Deschampsia danthonioides*), spikerush, frog bit (*Phyla nodiflora*), slender popcorn flower (*Plagiobothrys stipitatus*), and Pacific foxtail (*Alopecurus sacatus*).

2.0 GOAL OF MITIGATION

The overall goal of the Mitigation Project is no net loss of wetland, riparian, and oak woodland functions and values resulting from the Project. This goal will be accomplished through a complete realignment and restoration of Morrison Creek and associated wetlands within the 300-foot mitigation corridor, the construction of an ephemeral drainage, and the planting of native riparian and oak woodland habitat.

2.1 Impact Types

As discussed in Section 1.4, impacts to Waters include 12.24 acres of perennial creek (Morrison Creek), 3.84 acres of tributaries (which include seasonal wetland swale and ephemeral drainage), and 1.14 acres of seasonal marsh. In addition, 174 County-regulated valley oak (*Quercus lobata*) and black walnut (*Juglans hindsii*) trees will be impacted at the site.

2.2 Characteristics, Functions and Values of Habitat Prior to Impact

In a summary of the *Draft Regional Guidebook for Assessing the Functions of Second Order Streams in the Central Valley of California* by Zentner and Zentner and Gill Water Resources Engineering (1999), the functional capabilities of Morrison Creek at the Vineyard I site were assessed. Using the Hydogeomorphic (HGM) methodology, the reach of Morrison Creek that intersects the Project site was considered a 'moderate value riparian wetland', scoring a 0.55 out of a possible 1.0. According to Zentner and Zentner's letter summary, Morrison Creek at the Project site has been partially channelized, reducing the creek systems capability to provide geomorphologic and hydrologic functions. In addition, the site has been historically farmed or otherwise disturbed up to the edge of the channel, eliminating native riparian trees and decreasing the native biological functions of the site.

2.3 Characteristics, Functions and Values of Habitat to be Created/Enhanced

Morrison Creek will be enhanced from its current state. As mentioned above, Morrison Creek prior to mining was partially channelized, with a mostly sparse non-native riparian habitat. To create improved wildlife, creek and wetland habitat (i.e., increased functions and values) and a more aesthetic feature, the creek will be re-contoured and planted with native trees and shrubs both as mitigation for the removal of native oak and black walnut trees, and to enhance the overall habitat quality of the riparian system.

In addition, an ephemeral drainage will be constructed south of the restored creek corridor and planted with riparian species. The constructed ephemeral drainage is to provide additional functions and values (i.e., additional length) for the loss of channel length.

2.3.1 Wetland Habitat to be Created

As shown in Table 1 (Section 1.4), the Project impacts include 12.24 acres of Morrison Creek, 3.84 acres of seasonal wetland swale/ephemeral drainage, and 1.14 acres of seasonal marsh. Also shown in Table 1, 3.79 acres of seasonal wetland/marsh and 0.53 acres of vernal pool credits have been purchased at an off-site mitigation bank. The acreage to be created/restored

on-site is 13.33 acres of creek, 1.11 acres of seasonal/perennial wetland, and 1.65 acres of ephemeral drainage. Including the purchased credits, the mitigation totals 20.41 acres.

The Mitigation Project has been designed to provide increased and more diverse habitat value compared with the Project prior to impact. The design of the creek includes depressions/backwater areas within the channel of Morrison Creek. Wetlands have been created both in-channel and off-channel along the newly restored Morrison Creek channel. The created wetland vegetation may provide nesting habitat (e.g., cattails) for birds such as the red-winged blackbird (*Agelaius phoenicus*). Amphibians may breed within this habitat, including Pacific chorus frog (*Pseudacris regilla*) and western toad (*Bufo boreas*). Mammals that may associate with the mitigation corridor include raccoon (*Procyon lotor*) and striped skunk (*Mephitis mephitis*). In addition, the on-site construction of the ephemeral drainage will provide mitigation for loss of channel length.

2.3.2 Oak Woodland/Riparian Habitat to be Created

The riparian and oak woodland habitats to be created include a variety of native trees and shrubs that will eventually provide shade both within the Morrison Creek corridor and adjacent to it providing habitat for the resident wildlife. The previous riparian canopy was very sparse, predominantly non-native, and in poor condition. Much of the woody vegetation at the site was historically comprised of a English walnut orchard where a black walnut root stock was used. When it was not actively farmed, the root stock most likely out-competed the grafted portion of the tree, resulting in the presence of black walnuts. Osage orange trees were also located at the site with little diversity of native species. As a result of Project impacts, approximately 174 native trees (Valley oak and black walnut) will be removed. As mitigation for these impacts, 3,570 oak woodland trees and associated riparian trees/shrubs will be planted along the creek and along the constructed ephemeral drainage.

2.4 Evaluation of Temporal Loss

It is expected that the entire realigned and restored reach of Morrison Creek between Mayhew Road and Hedge Avenue will begin functioning hydrologically during the first rainy season after completion of the excavation and contouring of the wetlands/creek (this is estimated to be in 2009-2010). The majority of the new channel will be built prior to impacting any portion of the existing Morrison Creek. During the summer (dry season) of 2009 or 2010 a short portion of Morrison Creek will be temporarily diverted at the eastern and western Project boundaries (Mayhew Road and Hedge Road, respectively) in order for the existing creek to be mined and then the new channel connected to the existing creek. The creek cannot be restored to its original connection portions without these temporary diversions.

Although a temporal loss will occur for the tree plantings, significantly more trees are being planted than are being impacted to compensate for loss (174 trees within County regulations being impacted and 3,570 mitigation trees planted). This increase in tree numbers for mitigation will greatly improve the habitat adjacent to Morrison Creek and in the surrounding area by providing shade, shelter, and ultimately a food source for wildlife species. The wetland vegetative cover is also expected to increase annually and reach the established performance

standards within three to five years. Refer to Section 4.2.2 for a more detailed implementation schedule.

3.0 PROPOSED ON-SITE WETLAND AND RIPARIAN/OAK WOODLAND MITIGATION

3.1 Wetland and Riparian/Oak Woodland Mitigation Site

The Mitigation Project includes creek, wetland, ephemeral drainage, riparian, and oak woodland mitigation. The Mitigation Project is located within the Project site owned by Granite and the adjacent Aspen III site owned by Teichert, as detailed in Figure 1.

3.2 Ownership Status

3.2.1 Present Owner of the Mitigation Site

Granite Construction Company and Teichert Aggregates

3.2.2 Expected Long-Term Owner of the Mitigation Site

Granite Construction Company and Teichert Land Company

3.2.3 Parties Responsible for Long-Term Maintenance of the Mitigation Site

Granite Construction Company, Teichert Land Company, and the Corps-approved conservation easement holder

3.2.4 Point of Contact for Corps Access to the Site

Attn:	Mr. Grant Williams Granite Construction Company 4001 Bradshaw Road Sacramento, California 95827	Attn:	Mr. John Lane Teichert Aggregates 3500 American River Drive Sacramento, California 95864
Phone: Fax:	(916) 855-4400 (916) 855-4590	Phone: Fax:	(916) 484-3256 (916) 484-7012

3.2.5 Conservation Easement

Conservation easements will be recorded in Sacramento County that will maintain the on-site created wetlands and open space/preserve area as wetland and wildlife habitat in perpetuity. Copies of the proposed conservation easements have been submitted to the Corps for approval as part of the *Operations and Management Plan for the Morrison Creek Nature Preserve* (submitted under separate cover).

3.3 Existing Functions, Values, Baseline Information of Wetland and Riparian Mitigation Sites

The mitigation site is the same as the impact site. Please refer to Section 1.0, 2.2 and 2.3.

3.4 Past/Present Use of the Wetland and Riparian Mitigation Site

The Project was historically used for farming and rural residential uses. According to the previous *Granite Vineyard Wetland Mitigation Plan* prepared by Zentner and Zentner (1994), the site was historically comprised of a few homes, a sod farm, an orchard, and oat hay fields. Much of the site has since been disturbed by approved mining operations. Agriculture is the approved future use of the area surrounding the Mitigation Project.

3.5 Jurisdictional Delineation

The original wetland delineation for the Project was conducted by Zentner and Zentner and submitted to the Corps in 1992. The 1992 delineation was set to expire in 1997; therefore, a modified jurisdictional delineation was submitted to the Corps and approved on July 2, 1997.

3.6 Present and Proposed Uses of All Adjacent Areas

Teichert's Aspen IV South property borders the site to the east. Rural residences and commercial properties border portions of the site to the south, north and west. Future and/or proposed uses of the adjacent properties are not known at this time.

3.7 Zoning

The Project site and the Aspen III site are both zoned for industrial uses (Industrial Reserve and Light Industrial) and include a surface mining (SM) and flood overlay zone. The area that encompasses the Mitigation Project has not been rezoned by the County of Sacramento. Accordingly, the zoning of the Mitigation Project will be consistent with the underlying zoning designations for Vineyard I and Aspen III South.

4.0 MITIGATION DESIGN/IMPLEMENTATION PLAN

The following sections discuss the design methodology and implementation of the created/restored creek, wetlands, ephemeral drainage and riparian/oak woodland habitats. Section 4.1 discusses the rationale for mitigation success, Section 4.2 outlines the creek, wetland, and ephemeral drainage design methodology and implementation schedule, and Section 4.3 outlines the riparian/oak woodland design methodology and implementation schedule.

The mitigation design and implementation plan outlined in the following section supersedes previous requirements outlined by the Corps (for wetlands/waters) and the County (for native tree impacts).

4.1 Rationale for Expecting Implementation Success

ECORP has successfully designed and overseen the construction of numerous wetland creation/restoration and riparian/oak woodland mitigation projects in Sacramento and Placer Counties, including those in locations with similar attributes to the Project. This experience has been used in the design and construction of the mitigation wetlands at the Project. Refer to section 4.2.1 for a discussion of the wetland and creek realignment design methodology, the primary reason for expecting implementation success. Also refer to Section 4.3 for a discussion of the riparian and oak woodland planting plan implementation and maintenance. Section 6.0 discusses the final success criteria and monitoring methodology for the wetlands, realigned creek, ephemeral drainage, and plantings.

4.2 Creek, Wetland, and Drainage Mitigation

The Mitigation Project involves the creation of 13.33 acres of creek, 1.11 acres of in-channel and off-channel seasonal/perennial wetlands, and 1.65 acres of ephemeral drainage (Figure 4. *Wetland Detail*).

4.2.1 Design Methodology

4.2.1.1 Morrison Creek

The realigned/restored Morrison Creek channel design was based on interpretation of aerial photographs, detailed topography, and information gathered during several field visits. The intent of the new channel design was to retain as many of the characteristics of the existing channel as possible, since these characteristics are the result of the creek's current "natural" dynamic equilibrium. Neither the flow regime of the creek nor the channel shape upstream and downstream of the Project site are "natural" per se, due to development in the area and prior channelization of the creek. The lack of notable fresh deposition areas or erosion cuts, however, seems to indicate that the creek is in a state of equilibrium and is neither aggrading nor degrading.

Aerial-photo interpretation and topographic map analysis included determinations of slope (valley slope and channel slope), sinuosity (creek length/valley length), and tightest existing

meander radius. A cursory assessment of the creek's natural features, course of the channel, and where the channel appeared to be artificially controlled or altered was also performed using these methods.

A preliminary soils review was performed using the Natural Resources Conservation Service (NRCS) soils maps. The channel runs primarily through hedge loam, and portions of the channel run through the San Joaquin xerarents complex and San Joaquin silt loam. The newly designed channel will be relocated north of its current location and placed on re-compacted soils from the area. The topsoil will be removed and preserved, gravel underneath mined, and the overburden and topsoil will be replaced and compacted before the grading of the new channel is performed.

Flows have been recorded by a gage maintained by the USGS on Morrison Creek near Sacramento, a few miles downstream of the Project. Records of past flows showed a maximum daily mean flow of 1940 cubic feet per second (cfs) in 1982, with normal flows during the year under non-storm conditions ranging from 1 to 10 cfs. (*USGS California Hydrologic Data Report*, Monthly Mean data for water years 1959-2001, "Morrison Creek near Sacramento", gage number 11336580)

In 2004, an initial visit to the site was made to give the ECORP team an overview of the existing creek. A second, more detailed site visit was conducted to assess vegetation and soils, estimate flows, and determine other creek characteristics such as: average water depth at the time (summer low-flow water depth), bankfull stage, width-depth ratio, entrenchment ratio, channel shape, types of wetlands that occur naturally, and any notable erosion or deposition features.

During the field visit, the oxbow at the downstream end of the channel was dry and the main channel carried all the creek's flows. The oxbow receives some portion of the creek's winter flows, but acts more as a backwater area. The portion of the main channel adjacent to the oxbow was constructed quite a while ago to bypass the oxbow, judging from the degradation of an abandoned culvert in the main channel near this location. The addition of this portion of the main channel does not appear to have affected the morphology of the creek channel recently, since no erosion or sedimentation problems were noted, aside from those caused by immediate scour around the culvert.

After the data from the site visits was analyzed, the general alignment of the creek provided by Granite and Teichert was printed out at 1"=20' scale. The channel design was sketched onto the plans and then digitized so a water-surface profile analysis could be performed.

Based on the low flow widths observed during the site visit, the bottom of the newly designed low-flow channel varies in width from just a few feet to over ten feet wide. Since the slope of the existing channel is essentially constant over the length of the Project area, the slope of the designed channel through the new floodway is also uniform. A variety of features were added to the floodway in order to provide areas for several different plant communities and wetland types. Backwaters, split-channel areas with islands, off-channel wetlands, benches (or terraces) of varying heights and deeper pools were included. For safety purposes, the slopes into the corridor and low flow channel-bank slopes do not exceed 3:1 in steepness. To create a

more natural corridor and variety in habitats, the slopes leading up from the bottom of the corridor range from 3:1 to 7:1.

The sinuosity of the existing Morrison Creek channel was evaluated in the design of the realigned creek corridor. Channel sinuosity (k) is defined as the ratio of channel length to valley length (k = (channel length/valley length)). Sinuosity indicates how the channel has adjusted its slope to the slope of the valley. Sinuosity is inversely related to channel slope; highly sinuous channels have low slope values whereas low sinuosity channels have higher slopes. Channels naturally develop a sinuous pattern to provide for the dissipation of the kinetic energy of the moving water and also to effectively transport sediment. The original sinuosity value calculated for Morrison Creek was based on the length of the active channel alone without the oxbow.

In general, the banks of the designed channel are steeper on the outside of a curve (cut banks) than on the inside of the curve (point bars). This is a characteristic of the existing channel, and is common to many creeks and rivers with characteristics similar to those of Morrison Creek. The shallower bank slopes are also intended to allow wetland vegetation to become established. Pools were included to prevent vegetation from establishing itself in some locations, permitting sections of open water to exist.

After construction, the designed channel may change shape to some extent, but replicating many characteristics of the current channel in the designed channel should minimize the likelihood of flows to change the channel shape drastically. Until vegetation is well established, Best Management Practices (BMPs) and erosion control measures will be taken to reduce the potential for erosion and sediment problems.

After ECORP created the initial creek design, G.C. Wallace, the Project engineers, digitized the design utilizing conservative estimates, ran the needed models to ensure that the channel would be able to pass the expected high flows. The U.S. Army Corps of Engineers *HEC-RAS River Analysis System* computer program was utilized to compute water surface elevations throughout the length of the channel. The HEC-RAS model was based on an HEC-2 model provided by Sacramento County. The 200-year storm event was modeled to determine channel and freeboard requirements. The 200-year flow rates analyzed were taken from the County HEC-2 model. Modifications to low-flow widths and bench areas were made as needed, but preserved a variety of widths and depths. The model also took into account channel roughness, including thick vegetation on the riparian bench areas and oak woodland habitat on the remaining corridor bottom.

4.2.1.2 Seasonal/Perennial Wetlands

The created in-channel and off-channel seasonal/perennial wetlands have been designed to have hydrology typical of seasonal/perennial wetlands in the Central Valley. The depth of the wetlands will range between 8 and 24 inches and the side slopes for the wetlands will be no steeper than 3:1 with an average of 7:1. Direct precipitation, overland flow, and storm flows in Morrison Creek will provide source water for the wetlands.

4.2.1.3 Ephemeral Drainage

As mitigation for Project impacts, an ephemeral drainage will be constructed south of the mitigation corridor. The ephemeral drainage feature will convey storm water from the Project into a detention basin located on-site. The following discussion provides a description of the ephemeral drainage design and proposed characteristics.

The proposed ephemeral drainage design assumes the following: the drainage will be constructed at the pit floor south of the corridor within the South Restricted Area; the drainage will only accept flows during storm events (i.e., it will act as a storm water conveyance); the drainage will accept flows from the northern portion of the site and adjacent Aspen III South site (north of the corridor) that will be conveyed through storm water pipes located underneath the constructed corridor; the drainage will also accept flows from the entire pit floor south of the drainage, with the exception of the restored creek corridor; and, the future land use of the site outside of the restored creek corridor will be agriculture (pasture). A preliminary model used to generate the conceptual drainage characteristics is based on an analysis of both a 2-year/6 hour storm event and a 2-year/24 hour storm event. Runoff characteristics assume the following: pasture ground cover; channel sinuosity of 1.2; bankfull discharge values are expected to range between 28.1 and 39.7 cubic feet per second (based on an analysis of the 2-year/6 hour and a 2-year/24 hour storm event, and based on the ultimate channel sinuosity and slope); channel slope is expected to range between 0.08% and 0.16%; and a roughness coefficient of 0.44. If there are changes from these assumptions, a revised design will be submitted to the Corps for approval.

The ephemeral drainage will be graded such that water flows west from the eastern portion of the site, and east from the western portion of the site, ultimately flowing into a detention basin (final location to be determined, approximated to hold 312 acre-feet). The drainage will be approximately 14.4 feet in width at the ordinary high water mark, with a maximum depth of 2.5 feet, and it is estimated to be approximately 5,000 feet in length. The acreage of the ephemeral drainage is estimated to be 1.65 acres. A conceptual cross-section of the drainage is shown in Attachment C. The constructed drainage will have an ordinary high water mark and will be planted with native trees and shrubs. The success criteria are presented in Section 6.3.

4.2.1.4 Buffers

The original Corps permit for the Project requires an upland buffer of at least 25 feet in width from the outer limit of all created wetlands/waters. Using GIS software, the distance between all created wetland features/creek and the edge of the Mitigation Project was calculated at each vertex (figure available upon request). Within the creek corridor it was determined that the buffer ranges from 78 feet to 428 feet with an average buffer of 243 feet between wetland features and the edge of the Mitigation Project. The realigned Morrison Creek channel, like all other stream systems, is dynamic. Although we do not expect significant change in the channel location in the short term, minor variations within the limits of the corridor are expected over an extended period of time.

4.2.2 Implementation Schedule

The creation of the new Morrison Creek corridor location that spans the Project site and Aspen III South site will be phased beginning in 2006 and is estimated to be completed in 2010 (Attachment D). Starting in 2006, the area of the future realigned/restored creek (as outlined in purple) will be mined and mass graded, followed by fine grading in Fall of 2006. In 2007 through 2009, connecting portions of the future creek will be mined and rebuilt (as indicated in green and orange), and then fine graded in Fall of 2007 through 2009, respectively. During the construction (dry) season of 2009 or 2010, the existing creek will be diverted through an open ditch to allow for the area below Anrak and below the oxbow (as indicated in blue) to be mined, mass graded and fine graded. The creek cannot be restored to its original connection points without these temporary diversions. Water will begin to flow through the new creek channel in 2009 or 2010. No portion of the existing creek (except the oxbow) will be impacted until the final stage of mining and grading in 2009 or 2010. Thus, the majority of the new corridor will be built prior to the existing creek being impacted.

In order to allow for flexibility in the final elevation (whether the ephemeral drainage will be constructed at the pit bottom, or at grade), the construction of the ephemeral drainage may occur within three years following the construction of the creek corridor (estimated to be in 2010). It is understood that either the pit bottom drainage or Corps approved alternative mitigation must be completed by 2013.

4.3 Riparian/Oak Woodland Mitigation

In March of 2001, an arborist report was prepared by Foothill Associates for the Project. According to this report, 223 Valley oak and black walnut trees were identified.

According to the current Sacramento County Tree Preservation Ordinance (Sacramento County Code 480, Chapter 19.12, Sections 19.12.010 through 19.12.240), the County Tree Ordinance protects native oak species, including interior live oak (*Quercus wislizenii)*, Valley oak, blue oak (*Q. douglasii)*, and oracle oak (*Quercus* x *morehus*), that measure ≥ 6 inches in diameter at breast height (DBH), and ≥ 10 inches DBH for multi-trunked trees (measured as an aggregate diameter). The Sacramento County General Plan protects non-oak native trees (excluding cottonwoods and willows) and landmark trees (defined as non-native oak trees measuring 19 inches DBH or greater).

Based on the above requirements, a total of 174 Valley oak and black walnut trees that exist at the Project, fall within County regulations. These 174 trees equate to 2,872" DBH of black walnut and 980" DBH of Valley oak. Of the trees on the site that meet County regulation size, Foothill Associates deemed that 171" DBH of Valley oak and 119" DBH of black walnut fall within County rights of way/perimeter setbacks and thus will not be impacted. Therefore, the total impact acreage is 2,753" DBH black walnut and 809" DBH of Valley oak, for a total combined impact of 3,562" DBH. For every inch of DBH impacted, one depot-sized tree will be planted. Thus, 2,515 oak woodland trees and associated riparian trees will be planted along the creek, within the 300-foot corridor. An additional 1,055 oak woodland trees and riparian trees will be planted on-site along the constructed ephemeral drainage, for a total of 3,570 tree

plantings. Additional native shrubs (675) and wetland plugs (900) will be planted to increase the habitat value.

In addition to the County's requirement, as mitigation for Project impacts, the Corps is also requiring the success of those mitigation plantings (1,055) installed along the ephemeral drainage as outlined in Table 3 below.

4.3.1 Revegetation Plan

A riparian revegetation plan has been developed in order to show the location of the 3,570 trees that will be planted on-site, 2,515 within the creek corridor and 1,055 along the ephemeral drainage feature (Attachment E). Tables 2 and 3 below list the species and number of plantings.

All areas within the Mitigation Project that are planned for planting will be hydroseeded with a blend of a minimum of three locally native grass species. These seed mixes are included in Attachment F.

As outlined in Attachment G, a porous and fibrous weed mat will be installed around the base of the plantings (minimum of 3' x 3'). Sterile bark mulch may also be used for each planting and should be augmented annually to a depth of 6 inches. The planting locations should be weeded (use of herbicide is approved per the *Operations and Management Plan for the Morrison Creek Nature Preserve*), at minimum, once annually in early spring, for at least the first two years. This will reduce competition between the plantings and the weeds for water and nutrients.

Erosion control blanketing (ECB) made of all natural biodegradable materials (e.g., coconut fiber and/or straw) with a natural woven (not fused) netting will be installed around the base of the plantings. Additional BMPs will be installed in accordance with the Storm Water Pollution Prevention Plan (SWPPP).

Table 2 - Morrison Creek Restored Corridor Planting Numbers*

Riparian Tree Type	Number of Plantings	Shrub Type	Number of Plantings
Box Elder (*Acer negundo*)	75	Coyote Brush (*Baccharis Pularis*)	75
Black Walnut (*Juglans hindsii*)	115	Hoary Coffeeberry (*Rhamnus Tomentella*)	70
California Sycamore (*Platanus racemosa*)	75	California Blackberry (*Rubus Ursinus*)	55
Fremont Cottonwood (*Populus fremontii*)	230	Buckbrush (*Ceanothus cuneatus*)	50
Black Willow (*Salix Gooddingii*)	240	Deergrass (*Muhlenbergia rigens*)	70
		Arroyo Willow (*Salix Lasiolepis*)	50
Subtotal	*735*	Sandbar Willow (*Salix Exigua*)	155
Oak Tree Type	**Number of Plantings**	*Subtotal*	*525*
Blue Oak (*Quercus douglasii*)	675		
Valley Oak (*Quercus lobata*)	530	**Wetland Plugs**	**Number of Plantings**
Interior Live Oak (*Quercus wislizenii*)	575	Rush (*Juncus*), Sedge (*Carex*), Spikerush (*Eleocharis*)	900
Subtotal	*1,780*		
TOTAL	***2,515***		***1,425***

*Mitigation for Sacramento County

Table 3 - Ephemeral Drainage Planting Numbers*

Riparian Tree Type	Number of Plantings	Shrub Type	Number of Plantings
Black Walnut (*Juglans hindsii*)	100	Coyote Brush (*Baccharis Pularis*)	50
California Sycamore (*Platanus racemosa*)	50	Hoary Coffeeberry (*Rhamnus Tomentella*)	50
Subtotal	*150*	Buckbrush (*Ceanothus cuneatus*)	50
Oak Tree Type	**Number of Plantings**	*Subtotal*	*525*
Blue Oak (*Quercus douglasii*)	350		
Valley Oak (*Quercus lobata*)	200		
Interior Live Oak (*Quercus wislizenii*)	355		
Subtotal	*905*		
TOTAL	***1,055***		***525***

*Mitigation for Corps and Sacramento County

4.3.2 Planting Location/Density

The planting locations were determined by what species are known to naturally grow at varying distances from perennial creeks and drainages. For example, certain species such as cottonwood require a year round water source and therefore are planted closest to the creek. Other tree species, like the blue oak thrive in upland areas furthest from the creek.

Information from the Project engineers was also utilized to determine appropriate planting locations. The draft hydraulic study by G.C. Wallace (2005) was used to input information into a Geographic Information System (GIS). This in turn created a model that estimated the elevation of various Morrison Creek flow levels. This data assisted in determining at what flow levels certain areas would be inundated. The revegetation plan was adjusted accordingly. To ensure the success of the plants that require year-round water, the riparian species will be not be planted until water is flowing through the realigned mitigation corridor.

The Mitigation Project totals approximately 89 acres in size. Excluding the creek there are approximately 40 acres of planting potential. Thus, for the 3,570 plantings within the corridor and the ephemeral drainage, there will be approximately 89 trees per acre.

4.3.3 Irrigation

The plantings will be irrigated with a drip irrigation system provided by on-site wells to ensure that the plantings are successful. Irrigation will be decreased and finally eliminated during the monitoring period to ensure that the plantings will survive in the long-term without irrigation.

Irrigation should deliver deep, infrequent watering and should normally take place between April 1st and October 15th of each year. This can be adjusted if a year is particularly hot earlier or later in the year. A recommended irrigation schedule is outlined in Table 4.

Table 4 – Seedling Irrigation Schedule

Duration	Year 1	Year 2	Year 3
April 1st – June 15th	8 gallons, once/2 weeks	8 gallons, once/3 weeks	8 gallons, once/ 4 weeks
June 16th – September 15th	10 gallons, once/2 weeks	12 gallons, once/4 weeks	10 gallons, once/ 4 weeks
September 16th – October 15th	6 gallons, once/3 weeks	8 gallons, once/4 weeks	8 gallons, once/6 weeks
October 16th – March 31st	Irrigation off	Irrigation off	Irrigation off

4.3.4 Maintenance

Maintenance of the replacement trees should include a check, adjustment, and replacement as necessary of the seedling tree shelters and weed mats, applications of supplemental mulch, weeding around the seedlings, and incidental litter removal. Litter removal will be conducted throughout the Mitigation Project on a seasonal basis as part of the general maintenance of the mitigation corridor.

In order to ensure that the tree and shrub plantings survive to maturity, the irrigation system should be checked regularly during the irrigation period. Additionally, all at-grade equipment and all equipment within the valve boxes should be inspected once per month during the months the irrigation system is on and repaired as necessary.

See Section 6.4 for monitoring and success criteria of the plantings.

4.3.5 Protection of Existing Trees during Planting Activities

Planting and irrigation contractors are to be made aware of existing trees (located in right-of-ways and perimeter setbacks) and shrubs to be preserved and take precautions to protect such vegetation from damage. Irrigation lines shall not be trenched under the drip lines of existing trees and shrubs. Equipment, construction materials, or tools shall not be stored within the drip line of the trees or shrubs to be preserved. No heavy equipment shall be allowed within the drip line of trees or shrubs to be preserved.

4.3.6 Topsoil Stockpile

As the existing Morrison Creek is mined, the top one foot of topsoil will be collected and stockpiled. The topsoil will be spread within the restored creek corridor in phases during fine grading activities. If it is determined that the soil is not appropriate for planting (i.e., soil compaction or soil quality), additional measures or amendments will be taken/used to increase the chance of success for the plantings.

4.3.7 Implementation Schedule

As outlined in Attachment D, fine grading and planting will be phased in relation to mass grading. As the realigned creek is fine graded (2006-2010), upland oak trees and grasses will be planted along with the phases outlined in Attachment D. During the winter of 2009 or 2010 when water will be flowing through the restored creek corridor, the water level/inundation areas will be assessed. Following this assessment, during the spring and fall of 2010 or 2011, the riparian trees and shrubs, as well as wetland plugs, will be planted within the 300-foot creek corridor. As mentioned above, the construction of the ephemeral drainage and associated plantings may occur up to three years following the completion of the construction of the corridor. Plantings along the ephemeral drainage will be installed the fall following construction. Attachment H shows the planting plan detail sheet for the 2006-2007 planting season. For each subsequent planting season a new detail sheet will be drafted.

5.0 MAINTENANCE DURING MONITORING PERIOD

5.1 Maintenance Activities

During the ten-year success-monitoring period (2010-2020), Granite and Teichert will be responsible for the maintenance activities within the Mitigation Project Area, and the Corps-approved easement holder will be responsible for those items/inspections outlined in Section 2.4 of the *Operations and Management Plan for the Morrison Creek Nature Preserve* (submitted under separate cover). Once the success monitoring is completed (estimated to be in 2020), the Corps-approved easement holder will take over all maintenance activities association with the Mitigation Project.

5.2 Responsible Parties

Applicant:

Attn: Mr. Grant Williams
Granite Construction Company
4001 Bradshaw Road
Sacramento, California 95827

Phone: (916) 855-4400
Fax: (916) 855-4590

Additional Mitigation Project Participant:

Attn: Mr. John Lane
Teichert Aggregates
3500 American River Drive
Sacramento, California 95864

Phone: (916) 484-3256
Fax: (916) 484-7012

5.3 Schedule

Annual maintenance inspections of the mitigation will occur concurrent with other monitoring activities for the first ten years or until mitigation monitoring obligations have been met. During the ten-year success-monitoring period (2010-2020), Granite and Teichert will be responsible for the maintenance activities within the Mitigation Project Area, and the Corps-approved easement holder will be responsible for those items/inspections outlined in Section 2.4 of the *Operations and Management Plan for the Morrison Creek Nature Preserve* (submitted under separate cover). Once the success monitoring is completed (estimated to be in 2020), the Corps-approved easement holder will take over all maintenance activities association with the Mitigation Project.

Monitoring/maintenance will occur after the ten-year success-monitoring period in perpetuity in accordance with the *Operations and Management Plan for the Morrison Creek Nature Preserve* (submitted under separate cover). Inspections will be performed by qualified personnel who will assess potential maintenance issues, such as: habitat function, preserve function, thatch accumulation, and newly introduced non-native species. These topics will be covered in the annual monitoring report. Refer to the *Operations and Management Plan for the Morrison Creek Nature Preserve* for a more detailed description of the on-going monitoring at the Preserve.

6.0 MONITORING PLAN

The overall goal of the Mitigation Project is no net loss of wetland, riparian and oak woodland functions and values resulting from the Project. In order to judge whether or not this goal has been met, a set of final success criteria have been developed for the constructed seasonal/perennial wetlands, creek, ephemeral drainage, and the riparian/oak woodland plantings.

6.1 Seasonal/Perennial Wetland

6.1.1 Final Success Criteria

Both in-channel and off-channel wetlands have been created along the newly restored Morrison Creek (see Figure 4). The constructed wetland habitat must meet the specific success criteria listed in Table 5 to be considered successful.

Table 5 – Seasonal/Perennial Wetland Success Criteria

Hydrology	Vegetation
1) Wetland habitat will be inundated or saturated for sufficient periods to support a predominance of wetland plant species (those listed as FAC, FACW, or OBL in *The National List of Plant Species that Occur in Wetlands: California (Region 0)* (Reed 1997)[1].	1) Species richness will equal or exceed 10 species.
	2) Prevalence Index will be less than 3.0.
2) 95% of the wetland acreage must be inundated or saturated for period of sufficient duration to support wetland vascular plants or open water as the most prevalent and dominant component.	3) Aerial coverage of vegetation must be greater than or equal to 85% in the seasonal wetlands and must be greater than or equal to 50% in the perennial wetlands, with the remaining 50% attributable to open water*.

*A determination of seasonal/perennial wetlands will be made after the first wet season.
Categories found in the *National List of Plant Species That Occur in Wetlands: California (Region 0)* (Reed 1997):
Obligate Wetland (OBL) = occur almost always in wetlands (>99% probability).
Facultative Wetland (FACW = usually occur in wetlands (67%-99% probability).
Facultative (FAC) = equally likely to occur in wetlands and non-wetlands (34%-66% probability).
Facultative Upland (FACU) = usually occur in non-wetlands (67%-99% probability).
Obligate Upland (UPL) = occur almost always in non-wetlands (>99% probability).

6.1.1.1 Target Jurisdictional Acreage to be Created

The target creek acreage is 1.11 acres of in-channel and off-channel seasonal/perennial wetlands.

6.1.2 Monitoring Methods

In order to determine if the created on and off-channel wetlands are functioning properly, the following specific hydrology and vegetation monitoring methods have been established.

Monitoring of the wetland hydrology and vegetation will take place in years 1, 2, 3, 5, 8, and 10 as outlined in Tables 6 and 7. Monitoring will be conducted along with other habitat monitoring as outlined in the following sections.

6.1.2.1 Wetland Hydrology

To assess the hydrology of the constructed wetlands, an estimate of the percent of ponded area will be made once during the peak period of inundation, typically during January or February, once during the flowering period, typically April or May, and once in June or July of each monitoring year. Aerial photographs or site visits to the constructed wetlands will be used to estimate the extent of inundation. For each photo/visit taken, each wetland will be ranked according to its approximate percent of inundation: 4 = basin is 100% inundated, 3 = basin $\geq$ 80% inundated, 2 = basin <80% and $\geq$ 50% inundated, 1 = basin <50% inundated, and 0 = basin not inundated.

6.1.2.2 Wetland Vegetation

Field surveys of constructed wetlands will be conducted each spring during peak flowering periods. Timing of floristic surveys will be adjusted according to annual site specific conditions. Data collected from each constructed wetland will include an estimate of percent aerial vegetative cover, a detailed species list, and an estimate of the cover of each species. A cumulative vascular plant species list will then be generated for each wetland. Data from each monitored wetland will be entered into a database. From this data, a list of the dominant/co-dominant species (those with at least a coverage of 6% relative cover) will be generated and the Prevalence Index (PI) will be calculated.

The PI is a standard method used to determine whether a floristic data set can be categorized as being that of a wetland or an upland community. Plant species categories used to calculate the PI will be based upon those described by Reed (1997) and weighted according to Table 8.

Table 6 - Morrison Creek/Wetland/Drainage/Oak Woodland and Riparian Monitoring Schedule - Years 1-5

	Wetlands	Morrison Creek	Ephemeral Drainage	Oak Woodland/Riparian Plantings	Photo Documentation	General Preserve Monitoring
First Year	Yes	Yes	Yes	Yes	Yes	Yes
Second Year	Yes	Yes	Yes	Yes	Yes	Yes
Third Year	Yes	Yes	Yes	Yes	Yes	Yes
Fourth Year	None	Yes	None	None	Yes	Yes
Fifth Year	Yes	None	Yes	None	Yes	Yes

Table 7 - Morrison Creek/Wetland/Drainage/Oak Woodland and Riparian Monitoring Schedule - Years 6-10

	Wetlands	Morrison Creek	Ephemeral Drainage	Oak Woodland/Riparian Plantings	Photo Documentation	General Preserve Monitoring
Sixth Year	None	Yes	None	Yes - Aerial Monitoring	Yes	Yes
Seventh Year	None	None	None	None	Yes	Yes
Eighth Year	Yes	Yes	Yes	None	Yes	Yes
Ninth Year	None	None	None	None	None	Yes
Tenth Year	Yes	Yes	Yes	Yes - Aerial Monitoring	Yes	Yes

Table 8 – Plant Species Category Weighting

Wetland Status	Weighting
Obligate Wetland (OBL)	1
Facultative Wetland (FACW)	2
Facultative (FAC)	3
Facultative Upland (FACU)	4
Obligate Upland (UPL)	5

The PI for each wetland is calculated using the following formula:

$$PI = \frac{1*f(OBL) + 2*f(FACW) + 3*f(FAC) + 4*f(FACU) + 5*f(UPL)}{f(OBL) + f(FACW) + f(FAC) + f(FACU) + f(UPL)}$$

where: f(OBL) = a measure of abundance for OBL species,
f(FACW) = a measure of abundance for FACW species, etc.

The PI is a standard method of determining whether a wetland data set is categorized as a wetland or upland plant community. To be considered a wetland, the area must have a PI value less than 3.0. However, PI values within disturbed areas (i.e., establishing wetlands) can range higher, depending on plant species.

6.2 Morrison Creek

The monitoring plan for Morrison Creek will observe the physical characteristics of the channel over a period of ten (10) years. The plan follows established procedures outlined in the field of fluvial geomorphology and requires the installation of permanent survey monuments. These permanent monuments will be re-visited over the course of the monitoring period to ascertain changes in the channel morphology of Morrison Creek. The target acreage is 13.33 acres of restored creek.

6.2.1 Final Success Criteria

Monitoring of the success criteria will be based on both the design specifications and as-built measurements. As-built measurements correspond with year zero of the monitoring record. Design specifications for Morrison Creek specify a slightly entrenched, meandering channel with moderate sinuosity (See Table 9 below). Currently Morrison Creek is a moderately entrenched meandering alluvial channel with a channel width ≥ 12 times channel depth at bankfull flow (Width/Depth [W/D] ≥ 12). Design criteria for the realigned Morrison Creek call for slightly entrenched meandering channel with a moderate W/D ratio (W/D ≥ 12). Alluvial channels operate in a dynamic state of equilibrium. Success criteria for Morrison Creek should account for the constantly adjusting (dynamic) channel geometry. Channel geometry data collected at each monitoring site should indicate a natural channel "type", at the Rosgen Level II classification.

Table 9 – Design Criteria at Four (4) Monitoring Cross-sections for Morrison Creek

Cross Section	W_{bkf}* (ft)	D_{bkf} (ft)	D_{max} (ft)	$Area_{bkf}$ (ft^2)	W_{fp} (ft)	ER	W/D	Stream Type	Sinuosity
A-A'	30.8	1.7	4.5	52.8	283.9	9.22	18	C	1.3
B-B'	23.7	2.1	4.5	49.5	260.4	10.99	11	C	
C-C'	23.4	1.8	3.5	42.3	75.1	3.21	13	C	
D-D'	36.9	3.3	6.5	122	340.6	9.23	11	C	
Mean	25.97	1.87	4.17	48.2	206.47	7.81	14	NA	

*bkf denotes a measurement taken at the bankfull elevation.

Stable channel design is based on principles outlined by David Rosgen, PhD (Rosgen, 1996). The Rosgen classification is a hierarchical continuum of physical variables beginning with single vs. multiple tread channels and continuing down through channel materials (Figure 5. *Classification of Natural Rivers [from Rosgen, 1996]*). Field data collected at four monitoring sites should indicate the presence or absence of a stable channel geometry. Stable streams like their "type". Or in other words, their field data indicate the presence of a stream type according to Rosgen's Classification. If a stream is unstable, the field data will not produce a stream type. For example, a single tread channel with an entrenchment ratio (ER) between 1.4 - 2.2 and a W/D of 8.0 is an unstable channel because it will not result in a stream type according to the classification. Therefore, the success criterion for Morrison Creek is based on the presence of stable channel geometry as measured at four monitoring sites (Figure 6. *Creek/Wetland Cross-section and Photo Point Locations*). Absence of stable channel geometry, at the same monitoring site for two consecutive monitoring periods, will indicate that the creek has not met the success criterion. This success criterion will be assessed after the first two years, as the creek may need one or two years to achieve equilibrium.

6.2.2 Creek Monitoring/Channel Morphology

Monitoring channel morphology allows for the assessment of the overall physical characteristics of the channel, and to determine any significant changes in the dimension, pattern, or profile of the channel. The monitoring will occur at four (4) permanently monumented cross-sections. Cross-sections will be aligned perpendicular to the direction of stream flow (see Figure 6). Each cross-section will consist of:

1. Two (2) 18 inch pieces of ½ inch rebar cemented into place and located on the levee tops, one marking each end of the cross-section.
2. Latitude and longitude coordinates for each cross-section monument using a hand-held Trimble GPS unit.
3. Monument identification consisting of an aluminum cap that uniquely identifies the cross-section (1-1/2" flat top for 1/2" rebar). Each cross-section cap will be stamped with the appropriate identification corresponding to the cross-section name (i.e., XS-A, XS-B, XS-C, and XS-D).

Cross-sectional and longitudinal data will be collected immediately following completion of the channel realignment (year zero). Monitoring data will be collected in years one through four, six, eight and ten during the dry season months of July, August, or September.

The cross-section is the basis for delineating channel geometry, measuring current velocity, and calculating discharge. While the cross-section measures a single vertical plane across the stream channel, the longitudinal profile measures points up and down the stream channel. Observations indicate the relative composition of morphological bed features such as pools and riffles. The longitudinal profile also delineates the gradient of the water surface, channel bed along the thalweg, bankfull stage, floodplain, and any terraces. Combined, these measurements establish the at-a-station hydraulic geometry and long-term records of stream flow (Harrelson et al., 1994). Channel cross-sections will delineate the channel bed morphological features and breaks in slope.

Four (4) longitudinal profiles will be collected along the channel thalweg over a distance equal to 20x the bankfull width (see Figure 6). Each cross-section will be located approximately mid-way in the longitudinal profile. Location of channel cross-sections will be noted and indicated in the graphical presentation of the longitudinal profile.

Bankfull elevation will be determined by a qualified fluvial geomorphologist following the successful completion of the channel reconstruction. Field data will be entered into an appropriate software program (Excel, QuattroPro, etc) in tabular form. Using criteria outlined in the Rosgen Classification of Natural Channels (Rosgen 1996), the stream "type" will be determined for each cross-section. Changes in channel morphology will be evaluated for degradation and/or aggradation. Results for each cross-section will be compared to the natural channel type of the as-built channel. The success criteria outlined in Section 6.2.1 is based on the presence of a natural channel design. A "C" stream type is the likely channel type expected to form in Morrison Creek. The C stream type is a slightly entrenched, meandering channel with a well developed floodplain (Rosgen 1996).

Photo documentation for each cross-section will consist of four (4) photographs. One across-channel view from each monument end-point, one upstream view taken 60-feet downstream of the cross-section, and one downstream photo taken 60-feet upstream of the cross section.

6.2.3 Particle Size Distribution

The composition of the streambed and banks is an important variable that influences channel form and hydraulics, erosion rates, and sediment supply. The nature and distribution of channel materials is critical for interpreting channel stability. A change in particle size distribution can produce a change in stream type.

A reach-averaged particle size distribution will be quantified for each monumented cross-section using the Wolman Pebble Count procedure (Wolman 1954) and the Reach Averaged procedure (Rosgen 1994). The Wolman procedure quantifies the bed and bank material up to the bankfull elevation. The reach-averaged procedure provides quantitative analysis of the bed material in each of these features.

6.2.4 Stream Discharge

Channel discharge will be measured once a year at cross-section B-B' (see Figure 6). Discharge measurements will be collected during the later part of the Spring run-off, preferably March or

April. Stream discharge will provide insight and help explain significant changes in channel morphology (if they occur). Field collected discharge data will be compared to the estimated discharge values computed with Manning's equation. Monitoring of channel discharge will provide information relating to unanticipated changes in channel hydrology due to changes in upstream watershed land-use practices. Land-use changes that effect (increase) channel discharge may initiate changes in downstream channel morphology.

6.2.5 Design Threshold Values

Morrison Creek is designed within a set of threshold values for dimension, pattern and profile based on a stable channel geometry. Yearly monitoring will provide data to determine changes in the dimension, pattern and profile. This in turn will provide information on any tendencies for Morrison Creek to change its geometry. Annual data collection will consist of:

1. width
2. depth (mean and max)
3. cross-sectional area
4. channel slope
5. water surface slope
6. water depth
7. bankfull elevation
8. reach-averaged particle size distribution
9. at-a-station stage/discharge (cfs) relationship (at one-foot intervals)

6.3 Ephemeral Drainage

6.3.1 Final Success Criteria

The ephemeral drainage will be constructed south of the 300-foot corridor within the Mitigation Project. The ephemeral drainage may be constructed within three years of the completion of the corridor. The ephemeral drainage may be constructed at the base of the levee either on the pit bottom floor, or at a higher grade. The target acreage for the constructed ephemeral drainage is 1.65 acres.

Ephemeral drainages are linear features that exhibit an ordinary high water mark. These are seasonal features that typically convey runoff for short periods of time, immediately following rain events and do not receive supplemental water from groundwater sources. The primary channel within such features tends to be largely un-vegetated due to the scouring effects of flowing water.

The limit of Corps jurisdiction for non-tidal watercourses (without adjacent wetlands) is defined in 33 CFR 328.4(c)(1) as the "ordinary high water mark", therefore final success of the constructed ephemeral drainage will be determined by:

- the presence of an ordinary high water mark, as defined by: a line on the shore (in this case the bank) established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in

the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

The success of the ephemeral drainage feature will also be determined by the success of the County-required plantings that will be installed within the south restricted area. As outlined in Section 4.3.1 (Table 3), 1,055 tree plantings are planned to be installed within the south-restricted area. Please refer to Section 6.4 for the success criteria and monitoring methods for the plantings.

6.3.2 Monitoring Methods

In order to determine if the constructed ephemeral drainage is functioning properly, the following specific hydrology monitoring methods have been established. Monitoring of the drainage hydrology will take place in years 1, 2, 3, 5, 8, and 10 as outlined in Tables 6 and 7. Monitoring will be conducted along with other habitat monitoring as outlined in the following sections.

To assess the hydrology of the constructed ephemeral drainage, an estimate of the percent of ponded area will be made once following a rain event, typically during January or February, once during April or May, and once in June or July of each monitoring year. Aerial photographs or site visits to the constructed drainage will be used to estimate the extent of inundation.

A biologist will monitor the drainage at four, 20-foot long transects as shown in Figure 7. *Ephemeral Drainage Monitoring Locations.* At each of the four transects, a biologist will evaluate the presence/absence of an ordinary high water mark and hydrology indicators including, but not limited to, inundation, saturation in the upper 12 inches of soil, water marks, drift lines, and sediment deposits.

During each visit, the transects will be ranked according to the approximate percent of inundation: 4 = feature is 100% inundated, 3 = area <100% and ≥ 80% inundated, 2 = area <80% and ≥ 50% inundated, 1 = area <50% inundated, and 0 = area not inundated. Because of the nature of ephemeral drainage (e.g., only fully inundated during and immediately following rain events), a specific inundation percentage is not required.

6.4 Oak/Riparian Plantings

6.4.1 Final Success Criteria

In order to ensure that the required replacement trees will eventually grow to replace the trees that were removed, the required replacement trees (3,562 trees) will be monitored over a ten-year period. To be counted as successful, a tree must be surviving in at least good condition. Table 10 below outlines the planting success criteria.

Table 10 – Riparian and Oak Woodland Planting Success Criteria		
Vegetation:	1)	No less than 100% success rate for the riparian plantings.
	2)	No less 100% success rate for the oak woodland plantings.

During monitoring, each planting will be located and its condition will be recorded. Plant condition will be scored on a scale of 0 to 3, where:

Score	Plant Condition
0	dead
1	poor health (alive but with a few green leaves and no apical growth)
2	good health (alive with healthy foliage but minimal apical growth)
3	excellent health (alive and growing vigorously)

These data will be entered into a spreadsheet for analysis. Results calculated will include the total number of plantings monitored (all condition classes), total plantings found in each condition class, and the success rates for both individual species and for the plantings as a whole, as calculated below.

The success rate will be calculated according to the following formula:

$$\text{Success Rate (\%)} = \frac{\text{total \# in good or excellent condition during survey}}{\text{total \# originally planted}} \times 100$$

If the success rate of 100% has not been met by year 10 for the 3,562 required mitigation plantings, then the DBH of the trees will be counted and used as a comparison with the inches required. The diameter measurement will be rounded to a whole number as the trees being impacted were measured in whole numbers.

6.4.2 Monitoring Timeline

Tree monitoring will be conducted once annually toward the end of the dry season (i.e., July or August) after the trees have experienced high stress conditions. This time frame will ensure greater accuracy in determining plant condition and survivorship. See Tables 6 and 7 for the ten-year monitoring timeline.

6.5 Wildlife

A wildlife survey will occur once per year. A biologist will walk a meandering transect through the Mitigation Project to generate a cumulative list of the type and number of all species observed utilizing the area. Wildlife signs, such as scat, pellets, or bones, will also be noted. This wildlife survey will be conducted in conjunction with vegetation monitoring. An annual

cumulative list of wildlife found within the Mitigation Project will be included in the annual monitoring report.

6.5.1 Sacramento Blackfish

Sacramento Blackfish native habitat includes low-elevation reaches of the San Joaquin and Sacramento rivers and their major tributaries (Moyle, 2002). They prefer warm, turbid waters of the Central Valley and are common in oxbow lakes. They have been found in deep, turbid pools with soft (i.e., clay, mud) bottoms (Smith, 1977). They exhibit an extraordinary ability to adapt to extreme changes in their environment (Cech et al. 1979, Campagna and Cech, 1981). Adults have been found in waters with temperatures > 30°C and low dissolved oxygen levels.

The realignment of the Morrison Creek channel on the Project site will not pose a threat to the Sacramento Blackfish. As noted by Moyle and others, the ability of the Sacramento Blackfish to survive in warm, turbid waters, allows them to persevere despite changes in their environment. Given the relatively short period of stream alteration, coupled with the Blackfish's physiological adaptability to extreme environments, construction of the new and temporary channels should not disrupt the propagation of the Sacramento Blackfish.

6.6 Photo-Documentation

In conjunction with the above-described monitoring activities, photographs of the creek and created/restored wetlands within the Mitigation Project will be taken at four (4) permanent photo point locations (see Figure 6). Photo point locations for the constructed ephemeral drainage will be determined during the first year of monitoring. The photo points are intended to provide a photographic history of both preserved and restored areas within the Mitigation Project (See Tables 6 and 7 for the years when photos will be taken). During the first year following restoration, additional photo points may be established, if desired. Additionally during the first year, photo point locations of the plantings will be established.

6.7 Schedule

Monitoring will occur over a ten-year period to ensure continuous success of the constructed habitat. Refer to Tables 6 and 7 for the 10-year monitoring schedule.

7.0 ANNUAL REPORTS

7.1 As-Built Maps

The applicant will submit separate reports to the Corps within 60 days of the creek corridor and ephemeral drainage construction activities or in the first monitoring report, which will describe the as-built status of the Mitigation Project. If there are significant changes from the original plans, these will be indicated in indelible red and submitted to the Corps.

An aerial photo will be taken in the first winter after the wetlands have been constructed. The ponded wetland areas will be digitized and a wetland acreage will be calculated. This wetland "as-built" will be included in the first annual monitoring report and will verify that the wetland mitigation acreage specified in the permit has been constructed. In addition, the aerial photo will be used to calculate the length of the newly created low flow channel.

7.2 Annual Reports

A monitoring report will be submitted to the Corps, County and CDFG for each year the constructed wetlands and riparian/oak woodland habitat are monitored. The report will present the status of the creek, wetlands, drainage, oak woodland and riparian habitats, including individual wetland data, photo-documentation, status of the riparian and oak woodland plantings, and any recommended remediation. In addition, the report will include an assessment of the monitoring results against the success criteria described above. At the end of the ten-year monitoring period, monitoring will cease if the Mitigation Project is found by the Corps, County, and CDFG to be in substantial compliance with established success criteria. Monitoring will be extended beyond the ten-year period only for those habitats that are not meeting success criteria.

A monitoring report will be prepared and submitted to the Corps, County and CDFG for each of the monitoring years by December 31st of each monitoring year. The report will refer to the Corps regulatory branch number for the Project, which is 199400102. The reports will be sent to the attention of Chief, Sacramento Valley Office, Regulatory Branch, at the Corps. Monitoring reports will include:

1. A map showing the Preserve including wetland locations, location of various monitoring activities, and photo points;
2. Hydrology, vegetation, and photographic monitoring results as described above;
3. An assessment of the monitoring results against the established success criteria;
4. A description of the overall site condition and any management actions taken during that year; and
5. Any recommended management or remediation actions to be conducted (if necessary, a contingency plan, as described in Section 8.2, will be prepared).

To be included with each annual monitoring report or until the success criteria are met (whichever is longer), the Corps-approved easement holder will provide the Corps with a record of annual endowment deposit (as outlined in Section 2.4 of the *Operations and Management Plan for the Morrison Creek Nature Preserve* - submitted under separate cover).

8.0 CONTINGENCY MEASURES

8.1 Initiating Procedures

If any annual performance criterion is not met for all or any portion of the Mitigation Project in any year, or if the final success criteria are not met, the applicant shall prepare an analysis of the cause or causes of failure and propose remedial action for approval (e.g., re-grading). If the Mitigation Project has not met the performance criterion, the responsible party's maintenance and monitoring obligations continue until the appropriate agency gives final confirmation.

8.2 Contingency Measures

8.2.1 Mitigation Contingency

If a portion of the acreage designated for the Project does not function properly remediation will be proposed. If remediation is not feasible or is unsuccessful, Corps approved mitigation may take place off-site or through credit purchase. If the construction of the ephemeral drainage is determined by the Corps to not be practicable then mitigation will take place off-site or through credit purchase. Either the pit bottom drainage or Corps' approved alternative mitigation must be completed by 2013.

8.2.2 Creek Corridor Contingency – Engineering/Design Justification

A failure of the reconstructed Morrison Creek is not anticipated. The existing creek is currently underlain with sand and gravels. Therefore, if Morrison Creek was left in its current position and the remainder of the Project was mined (no mining within 150 feet of the creek would occur), Morrison Creek would be perched and thus more susceptible to lateral blow out. Additionally any drainage above bankfull would flow across the 150-foot floodplain (buffer) into the pit bottom. Flow velocities at the buffer boundary would reach super-critical values and may cause severe erosion and possible blow out.

In contrast, with the proposed plan, the reconstructed Morrison Creek channel would be engineered to a minimum of 90% compaction and will be constructed to federal and local standards. Compaction testing will be performed throughout the course of construction to ensure adequate compaction is obtained. These compaction records will be reviewed by the design engineer and will remain on file. In addition, detailed fieldwork and analysis took place prior to the design (See Section 4.2.1). The restored channel was designed with a similar sinuosity and length to that of the existing active Morrison Creek channel. The project engineer ran the needed models to ensure that the channel would be able to pass the expected high flows associated with a 200-year storm event without overtopping. For these reasons, a failure associated with the restored creek corridor is not anticipated.

8.2.3 Creek Corridor Contingency – Corridor Failure

Once constructed, if the restored creek corridor levees were subject to a failure, Granite and Teichert would be responsible to coordinate, fund, and implement any necessary remediation activities.

If a catastrophic event (e.g., flood event exceeding a 200 year event; a natural disaster such as an earthquake; war; riot; falling aircraft) were to occur, Granite and Teichert would not be held liable for the costs involved in the remediation of the Preserve; however, Granite and Teichert would make a good faith effort to remediate to the extent possible.

8.3 Funding Mechanism

Funding for the construction, monitoring, maintenance, and remediation of the created habitats will be provided by Granite and Teichert.

9.0 COMPLETION OF MITIGATION RESPONSIBILITIES

9.1 Notification

Upon the submission and approval of the final monitoring report to the Corps County, and CDFG, it is Granite and Teichert's understanding that the final success criteria have been met.

9.2 Agency Confirmation

Following receipt of the report, the Corps and the County may require a site visit to confirm the completion of the mitigation monitoring. At the end of the ten-year monitoring period for the wetlands and oak woodland/riparian habitats, monitoring will cease if the Mitigation Project is found by the Corps and the County to be in substantial compliance with established success criteria. Once the initial success monitoring period is complete, all of the provisions of the *Operations and Management Plan for the Morrison Creek Nature Preserve* will be implemented for long-term management of the Mitigation Project.

10.0 REFERENCES

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Figure 7. Ephemeral Drainage Monitoring Locations

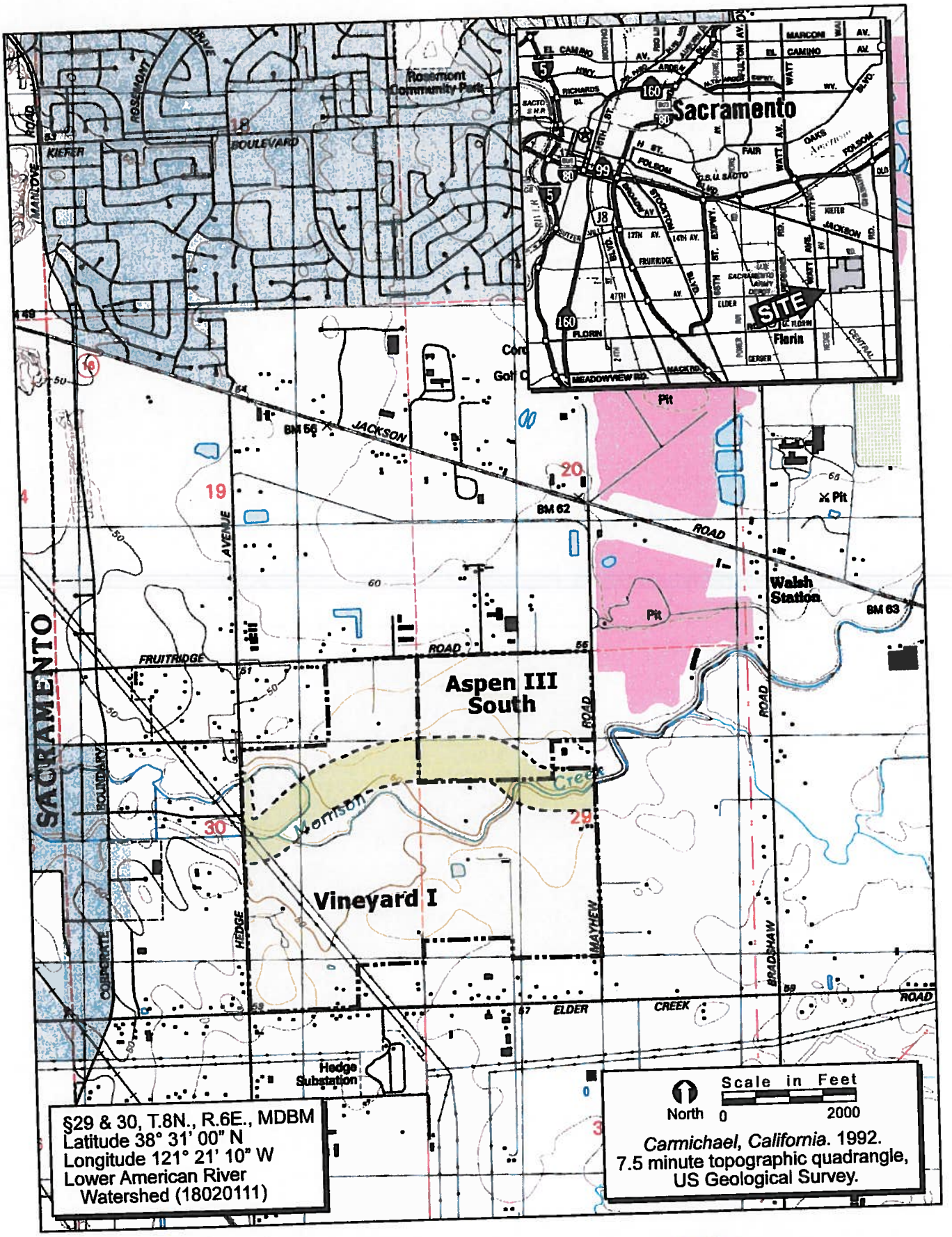

FIGURE 1. Project Site and Vicinity

2004-217 Morrison Creek Realignment

ECORP Consulting, Inc.
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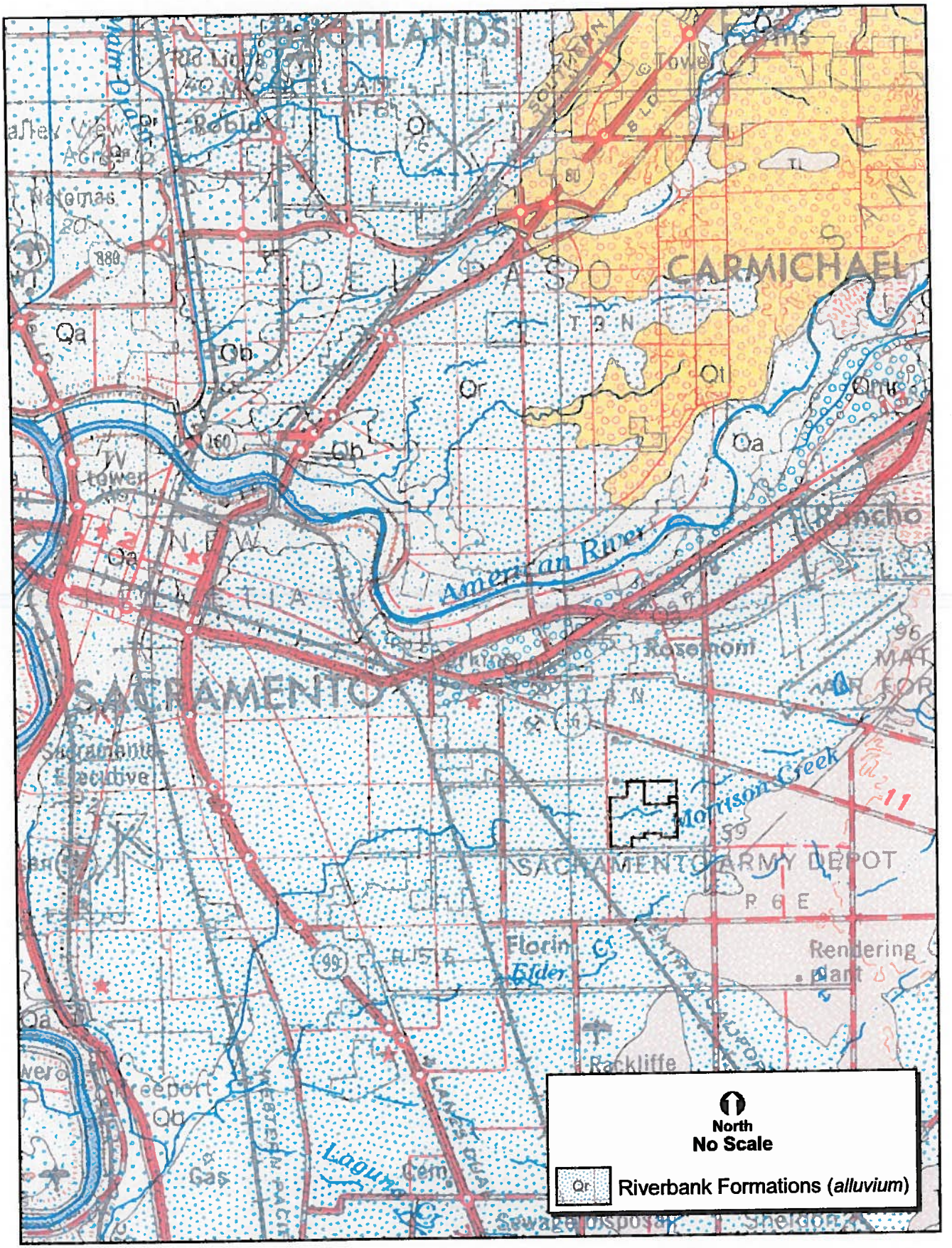

FIGURE 2. Regional Geology

2004-217 Morrison Creek Realignment

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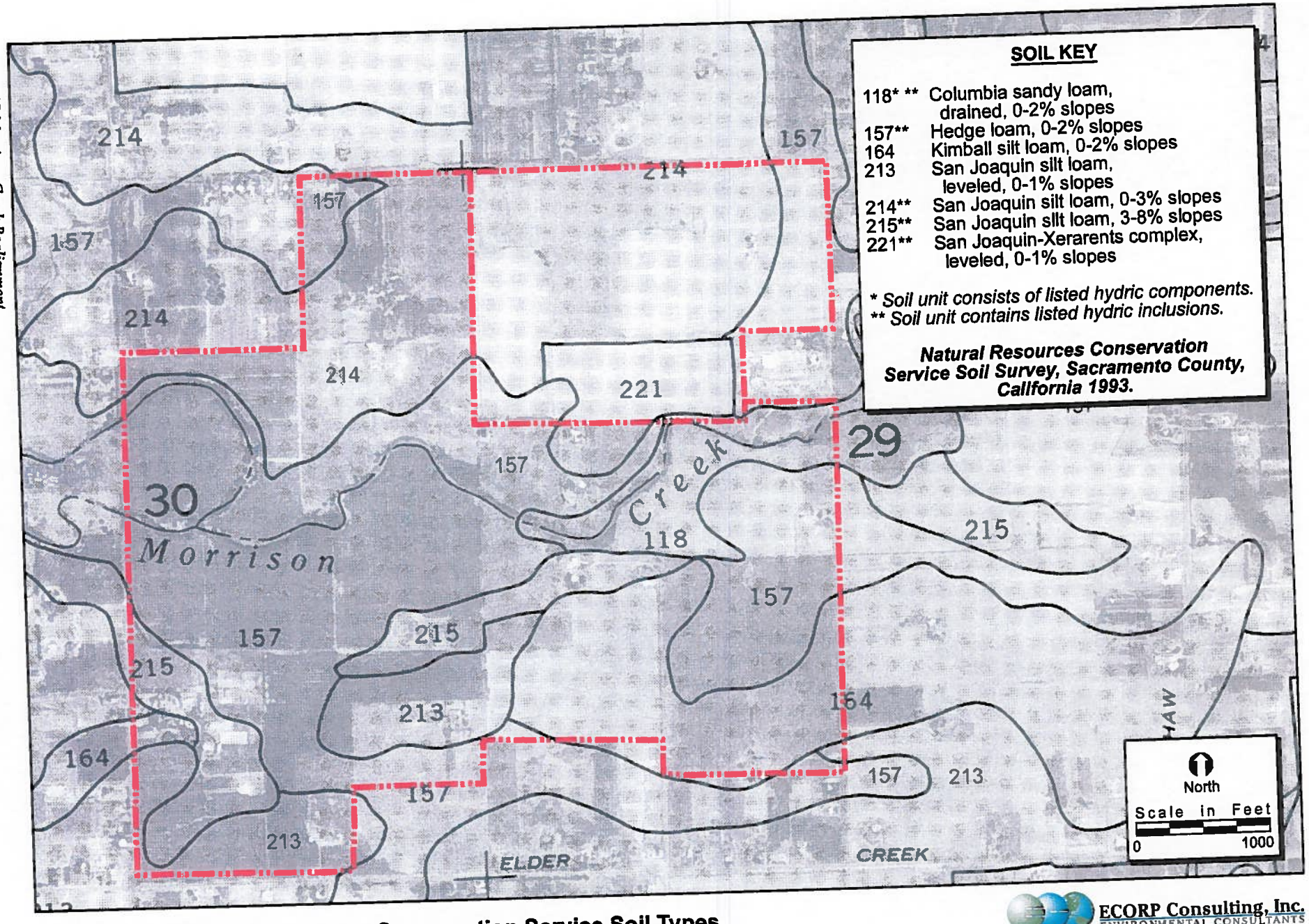

FIGURE 3. Natural Resources Conservation Service Soil Types

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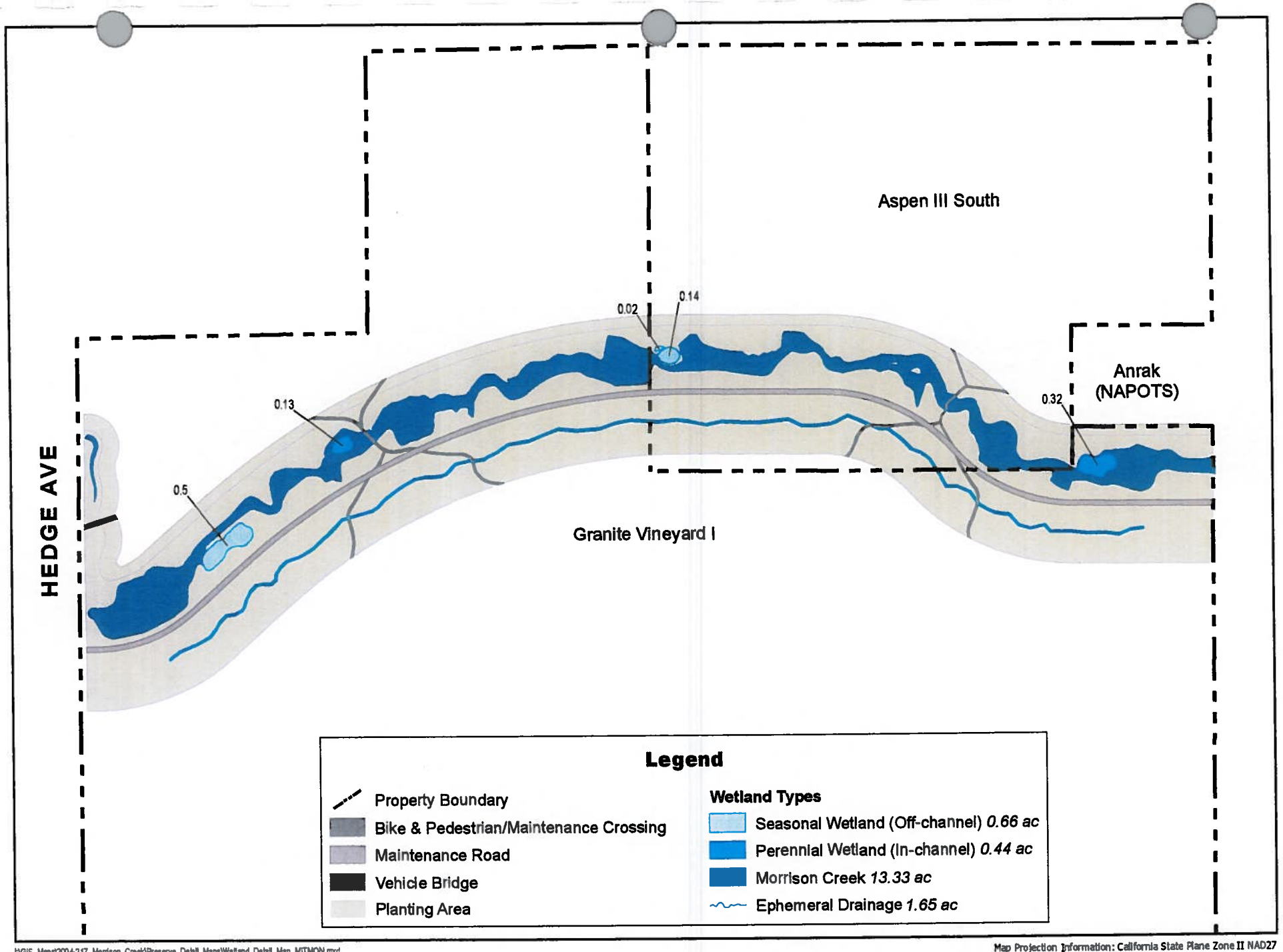

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Map Projection Information: California State Plane Zone II NAD27
Project Boundary from G.C. Wallace

Figure 4. Wetland Detail

2004-217 Morrison Creek

1 " equals 600 '

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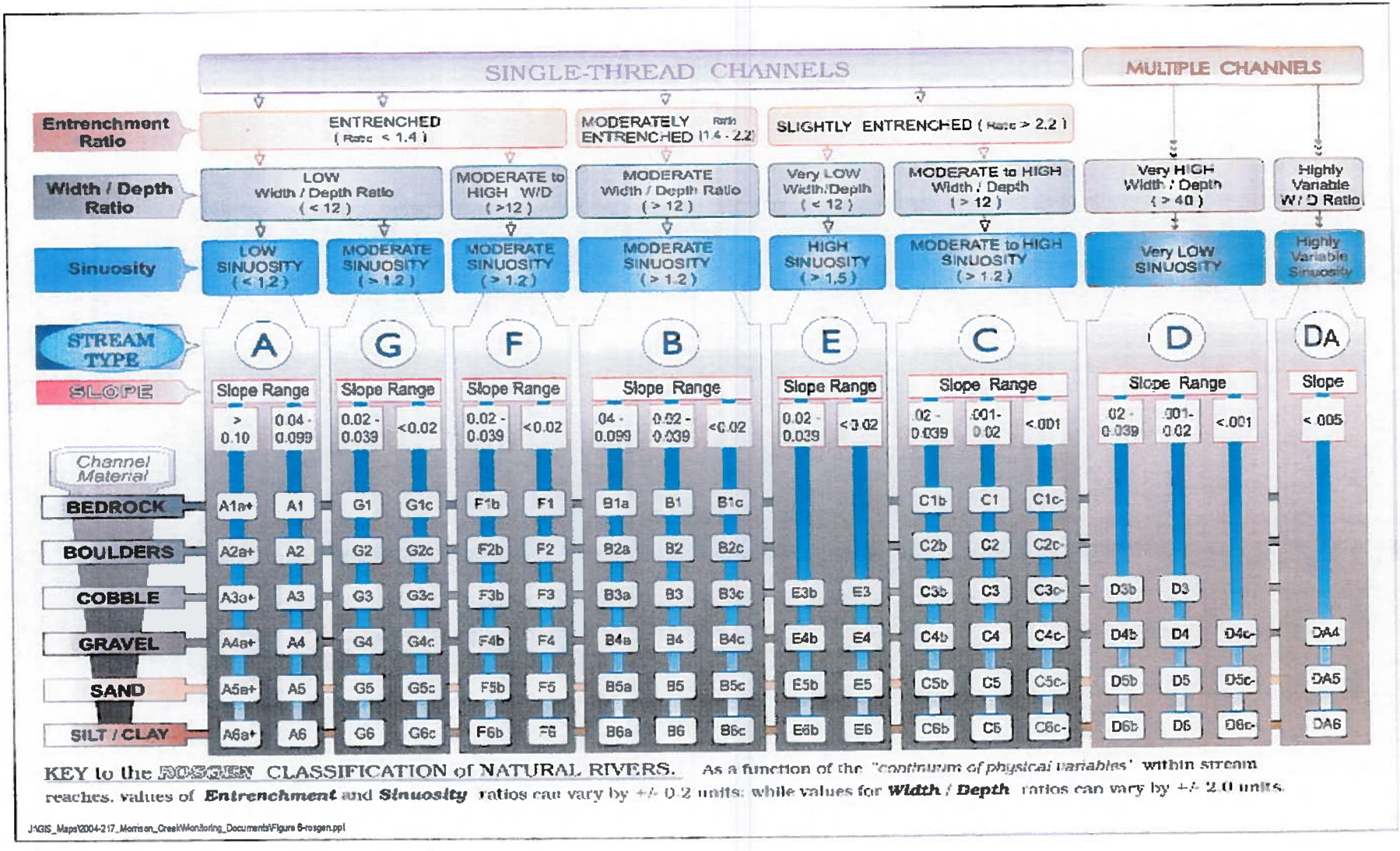
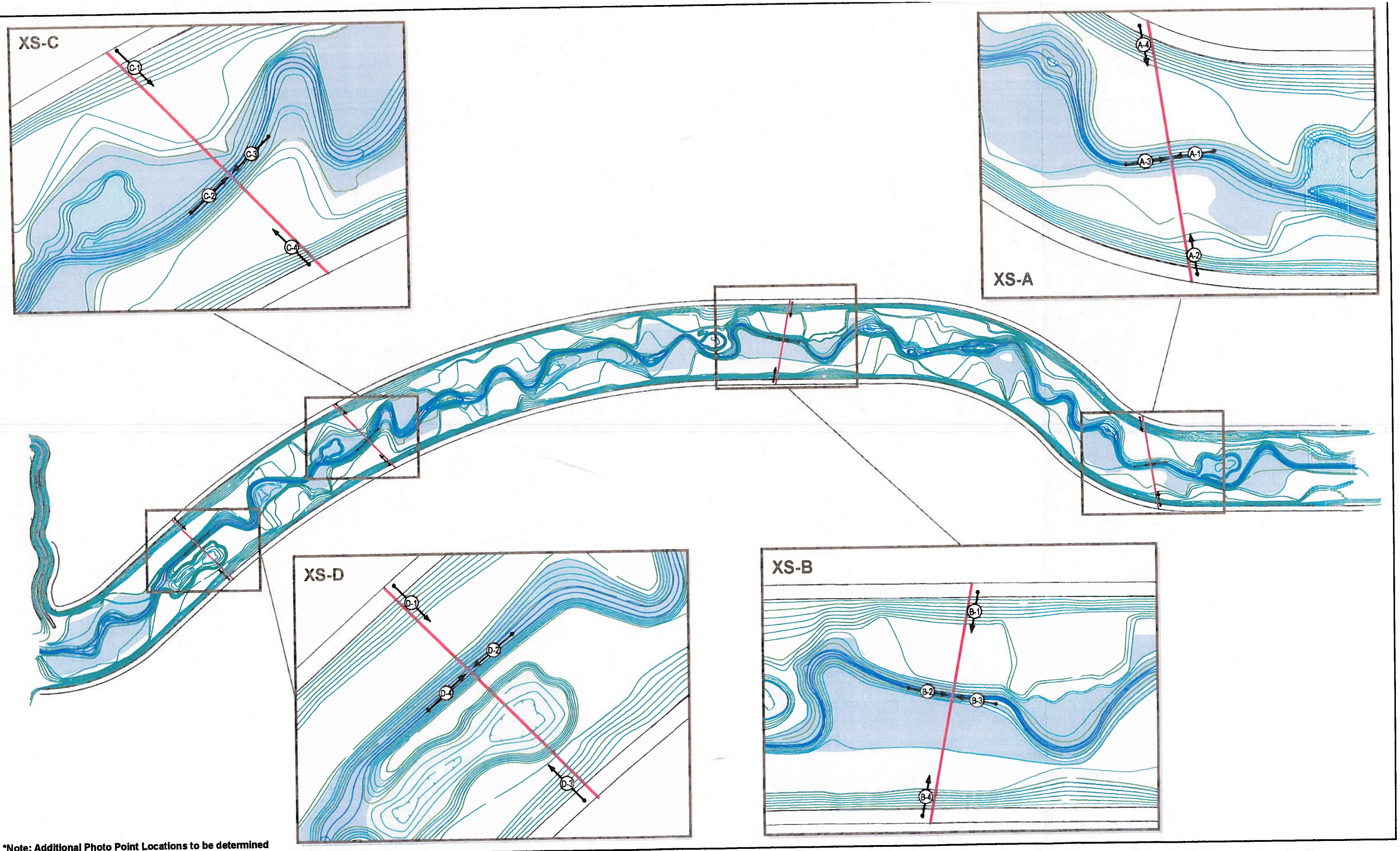


Figure 5. Classification of Natural Rivers (from Rosgen, 1996).



*Note: Additional Photo Point Locations to be determined

Map Projection Information: California State Plane Zone II NAD27

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Figure 6. Creek/Wetland Cross-section and Photo Point Locations

2004-217 Morrison Creek

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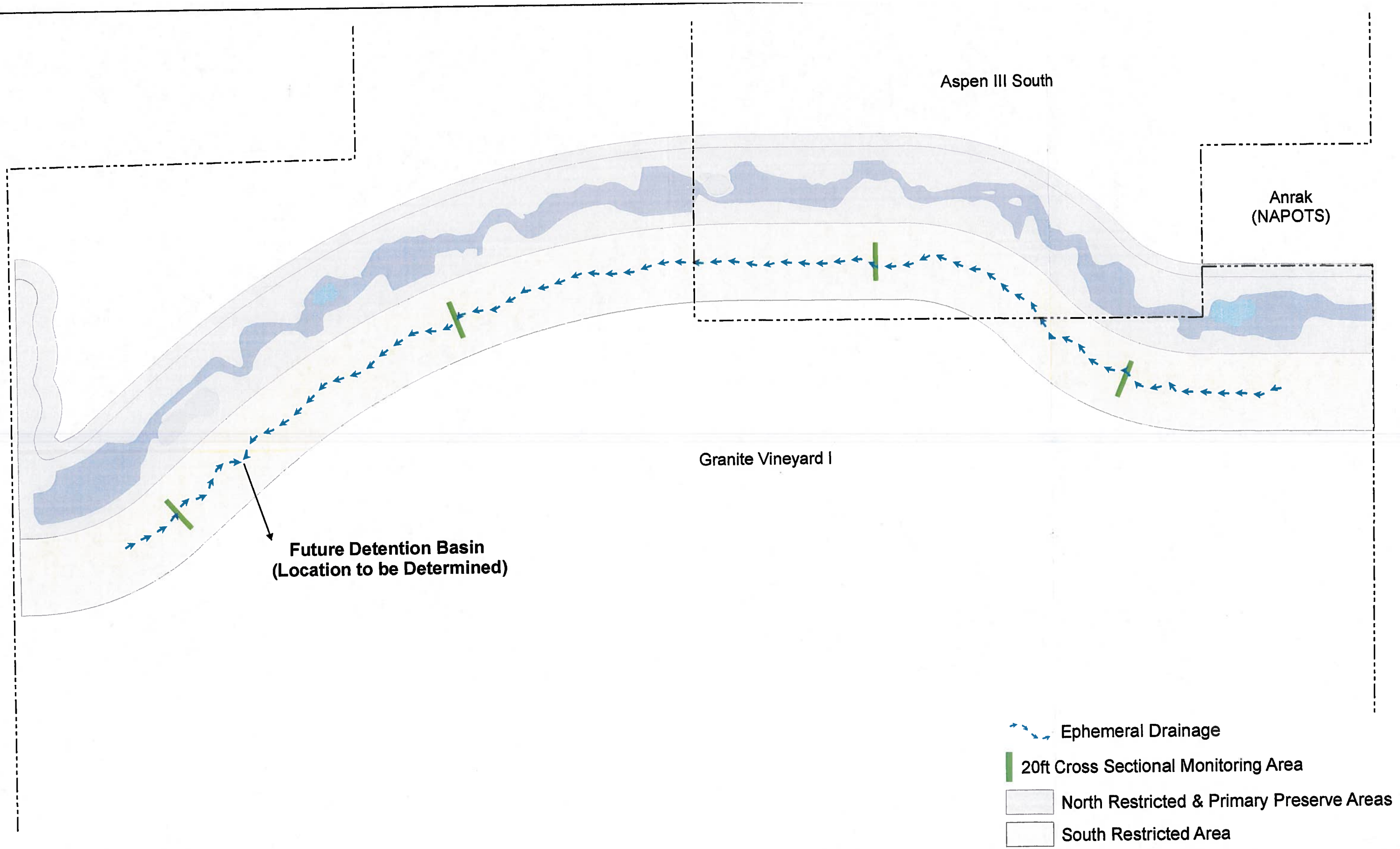

*Note: Photo Point Locations to be determined

Map Projection Information: California State Plane Zone II NAD27

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Figure 7. Ephemeral Drainage Monitoring Locations

2004-217 Morrison Creek

LIST OF ATTACHMENTS

Attachment A – Department of the Army Permit (Regulatory Branch Number 199400102)

Attachment B – Wetland Delineation

Attachment C – Ephemeral Drainage Design

Attachment D – Conceptual Construction Schedule

Attachment E – Conceptual Riparian and Oak Woodland Planting Plan for Morrison Creek Restoration

Attachment F – Seed Mixes

Attachment G – Tree and Shrub Planting Detail Sheets

Attachment H – 2006-2007 Planting Detail

ATTACHMENT A

Department of the Army Permit (Regulatory Branch Number 199400102)

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO, CALIFORNIA 95814-2922

REPLY TO
ATTENTION OF

APR 16 2004

Regulatory Branch (199400102)

Scott Wolcott
Granite Construction
P.O. Box 15287
Sacramento, California 95851-0287

Dear Mr. Wolcott:

We are enclosing your copy of Department of the Army Permit 199400102. Please note you are only authorized to complete the work described in the permit.

If you sell the property associated with this permit, the terms and conditions of this permit will continue to be binding on the new owner. To validate the transfer of this permit, have the succeeding party sign the permit transfer section at the end of the permit and forward a copy to this office, along with their printed name, address, telephone number, and other contact information.

The time limit for completing the work is specified in General Condition 1. If the work will not be completed prior to that date, you may request a time extension. Your request for an extension must be received by this office for consideration at least 30 days before the time limit date.

My staff has reviewed your April 7, 2004, Wetland Contingency Mitigation Plan for the off-channel wetlands. The plan is generally consistent with the provisions of the permit and addresses most of the items in our preliminary response. However, the timing and mitigation ratios in Contingency Measures 1 and 3 are not adequate to offset temporal losses of aquatic functional values. We believe this aspect of the plan can be easily rectified by including a phased approach, with mitigation ratios increasing with time from the date the specific wetlands are impacted. Please contact my regulatory staff to discuss this issue in more detail and finalize this plan.

DEPARTMENT OF THE ARMY PERMIT

Permittee: Scott Wolcott
Granite Construction Company
Sacramento Branch
P.O. Box 15287
Sacramento, California 95851

Permit Number: 199400102

Issuing Office: U.S. Army Engineer District, Sacramento
Corps of Engineers 1325 "J" Street
Sacramento, California 95814-2922

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work, in accordance with the terms and conditions specified below.

Project Description: To discharge dredged or fill material into waters of the United States on the 407.5-acre Granite Vineyard project site to mine gravel. This work will result in adverse impacts to approximately 17.22 acres of waters of the United States, including approximately 1.5 miles of Morrison Creek, between Mayhew Road and Hedge Avenue. The project includes construction of an enhanced Morrison Creek bypass channel and on-site wetland mitigation. All work is to be completed in accordance with the permit conditions. This permit does not authorize any work outside of the Vineyard project site as shown on the attached site map.

Project Location: The project site is bordered by Mayhew Road on the east, Hedge Avenue on the west, Fruitridge Road on the north and Elder Creek Road on the south, as shown on the above site map, in Sections 29 and 30, Township 8 North, Range 6 East, MDBM, in Sacramento County, California as shown on the attached Vineyard I Site and Vicinity map (Exhibit 1).

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on November 30, 2013. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.

in coordination with Sacramento County, the U.S. Fish and Wildlife Service (FWS), the U.S. Environmental Protection Agency (EPA), and the California Department of Fish and Game (DFG). No mining within 150-feet from the ordinary high water mark of Morrison Creek, including the "oxbow" channel, may occur until the final plan has been approved. Mining may commence in the off-channel wetlands before approval of the final plan, following Corps receipt and acceptance of a contingency mitigation plan for the off-channel wetlands, which will be implemented if mitigation in the final plan is not initiated within five (5) years.

2. To protect the engineering integrity of the bypass channel and provide maintenance access, a portion of the bypass channel, planted with native grasses, may be maintained (i.e., mowed) for the purpose of flood conveyance. Construction and long-term maintenance of the bypass channel must not prevent water from continuing to flow to both the north and south channels of Morrison Creek west of Hedge Avenue to sustain healthy riparian and wetland vegetation along these channels.

3. You shall design, construct and maintain any water conveyances from the bypass channel to downstream portions of Morrison Creek (north and south channels) and the pit-bottom wetland mitigation as open (non-piped) channels. Such conveyance must be a minimum of 10 feet wide at the ordinary high water mark. Water from the pit-bottom detention pond may be pumped back into the bypass channel. If it is established during the ten (10) year monitoring period that the pump is not necessary to successfully sustain the pit-bottom mitigation, the long-term operation and maintenance of the pump may be discontinued, following approval by this office.

4. You shall establish and maintain undisturbed, upland vegetated buffers, including native riparian trees, of at least twenty five (25) feet in width from the outer limit of all created wetlands or the ordinary high water mark, whichever is greater, within the pit-bottom mitigation, the bypass channel and any water conveyances addressed above. In the event the created wetlands naturally expand over time into the buffer, the buffer areas and legal descriptions need not be modified. Appropriate permanent fencing and signage shall be constructed and maintained at the outside perimeter of all-upland buffers (or expanded wetlands), except in the pit-bottom wetland mitigation where only signage at regular intervals is required. Fencing and signage must be installed within thirty (30) days of the completion of construction of the pit-bottom wetland mitigation, the bypass channel, and any other water conveyances.

5. You shall construct the mitigation prescribed by the final plan in special condition 1 concurrently with, or in advance of, initiating any activity authorized by this permit within 150 feet of Morrison Creek, including the oxbow channel. Construction of the pit-bottom wetland mitigation shall be completed by no later than two years following the completion of work in Morrison Creek, in accordance with the phases on your April 4, 2002, *Vineyard I Revised Reclamation Plan* drawing (Exhibit 5 attached). Construction of the bypass channel, including associated wetland and riparian habitat, shall be completed by no later than two years from initiating any diversion of Morrison Creek.

6. You shall establish and maintain the pit-bottom wetland mitigation and enhanced bypass channel riparian habitat corridor, including buffers, as wetland and wildlife habitat preserves (preserves) in perpetuity to insure that the functions and values of the aquatic environment are protected.

overseer during construction activities, preserve manager and holder of the required conservation easements for the bypass channel preserve.

d. Submit proposed permanent conservation easement and/or deed restriction language for both preserves for the Corps to review and approve prior to recordation.

12. No later than thirty (30) days following completion of construction of the preserve areas, you shall record and submit to this office the Corps-approved conservation easements and/or deed restrictions maintaining the preserves as wetland and wildlife habitat in perpetuity.

13. To insure mitigation success, you shall monitor the preserves in accordance with the final plan for ten years or until the success criteria described in the approved mitigation plan are met, whichever is greater. This period shall commence upon completion of construction of the enhanced bypass channel and mitigation wetlands. Continued success of the mitigation wetlands in the preserves, without human intervention, must be demonstrated for three (3) consecutive years, once the success criteria have been met. The mitigation will not be deemed successful until this criterion has been met.

14. You shall submit annual monitoring reports to this office for the ten (10) year monitoring period, and for each additional year, if remediation is required, by October 1 of each year. You shall submit an additional monitoring report at the end of the three (3) year period demonstrating continued success of the mitigation program without human intervention. The only exception to this last requirement shall be if the three (3) year period occurs wholly within the ten (10) year monitoring period. In which case, the ten (10) year report may be used to meet this requirement.

15. This permit does not authorize you to take an endangered species, in particular the vernal pool fairy shrimp (Branchinecta lynchi), valley elderberry longhorn beetle (Desmocerus californicus dimorphus), or designated critical habitat. In order to legally take a listed species, you must have separate authorization under the Endangered Species Act (e.g., an Endangered Species Act Section 10 permit, or a Biological Opinion under Endangered Species Act Section 7, with "incidental take" provisions with which you must comply). The enclosed Fish and Wildlife Service Biological Opinion and amendment (Number 1-1-02-F-0161 and 1-1-00-F-0179), dated March 18, 2002 and April 26, 2002, contain mandatory terms and conditions to implement the reasonable and prudent measures that are associated with "incidental take" that is also specified in the Biological Opinion. Your authorization under this Corps permit is conditional upon your compliance with all of the mandatory terms and conditions associated with incidental take of the attached Biological Opinion, which terms and conditions are incorporated by reference in this permit. Failure to comply with the terms and conditions associated with incidental take of the Biological Opinion, where a take of the listed species occurs, would constitute an unauthorized take, and it would also constitute non-compliance with your Corps permit. The Fish and Wildlife Service is the appropriate authority to determine compliance with the terms and conditions of its Biological Opinion, and with the Endangered Species Act. The permittee must comply with all conditions of this Biological Opinion, including those ascribed to the Corps.

Further Information:

Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (see 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General Condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

Granite Construction Company
P.O. Box 15287
Sacramento, CA 95851

P. W. Cornelius — 3-15-04

Permittee — Date

P.W. Cornelius
Branch Manager

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

Issued for and on behalf of Colonel Michael J. Conrad, Jr., District Engineer.

Michael Conrad — 4/16/04

for Mark W. Connelly — Date
Lieutenant Colonel,
Corps of Engineers
Acting District Engineer

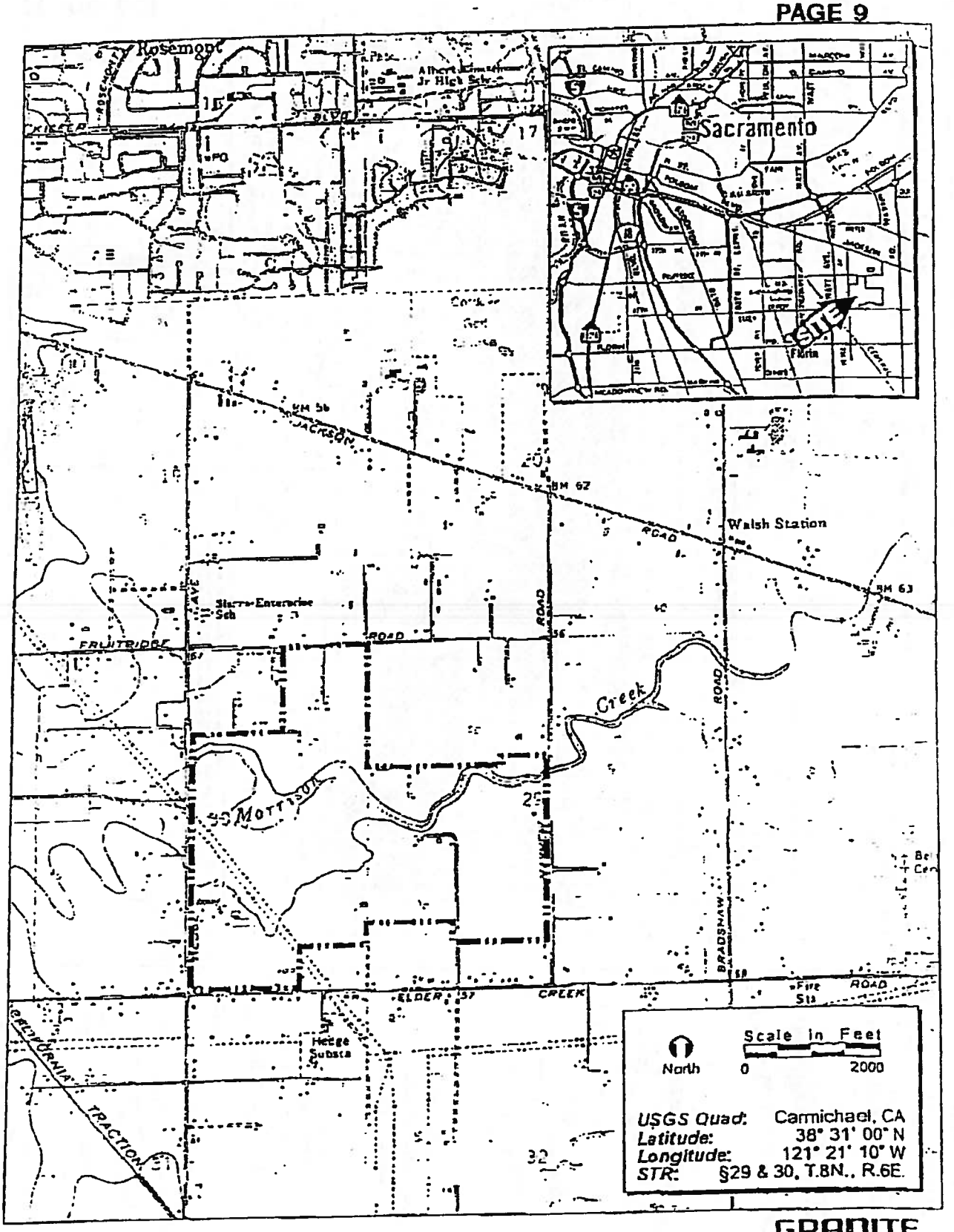


EXHIBIT 1. Vineyard I Site and Vicinity Map

Prepared by ECORP Consulting, Inc.

GRANITE CONSTRUCTION INCORPORATED

2001-071 Granite Vineyard

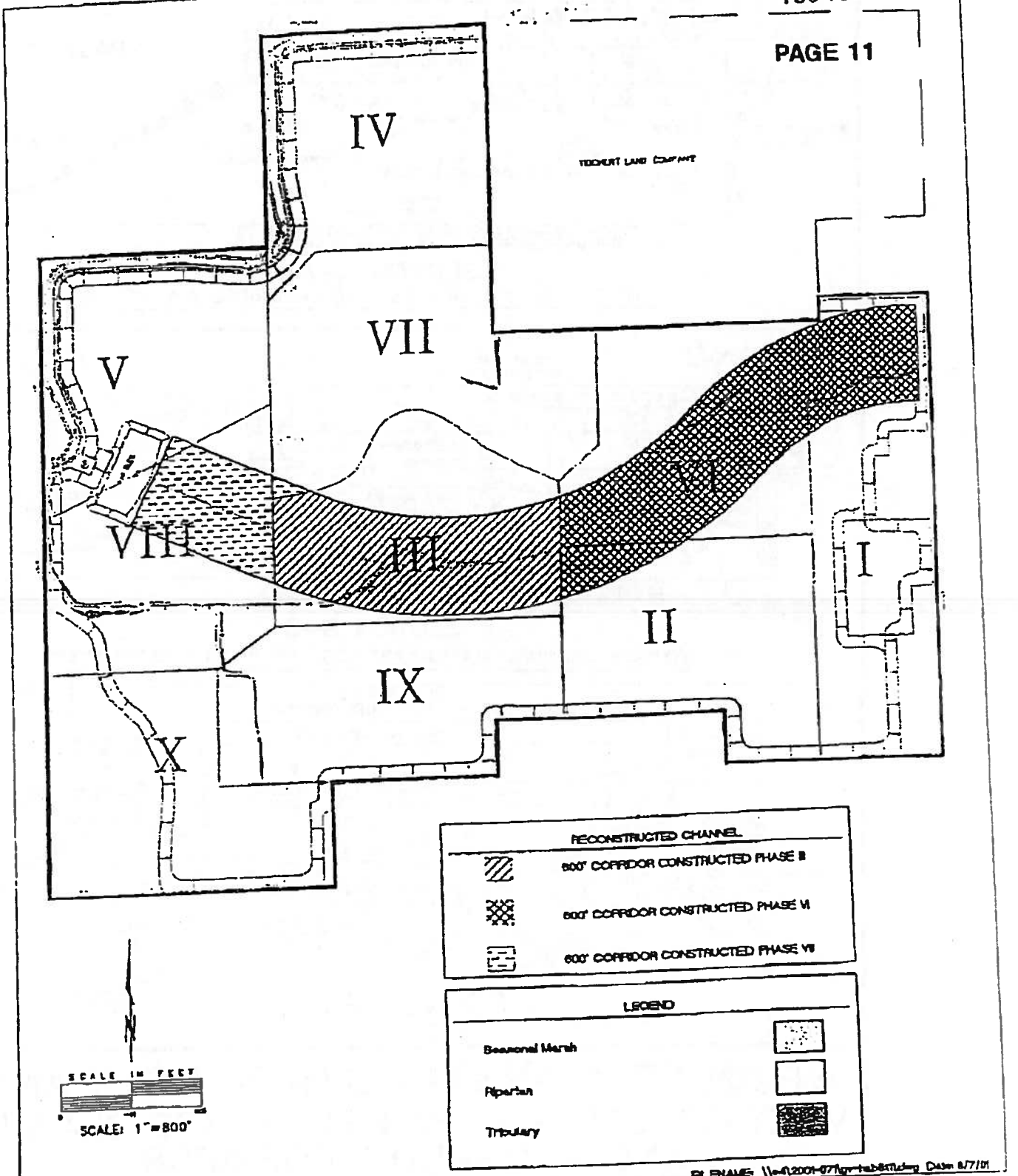
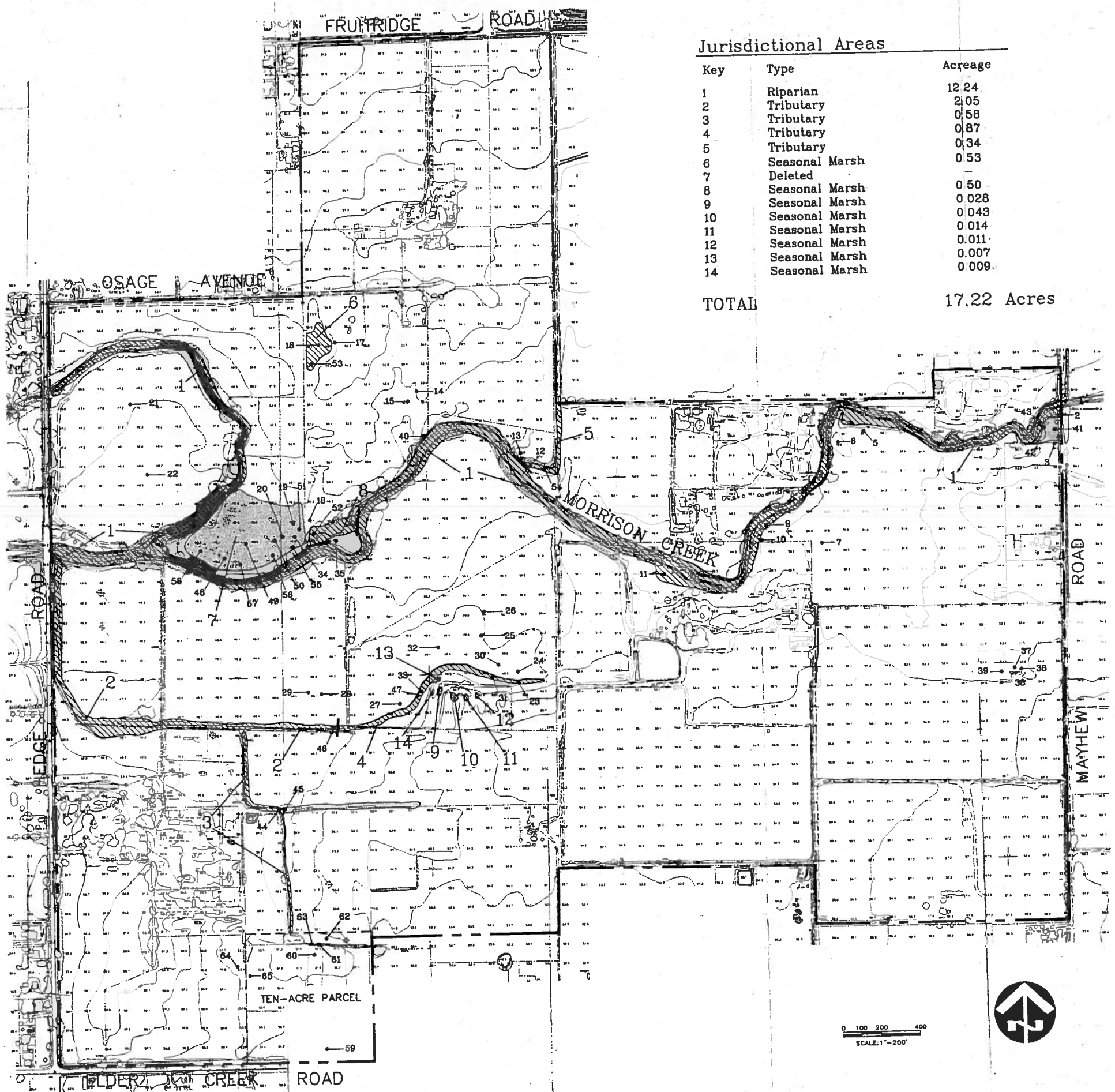


Figure 2. Habitat Impact and Creation Map

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

ATTACHMENT B

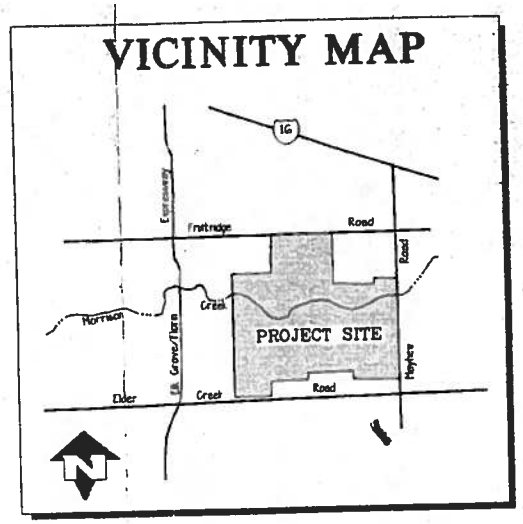
Wetland Delineation



Jurisdictional Areas

Key	Type	Acreage
1	Riparian	12.24
2	Tributary	2.05
3	Tributary	0.58
4	Tributary	0.87
5	Tributary	0.34
6	Seasonal Marsh	0.53
7	Deleted	—
8	Seasonal Marsh	0.50
9	Seasonal Marsh	0.028
10	Seasonal Marsh	0.043
11	Seasonal Marsh	0.014
12	Seasonal Marsh	0.011
13	Seasonal Marsh	0.007
14	Seasonal Marsh	0.009
TOTAL		17.22 Acres

VICINITY MAP



Legend

- 1 — Jurisdictional Area
- Deleted Jurisdictional Area
- 4 — Sample Point
- Habitat Boundary
- Project Boundary

Disclaimer: Section 404 Jurisdictional Map

This map exhibits conditions on the site at the time of completion of the delineation. For various reasons, conditions on a site may change, which may affect site wetland boundaries. Delineation maps generally expire five years after approval by the U.S. Army Corps of Engineers (Corps).
Because regulations governing delineations are subject to change, this map should be reviewed by a qualified wetland consultant to ensure its accuracy if not submitted to the Corps within six (6) months of preperation.

ZENTNER and ZENTNER

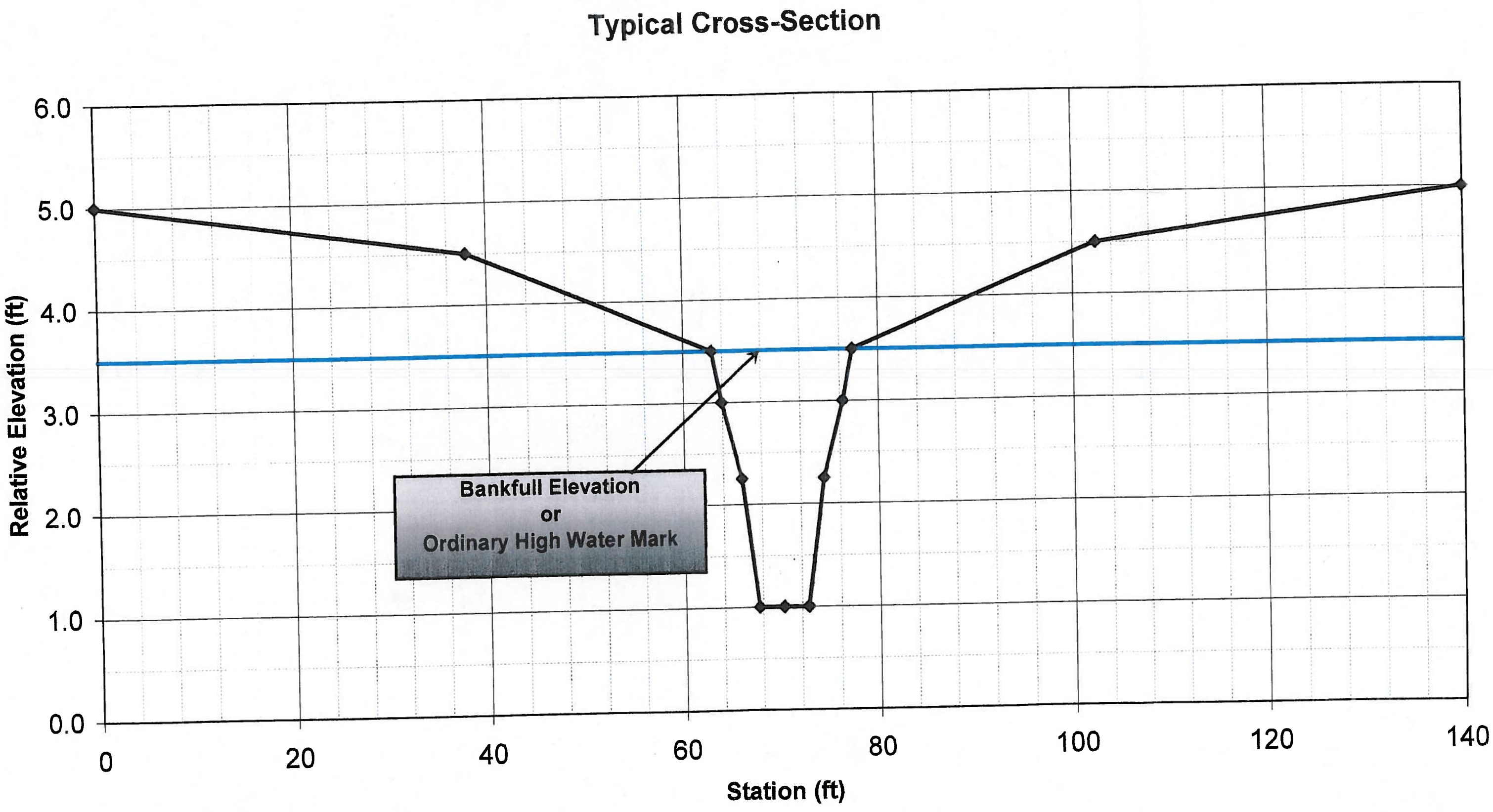
VINEYARD I

Modified Jurisdictional Delineation Map

Date	JUNE 1997
Scale	1" = 200'
Drawn	RKW
Job	084 GCC
Sheet	1
Of	1 Sheets

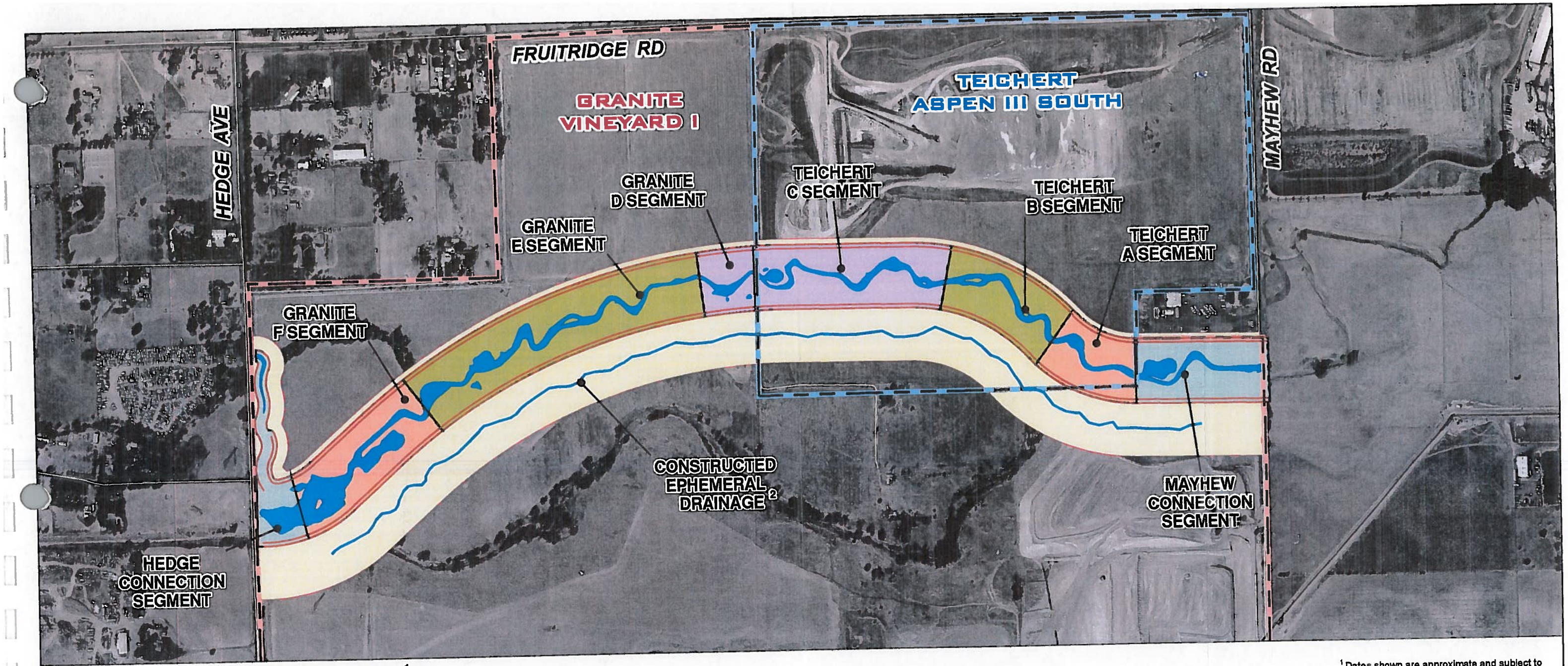
ATTACHMENT C

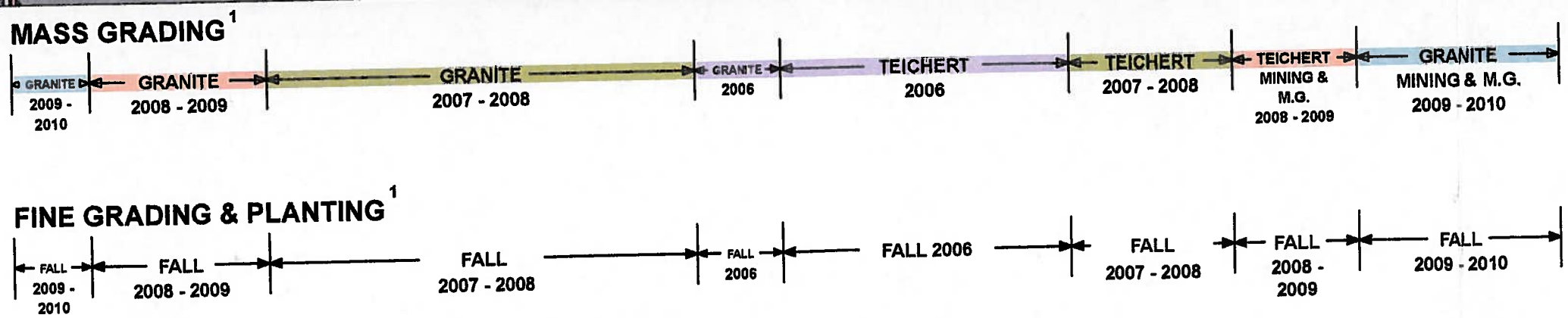
Ephemeral Drainage Design


Typical Cross-Section
6.0
5.0
4.0
3.0
2.0
1.0
0.0
Relative Elevation (ft)
0
20
40
60
80
100
120
140
Station (ft)
Bankfull Elevation
or
Ordinary High Water Mark

ATTACHMENT D

Conceptual Construction Schedule





[1] Dates shown are approximate and subject to variability in production and final reserves.

[2] Drainage to be constructed within 3 years of creek corridor construction.

0 1,000
Feet

1 inch equals 500 feet

TEICHERT

GRANITE CONSTRUCTION COMPANY SINCE 1922

CONCEPTUAL CONSTRUCTION SCHEDULE

MORRISON CREEK REALIGNMENT

SACRAMENTO COUNTY, CA

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

J:\GIS_Maps\2004-217_Morrison_Creek\Mining_Phasing_Analysis\MORRISON_REALIGN_11x17_EXH-F_USACOE_APPLICATION_MAY07_v2.mxd

ATTACHMENT E

Conceptual Riparian and Oak Woodland Planting Plan for Morrison Creek Restoration

Attachment E
Full Size Map
In File

ATTACHMENT F

Seed Mixes

SEED MIX - UPLAND

FOR UPLAND AREAS DOWN TO 2' ABOVE TOE OF SLOPE

SPECIES	PLS LBS./ACRE	MIN. GERM. %
NASELLA PULCHRA (PURPLE NEEDLEGRASS)	10.0	60
ELYMUS GLAUCUS (BLUE WILDRYE)	8.0	60
NASELLA CARNUA (NODDING NEEDLEGRASS)	6.0	60
MELICA CALIFORNICA (CALIFORNIA MELIC)	6.0	50
VULPIA MICROSTACHYS (THREE WEEKS FESCUE)	6.0	60
POA SECUNDA (NATIVE PINE BLUEGRASS)	3.0	80
TOTAL	39 LBS. PER ACRE (PLS)	

SEED MIX - CHANNEL / WETLAND EDGES / LOWLANDS

FOR CHANNEL AREAS TO 2' ABOVE TOE OF SLOPE

SPECIES	PLS LBS./ACRE	MIN. GERM. %
ELYMUS TRACHYCAULUS (SLENDER WHEATGRASS)	12.0	45
HORDEUM BRACHYANTHERUM (MEADOW BARLEY)	10.0	40
LEYMUS TRICTICOIDES 'YOLO' (CREEPING WILDRYE)	9.0	45
NASELLA LEPIDA (FOOTHILL NEEDLEGRASS)	3.0	45
DESCHAMPSIA CAESPITOSA (TUFTED HAIRGRASS)	3.0	40
TOTAL	34 LBS. PER ACRE (PLS)	

SEED MIX - PATH

LOW MIX FOR AREAS WITHIN 15' OF PATHS (OR AS SPECIFIED)

SPECIES	PLS LBS./ACRE	MIN. GERM. %
FESTUCA RUBRA MOLATE (NATIVE RED FESCUE)	13.0	45
FESTUCA IDAHOENIS (IDAHO FESCUE)	10.0	45
FESTUCA OCCIDENTALIS (WESTERN FESCUE)	10.0	45
VULPIA MICROSTACHYS (SIX WEEKS FESCUE)	10.0	45
CLARKIA AMOENA (FAREWELL TO SPRING)	0.5	45
ESCHSCHOLZIA CALIFORNICA (CALIFORNIA POPPY)	2.0	45
LUPINUS NANUS (SKY LUPINE)	3.5	45
NEMOPHILA MENZIESII (BABY BLUE EYES)	1.5	45
TOTAL	46.5 LBS.	

FERTILIZER COMPONENT	INGREDIENT %
NITROGEN	7
PHOSPHORUS	2
POTASSIUM	3

FERTILIZER SHALL BE NATURAL & SLOW RELEASE.
ADD MYCORRHIZAL INNOCULANT AT 60 LBS/ACRE

ANY CHANGES TO THE ABOVE SEED MIXES MUST BE APPROVED BY ECORP CONSULTING BEFORE APPLICATION.

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

HYDROSEEDING NOTES:

1. Seed shall be applied with hydroseeding equipment together with fertilizer, mulch fiber, tack (binder), and inoculate per specified quantities. Mulch fiber shall be produced from wood pulp and shall be of such character that it will disperse into an uniform slurry when mixed with water. Mulch fiber shall be colored to contrast with the area on which the seed mixture is to be applied, shall be nontoxic to plant or animal life, and shall not stain concrete or painted surfaces.

2. Mixing of materials for application with hydroseeding equipment shall be performed in a tank with a built-in continuous agitation system of sufficient operating capacity to produce a homogeneous slurry and a discharge system which will apply the slurry to the slopes at a continuous and uniform rate. The tank shall have a minimum capacity of 1,500 gallons.

3. No dispersing agent will be added to the slurry. Any material considered harmful, as determined by the owners or their representatives, shall not be used.

4. Before seeding, the Contractor shall submit copies to the owners or their representatives of all seed labels and all seed invoices, providing written evidence that seed conforms to the application rates, purity and germination requirements in these specifications. Samples of the application mixture will be provided upon request.

5. Seed designated without a purity or germination requirement shall be labeled to include the name, date (month and year) collected, and the name and address of the seed supplier. Seed at the time of sowing shall be from the previous or current year's harvest.

6. The legume seed shall be inoculated as per trade specifications and rate specified.

7. Seed shall be premixed by a licensed supplier and a copy of the license shall be provided to the owners or their representatives upon request.

8. Water shall be of such quality that it will promote germination and growth of seeds and plants.

9. The material shall be registered with and licensed by the State of California, Department of Food and Agriculture, as an "Auxiliary Soil Chemical".

10. Mulch fiber shall not be applied during rainy weather or when soil temperatures are below 40°F. Mulch fiber shall be applied with a binder sufficient to assure completeness of coverage. Pedestrians or equipment shall not enter hydroseeding areas after the seed mixture has been applied for 24 hours.

11. The Contractor shall notify the Owner's Representative at least 48 hours in advance of any hydroseeding activity, and shall not perform any work without authorization of the owners or their representatives. The contractor shall apply the hydroseed materials at least 24 hours in advance of any reasonably predictable period of rainy weather.

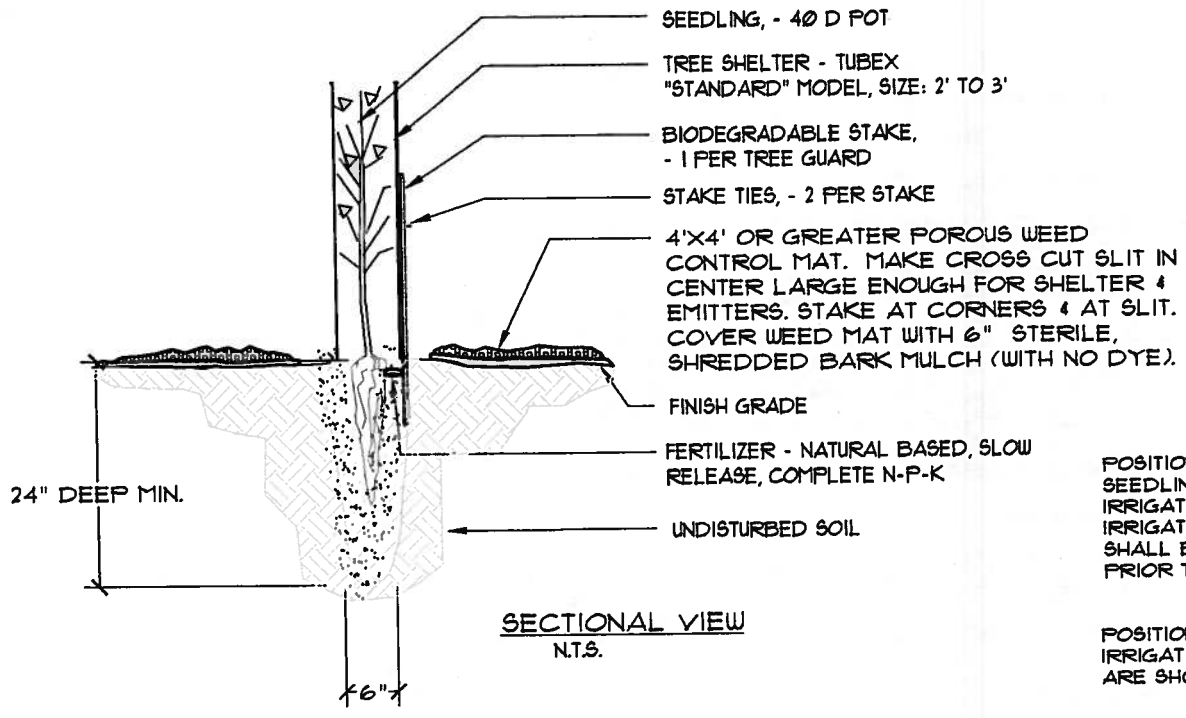
12. The proportion of erosion control materials may be changed by the owners or their representatives to meet field conditions.

13. Refer to specifications of turf reinforcement mat or erosion control blanketing for hydroseeding over or under material. If in doubt, consult owner's representative.

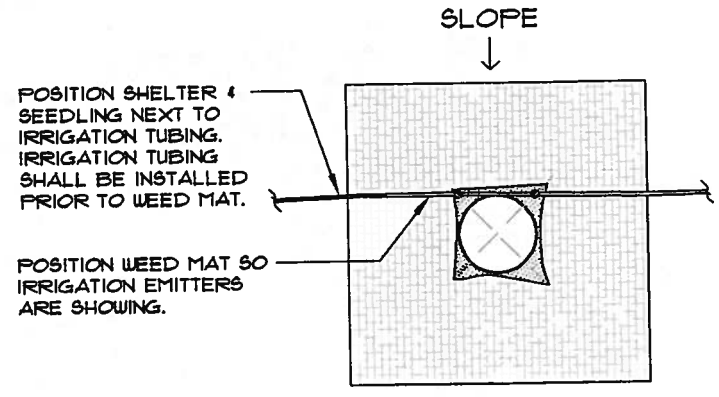
14. The owners or their representatives may authorize alternative methods or equipment if it is demonstrated that methods and equipment are capable of performing all operations satisfactorily.

ATTACHMENT G

Tree and Shrub Planting Detail Sheets



SECTIONAL VIEW
N.T.S.



PLAN VIEW
N.T.S.

1. PLANTING HOLES SHALL BE AUGURED 6" WIDE X 24" DEEP (MINIMUM).
2. ALL TREES TO RECEIVE SPECIFIED TREE SHELTER.
3. IF VOLE HERBIVORY NOTICED IN IMMEDIATE OR SURROUNDING AREAS INCREASE SHELTER SIZE TO 3' & PLACE BOTTOM OF SHELTERS 6" UNDERGROUND .

1 SEEDLING TREE PLANTING WITH SHELTER

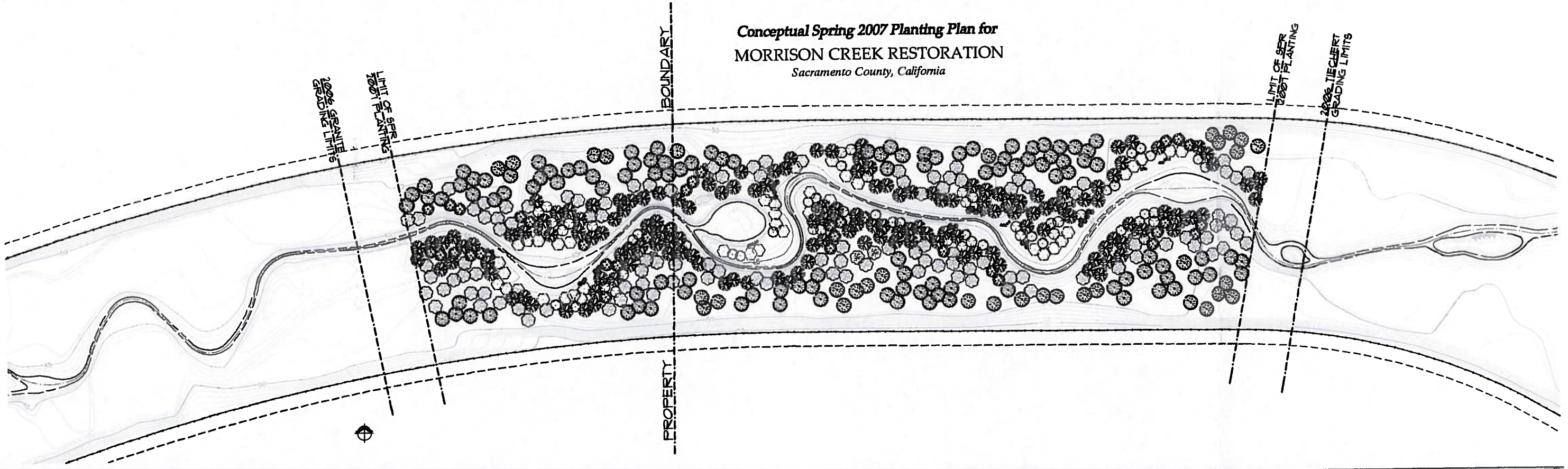
ATTACHMENT H

2006-2007 Planting Detail

Conceptual Spring 2007 Planting Plan for

MORRISON CREEK RESTORATION

Sacramento County, California



GRANITE 2006-07 PLANTING LEGEND

SYMBOL	BOTANICAL/ COMMON NAME	QUANTITY
	TREES	
	ACER NEGUNDO BOX ELDER	4
	POPULUS FREMONTII FREMONT COTTONWOOD	15
	SALIX GOODDINGII BLACK WILLOW	N/A*
	JUGLANS HINDSII BLACK WALNUT	16
	PLATANUS RACEMOSA CALIFORNIA SYCAMORE	9
	QUERCUS LOBATA VALLEY OAK	48
	QUERCUS WISLIZENII INTERIOR LIVE OAK	44
	QUERCUS DOUGLASII BLUE OAK	44
	TOTAL	180

SYMBOL	BOTANICAL/ COMMON NAME	QUANTITY
	SHRUBS	
	BACCHARIS PULARIS COYOTE BRUSH	8
	CEANOTHUS CUNEATUS BUCKBRUSH	2
	MUHLENBERGIA RIGENS DEERGRASS	N/A
	RHAMNUS TOMENTELLA HOARY COFFEEBERRY	6
	RUBUS URSINUS CALIFORNIA BLACKBERRY	9
	SALIX EXIGUA SANDBAR WILLOW	N/A*
	SALIX LASIOLEPIS ARROYO WILLOW	N/A*
	SUBTOTAL	25
	JUNCUS, CAREX, & ELEOCHARIS RUSH, SEDGE, SPIKERUSH (6 PER SYMBOL)	N/A*
	TOTAL	205

NOTE: THIS LEGEND DOES NOT INCLUDE PROPOSED EXTRA 15% TREE PLANTING. ADD 27 EXTRA TREES TO TOTAL 207.

* THESE PLANTS WILL BE INSTALLED WHEN WATER IS FLOWING THROUGH THE CHANNEL.

TEICHERT 2006-07 PLANTING LEGEND

SYMBOL	BOTANICAL/ COMMON NAME	QUANTITY
	TREES	
	ACER NEGUNDO BOX ELDER	25
	POPULUS FREMONTII FREMONT COTTONWOOD	27
	SALIX GOODDINGII BLACK WILLOW	N/A*
	JUGLANS HINDSII BLACK WALNUT	19
	PLATANUS RACEMOSA CALIFORNIA SYCAMORE	20
	QUERCUS LOBATA VALLEY OAK	107
	QUERCUS WISLIZENII INTERIOR LIVE OAK	66
	QUERCUS DOUGLASII BLUE OAK	100
	TOTAL	364

SYMBOL	BOTANICAL/ COMMON NAME	QUANTITY
	SHRUBS	
	BACCHARIS PULARIS COYOTE BRUSH	11
	CEANOTHUS CUNEATUS BUCKBRUSH	10
	MUHLENBERGIA RIGENS DEERGRASS	18
	RHAMNUS TOMENTELLA HOARY COFFEEBERRY	13
	RUBUS URSINUS CALIFORNIA BLACKBERRY	22
	SALIX EXIGUA SANDBAR WILLOW	N/A*
	SALIX LASIOLEPIS ARROYO WILLOW	N/A*
	SUBTOTAL	74
	JUNCUS, CAREX, & ELEOCHARIS RUSH, SEDGE, SPIKERUSH (6 PER SYMBOL)	N/A*
	TOTAL	438

NOTE: THIS LEGEND DOES NOT INCLUDE PROPOSED EXTRA 15% TREE PLANTING. ADD 55 EXTRA TREES TO TOTAL 419.

* THESE PLANTS WILL BE INSTALLED WHEN WATER IS FLOWING THROUGH THE CHANNEL.

Digital base data provided by:

G.C. WALLACE OF CALIFORNIA, INC.
Engineers/Planners/Surveyors
2150 RIVER PLAZA DR., SUITE 100/SACRAMENTO, CALIFORNIA 95833
TELEPHONE: (916) 558-7500 • FAX: (916) 558-7501

GRANITE CONSTRUCTION COMPANY SINCE 1922

TEICHERT

Sheet 1 of 1
February 08, 2007

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS
2260 Douglas Blvd., Suite 160
Roseville, CA 95661
2100 Embarcadero, Suite 201
Oakland, CA 94606
Ph: (510) 484-0150

Operations and Management Plan

For

Morrison Creek Nature Preserve

Sacramento County, California

Submitted Date:
21 April 2006
5 June 2007
21 June 2007

Revised Date:
14 June 2013

Prepared For:
Granite Construction Company
Teichert Aggregates

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

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1.0 INTRODUCTION

1.1 Setting

The Morrison Creek Nature Preserve ("Preserve") will be located in Sacramento County (Figure 1. *Project Site and Vicinity*). The approximately 89-acre, 650-foot wide Preserve will be comprised of an at-grade, 300-foot wide, restored creek corridor referred to as the "Primary Preserve Area" (PPA), a 50-foot area referred to as the "North Restricted Area" (NRA) located directly north of the PPA, and a 300-foot "South Restricted Area" (SRA) located directly south of the PPA which will include a constructed ephemeral drainage feature. The Preserve bisects the Granite Vineyard I project ("Project") site owned by Granite Construction Company ("Granite") as well as a portion of the Aspen III South site, owned by Teichert Aggregates ("Teichert"). The Preserve is bordered by Mayhew Road to the east, Hedge Avenue to the west, Fruitridge Road to the north, and Elder Creek Road to the south. Beyond Mayhew Road, the Preserve is bordered to the east by Teichert's Aspen IV South property. The Preserve may ultimately expand to include the existing or restored, and preserved portion of Morrison Creek on the Aspen IV South site. Coordinates of the Preserve are Lat.: 38° 31' 00" N, Long.: 121° 21' 10" W, which corresponds to Sections 29 and 30, Township 8 North, Range 6 East, MDBM in Sacramento County of the "Carmichael, California" 7.5 minute quadrangles (U.S. Department of the Interior, Geological Survey 1992).

1.1.1 Regulatory Background and Project Description

The U.S. Army Corps of Engineers ("Corps") originally issued a Department of the Army Individual Permit ("Permit") to Granite for the Project on 16 April 2004 (Regulatory Branch Number 199400102) (included as Attachment A). The Permit authorized the fill of 17.22 acres of waters of the United States ("Waters") including approximately 1.5 miles of Morrison Creek between Mayhew Road and Hedge Avenue. The Permit referenced the construction of an enhanced Morrison Creek bypass channel and on-site wetland (pit-bottom) mitigation corridor. As written, the Permit did not authorize any work beyond the Project boundary.

After the original permit was approved, Granite retained ECORP Consulting, Inc. ("ECORP") to review the approved mitigation plan for the Project and to create a revised mitigation plan ("Mitigation Plan") that incorporated a more natural creek alignment. The initial suggestions made were to straighten the 90 degree turns in the Enhanced Bypass Channel and to eliminate the need for an artificial system for providing and then removing water from the mitigation corridor (i.e., the pump system). This began the discussion regarding the potential for a greatly expanded at-grade bypass channel design that eventually led to the conclusion that the creek should be realigned and recreated at grade.

The channel realignment and ability to restore the creek at grade required a collaborative effort involving Teichert, which owns the adjacent Aspen III South property. The restored creek corridor will pass through the Aspen III South site and the connection will be made on the Property (see Figure 1). Since the realigned creek will tie-in with the existing Morrison Creek just west of Mayhew Road, the project may "stand alone" and does not require any additional upstream impacts. This Plan has been written pursuant to Special Condition 7 of the Permit.

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The purpose of the Project is to mine aggregate resources on the site to a depth of approximately 50 to 60 feet below existing site grade. At the completion of each phase of mining, the overburden (soils overlying the aggregate) will be replaced and the area will be reclaimed for agriculture (outside of the Preserve). Additional overburden material provided by Granite and/or Teichert will be used to recreate the creek and associated habitats. The restoration of riparian and oak woodland habitat will compensate for losses to the limited woody vegetation found at the site.

The realigned channel as part of the Mitigation Plan will retain as many of the "natural" characteristics of the existing stream channel as possible (e.g., stream length, sinuosity) while significantly increasing the quality of wildlife habitat present. A variety of features have been added to the realigned channel in order to provide areas for different plant communities and wetland types. Backwaters, split-channel areas with islands, off-channel wetlands, benches of varying heights, as well as deeper pools, were included.

In addition to the realigned channel, through the Project approval process, the Corps required the establishment of additional buffers surrounding the 300-foot corridor (NRA and SRA) and the construction of an ephemeral drainage feature within the SRA (See section 1.1.4 for a description of the Preserve).

The Corps issued an official letter modification to the Permit on 25 July 2007, permitting the revised, realigned mitigation channel concept. The Corps further issued a subsequent letter modification on 12 March 2010 to reflect changes to the timing of special conditions. The Corps' 12 March 2010 letter modification (included as part of Attachment A) serves as the most current version of the Permit and special conditions.

1.1.2 Surrounding Land Uses

The land uses surrounding the Preserve are a combination of mining operations, commercial facilities, and rural residences with agriculture/grazing (Figure 2. *Aerial View of Project Site*).

1.1.3 Historic, Present, and Proposed Uses of the Preserve

The site was historically used for farming and rural residential uses. According to the *Granite Vineyard Wetland Mitigation Plan* prepared by Zentner and Zentner (1994), the site was historically comprised of a few homes, a sod farm, walnut orchard, and oat hay fields. Much of the site has since been disturbed by mining operations. Agriculture is the approved future use of the area surrounding the Preserve.

1.1.4 General Preserve Description

The Preserve is approximately 89 acres in size (Figure 3. *Preserve Layout*). The Preserve contains a total of 16.09 acres of waters of the U.S. ("Waters"), including Morrison Creek, seasonal/perennial wetlands, and an ephemeral drainage. The PPA is also comprised of 9.22 acres of riparian plantings, 17.57 acres of oak woodland, and 6.96 acres of grassland habitat. The NRA and SRA are comprised of 1.20 acres of riparian habitat, 12.14 acres of oak woodland, and 29.91 acres of grassland habitat.

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1.2 Topography, Geology, and Soils

Prior to mining, the topography of the Project was gently rolling, with a centrally located low area containing Morrison Creek. Morrison Creek flows east to west across the site. The geology of the entire site is Laguna Formations (Figure 4. *Regional Geology*). According to the *Soil Survey of Sacramento County, California* (U.S. Department of Agriculture, Soil Conservation Service 1993), seven soil units, or types, have been mapped for the site (Figure 5. *Natural Resources Conservation Service Soil Types*). These are: (118) Columbia sandy loam, drained (0 to 2% slopes), (157) Hedge loam (0 to 2% slope), (164) Kimball silt loam (0 to 2% slope), (213) San Joaquin silt loam, leveled, (0-1% slopes), (214) San Joaquin silt loam (0 to 3% slope), (215) San Joaquin-Durixeralfs complex (0-1% slopes), (221) San Joaquin-Xerarents complex, leveled (0 to 1% slope). Because the entire site will be mined, these soil types will be combined over the newly realigned creek corridor.

1.3 Vegetation

Vegetation within the Preserve will be restored in phases corresponding to the completion of mining activities. The PPA is comprised of approximately 9.22 acres of riparian plantings, 17.57 acres of oak woodland, and 6.96 acres of grassland habitat. The NRA and SRA are comprised of approximately 1.20 acres of riparian habitat, 12.14 acres of oak woodland, and 29.91 acres of grassland habitat. A planting plan has been developed showing the riparian, oak woodland, as well as associated native habitat to be planted (included in the *Wetland, Oak Woodland, and Riparian Mitigation Plan for the Granite Vineyard I Project*; ECORP 2007).

1.4 Wetlands and Waters of the U.S.

The original wetland delineation for the Project was conducted by Zentner and Zentner and submitted to the Corps in 1992. The 1992 delineation was set to expire in 1997; thereafter, a modified jurisdictional delineation was submitted to the Corps and approved on 2 July 1997. According to the 1997 wetland delineation conducted by Zentner and Zentner, a total of 17.22 acres of wetlands will be impacted at the site, as shown in Table 1 below. These impacts were addressed in the Project's Corps permit (Regulatory Branch Number 199400102) (see Attachment A).

The impacts include 12.24 acres of Morrison Creek, 3.84 acres of seasonal wetland swale/ ephemeral drainage, and 1.14 acres of seasonal marsh. As shown in Table 1 below, 3.79 acres of seasonal wetland/marsh and 0.53 acres of vernal pool credits have been purchased at an offsite mitigation bank. The acreages to be created/restored in the new corridor are 13.33 acres of creek, 1.11 acres of seasonal/perennial wetland, and 1.65 acres of ephemeral drainage. Including the purchased credits, the mitigation totals 13.33 acres of creek, 5.43 acres of wetland/marsh/vernal pool, and 1.65 acres of ephemeral drainage.

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Table 1 – Wetlands/Waters Impact and Preserve Acreages				
Waters of the U.S.	**Impact Acreage**	**Credits Purchased**	**On-site Mitigation**	**Total Mitigation Acreage**
Riparian (Morrison Creek)	12.24		13.33	13.33
Tributaries (Seasonal Wetland Swale/Ephemeral Drainage)	3.84	3.79 – Seasonal Wetland/Marsh 0.53 – Vernal Pool		4.32
Seasonal Marsh/Wetland	1.14		1.11	1.11
Ephemeral Drainage			1.65	1.65
Total:	**17.22**	**4.32**	**16.09**	**20.41**

1.4.1 Wetlands/Waters Types

The following paragraphs describe the various wetlands/waters types present at the Preserve. Although these descriptions relate to the current habitats, the restored/created habitats are expected to be similar.

1.4.1.1 Perennial Creek (Morrison Creek)

Morrison Creek is the predominant drainage feature on site, crossing the project in an east-west direction. Creeks are characterized by a defined bed and bank with a distinct high-water level and have water flowing in them year round (perennially) or intermittently.

Emergent marsh vegetation occurs within and along the floodplain of Morrison Creek. Plant species observed within these areas included broad-leaf cattail (*Typha latifolia*), bulrush (*Scirpus* sp.), flatsedge (*Cyperus* sp.), dallis grass (*Paspalum dilatatum*), Bermuda grass (*Cynodon dactylon*), and creeping spikerush (*Eleocharis macrostachya*).

1.4.1.2 Seasonal/Perennial Wetland

Several seasonal/perennial wetlands exist within (on-channel) and adjacent (off-channel) to Morrison Creek. Both the on and off-channel wetlands receive precipitation, while the on-channel wetlands also receive flows from Morrison Creek. Underlain with a semi-impervious soil layer, the off channel wetlands will typically dry completely (seasonal) in the summer months, while the on-channel wetlands remain perennial. Plants found in seasonal wetlands include Italian ryegrass (*Festuca perennis*), Mediterranean barley (*Hordeum marinum*), Carter's buttercup (*Ranunculus bonariensis*), Fitch's spikeweed (*Hemizonia fitchii*), Vasey's coyote-thistle (*Eryngium vaseyi*), white-tip clover (*Trifolium variegatum*), and spiny-fruit buttercup (*Ranunculus muricatus*).

1.5 Plan Goal

The goal of this Plan is to ensure that the preserved creek, created/restored wetlands, riparian, grassland, and created/restored oak woodland habitats are maintained in good condition such that they will continue to support the flora and fauna that the Preserve was established to protect in perpetuity and to define the specific methods necessary to meet this goal. The

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Conservation Values of the Preserve are defined as the habitats present and the species of animals and plants that inhabit them. Specific management strategies and biological monitoring designed to maintain the Conservation Values are discussed in Section 7.0.

In order to realize the Plan Goal, the following biological objectives are established:

- To maintain, in perpetuity, the suitability of the wetland and creek ecosystem, associated watershed, riparian, oak woodland and grassland areas within the Preserve;
- Preserve the abundance and diversity of the native plant and animal species within the wetland, upland and riparian habitats;
- Protect the Preserve from the effects of adjacent land uses that may adversely impact the Preserve; and
- Utilize the interest from the Preserve's endowments to correct problems located during monitoring (e.g., damage from illegal off-road vehicle use) as appropriate.

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2.0 PRESERVE OWNERSHIP, LEGAL PROTECTION, AND FUNDING MECHANISM

2.1 Preserve Owner

The Preserve Owners are Granite and Teichert Land Company.

2.2 Legal Protection

The Preserve will be protected through the recordation of two conservation easements in favor of a Corps-approved easement holder ("easement holder") upon completion of the creek corridor construction, which is estimated to be in 2014/2015 (Attachment B). The easement holder will oversee both easements and the associated endowment. Granite is responsible for ensuring that the conservation easement for the Aspen III South property (owned by Teichert Land Company) is recorded when required.

2.3 Conservation Easement Holder

The easement holder will be a Corps-approved 501c (3) non-profit organization that will hold the conservation easements over the Preserve and assume responsibility for the management, monitoring and maintenance of the Preserve in perpetuity, in accordance with the Plan.

2.4 Funding Mechanism

Funding for the perpetual monitoring and maintenance of the Preserve will be provided through an endowment. A Property Analysis Record (PAR) was used to calculate the amount needed for the management of the Preserve. PARs are generated through the use of a computer program written by the Center for Natural Lands Management to allow government agencies, land trusts, and preserve management foundations and organizations to better define and understand the financial obligations that come with managing natural areas. The program lists a number of activities, structures, and overhead costs associated with preserve management and allows the user to choose the tasks that apply. These costs are then tabulated and printed out for budgeting purposes. Final PAR printouts for the Preserve have been included as Attachment C. Acquiring additional funds through grant writing, although not required by this Plan, is allowed.

For the first ten years following construction of the Realigned Channel, the Preserve Owners will conduct success monitoring of the restored/created wetlands and riparian habitat at the site. During this period, the Preserve Owners (Granite and Teichert) will provide the easement holder with ten years of funds to conduct the following annual oversight and compliance activities: two general inspections, drafting of the general inspection memo, and review of the annual monitoring report prepared by the Preserve Owner. All other costs/activities required during the success-monitoring period are the responsibility of Granite and Teichert.

On 25 July 2007, prior to the start of work within 150 feet of the ordinary high water mark of Morrison Creek, including the oxbow, Granite posted a performance bond, in a form approved by the Corps, in the amount of $1,126,000. This amount included preliminary estimates for an endowment, interim management funds, plus a 25% contingency. In 2013, the conservation

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easement holder will make a final determination as to what the appropriate endowment amount will be, and the bond may be adjusted accordingly. If the contingency funds are not required, with written Corps approval, a portion of the bond may be released if it is in excess of the agreed upon endowment amount.

In 2013/2014, an endowment account will be opened, where a portion of the endowment will be deposited and fully funded over a period of up to ten years. With the submittal of each of the annual monitoring reports, a receipt of deposit of the funds will be included, and thus, the bond amount may be incrementally decreased as the endowment is funded. The full endowment, as determined by the easement holder, will be funded at or before the completion of the success-monitoring period (estimated to be in 2024/2025). Adequate measures will be in place to ensure that the endowment fund will be self-sustaining, that is, that it will continue to grow and accrue interest. The Preserve Owners will be responsible for paying annual taxes associated with the Preserve.

2.5 Acquisition of Additional Preserve Land

With approval of the necessary agencies, this Plan does not preclude additional lands being added to the Preserve. In the event of the addition of land to the Preserve, an additional PAR/ endowment amount would be determined. The new landowner would be required to contribute to the endowment amount already in existence for the Preserve.

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3.0 PRESERVE MANAGER

The conservation easement will be granted to the easement holder following completion of the creek corridor construction, which is estimated to be in 2014/2015 (Attachment B). During the 10-year success-monitoring period (estimated to be 2014/2015-2024/2025) the easement holder will only be responsible for those items outlined in Section 2.4. These consist of two general inspections to ensure that the Preserve Owner is managing the Morrison Creek Nature Preserve according to this Plan, drafting a general inspection memo, and a reviewing the annual report. Once the ten-year success monitoring is completed, the easement holder will assume the responsibilities outlined in Section 3.1, below.

3.1 Preserve Manager's Responsibilities

The Morrison Creek Nature Preserve Manager's responsibilities and duties will include but not be limited to:

- Coordinating General Inspections of the Preserve as required by this Plan;
- Assuring that gates, fencing, and signage at the Preserve are maintained;
- Coordinating trash removal from the Preserve;
- Coordinating thatch or non-native (invasive) plant management;
- Coordinating Biological Inspections of the Preserve by a qualified biologist (the "Monitoring Biologist");
- Reviewing monitoring data and coordinating with the Monitoring Biologist and the Corps for any remedial action;
- Submitting to the Corps an Annual Report in coordination with the Monitoring Biologist regarding the status of the Preserve;
- Maintaining a File for the Preserve. This File will contain a record of management and maintenance related activities, correspondence and determinations regarding the Preserve;
- Reviewing and providing public comment for potential future construction activities adjacent to the Preserve;
- Monitoring and seeking correction for impacts to the Preserves from adjacent land uses; and
- Working with agency (Corps, California Department of Fish and Wildlife [CDFW], Sacramento County) staff.

3.2 Use of Qualified Personnel / Monitoring Biologist

The Preserve Manager may retain professional biologists, botanists or other types of specialists (the "Qualified Personnel", including the Monitoring Biologist, as needed) to conduct specialized tasks. The Monitoring Biologist will be familiar with California flora and fauna, and in particular, will have knowledge regarding wetland species and their ecology.

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3.2.1 Qualified Personnel/Monitoring Biologist Potential Responsibilities

Overall, duties of the Qualified Personnel may include but are not limited to:

- Wetland function and erosion monitoring tasks;
- Evaluating the accumulation of dead vegetative matter (thatch) and recommending removal, if needed;
- Evaluating grazing practices and recommending changes, if needed;
- Evaluating the presence of newly introduced non-native (invasive) plant species in the Morrison Creek channel, wetland areas and upland side slopes, and recommend management, if needed (this will be limited to new populations or new species. It is understood that there is an existing baseline suite of non-native invasive plant species in the Preserve);
- Conducting the Biological Inspection, collecting data on the Preserve and preparing reports required by this Plan;
- Evaluating site conditions and recommending remedial action to the Preserve Manager;
- Assisting in reviewing or planning restoration activities; and
- Working with agency staff.

3.3 Changes in Personnel

If the Qualified Personnel are changed, the outgoing and incoming personnel will tour the Preserve together to the extent feasible and the former will advise the latter of trends, problem areas, and any administrative difficulties.

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4.0 LONG-TERM PRESERVE INSPECTIONS AND REPORTING

4.1 Schedule

Initially, the Preserve Owners will arrange for the Monitoring Biologists to make visits to the site a minimum of twice a year to conduct success monitoring (as outlined in the *Wetland, Oak Woodland, and Riparian Mitigation Plan for the Granite Vineyard I Project*; ECORP 2007) of the restored/created wetlands, riparian, and oak woodland habitat. During this initial period (estimated to be 2014/2015-2024/2025), success monitoring and reporting will be combined with the preserve monitoring outlined below, with the exception of the General Inspections. During the initial ten-year period the Preserve Manager will only be responsible for those items outlined in Section 2.4, which includes coordination of the General Inspections and drafting of the General Inspection memos. The Preserve Owners will be responsible for both the success monitoring and the Preserve monitoring during the success-monitoring period.

After the restored/created wetlands, riparian, and oak woodland habitat have met their success criteria and have been deemed successful by the Corps, the Preserve Manager will assume long-term preserve inspection and reporting duties and arrange to begin the monitoring of the Preserve as outlined below. This monitoring will occur in perpetuity. The schedule of inspections for the Preserve is as follows:

- The Monitoring Biologist/Qualified Personnel will conduct two Biological Inspections each year, one in the spring, and one in early fall.
- The Preserve Manager will arrange to conduct at least two General Inspections each year, one in winter and one in summer.

Please see Attachment D for a proposed monitoring timeline. A final determination of the timing and frequency of inspections will be coordinated by the Preserve Manager and the Monitoring Biologists.

4.2 General Inspections

The Preserve Manager will arrange for the General Inspections to be made to ensure the integrity of the Preserve. Inspections will concentrate on an evaluation of the following factors: erosion, fencing integrity, condition of signage, trash accumulation, and evidence of unauthorized use by motor vehicles. The entire perimeter of the Preserve should be covered, as well as meandering transects through their interior. A Preserve Inspection Sheet (Attachment E) will be utilized in order to evaluate the above criteria during each field visit. Previous inspection sheets should be reviewed before each visit in order to ensure that a possible or recurring problem area is not missed. If any problems are identified, more frequent inspections will be done if needed in order to closely track any problems as well as to ensure that remedial actions are effective. Evaluation and corrective actions for each factor are described below.

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4.2.1 Erosion and Sedimentation

If it is determined during the inspection that adjacent sheet-flow drainage (i.e., from culverts) is causing an unreasonable level of erosion, sedimentation or other adverse effects upon the Preserve, immediate standard erosion control measures (such as the installation of wattles) will be implemented. This is most crucial during initial habitat construction activities. An unreasonable level of erosion would be in excess of the typical/natural erosion associated with a meandering creek. It is not the intention of this Plan to require the Preserve Manager to correct unreasonable levels of erosion or problematic natural erosion associated with the creek. If any unreasonable erosion/sedimentation problems occur, the Preserve Owner and the Corps will be notified and a qualified erosion control specialist will be consulted.

4.2.2 Fencing, Gates, and Signage

The condition of the fencing, gates, and signage at the Preserve will be checked during the General Inspection. The Preserve Manager will be responsible for maintaining the fencing, gates, and signage.

4.2.3 Trash Accumulation

The Preserve Manager will arrange for the removal of trash from the Preserve on a quarterly basis, or as needed.

4.2.4 Unauthorized Motor Vehicle Use

The perimeter of the Preserve will be inspected for evidence of unauthorized motor vehicle use/access. If necessary, corrective actions such as repairing locks and gates will be taken.

4.3 Biological Inspections

In managing the Preserve, measures must be taken to help ensure that the existing conditions are maintained in perpetuity. Inspections by a qualified biologist will help ensure the long-term integrity of the wetland, upland and riparian habitats.

The Biological Inspections of the Preserve will be conducted by the Monitoring Biologist two times per year in order to monitor specific aspects of the Preserve's habitats as well as general wetland function, thatch accumulation, newly introduced non-native species, and overall Preserve function. The entire perimeter of the Preserve should be covered, as well as meandering transects through its interior. The goal of all these surveys is to help ensure that the various habitat types are maintained in perpetuity. The first inspection will focus on the hydrology of the restored creek corridor and the ephemeral drainage and the second will focus on upland and riparian habitats, problem areas, and the grazing regime (if applicable). Although each of these surveys has a focus, all aspects of the Preserve will be reviewed, generally, during each visit. The surveys are specifically described below.

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4.3.1 Biological Inspection Tasks

In general, the following aspects of the Preserve should be monitored during all Biological Inspections.

4.3.1.1 Habitat Function

The purpose of assessing habitat function is to ensure that the created/restored wetland and upland habitats continue to have the appropriate hydrologic regime for their habitat type, to monitor anthropogenic influences on the different habitats, and to document or update (make a species list as meandering transects are walked) the plant species that are present and animal species that are using the Preserve.

4.3.1.2 Thatch Accumulation

The Monitoring Biologist will make an annual determination as to the extent of thatch accumulation. If excess thatch is present, the Monitoring Biologist will work with the Preserve Manager to determine the best removal practice for the site. Several management practices can be used to address this issue including controlled burning, mowing, or grazing as described in Section 7.2.2.

4.3.1.3 Newly Introduced Non-Native and Invasive Plant Species

The Monitoring Biologist will assess the presence of any newly introduced non-native plant species and recommend corrective actions as needed. Special attention will be paid to non-native plants that are considered invasive species and have the potential to adversely affect the habitat function of the Preserve. A baseline map of non-native and invasive plants developed in the first few years of monitoring will be used in this annual assessment.

4.3.1.4 Preserve Function

The overall function of the Preserve should be assessed, taking into account the above factors and the purpose of the Preserve, which is to support the flora and fauna of the creek, wetlands, uplands and riparian areas in perpetuity.

4.4 Agency Monitoring/Inspection

The Corps may inspect and monitor the condition of the Preserve at any time with reasonable advance notice to the Preserve Manager and Preserve Owner.

4.5 Annual Reporting Requirements

The Monitoring Biologist will prepare an Annual Report in conjunction with the Preserve Manager, which will be submitted to the Corps by December 31st of each year. The letter report will include at minimum: a map of the Preserve, photos documenting the status of the Preserve, a description of proposed activities and maintenance or management actions as required by this Plan, a description of actions for which Corps notification or approval was not needed, but were

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carried out during the year, observations from the Biological Inspections, and recommendations for altered management practices as needed. The reports will be sent to the attention of Chief, Sacramento Valley Office, Regulatory Branch, at the Corps. A copy of the report will also be provided to the Preserve Owner.

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5.0 AGENCY NOTIFICATION

The Corps has expressed a desire to be notified when certain management and maintenance activities are undertaken within the Preserve. It is also recognized that the Preserve Manager needs to be able to carry out management and maintenance activities in a timely and responsive manner. Therefore, the following notification requirements have been defined:

5.1 No Notification Required

If an activity in this Plan does not have a specific requirement for notification, is not a Prohibited Activity (see Section 6.0) and Corps review and approval or a permit is not required, then no notification is required. If an activity was not anticipated by this Plan, and therefore is not mentioned, notification is required.

5.2 Notification

For those activities noted in this Plan as requiring Corps notification, the following action will be taken. All efforts will be made to outline the activities for the coming year in the annual letter report, which is to be submitted to the Corps by December 31st of each calendar year. If this is not possible, then the Preserve Manager will submit a separate letter to the Corps. Either form of correspondence will include a written description of the activity, including when the activity will take place and what methodology will be used, as well as a map showing what areas will be targeted. The Corps will have 30 days to contact the Preserve Manager to discuss the activity if they do not approve. If the Preserve Manager is not contacted within 30 days, then the activity will be considered approved. Notification will be made either by fax, email, registered mail, or overnight transmittal.

5.3 Review and Approval

For those activities noted in this Plan as requiring Corps review and approval, notification will be made by the Preserve Manager as outlined above. The Corps will have 60 days to review, discuss, and approve or disapprove the activity. For these activities, the approval from the Corps must be written. Submittal of activities for review and approval as well as written approval back from the Corps will be made either by fax, email, registered mail, or overnight transmittal.

5.4 Activities Requiring a Permit

Some of the activities mentioned in this Plan may have the potential to impact wetlands or Waters. The term “loss of waters of the U.S.”, which is the closest term defined in the Federal Register to “impact”, is defined on page 2094 of the Federal Register, Volume 67, No. 10 / Tuesday, January 15, 2002 / Notices, as follows:

> *“Waters of the U.S. that include the filled area and other waters that are permanently adversely affected by flooding, excavation, or drainage because of the regulated activity. Permanent adverse effects include permanent above-grade, at-grade, or below-grade fills that change an aquatic area to dry land,*

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increase the bottom elevation of a waterbody, or change the use of a waterbody. The acreage of loss of waters of the U.S. is the threshold measurement of the impact to the existing waters for determining whether a project may qualify for a NWP [Nationwide Permit]; it is not a net threshold calculated after considering compensatory mitigation that may be used to offset losses of aquatic functions and values. The loss of stream bed includes the linear feet of stream bed that is filled or excavated. Waters of the U.S. temporarily filled, flooded, excavated, or drained, but restored to preconstruction contours or elevations after construction, are not included in the acreage or linear foot measurements of loss of waters of the U.S. or loss of stream bed, for the purposes of determining compliance with the threshold limits of the NWPs."

The purpose of this section is to clarify, that while this Plan may call out future activities as allowed in the Preserve, this does not mean that the activity does not require a separate authorization (permit) under Section 404 of the Clean Water Act if it will impact wetlands/ Waters not previously permitted. Also, if a project will not result in the permanent loss of wetlands or Waters, only temporary loss or "impact", a permit is still required. There are several Nationwide Permits (Nationwide Permits are permits for activities resulting in the loss of less than 0.50-acre of wetlands or Waters) currently (2013) available for maintenance activities. These permits include, but are not limited to, NWP 3, *Maintenance*; NWP 7, *Outfall Structures and Maintenance*; NWP 12, *Utility Line Activities*; NWP 13, *Bank Stabilization*; NWP 27, *Stream and Wetland Restoration Activities*; and NWP 31, *Maintenance of Existing Flood Control Facilities*. Issuance of a permit by the Corps may require the Corps to consult with the Service. Specific maintenance activities may also qualify for the Clean Water Act Section 404(f) exemption for maintenance. If success monitoring indicates that a created/restored wetland feature or Morrison Creek is not functioning correctly, then activities necessary to achieve proper wetland function are allowed and are included in the *Wetland, Oak Woodland, and Riparian Mitigation Plan for the Granite Vineyard I Project* (ECORP 2007). If there is a question regarding whether a maintenance activity will require a Corps permit, the Preserve Manager should seek guidance from the Corps.

Some of these activities may also need a Streambed Alteration Agreement from the CDFW. Pursuant to Section 1600 of the CDFW Code, the CDFW requires that entities obtain a Streambed Alteration Agreement for activities affecting the bed, bank, or channel of a lake, river, stream, or drainage, as defined by CDFW.

5.5 Emergency Situations

Should an emergency situation arise that requires immediate action in an upland area, and would normally require that the Corps be notified or have review and approval authority, the Corps will be notified verbally within forty-eight (48) hours, with written confirmation of the actions taken within one (1) week. In these situations, "emergency" is a situation which would result in an unacceptable hazard to life, a significant loss of property, or an immediate, unforeseen, and significant economic hardship.

Should an emergency situation arise that requires immediate action in a wetland or Waters, but such action would normally require that a permit be obtained from the Corps, the following

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applies as stated in the Code of Federal Regulations, Title 33, Chapter II, Part 325, Section 325.2 - Processing of Applications:

> *"Emergency procedures - Division engineers are authorized to approve special processing procedures in emergency situations. An "emergency" is a situation which would result in an unacceptable hazard to life, a significant loss of property, or an immediate, unforeseen, and significant economic hardship if corrective action requiring a permit is not undertaken within a time period less than the normal time needed to process the application under standard procedures."*

California Fish and Wildlife Code Section 1600 also contains emergency procedures that may apply in this instance.

5.6 Changes in Notification Requirements

The easement holder and the Corps may agree to change the notification requirements for certain activities that do not require a permit. These would be cases where repeated notification or requests for approval have been made for a certain activity and a course of action has been established. To reduce staff time required from both the easement holder and the Corps, the easement holder would follow the approved course of action and notification would not be required.

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6.0 PROHIBITED ACTIVITIES WITHIN THE PRESERVE

This section outlines the restrictions on activities that can take place in the Preserve after mining, construction, and any remediation (if required) of the realignment channel has occurred. It is understood that the following activities are prohibited, except as needed to accomplish the management and maintenance activities outlined in this Plan or as described below. Additionally, if any of these prohibited activities must be undertaken due to special circumstances, they may be reviewed and approved by the Corps on a case-by-case basis.

6.1 Access to the Preserve

The intent of the Preserve is to maintain the created/restored habitats in perpetuity. Limited access to the Preserve will further this goal. Regular, off-trail access to the Preserve is not allowed, and should be discouraged through fencing and signage. See Section 7.2.1 for a description of authorized access.

6.2 Vegetation Removal

No killing, removal, destroying, or cutting trees, shrubs or other vegetation will be done, except as required for: fire breaks, recreational trail maintenance, thatch management, prevention or treatment of disease, flood control maintenance, maintaining the flows of Morrison Creek, removal of non-native and invasive species, or utility line clearance.

6.3 Burning and Dumping

No burning or dumping of rubbish, garbage, or any other wastes or fill materials will be allowed in the Preserve. The foregoing prohibition will not be interpreted to prohibit controlled burning as a method of thatch management (see Section 7.2.2.1).

6.4 Disking

Disking is the process of loosening soil with an implement such as a plow. After the initial establishment of the plantings within the Preserve, or as needed for remediation of the plantings, no disking may occur in the Preserve.

6.5 Additional Roads, Recreational Trails, and Utility Lines

Roads, recreational trails, and utility lines not mentioned in this Plan will not be allowed in the Preserve without review and approval of the Corps.

6.6 Equipment or Fuel Storage

There will be no equipment or fuel storage within the Preserve except if needed during creek channel realignment/construction or maintenance and habitat creation/restoration. The equipment will be located away from any biologically sensitive areas.

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6.7 Topography Alteration

The alteration of topographical elevation (topography and/or grade) of all or portions of the SRA during one event, which may include the addition or removal of earthen materials, is allowed. Other than the one-time topographic modification within the SRA, or modifications for approved channel realignment/alterations indicated in this Plan (which include construction, habitat restoration/construction, flood control maintenance, oak woodland creation/restoration, utility line maintenance/replacement, levee repair/maintenance, culvert maintenance/replacement, vehicle bridge installation/repair, installation of an oxbow diversion weir structure, and/or installation of the recreational trail and crossing (see Section 8.1 and 8.8), no alteration may be made to the existing topography of the Preserve. This includes leveling or grading, building roads and recreational trails (except as otherwise allowed herein), paving or otherwise covering the Preserve with concrete, asphalt, or any other impervious material. However, if success monitoring indicates that a created/restored wetland feature is not functioning correctly, then re-grading to achieve proper wetland function is allowed.

6.8 Pesticides and Chemical Agents

Except as needed for the establishment of new native plantings, management of the Preserve's habitats (non-native and invasive species control), or for mosquito abatement activities, the following uses of pesticides and chemical agents are restricted: use of pesticides, fungicides, insecticides, fertilizers, herbicides, biocides, or any other chemical agents or agricultural chemicals used to kill or suppress plants, animals, or fungi in the Preserve; incompatible fire protection activities; and any and all other uses which may adversely affect the Preserve.

6.9 Motor Vehicle Use

No motorized vehicles will be ridden, brought, used, or permitted on any portion of the Preserve with the exception of the following: motorized vehicular use will be restricted to that required for the Preserve's initial construction purposes, ongoing maintenance and monitoring purposes (on designated trails and the maintenance road), mosquito abatement, non-native and invasive plant species management, fencing repair or replacement, grazing operations, for emergency or law enforcement situations requiring access by medical, flood control, levee repair, fire or law enforcement vehicles, and access as necessary for utility, vehicle road, or oxbow diversion weir structure maintenance/replacement.

6.10 Construction and Maintenance

The construction and maintenance of the maintenance road, vehicle bridge, oxbow diversion weir structure, signs, fencing, bollards, recreational trails, recreational trail crossings, underground storm water culverts and reclamation water slurry lines, outfalls, utility lines, levee repair, structures associated with grazing and irrigation lines outlined in this Plan are allowed within the Preserve. No other construction, reconstruction, or placement of any building, billboard, sign, structure, road, or other improvement will be allowed in the Preserve without the review and approval of the Corps.

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6.11 Non-Native Plants and Animals

No planting, introduction, or dispersal of non-native or invasive plant or animal species will occur in the Preserve, except for the use of biological controls for non-native plant species control (as discussed in Section 7.2.4.3).

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7.0 LONG-TERM MANAGEMENT OF THE PRESERVE

7.1 Adaptive Management

In preparing a management plan for habitat to be preserved in perpetuity, it must be acknowledged that there will undoubtedly be future developments in habitat and species management that may affect how the Plan Goal is met. This Plan can only provide guidance for adopting new technologies or practices as they are developed. Ultimately, the Preserve Manager in coordination with the Monitoring Biologist, the Corps, and the Preserve Owner must determine the appropriate management decision for a given situation (refer to Section 8.12 for Preserve Owner's reserved rights). The management strategies, approved uses, and restrictions presented in this Plan are intended to provide a framework for the long-term management and operation of the Preserve. Before considering any management action, the Preserve Manager must consider the Plan Goal, which is to ensure that the protected creek, wetland, and upland habitats within the Preserve are maintained in good condition such that it will continue to support the flora and fauna of the uplands and wetlands, in perpetuity. Furthermore, this Plan cannot anticipate all possible site conditions. Therefore, if a condition arises which is not specifically addressed by this Plan, the Preserve Manager may upon review and approval by the Corps, adopt techniques not described here.

7.2 Preserve Management Activities and Guidelines

The following outlines management and maintenance activities that are allowed within the Preserve.

7.2.1 Authorized Access

The intent of this Plan is to maintain the habitats of the Preserve in perpetuity. Limited access to the Preserve will further this goal. Regular, off-trail access to the Preserve should be discouraged through fencing and signage. Access to the Preserve for maintenance activities (such as utility maintenance) is allowed, but should be restricted to the immediate area where maintenance is occurring. Access to the Preserve by the grazing contractor is allowed. Access to the Preserve in emergency or law enforcement situations, by medical, flood control, levee repair, fire, law enforcement, utility crews, or mosquito abatement personnel or vehicles is allowed. The Preserve Manager and Corps are allowed to access the Preserve for inspections and studies as required by this Plan. Approved access to the Preserve for clean-up, grazing, native plantings and wetland remediation, or habitat restoration activities is also allowed (see Sections 9.0 and 10.0).

7.2.2 Grassland/Thatch Management

Historically, grassland habitats burned periodically due to the occasional wildfire. These fires would burn dead plant material or thatch, keeping it from building up. Native ungulates, and later cattle, historically would have inhabited the grasslands within the area. The grazing and trampling action of these animals also reduced the amount of dead plant material. Minimizing wildfires and/or the removal of grazers can result in a buildup of thatch. Buildup of thatch can be detrimental to the Preserve habitats. During one of the annual biological surveys (see

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Section 4.3.1.2), the Monitoring Biologist will make a determination as to the extent of thatch accumulation and if it is adversely impacting the Preserve habitats. Controlled burns and mowing are discussed in Sections 7.2.2.1 and 7.2.2.2 below. Grazing as a method of grassland/thatch management and habitat management is discussed separately (see Section 7.2.3). Refer to Figure 6. *Firebreak Location*, and Section 8.4 for a discussion of firebreak mowing.

7.2.2.1 Controlled Burns

Controlled burning is an excellent way to eliminate accumulated plant matter and also serves to reduce cover of non-native annual grasses (Pollak and Kan 1996). While prescribed burning is an effective tool in the long-term management of thatch accumulation, controlled burns can present a potential public safety hazard. A controlled burn would require a burn permit and supervision by California Department of Fire/Sacramento County fire personnel. Currently, controlled burns are not intended to be used for thatch management. However, controlled burns are not prohibited by this Plan. When carefully planned with the local fire authorities, some controlled burns have been successfully conducted in urban areas. If a controlled burn is planned for the Preserve, the Corps will be notified.

7.2.2.2 Mowing

Another method to remove thatch is mechanical mowing. In order for mowing to be effective for thatch removal, the cut material would need to be removed from the site. In addition, the mowing regime should be timed in order to minimize the invasion of non-native, invasive upland species, particularly yellow starthistle (*Centaurea solstitialis*). According to CDFA (2010), the optimal time for mowing of yellow starthistle is when approximately 2% to 10% of the plants have begun to bloom. To date, little research has been conducted on mowing for thatch management. It is anticipated that such mowing practices would be needed, at most, once every three years. Mowing equipment is allowed in the Preserve for thatch management. Mowing for thatch management does not require agency notification.

7.2.3 Grazing for Habitat Management

The goals of grazing within the Preserve are to maintain species diversity and desired species composition by reducing the accumulation of thatch within the wetland and upland areas. Grazing is not required by this Plan but is discussed here in the event that it is selected as a management technique. Due to the size of the Preserve, goats or sheep would likely be the preferred grazers.

An essential component of the success of this grazing management is regular communication between the Preserve Manager, the Monitoring Biologist, and the grazing contractor regarding decisions about adjusting the below mentioned grazing variables. Coordination of grazing practices with the other long-term management methods of the Preserve will enhance the overall long-term viability the Preserve. The grazing contractor will be oriented from the start as to the sensitivity of the habitats present at the Preserve and of the goals of this Plan. The Preserve Manager should choose a grazing contractor who understands, and is in agreement with, the goals of managing the Preserve.

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7.2.4 Non-Native Plant Species Management

Management of non-native plant species can be a complex and expensive task. It is important to recognize that the Preserve Manager can only conduct as much non-native and invasive species management as can be accomplished with the funding provided as part of this Plan or by obtaining other funds such as grant funds (not required by this Plan).

7.2.4.1 Native and Non-Native Plant Species Definitions

Native and non-native plant species are mentioned in several sections of this Plan. The following definitions of these terms have been included to assist the Preserve Manager in determining the status of plant species found in the Preserve.

Native Plants

For the purposes of this Plan, plants native to the Preserve will be defined as those plants believed by the scientific community to have been present in Sacramento County prior to the settlement of Europeans. The Jepson Manual (Baldwin et al. 2012) can be a reference for determining if a plant is native or non-native. However, this reference is only subregion specific. As a result, this reference is not necessarily specific enough, and therefore the Preserve Manager can consult with the Monitoring Biologist, local botanists, or the local chapter of the California Native Plant Society to determine if a plant should be considered native to the Preserve. Other comparable future publications or resources can be utilized as they become available.

Non-Native Plants

Based on the above definition of plants considered to be native to the Preserve, there are several ways to view what a non-native plant is: there are plants that are not locally native (native to Sacramento County), plants that are not regionally native (native to Northern California), and plants that are not native to California or the U.S.

Invasive Pest Plants

Invasive pest plants are plants that are not native, have potential to replace native vegetation or native habitats, and adversely affect the habitat function of the Preserve. The Monitoring Biologist/Qualified Personnel and the Preserve Manager can refer to the species found on the California Invasive Plant Inventory (Cal-IPC) table of *Invasive Non-native Plants that Threaten Wildlands in California* (Cal-IPC 2006 and 2007). The current table has been included as Attachment F; however, this list may be updated from time to time by Cal-IPC. The new list will be appended to this Plan as it is updated.

Under current conditions (prior to project implementation), the site is known to support a number of non-native and invasive species, many of which have become naturalized. They are predominantly annual species that occur in grasslands. During the first two or three years of surveys within the Morrison Creek Nature Preserve, a general map of invasive pest plants in Attachment F will be mapped either through the use of aerial photographs, GPS technology, or a

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combination thereof. When finalized, the map can be added to this Plan. The map should be updated every five years or as needed. In these years, and for the initial mapping, funding for mapping will be from the funds set aside for non-native species management. This map can be used in subsequent years as a baseline of existing conditions. It is unreasonable to require or expect eradication of established invasive species as identified in baseline surveys at the site. The required management of non-native plants will therefore be limited to the management of newly introduced invasive plants and working to contain the spread of existing invasive pest plant populations that are a threat to the Conservation Values as limited by available funding.

Beyond management activities, if the Preserve Manager would like to pursue more extensive removal of non-native species through volunteer efforts or grant funding, that is encouraged. The Monitoring Biologist and the Preserve Manager can refer to the species found on the Cal-IPC table to assist them in determining if a plant is an invasive plant species of concern, and which species should be given priority for management (Attachment F).

In addition to looking for these species during the General Inspections, the Monitoring Biologist will also assess the presence of any newly introduced invasive pest plant species within the Preserve during the Biological Inspections and recommend removal as needed. Three methods of removing or controlling these species are outlined below:

7.2.4.2 Hand/Mechanical Removal/Grazing/Animal Impact

Hand removal or use of small hand powered or handheld equipment (such as a Weed Wrench or a chainsaw) should always be the preferred method of removing invasive pest plant species from the Preserve, if practical. If hand removal methods are tried and found to be ineffective, or the problem is too widespread for hand removal to be practical, then mechanical methods (use of larger equipment with motors such as mowers) or biological controls as described below can be implemented. Also, in certain situations, intense grazing and/or animal impact can be used for non-native species management.

7.2.4.3 Biological Controls

Biological controls are natural parasites, predators or pathogens that are released to combat non-native species. For example, there are several natural enemies of yellow starthistle (e.g., hairy weevils) that have been introduced from Europe to act as biological controls against this invasive species. The hairy weevil begins life within the seed head of the flower and develops there, feeding on the seeds. The County Agricultural Commissioner (CAC) would be the point of contact for use of these biological controls within the Preserve. The CAC does not currently (2013) have a program for providing the hairy weevil for biological control; however, the CAC may be contacted for a list of nurseries that supply weevils in the area.

Biological controls should be used with caution and only after contact with the CAC office. If biological control methods are tried and found to be ineffective or if biological control methods are not available for the target species, then herbicides can be used, but only as outlined below. The Corps will be notified if biological controls will be used in the Preserve.

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7.2.4.4 Use of Herbicides for Non-Native/Invasive Plant Management

Herbicides can be used only for the management of non-native (invasive) plant species. Hand or mechanical removal should be the first choice for all non-native plant species removal. Herbicides can be potentially harmful; however non-native, invasive species can also be extremely detrimental to native habitats. The use of chemicals should be considered carefully and the most recent research regarding the appropriate herbicide for the target plant should be consulted. The use of ALS/AHAS herbicides is prohibited due to their non-target adverse effects. Chemicals must be applied according to the label. This approval does not obviate the need for the Preserve Manager to obtain any other applicable approvals for the use of these chemicals.

7.2.5 Tree Removal

If any of the native trees within the Preserve become diseased and present a threat to other trees or are a danger to public safety or private property, removal will be allowed. Removal of trees that fall onto the recreational trail or have the potential to fall on the recreational trail is the responsibility of the entity responsible for recreational trail maintenance and not the Preserve Manager. However, the Preserve Manager is responsible for removing trees that impede maintenance/trail crossings. These statements do not imply permission to undertake the removal of any tree without obtaining any appropriate State and/or Federal permits or local tree removal permits, if applicable. Non-native tree removal is allowed, consistent with Section 7.2.4.1. In addition, removal will be consistent with CDFW regulations if the tree is in a riparian area. Removal may require a nesting raptor survey consistent with applicable laws. If a tree has died but is not a threat to other trees, a danger to public safety or private property, or poses a flood hazard, removal is not required. Dead trees are important habitat elements for wildlife and should remain in the Preserve.

7.2.6 Beaver Management

The Preserve Manager will be responsible for assessing the beaver population within the Preserve. If beaver dams become established, the Preserve Manager should consult with the Monitoring Biologist to determine if it is best to leave the beavers alone as they are a natural part of the ecosystem, install beaver baffling devices and allow the beavers to remain, breach the beaver dam, or remove the beavers if appropriate. Care should be taken to weigh the effects of the beaver's presence. Situations where beaver management may be prudent are when beaver dams are causing water levels to rise such that they inundate seasonal wetlands or oak woodland habitat (both existing and planted). Beaver dams can also result in positive impacts to streamside habitat. If the Preserve Manager decides to breach the beaver dam, the work should be done by hand, or if the dam is too large, equipment such as backhoe with rubber tracks/tires can be used. The Preserve Manager should contact the CDFW to determine if a Streambed Alteration Agreement is needed to undertake removal of a dam. If the work requires soil movement it may require a permit from the Corps (see Section 5.4). If the Preserve Manager determines that beaver removal is appropriate, the Preserve Manager will work with the local CDFW to trap and relocate or hunt the beaver population. The Preserve Manager will notify the Preserve Owner if the presence of beavers is impeding the flow conveyance of Morrison Creek and/or flooding is a potential concern.

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7.2.7 Mosquitoes

If mosquito control within the Preserve is necessary, as determined by the Sacramento County Mosquito Vector Control District, the Preserve Manager will consult with the District to assist in selecting control mechanisms that are the least damaging to the Preserve's habitats and conservation values. The Sacramento-Yolo Mosquito and Vector Control District has developed a *Mosquito and Mosquito-Borne Disease Management Plan* (2005) available on the web at http://www.fightthebite.net/download/Mosquito_Management_Plan.pdf.

7.2.8 Altered Hydrology

In order to maintain hydrology of the Preserve, the Preserve Manager will work with individual landowners or developments adjoining the Preserve to prevent them from directing the flow of drainage, landscaping, and storm water runoff from their property into the Preserve from outside the area. This does not preclude the use of drip irrigation in the Preserve for the establishment period for native plantings if used in current or future creation/restoration or enhancement.

7.2.9 Trash Removal

At minimum, the Preserve Manager will arrange for the removal of accumulations of trash from the Preserve quarterly, or as needed.

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8.0 INSTALLATION AND LONG-TERM MAINTENANCE OF STRUCTURES AND IMPROVEMENTS

The following paragraphs outline the allowed maintenance of structures and improvements present, or allowed, within the Preserve. Vegetation removal type maintenance (e.g., mowing vegetation along underground sewer line alignments) associated with these structures is not allowed unless explicitly stated below or if allowed by a previously existing easement. If maintenance or replacement activities associated with these structures will directly impact preserved wetlands or Waters, the Corps will be notified and any appropriate permits will be obtained (see Section 5.4). If wetlands or Waters will not be impacted by maintenance or replacement of any of these structures or improvements, then the Preserve Manager will review the plans for the activity to be sure that as little disturbance to the Preserve occurs as possible, but the Corps will not have to be notified. These activities will be described in the Annual Report. In addition, areas disturbed will be restored (see Section 9.0). If a Corps permit is not required, the Corps will also be notified 30 days in advance when any of the allowed structures are first constructed within the Preserve (with the exception of fencing/gates, signage, grazing structures, and native plantings).

8.1 Structures Allowed Within the Preserve

The following structures (including their installation, maintenance, repair or replacement) are allowed within the Preserve:

- Two decomposed granite bike and pedestrian trail/maintenance crossings (Figure 7, 8 and 9. *Preserve Details*) and associated bridges, culverts, and/or slide gates (Attachment G – *Bridge/Crossing Detail*);
- One vehicle bridge, also allowing bike and pedestrian access across realigned oxbow channel (see Figure 9 and Attachment G);
- A gravel maintenance road along the southern top of the levee (see Figures 7, 8 and 9);
- Fencing, bollards, Preserve signs, and interpretive signs as discussed in Section 8.2 (see Figures 7, 8 and 9);
- Existing utility lines;
- Public utilities below the two trail crossings and vehicle bridge (see Figures 7, 8 and 9);
- Underground utilities, underground storm water culverts below the realigned creek (see Figures 7, 8 and 9);
- Underground reclamation water slurry line below the realigned creek if needed (these lines will only be required if the elevation of the SRA is raised - the location of the lines will be determined);
- Gabion revet mattress or rip-rap stabilization on either side of the two trail crossings; motor vehicle bridge, and at the Mayhew Road and Hedge Road bridge crossings of the realigned creek (Erosion control locations outlined on Figures 7, 8 and 9);
- Oxbow diversion weir structure to provide adequate flows to ensure no adverse effect on the downstream portion of the oxbow channel ;
- Recreational trail through the Preserve and along the top of the northern levee (see Figures 7, 8 and 9);
- Modifications to the SRA as discussed in Section 6.7;
- Temporary structures (e.g., fencing) associated with grazing; and

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- Oak/native plant restoration irrigation lines.

8.2 Signage, Fencing, Gates and Bollards

8.2.1 Preserve and Interpretive Signs

Preserve signage will be installed to inform the public of the presence of the Preserve. Sample sign language has been included as Attachment H. The signs will be placed at regular intervals along the outside perimeter and within the Preserve (see Figures 7, 8, and 9). If the Preserve Manager determines that additional signage is warranted then more may be installed.

In addition to the smaller signs posted along Preserve boundaries, interpretive signs may be placed within the Preserve. The content of those signs will educate the public about the creek, riparian, annual grassland, and oak woodland habitats located within the Preserve, their conservation, common species observed, and would encourage respect for the Preserve. The signs will be placed at various locations within and along the Preserve and trail entrances if the trails are eventually open to the public (see Figures 7, 8 and 9). Exact locations should be determined in the field to ensure the best view of the Preserve's habitats in conjunction with each sign. The Preserve Owner will be responsible for the initial cost of installing Preserve and interpretive signage. The Preserve Manager will be responsible for the maintenance and replacement of the signage. Funding will be provided through the endowment.

8.2.2 Initial Installation of Fencing and Fencing Types

The initial installation of fencing is the responsibility of the Preserve Owner. Permanent open fencing such as split rail, post and cable, barbed wire, or chain link will be placed around the Preserve (see Figure 7, 8 and 9). The fencing along the oxbow vehicle bridge will be guardrail. If in the future the trails/crossings are open to the public, the PAR will be adjusted and adequate funds will be added to the endowment to insure that the trails are appropriately fenced.

8.2.3 Maintenance and Repair

Maintenance and replacement of fencing and signage must be restricted to the minimum area needed to fix the fencing. Whenever possible, maintenance and replacement of fencing should take place from outside the Preserve. The Preserve Manager will be responsible for the maintenance and replacement of Preserve fencing. The funding for this fencing will be provided through the endowment.

8.2.4 Bollards and Gates

The Preserve Manager will be responsible for the maintenance of authorized gates into the Preserve and for keeping them locked to prevent unauthorized motor vehicle access. Authorized gates are used for allowing access for grazing, maintenance vehicles, and emergency access to the Preserve. All other gates, such as gates installed by other entities allowing access into the Preserve, are prohibited. The Preserve Manager will be responsible for notifying any party that has installed an unauthorized gate into the Preserve fencing and will require its

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removal and replacement with the appropriate fencing. Bollards will be placed as appropriate at each point where bike and pedestrian/maintenance crossings enter the Preserve and the corridor (see Figures 7, 8 and 9). The Preserve Manager will be responsible for the maintenance and replacement of the bollards and for keeping them locked in the upright position when maintenance vehicles are not accessing the Preserve.

8.3 Culverts and Outfalls

Storm water outfalls are not planned within the Preserve. Water draining from the area north of the creek corridor will be piped through culverts below the channel and will drain via a swale system into a retention basin which will be located southwest of the realigned creek corridor. The retention basin will be sized to accommodate a minimum of 312 acre-feet of water.

Maintenance associated with culverts and outfalls is allowed. Replacement of these structures to maintain flood protection is also allowed. Maintenance is expected to include occasional removal of vegetation to allow for unrestricted flows. The locations for these culverts are conceptual and may shift location slightly upon implementation.

8.4 Firebreaks

The Preserve Manager can implement up to a 30-foot firebreak within the Preserve although the Corps or this Plan does not require it (see Figure 6). Firebreaks are not expected to be needed along the southern boundary of the Preserve due to the maintenance road that is located just outside of the Preserve boundary. The maintenance road can act as a firebreak. The Corps requires that a survey for ground nesting birds be conducted if fire breaks within the Preserve are to be mowed before July 1st to eliminate impacts to these species. Therefore, the Preserve Manager will be responsible for arranging for a ground nesting bird survey to be conducted each year prior to the mowing of fire breaks. Fire breaks may be mowed (not disked unless required by law or appropriate legal authority) such that vegetation is two inches high or less. Firebreaks may also be grazed.

8.5 Grading

No grading within the Preserve is allowed, except during the construction and/or maintenance of the bike/pedestrian trail, maintenance crossings, bridges and roads (Section 8.8).

8.6 Utilities

A power line easement exists in the western portion of the Preserve, intersecting Hedge Avenue.

8.7 Easements

Existing road right-of-way easements are located at Mayhew Road to the east, Hedge Avenue to the west, Fruitridge Road to the north, and Elder Creek Road to the south. The Preserve may be subject to easements for the two bike and pedestrian trail crossings of the realigned creek (see Section 8.8), the road and motor vehicle bridge (also providing bike/pedestrian trail access)

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that connects to Hedge Avenue, the maintenance road along the southern top of the levee, the underground public utilities below the trails/crossings and bridge, the underground storm water culverts below the realigned creek, and the underground reclamation water slurry line below the realigned creek.

8.8 Recreational Bike/Pedestrian Trail, Maintenance Crossings, Bridges and Roads

As depicted on the Preserve detail maps (see Figures 7, 8 and 9), two 14-foot wide decomposed granite bike and pedestrian trail/maintenance crossings may be installed within the Preserve area. The uses for these trails/crossings will be passive recreational uses including, but not limited to, biking, walking and running. Gravel maintenance roads will be located at the northern and southern tops of the corridor levee as shown in Figures 7, 8 and 9. A motor vehicle bridge (also providing bike/pedestrian trail access) will be located along the western portion of the Preserve, with road access to Hedge Avenue (see Figure 9).

When the recreational trail and crossings become open to the public they will be maintained by the Southgate Recreation and Parks District ("Southgate"). Southgate will be provided with copies of all Corps, U.S. Fish and Wildlife Service, CDFW and any other permitting agency final permits, conditions and restrictions, management plans, and/or wetland delineations as they pertain to the bike/pedestrian trails within the Preserve. The Preserve mining operator ("Operator") will provide a trail and setback easement ("Trail Easement"), not to exceed 20 feet in width, so long as the Trail Easement does not conflict with any requirements or easements stemming from any permit issued, or that may be issued, by an agency of the State of California or the federal government. The Trail Easement will coincide with the maintenance road on the north side of the levee within the Preserve (as approved by the Corps in an e-mail dated 26 September 2012).

After Southgate accepts the Trail Easement, and under provisions of this Plan, the Operator will construct a suitably compacted base rock foundation for the trail surface, not to exceed 12-feet in width. The grade and slopes of which will be designed to provide safe use, entry and exit by the public. The cost of other improvements, including the installation of asphalt or other overlay paving, will be the responsibility of Southgate. Southgate will also be responsible for installing fencing around the Trail Easement area ("Trail Fencing") and interpretive trail signage ("Trail Signage") to the satisfaction of the Corps. Southgate will also provide the necessary funding for trash removal and all other maintenance of the Trail Easement area.

Bollards will be placed at each location where the trail enters the Preserve and/or the creek corridor. Routine maintenance activities including repainting stripes, fixing cracks, and mowing on either side of the crossings is allowed. Use of herbicides to maintain the trail shoulder is allowed. Maintenance of the recreational trail crossings may include occasional debris removal from around the bridge abutments. To keep water flowing at the various bridge crossings, vegetation and large woody debris can be cleared from within these structures within the Preserve in accordance with the CDFW 1602 Streambed Alteration Agreement or a Memorandum of Understanding. The use of a gabion revet mattress or rip rap (or similar erosion control features/materials) is allowed in the Preserve adjacent to the crossings/tails (within 10 feet) in order to ensure the long-term stability of the bridges and trails/crossings.

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Maintenance activities will not impact Waters. Should more extensive maintenance be required the Preserve Manager will notify the Corps to determine if a permit is required.

8.9 Riparian and Oak Tree Plantings / Mitigation

Installation and maintenance of oak trees and other native species within this area as well as the existing riparian/oak mitigation that occurs south of Morrison Creek is allowed. Native oak plantings and associated tree structures/irrigation (if needed) will be installed within the Preserve. Vegetation within the Preserve will be restored in phases corresponding to the completion of mining activities. A planting plan has been developed showing the riparian, oak woodland, as well as associated native habitat to be planted (included in the *Wetland, Oak Woodland, and Riparian Mitigation Plan for the Granite Vineyard I Project*; ECORP 2007).

8.10 Grazing Structures

Grazing may occur within the Preserve as described in Section 7.2.3. Structures associated with grazing activities (e.g., temporary electric fences, water sources, salt/mineral licks) are allowed to be installed within the Preserve. Care will be taken so that any grazing structures will avoid being placed in or adjacent to sensitive habitat areas such as wetlands.

8.11 Irrigation Well

A domestic groundwater irrigation well is allowed within the Preserve as well as associated access route and structures. This well will be used to irrigate the riparian and oak tree restoration/mitigation plantings, and may be used as a water source for future grazing activities.

8.12 Preserve Owner Reserved Rights

As outlined in the Declaration of Restrictions and the Conservation Easements, the Preserve Owner will have the following reserved rights:

- The right to install, repair, maintain and replace fencing, gates, bollards, and signage on or within the Preserve as described in this Plan;
- The right to construct, install, repair, maintain and replace underground utilities, underground storm water culverts, sewer lines, underground reclamation water slurry lines, sewer lines, and underground water conveyance lines below the Preserve Property, as described in this Plan;
- The right to grant public utility easements for underground utilities, storm water culverts, underground reclamation water slurry lines, and/or underground water conveyance lines below the Preserve Property;
- The right to perform flood control maintenance including non-native vegetation removal within Morrison Creek and wetlands as necessary to protect the public health and safety and preserve the integrity of the preserved wetlands, and the right to perform maintenance and/or repair in order to maintain the integrity of the Preserve's levees;
- The right to construct, install, repair, maintain and replace a permanent recreational trail crossing over Morrison Creek which would include the construction, installation, repair and maintenance of bridges across Morrison Creek, as outlined in this Plan;

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- The right to construct, install, repair, maintain and replace an oxbow diversion weir structure to provide adequate flows to ensure no adverse effect on the downstream portion of the oxbow channel;
- The right to install and maintain native riparian and oak tree mitigation/restoration plantings and associated structures within the Preserve;
- The right to install and maintain an irrigation well and an irrigation system to water mitigation/restoration plantings, and to be used as a water source for grazing animals within the Preserve;
- The right to graze animal species on the Preserve for the purposes of vegetation and thatch control, including the right to create, utilize, maintain and replace livestock watering and feeding areas and to install, repair, maintain and replace associated grazing structures to the extent allowed in this Plan;
- The right to control thatch and/or non-native vegetation that is adversely impacting Preserve habitats, as determined by the Monitoring Biologist during the annual surveys of the Preserve, by means of the methods described in this the Plan; and
- The right to remove trees, as needed, consistent with Section 7.2.5.

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9.0 REMEDIATION/RESTORATION ACTIVITIES

9.1 Restoration of Conservation Easement/Violations/Vandalism

It is difficult to anticipate and provide mitigation measures for all potential violations of the Preserve's conservation easements and Plan Goal; however, the following table outlines some potential violations and mitigation guidelines. If a particular situation is not listed here, that does not mean that restoration and/or mitigation is not required. In these cases, determining an appropriate mitigation measure will be at the discretion of the Preserve Manager in coordination with the Monitoring Biologist.

Type of Disturbance	Mitigation Guideline
Disturbance of Grassy Upland Areas	Restoration of grassy upland areas due to disturbance resulting in bare ground should include seeding the area with appropriate native grass seed (Attachment I) and implementing the proper erosion control measures until the bare ground becomes vegetated again.
Removal of Native Tree or Shrub Habitat	Restoration for the unauthorized removal of native trees or shrubs should result in the replacement of the habitat. This could be in the form of planting tree/shrub seeds or seedlings in an amount sufficient to ultimately result in the survival to maturity of the same number of trees or shrubs that were removed (Attachment J). Monitoring of the replacement plants should be done for at least two seasons.
Wetlands/Waters of the U.S.	Restoration for fill/loss of Waters should result in the removal of fill from the feature, potentially the minor re-grading and revegetation of the feature (if appropriate) and monitoring for at least two seasons to gauge the feature's recovery. The Preserve Manager will contact the Corps if fill/loss of wetlands or Waters has occurred and submit for review and approval what remediation/restoration is proposed (Section 5.3). While the normal time period for the Corps to review and approve an action is 60 days, the Corps will make every effort to respond in a timely manner to requests regarding wetlands/Waters so that restoration can be implemented at the appropriate time of year (e.g. before the rainy season).
Fencing	Restoration for the destruction or modification (e.g., installing an unauthorized gate) of Preserve fencing should include fixing or replacing the section of fencing to its original specifications.
Structures, Landscaping, Other Improvements, etc.	Any unauthorized structure, landscaping, or other improvement should be removed from the Preserve. If any of the above habitats was disturbed, mitigation will be required using the above mitigation measures as guidelines.

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9.2 Timing/Process for Corrective Actions

Minor corrective measures not requiring notification or approval of the Corps (e.g., prevention of unexpected runoff, prevention of unauthorized access to the area by placing locks on gates, etc.) will be carried out by the Preserve Manager within 60 days, unless site conditions warrant delay (i.e., if soil is saturated and equipment would damage the upland habitat in the Preserve, it may be necessary to delay work until conditions improve). All other corrective actions will take place when conditions are best suited for restoration to occur, unless otherwise outlined in this Plan, and after the Corps has been notified or the Preserve Manager has received approval.

9.3 Future Habitat Restoration/Enhancement

Nothing in this Plan or the attached Conservation Easements should be construed to prohibit future habitat restoration, enhancement, or creation from taking place at the Preserve. In addition, the Preserve Manager may want to conduct habitat restoration or enhancement within the Preserve. This could include the removal of non-native (invasive) plant species, planting native plants, or other restoration activities. A list of native plants that can be used in restoration has been included as Attachment J. This list is not all-inclusive; other locally native plants can be used in restoration. Restoration activities that involve work in wetlands or waters of the U.S. may require a permit under Section 404 of the Clean Water Act, and/or a Streambed Alteration Agreement from the CDFW. Nationwide Permit 27, *Stream and Wetland Restoration Activities*, is available from the Corps for these types of activities. An example of a restoration activity that does not require Corps approval is planting acorns or oak seedlings in the Preserve. An example of a restoration activity that would require Corps approval is the re-contouring of a creek bank and planting it with riparian species to stabilize an area of erosion. The Preserve Manager will not need to notify the Corps if restoration activities do not require a permit from the Corps, however, these activities should reviewed by the Monitoring Biologist and will be described in the Annual Report. If there is a question regarding whether a restoration activity will require Corps approval, the Preserve Manager should seek guidance from the Corps.

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10.0 EDUCATION AND RECREATION

10.1 Educational Activities in the Preserve

Individuals or groups using the Preserve for scientific or educational purposes must coordinate their use and obtain the prior written permission of the Preserve Owner.

10.2 Recreation

If in the future the crossings are approved to be open to the public (at the Preserve Owner's discretion), then recreational activities such as biking, hiking, walking, sightseeing, and bird watching would be allowed on the crossings/trails within the Preserve. Recreational activities outside of the use of the recreational trail are not currently allowed within the Preserve.

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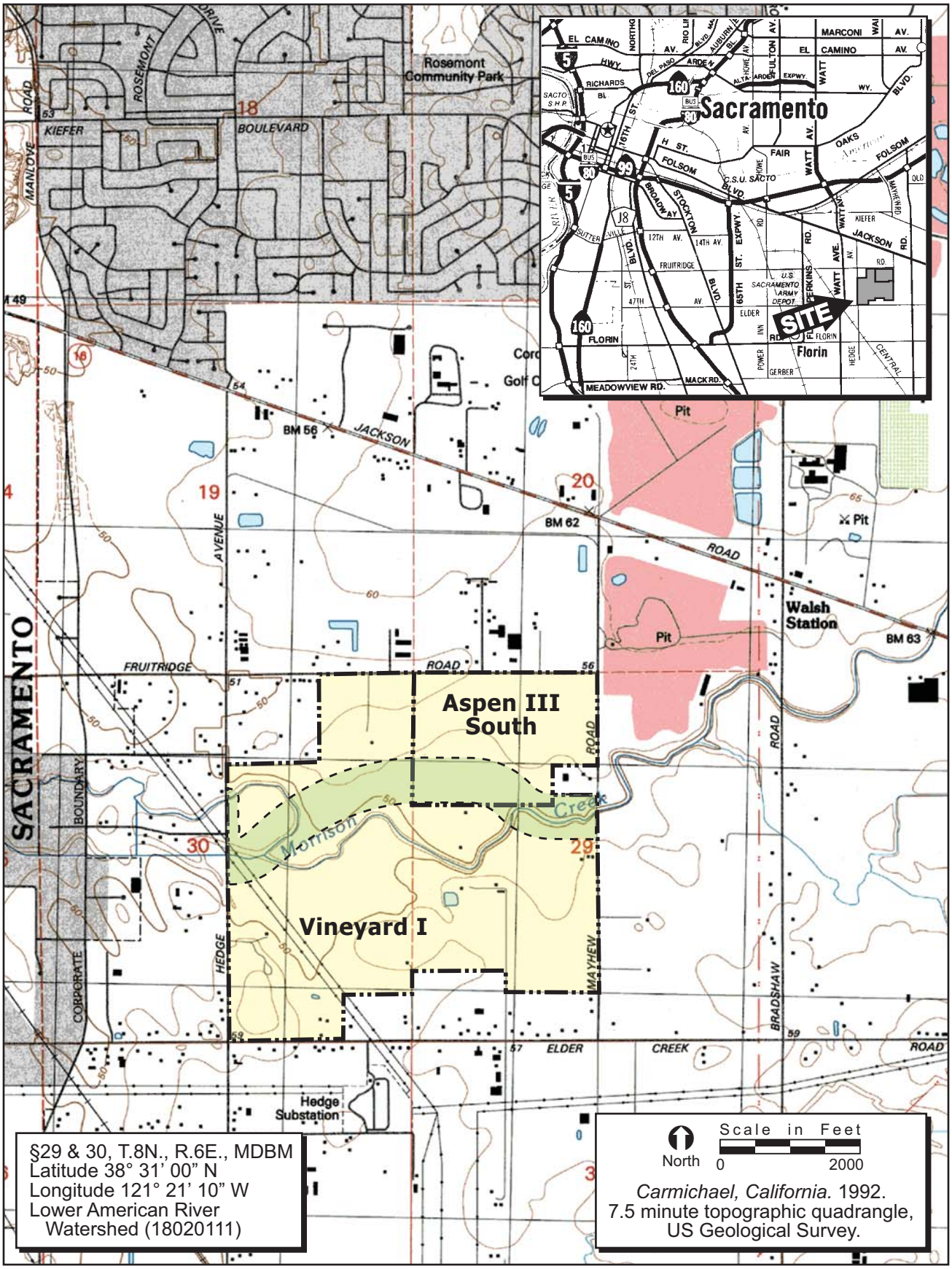

Figure 1. Project Site and Vicinity

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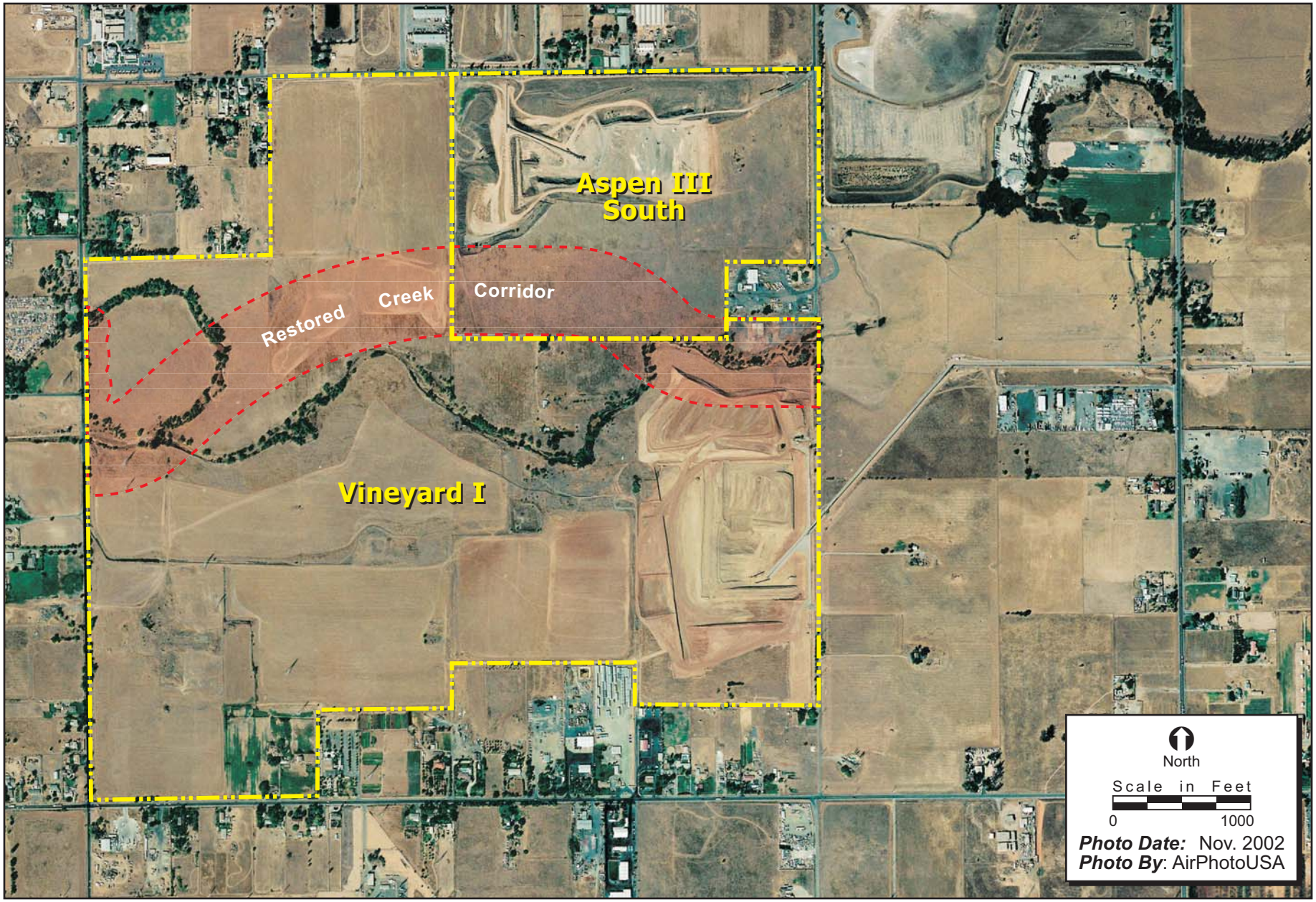

Figure 2. Aerial View of Project Site

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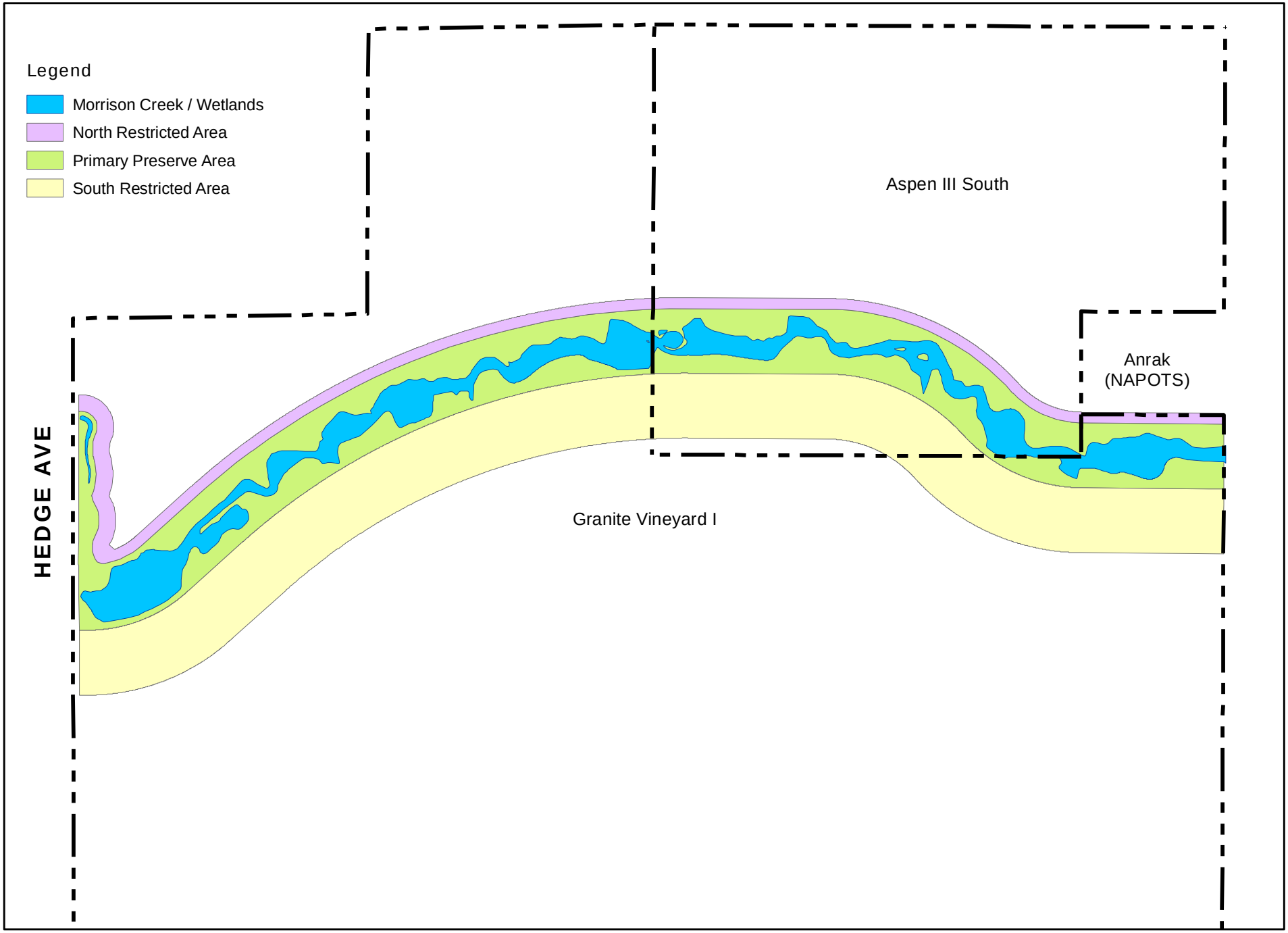

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Map Projection Information: California State Plane Zone II NAD27
Project Boundary from G.C. Wallace

Scale in Feet

0 300 600

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Figure 3. Preserve Layout

2004-217 Morrison Creek

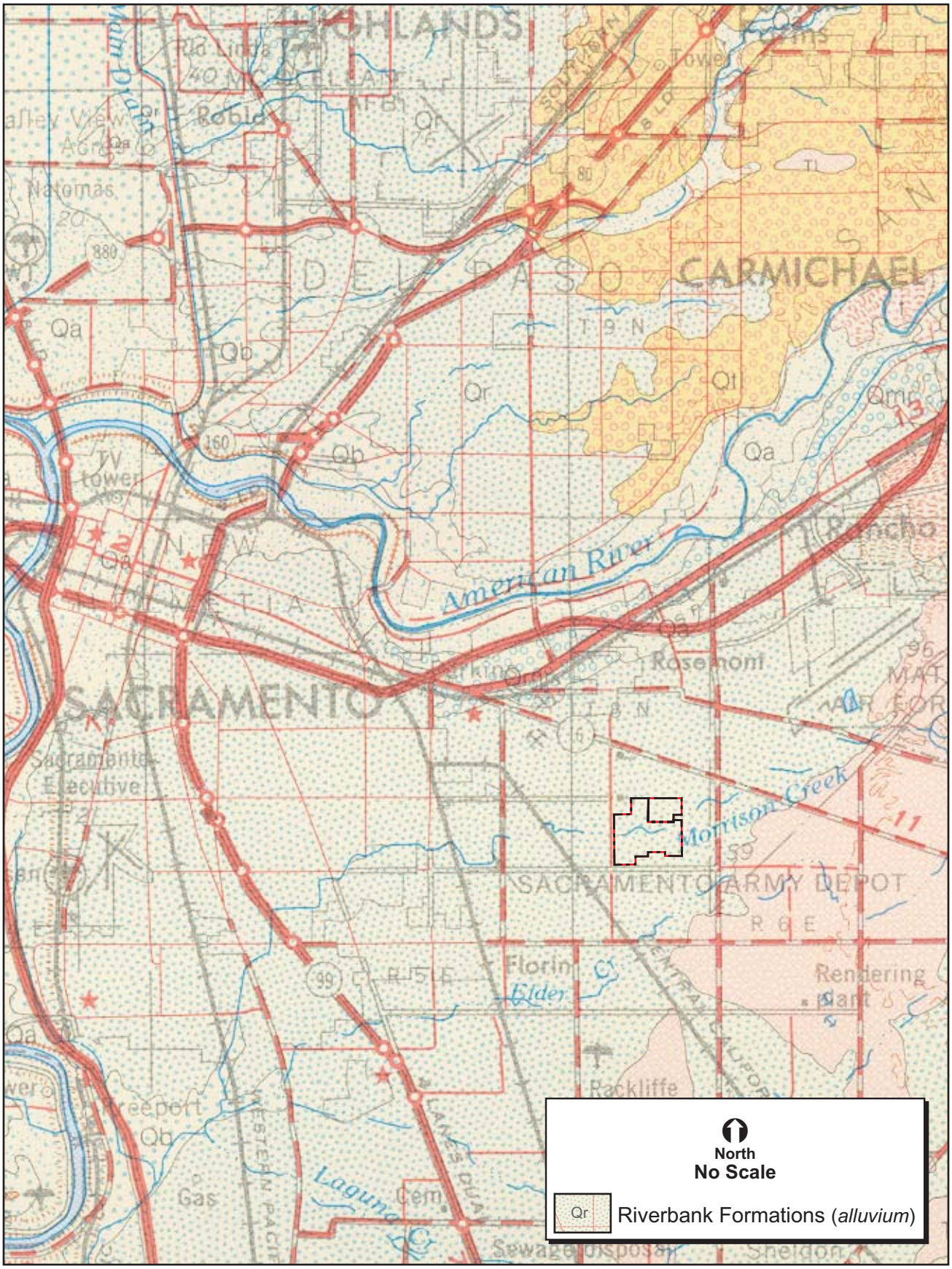

Figure 4. Regional Geology

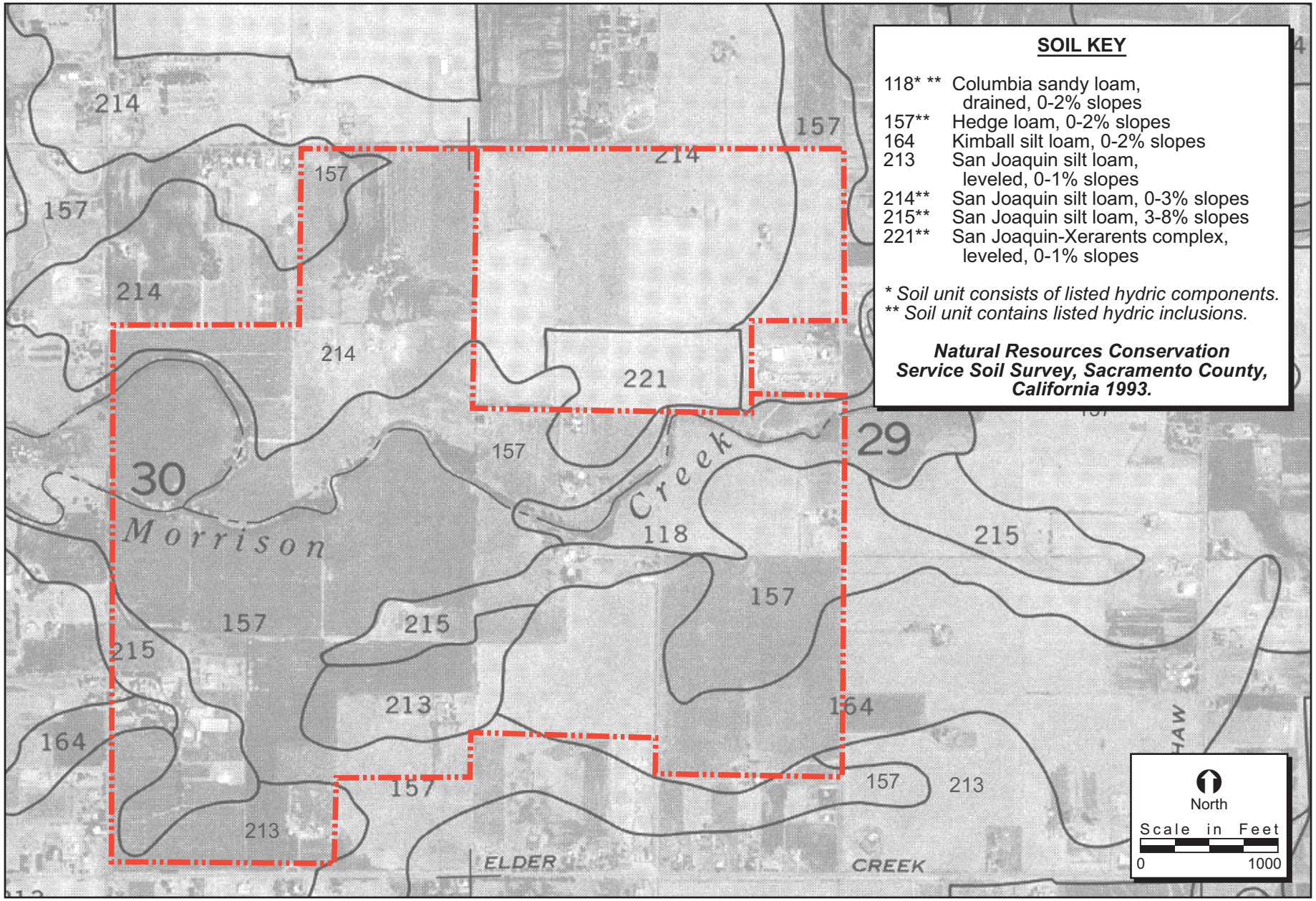

Figure 5. Natural Resources Conservation Service Soil Types

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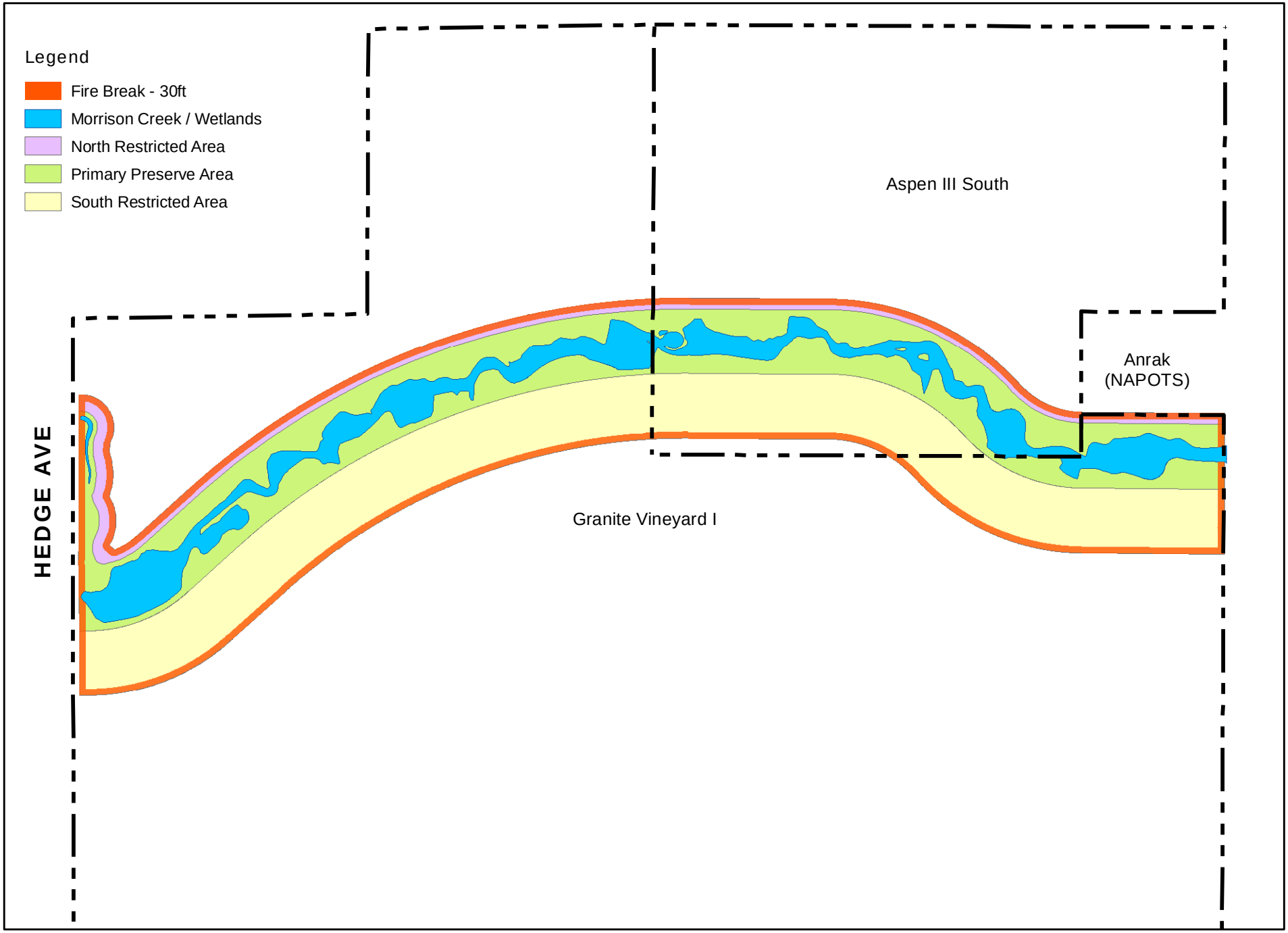

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Map Projection Information: California State Plane Zone II NAD27
Project Boundary from G.C. Wallace

Figure 6. Fire Break Location

2004-217 Morrison Creek

Scale in Feet

0 300 600

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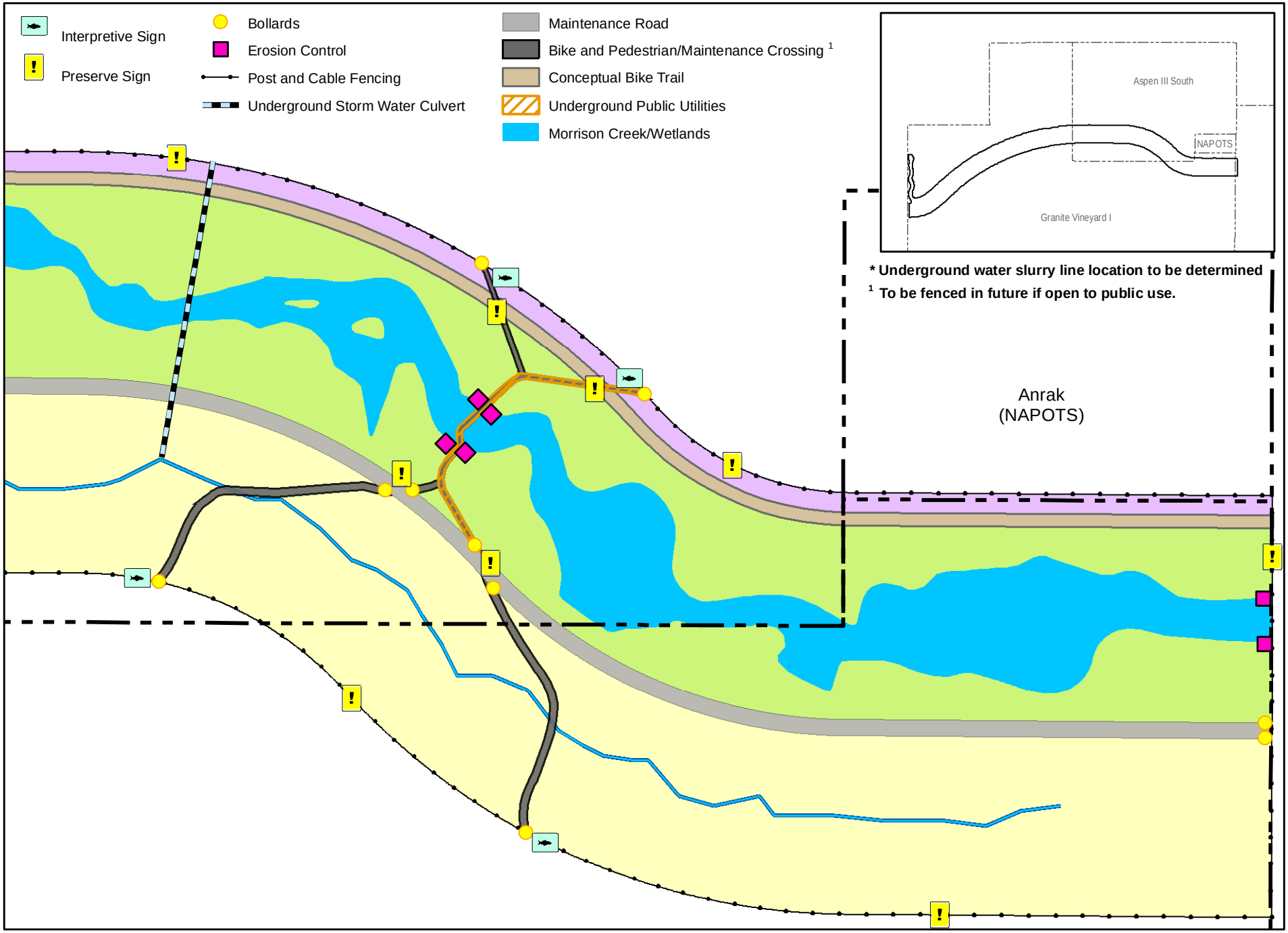

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Map Projection Information: California State Plane Zone II NAD27
Project boundary from G.C. Wallace

Scale in Feet
0 100 200

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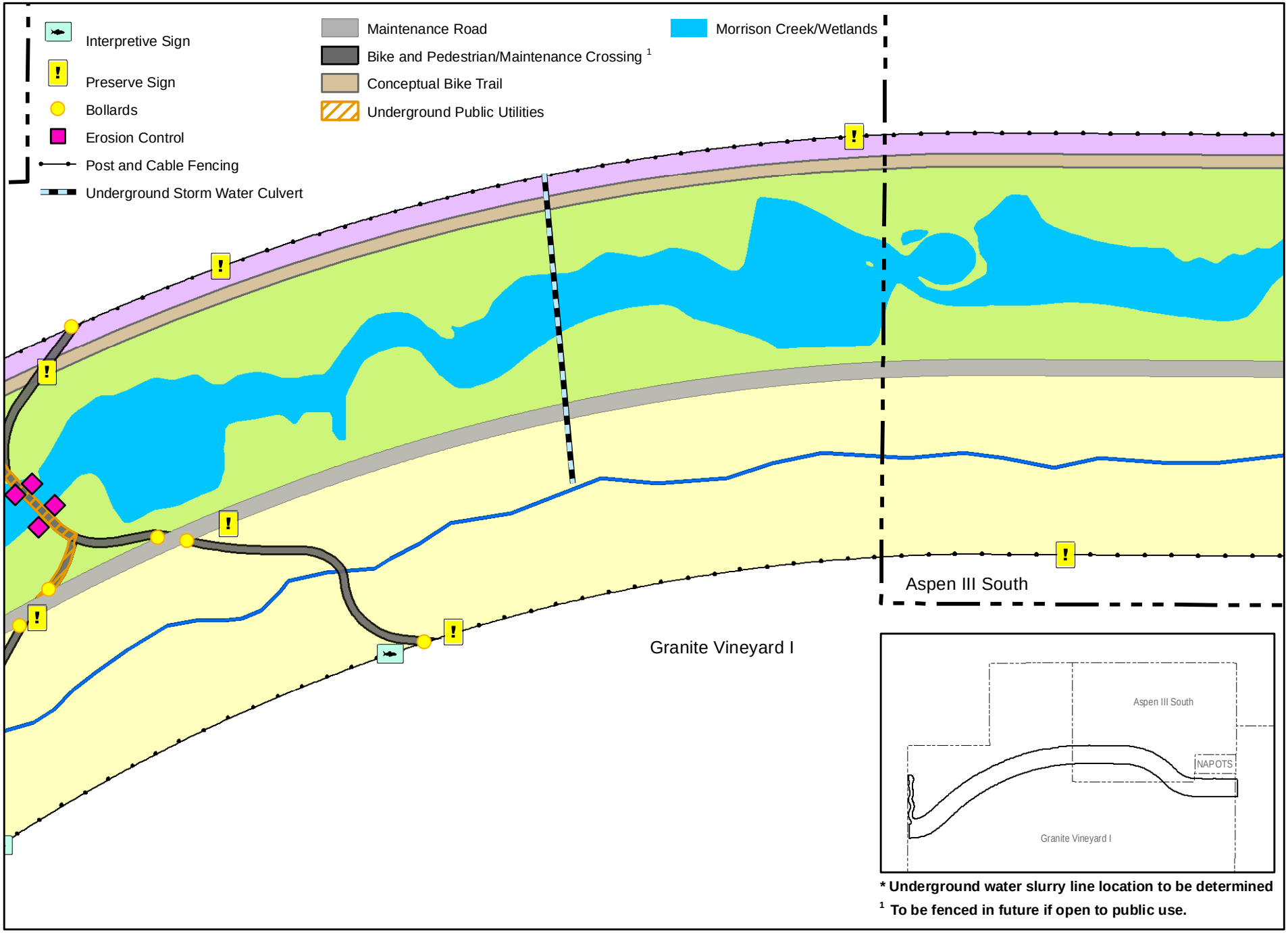
Figure 7. Preserve Detail - East

2004-217 Morrison Creek



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Map Projection Information: California State Plane Zone II NAD27
Project boundary from G.C. Wallace

Scale in Feet
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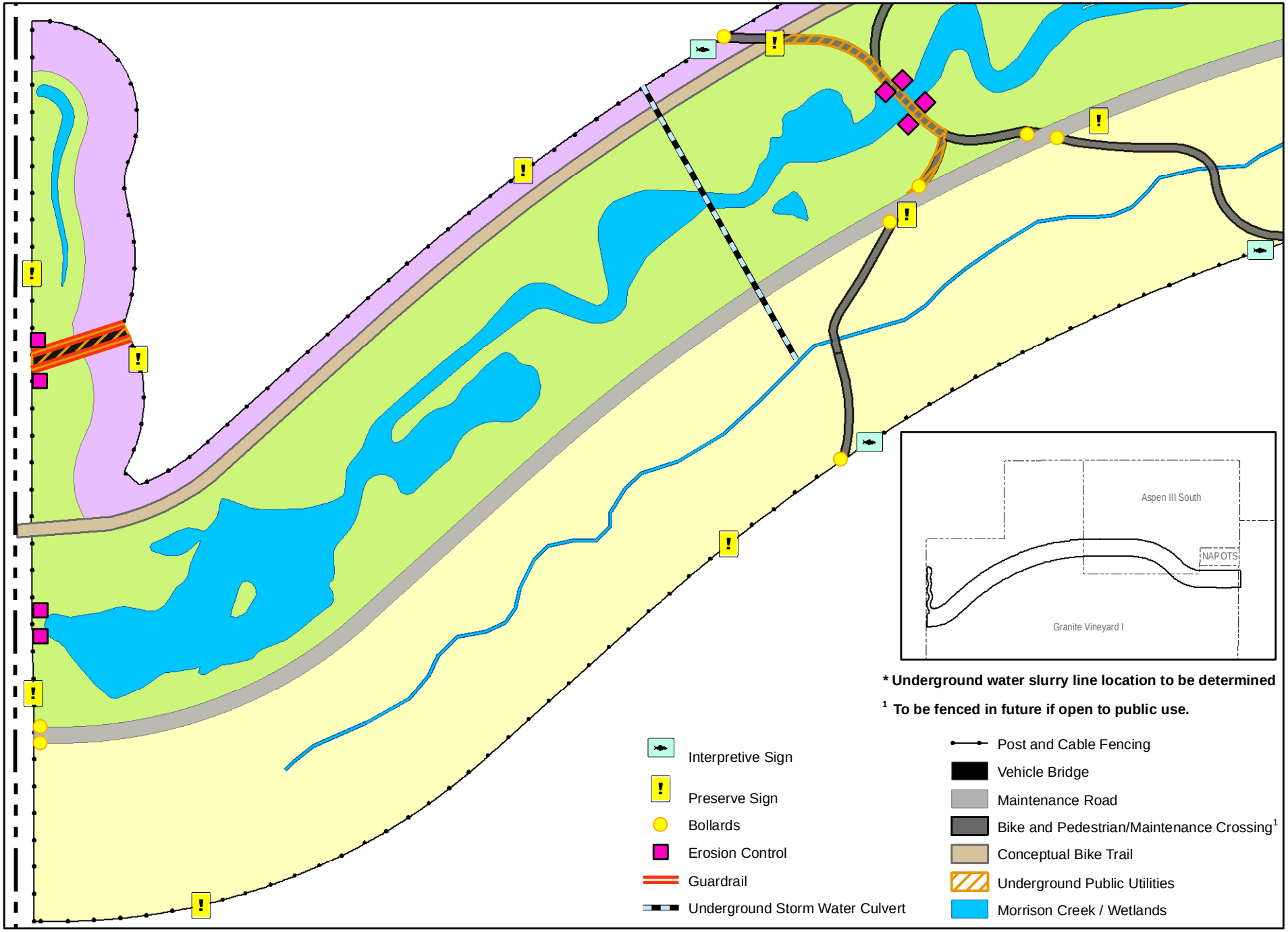
Figure 8. Preserve Detail - Center

2004-217 Morrison Creek



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Map Projection Information: California State Plane Zone II NAD27
Project boundary from G.C. Wallace

Scale in Feet

0 100 200

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Figure 9. Preserve Detail - West

2004-217 Morrison Creek

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Attachment J – Native Plants for Use in Restoration

ATTACHMENT A

Department of the Army Permits

DEPARTMENT OF THE ARMY PERMIT

Permittee: Scott Wolcott
Granite Construction Company
Sacramento Branch
P.O. Box 15287
Sacramento, California 95851

Permit Number: 199400102

Issuing Office: U.S. Army Engineer District, Sacramento
Corps of Engineers 1325 "J" Street
Sacramento, California 95814-2922

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work, in accordance with the terms and conditions specified below.

Project Description: To discharge dredged or fill material into waters of the United States on the 407.5-acre Granite Vineyard project site to mine gravel. This work will result in adverse impacts to approximately 17.22 acres of waters of the United States, including approximately 1.5 miles of Morrison Creek, between Mayhew Road and Hedge Avenue. The project includes construction of an enhanced Morrison Creek bypass channel and on-site wetland mitigation. All work is to be completed in accordance with the permit conditions. This permit does not authorize any work outside of the Vineyard project site as shown on the attached site map.

Project Location: The project site is bordered by Mayhew Road on the east, Hedge Avenue on the west, Fruitridge Road on the north and Elder Creek Road on the south, as shown on the above site map, in Sections 29 and 30, Township 8 North, Range 6 East, MDBM, in Sacramento County, California as shown on the attached Vineyard I Site and Vicinity map (Exhibit 1).

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on November 30, 2013. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.

2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

Special Conditions:

1. You shall develop a final comprehensive mitigation and monitoring plan for the enhanced Morrison Creek bypass channel (bypass channel) and pit-bottom wetland mitigation. To mitigate for impacts to fish and aquatic life movement and migration in Morrison Creek, you shall design, construct and maintain a portion of the bypass channel to incorporate suitable habitat features, ensuring that aquatic resources impacted by the project are replaced and sustained in perpetuity. The bypass channel shall support low and mid-terrace wetland and riparian habitat adjacent to the low-flow channel in an overall channel wide enough to pass expected high flows. The bypass channel shall be a minimum of 125 feet in width and include wetlands and native woody riparian vegetation adjacent to the low-flow channel. The unmaintained area of the bypass channel shall be no less than 62 feet in width and shall include native riparian/upland buffers no less than 25 feet wide with a vegetated low flow channel no less than 10 feet wide at the ordinary high water mark. No armoring shall occur within the unmaintained area of the bypass channel. The plan shall include plan and profile drawings [similar to the October 3, 2003 *Vineyard Site-Enhanced Bypass Channel and Mitigation Corridor* (Exhibit A) but with adequately sized buffers and trees shown on both sides of the preserve], detailed planting plans with species to be planted, permanent fencing (e.g., post and cable), appropriate signage, and final success criteria. The plan shall be in the format of the Sacramento District's October 25, 1996, *Habitat Mitigation and Monitoring Proposal Guidelines* and generally incorporate the mitigation described in Zentner and Zentner's January 18, 1994, *Granite Vineyard Wetland Mitigation Plan*, as modified in ECORPS' August 9, 2001, *Mitigation Summary*. The plan must be approved by this office,

in coordination with Sacramento County, the U.S. Fish and Wildlife Service (FWS), the U.S. Environmental Protection Agency (EPA), and the California Department of Fish and Game (DFG). No mining within 150-feet from the ordinary high water mark of Morrison Creek, including the "oxbow" channel, may occur until the final plan has been approved. Mining may commence in the off-channel wetlands before approval of the final plan, following Corps receipt and acceptance of a contingency mitigation plan for the off-channel wetlands, which will be implemented if mitigation in the final plan is not initiated within five (5) years.

2. To protect the engineering integrity of the bypass channel and provide maintenance access, a portion of the bypass channel, planted with native grasses, may be maintained (i.e., mowed) for the purpose of flood conveyance. Construction and long-term maintenance of the bypass channel must not prevent water from continuing to flow to both the north and south channels of Morrison Creek west of Hedge Avenue to sustain healthy riparian and wetland vegetation along these channels.

3. You shall design, construct and maintain any water conveyances from the bypass channel to downstream portions of Morrison Creek (north and south channels) and the pit-bottom wetland mitigation as open (non-piped) channels. Such conveyance must be a minimum of 10 feet wide at the ordinary high water mark. Water from the pit-bottom detention pond may be pumped back into the bypass channel. If it is established during the ten (10) year monitoring period that the pump is not necessary to successfully sustain the pit-bottom mitigation, the long-term operation and maintenance of the pump may be discontinued, following approval by this office.

4. You shall establish and maintain undisturbed, upland vegetated buffers, including native riparian trees, of at least twenty five (25) feet in width from the outer limit of all created wetlands or the ordinary high water mark, whichever is greater, within the pit-bottom mitigation, the bypass channel and any water conveyances addressed above. In the event the created wetlands naturally expand over time into the buffer, the buffer areas and legal descriptions need not be modified. Appropriate permanent fencing and signage shall be constructed and maintained at the outside perimeter of all-upland buffers (or expanded wetlands), except in the pit-bottom wetland mitigation where only signage at regular intervals is required. Fencing and signage must be installed within thirty (30) days of the completion of construction of the pit-bottom wetland mitigation, the bypass channel, and any other water conveyances.

5. You shall construct the mitigation prescribed by the final plan in special condition 1 concurrently with, or in advance of, initiating any activity authorized by this permit within 150 feet of Morrison Creek, including the oxbow channel. Construction of the pit-bottom wetland mitigation shall be completed by no later than two years following the completion of work in Morrison Creek, in accordance with the phases on your April 4, 2002, *Vineyard I Revised Reclamation Plan* drawing (Exhibit 5 attached). Construction of the bypass channel, including associated wetland and riparian habitat, shall be completed by no later than two years from initiating any diversion of Morrison Creek.

6. You shall establish and maintain the pit-bottom wetland mitigation and enhanced bypass channel riparian habitat corridor, including buffers, as wetland and wildlife habitat preserves (preserves) in perpetuity to insure that the functions and values of the aquatic environment are protected.

7. To insure the preserves are properly managed, you shall develop a preserve management plan for each area. The plans may be presented in one document and shall be submitted to and approved by this office prior to initiating any activities authorized by this permit within 150 feet from the ordinary high water mark of Morrison Creek, except the off-channel wetlands which may be mined upon Corps approval of a contingency mitigation plan for these wetlands. Each preserve management plan shall describe in detail all activities that are proposed within the preserve area and provide for long-term funding and maintenance of the preserve.

8. To provide a permanent record of the completed mitigation work, you shall provide two complete sets of as-builts for the preserves to this office indicating any changes made from the original plans. The as-builts shall be provided to this office no later than sixty (60) days after the completion of construction of the enhanced bypass channel and pit bottom-mitigation.

9. You shall not mine any area within one hundred and fifty (150) feet from the ordinary high water mark of Morrison Creek, except for the off-channel wetlands, until a detailed plan showing the work proposed to divert the creek, either on, or upstream of, the project site, has been approved by this office. Such work may also require separate authorization from DFG, FWS, Sacramento County and other agencies. You shall not mine any portions of Morrison Creek, except the "oxbow" in Phase V, until the bypass channel has been constructed in accordance with the final Corps approved mitigation plan and is carrying upstream flows into the north and south channels of Morrison Creek during any subsequent rainy season following initiating any activity in Morrison Creek.

10. You may establish two (2) permanent road crossings of the pit-bottom mitigation preserve and one (1) permanent road crossing of the enhanced bypass channel preserve. The preserve management plans and required deed restriction/conservation easements will acknowledge the locations of these permanent road crossings. The crossings will be constructed through the use of bridges or appropriately sized culverts to pass expected high flows. Detailed plans for these proposed crossings must be provided to this office for separate review and approval prior to construction. To protect the integrity of the preserves and avoid unanticipated future impacts, no other roads or trails, equipment or fuel storage facilities, grading, firebreaks, mowing, grazing, planting, discing, pesticide use, burning, or other activities shall be constructed or occur within the preserves without specific, advance written approval from this office. Areas which may need to be mowed as necessary to prevent flood or fire damage to adjacent properties shall be located outside of the preserve areas.

11. Prior to initiating any activity authorized by this permit within 150 feet of Morrison Creek, including the oxbow channel, you shall:

a. Receive Corps approval of the final comprehensive mitigation and monitoring plan.

b. Establish a fully funded endowment to provide for maintenance and monitoring of the bypass channel preserve.

c. Designate an appropriate conservation-oriented third party entity to function as

overseer during construction activities, preserve manager and holder of the required conservation easements for the bypass channel preserve.

d. Submit proposed permanent conservation easement and/or deed restriction language for both preserves for the Corps to review and approve prior to recordation.

12. No later than thirty (30) days following completion of construction of the preserve areas, you shall record and submit to this office the Corps-approved conservation easements and/or deed restrictions maintaining the preserves as wetland and wildlife habitat in perpetuity.

13. To insure mitigation success, you shall monitor the preserves in accordance with the final plan for ten years or until the success criteria described in the approved mitigation plan are met, whichever is greater. This period shall commence upon completion of construction of the enhanced bypass channel and mitigation wetlands. Continued success of the mitigation wetlands in the preserves, without human intervention, must be demonstrated for three (3) consecutive years, once the success criteria have been met. The mitigation will not be deemed successful until this criterion has been met.

14. You shall submit annual monitoring reports to this office for the ten (10) year monitoring period, and for each additional year, if remediation is required, by October 1 of each year. You shall submit an additional monitoring report at the end of the three (3) year period demonstrating continued success of the mitigation program without human intervention. The only exception to this last requirement shall be if the three (3) year period occurs wholly within the ten (10) year monitoring period. In which case, the ten (10) year report may be used to meet this requirement.

15. This permit does not authorize you to take an endangered species, in particular the vernal pool fairy shrimp (Branchinecta lynchi), valley elderberry longhorn beetle (Desmocerus californicus dimorphus), or designated critical habitat. In order to legally take a listed species, you must have separate authorization under the Endangered Species Act (e.g., an Endangered Species Act Section 10 permit, or a Biological Opinion under Endangered Species Act Section 7, with "incidental take" provisions with which you must comply). The enclosed Fish and Wildlife Service Biological Opinion and amendment (Number 1-1-02-F-0161 and 1-1-00-F-0179), dated March 18, 2002 and April 26, 2002, contain mandatory terms and conditions to implement the reasonable and prudent measures that are associated with "incidental take" that is also specified in the Biological Opinion. Your authorization under this Corps permit is conditional upon your compliance with all of the mandatory terms and conditions associated with incidental take of the attached Biological Opinion, which terms and conditions are incorporated by reference in this permit. Failure to comply with the terms and conditions associated with incidental take of the Biological Opinion, where a take of the listed species occurs, would constitute an unauthorized take, and it would also constitute non-compliance with your Corps permit. The Fish and Wildlife Service is the appropriate authority to determine compliance with the terms and conditions of its Biological Opinion, and with the Endangered Species Act. The permittee must comply with all conditions of this Biological Opinion, including those ascribed to the Corps.

Further Information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

( ) Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

(X) Section 404 of the Clean Water Act (33 U.S.C. 1344).

( ) Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this authorization.

a. This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed Federal projects.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data. The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant.

Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (see 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General Condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

Granite Construction Company
P.O. Box 15287
Sacramento, CA 95851

P. W. Cornelius — 3-15-04

Permittee — Date

P.W. Cornelius
Branch Manager

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

Issued for and on behalf of Colonel Michael J. Conrad, Jr., District Engineer.

for Mark W. Connelly — 4/16/04

Mark W. Connelly
Lieutenant Colonel,
Corps of Engineers
Acting District Engineer

Date

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

Transferee

Date

Attachment (4 Drawings)

199400102
PAGE 9

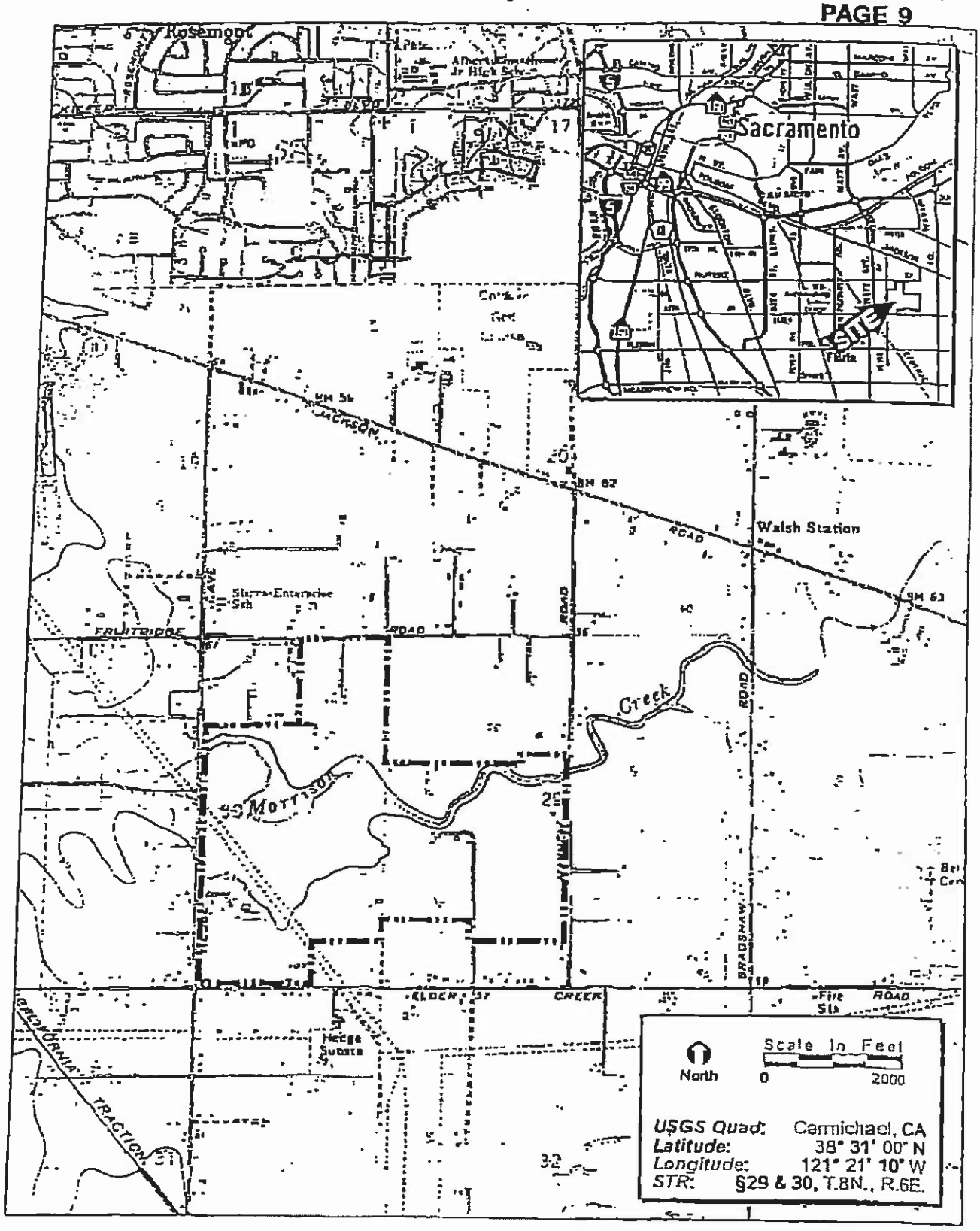


EXHIBIT 1. Vineyard I Site and Vicinity Map

2001-071 Granite Vineyard

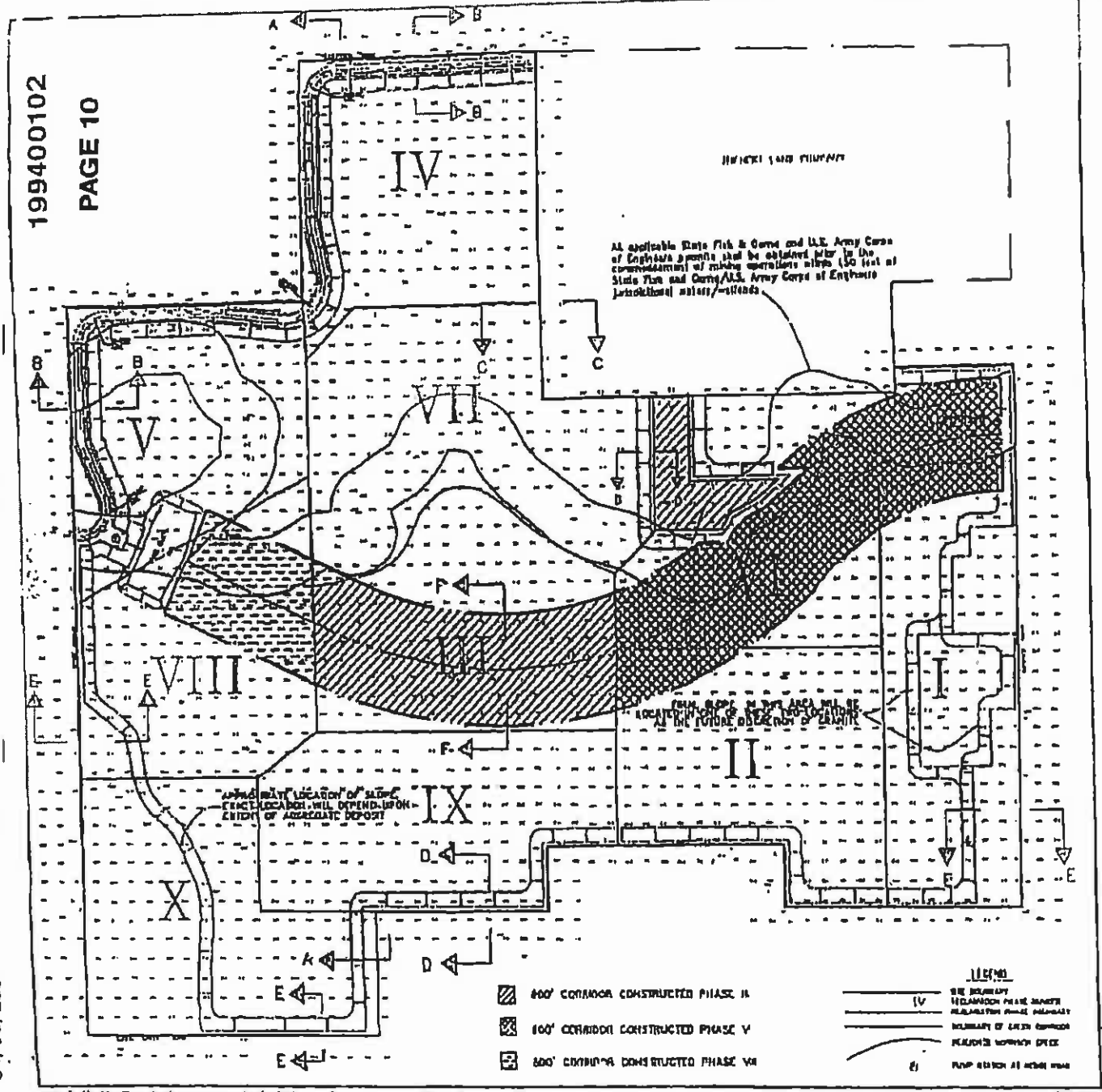
Prepared by
ECORP Consulting, Inc.

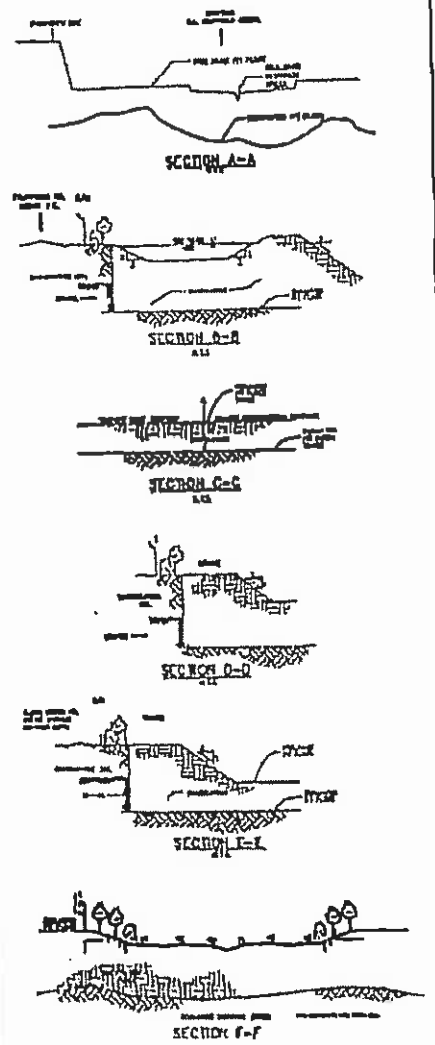
GRANITE CONSTRUCTION INCORPORATED

199400102
PAGE 10

Vineyard I

RECLAMATION PLAN





GRANITE CONSTRUCTION COMPANY
VINEYARD I SITE

REVISED RECLAMATION PLAN
(per Conditions of Approval)

Exhibit 5. Vineyard 1 Phasing and Reclamation Plan

FILENAME: E60\\2001-071\gu-rec.dwg DATE: 4/24/02

199400102

PAGE 11

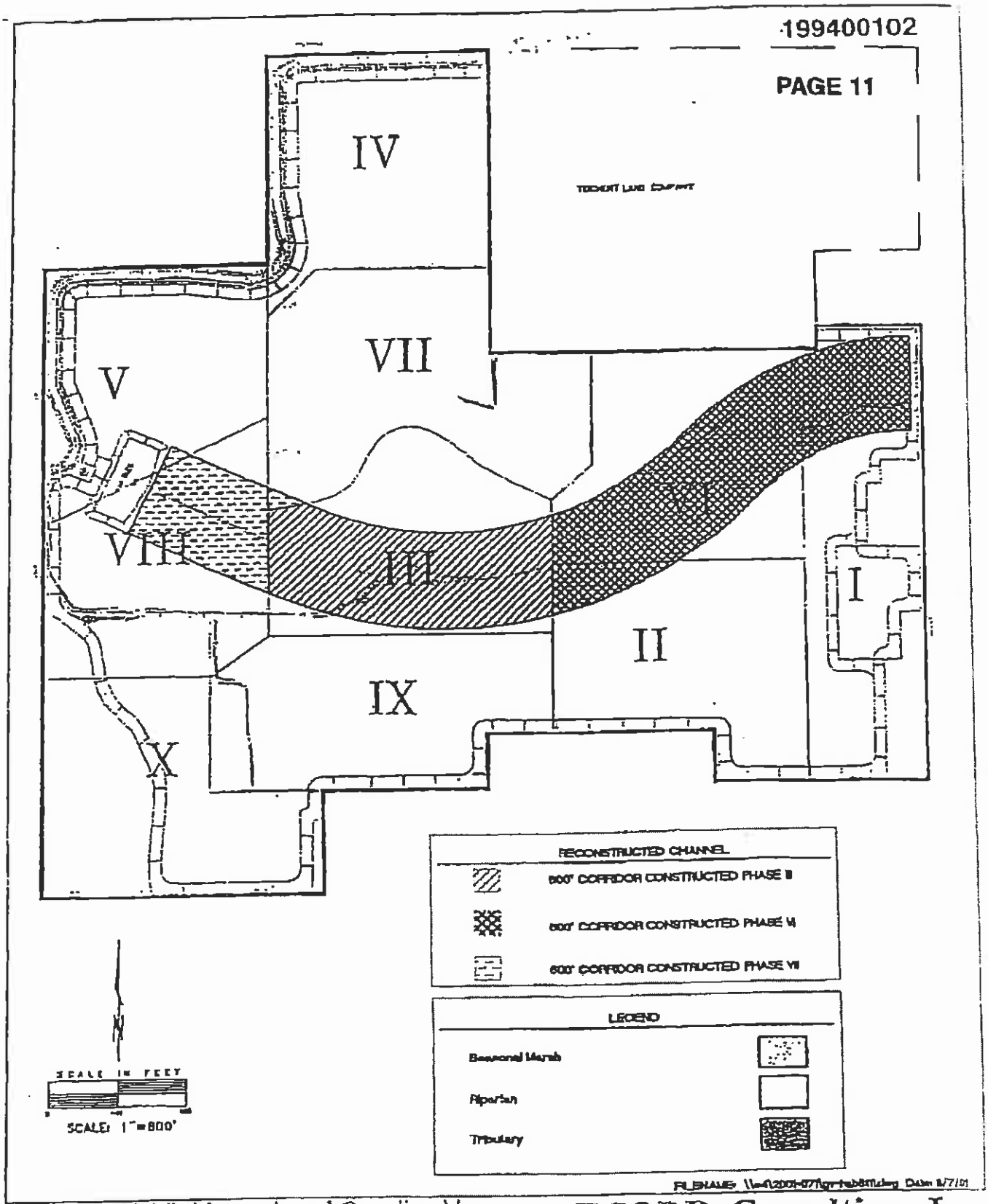


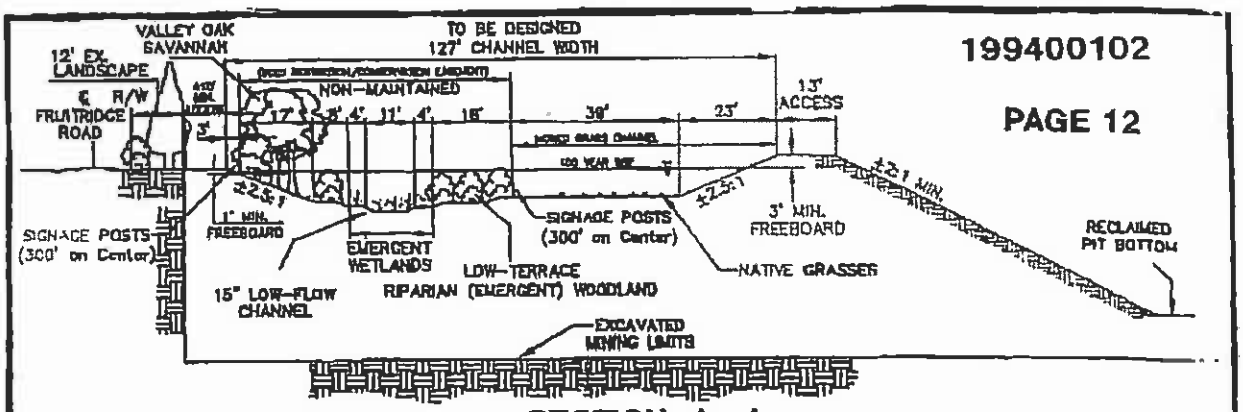
Figure 2 Habitat Impact and Creation Map

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

2001-071 GRANITE VINEYARD

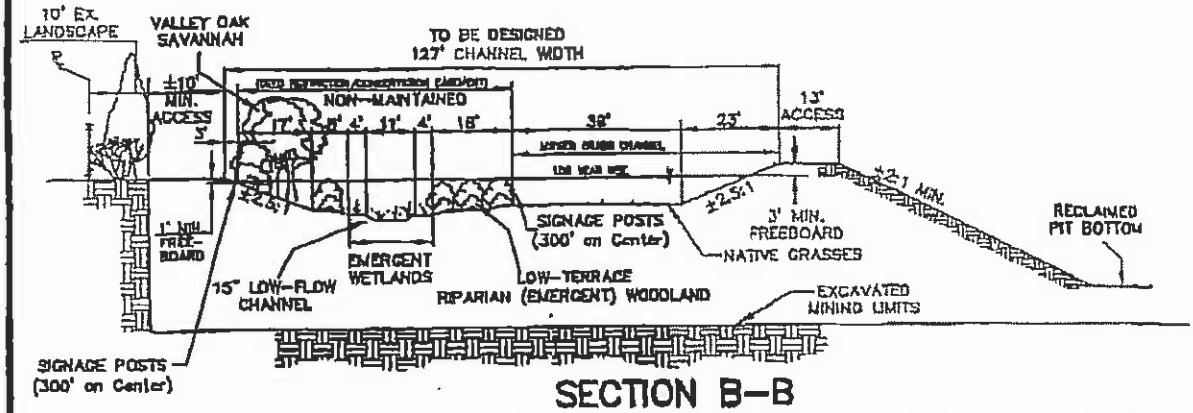
199400102

PAGE 12



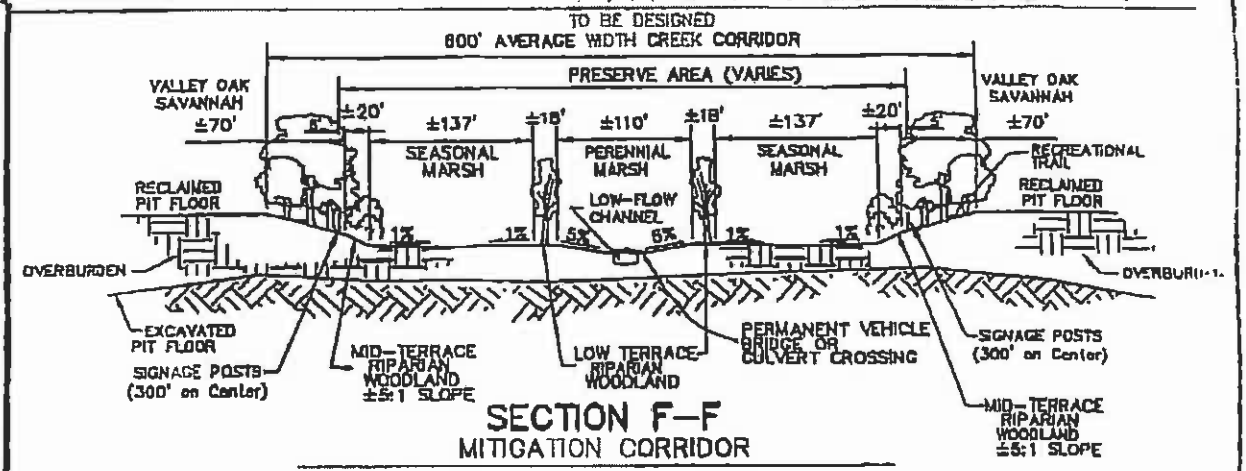
SECTION A–A

BYPASS CHANNEL ADJACENT TO FRUITRIDGE AVENUE



SECTION B–B

BYPASS CHANNEL ALONG EAST EDGE OF PRIVATE LANDOWNERS



SECTION F–F

MITIGATION CORRIDOR

N.T.S.

GRANITE CONSTRUCTION COMPANY

VINEYARD SITE – ENHANCED BYPASS CHANNEL AND MITIGATION CORRIDOR

CUNNINGHAM ENGINEERING
CIVIL ENGINEERS • PROJECT MANAGERS
2940 Spafford Street
Suite 200
Davis, CA 95616
530-758-2026
Fax: 530-758-2066
E-mail: cec@cecdavis.com

EXHIBIT A

OCTOBER 3, 2003

PAGE 1 OF 1

PROJECT NO. [illegible]

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO CA 95814-2922

RECEIVED
MAR 18 2010
Granite-Cal Center

March 12, 2010

Regulatory Division (SPK-1994-00102)

GRANITE CONSTRUCTION COMPANY
MAR 17 2010
Sacramento Area
RECEIVED

Peter C. Dwelley
Granite Construction Company
P.O. Box 15287
Sacramento, California 95851-0287

Dear Mr. Dwelley:

We have reviewed your November 11, 2009, requested revisions to Department of the Army (DA) Permit Number SPK-1994-00102 for the Vineyard I mining project. Specifically, you have requested that we revise a general condition and special conditions of your permit to reflect timing modifications. Based on our review of this permit, we have determined that since your permit remains valid for approximately four (4) years an extension at this time is not appropriate. If the proposed activity in waters of the U.S. are not completed by the beginning of January 2013, we recommend you request a review of potentially extending the expiration date of this permit at that time. This letter supersedes our July 25, 2007, permit modification letter.

In consideration of your request, the following special conditions hereby supersede all special conditions of DA Permit Number SPK-1994-00102 and our July 25, 2007, modification letter (copies of original attached):

1. You shall implement the July 20, 2007, revision of the *Wetland, Oak Woodland, and Riparian Mitigation Monitoring Plan for the Granite Vineyard I Project* (MMP), with the exception of Section 8.2.3 (see special condition 18) and with an open channel connecting the ox-bow by-pass to the main creek channel. Prior to initiation of any work within 150 feet of Morrison Creek, including the ox-bow, you shall provide to the Corps a revised graphic showing an open channel connection between the main channel and the ox-bow by-pass and a description of how the ox-bow by-pass channel design would provide adequate flows to ensure no adverse effect on the downstream portion of the ox-bow channel. The purpose of this requirement is to insure replacement of functions and services of the aquatic environment that would be lost through project implementation.

2. As mitigation for the loss of 17.22 acres of waters of the United States, and in addition to the 3.79 acres of seasonal wetland/marsh and 0.53 acres of vernal pool habitat credits you have already purchased, you shall, in accordance with the MMP, construct at minimum a 13.33-acre Morrison Creek replacement channel, including an ox-bow diversion channel, a 1.65-acre ephemeral drainage, and 1.11 acres of in-channel and/or emergent seasonal and perennial wetland habitats within an approximately 89-acre and 650-foot wide on-site preserve corridor.

3. Construction of the compensatory aquatic habitats required by special condition 2 shall be completed in accordance with the phases and dates shown in the *Conceptual Construction Schedule, Morrison Creek Realignment* figure, contained in the MMP.

4. You shall establish and maintain vegetated buffers, consisting of native vegetation, including native riparian and upland trees as shown in the MMP, of at least 78-feet from the outer limit of all created wetlands or the ordinary high water mark, whichever is greater. The average buffer width shall be 243-feet and be contained entirely within a 650-foot wide preserve corridor. In the event the created wetland habitats naturally expand over time into the buffer, the buffer areas and legal descriptions need not be modified. Appropriate permanent fencing and signage shall be constructed and maintained along the outside perimeter of all upland buffers and along any authorized publicly accessible trails within the preserve. Locking gates or bollards shall be placed at either end of the south levee maintenance road or any non-public access trails to prohibit any access not required for preserve management or monitoring. Fencing and signage must be installed within 90 days of completion of the Morrison Creek replacement corridor or by November 30, 2013, whichever comes first. The preserve signs shall reference DA permit number 199400102 and shall identify the area as a wetland and wildlife preserve.

5. You shall establish and maintain on the project site an approximately 650-foot wide and 89-acre preserve containing the 16.09 acres of created waters required by special condition 2 and the buffers required by special condition 4, in perpetuity. The purpose of this preserve is to ensure that functions and values of the aquatic environment are protected.

6. To ensure that the preserve is properly managed, you shall implement the July 20, 2007, revision of the *Operations and Management Plan for the Morrison Creek Nature Preserve* (OMP).

7. To provide a permanent record of the completed mitigation work, you shall provide two complete sets of as-builts of the completed work within the on-site mitigation area to the Corps. The as-builts shall indicate changes made from the original plans in indelible red ink. As-builts shall be provided to this office for both the Morrison Creek replacement corridor, including in-channel and emergent wetlands, and the ephemeral or intermittent drainage no later than 60 days after the completion of construction of each component of the compensatory mitigation.

8. To ensure that mitigation is completed as required, you shall notify the Corps of the start date and the completion date of each phase of the mitigation construction, in writing and no later than ten (10) calendar days after each date.

9. As shown in the OMP, you may establish two decomposed granite bike trail crossings of the main preserve, one vehicle bridge over the ox-bow diversion channel, one restricted access gravel maintenance road along the southern levee crest, 3 storm water conveyance pipelines, a water slurry line, and 3 utility lines within the preserve. No other roads, utility lines, trails, benches, equipment or fuel storage, grading, firebreaks, mowing, grazing, planting, discing, pesticide use, burning, or other structures or activities shall be constructed or occur within the on-site mitigation preserve without specific, advance written approval from the Corps.

10. Prior to initiating any activity within the ordinary high water mark of the Morrison Creek main channel you shall:

a. Submit and obtain Corps approval of the proposed language for the required conservation easement(s).

b. Designate a Corps-approved conservation-oriented third party entity to function as preserve manager and to hold the required conservation easements. The preserve manager entity shall be accredited or actively pursuing accreditation through the Land Trust Alliance (LTA) and must demonstrate compliance with the LTA's *Land Trust Standards and Practices*.

11. By November 30, 2013, you shall:

a. Establish an endowment to provide for maintenance and monitoring of the on-site mitigation preserve. If agreeable to the preserve manager, the endowment may be funded gradually over a ten year period.

b. Record the Corps-approved permanent conservation easement(s) maintaining the approximately 89-acre preserve corridor as wetland preserve and wildlife habitat in perpetuity.

12. To ensure mitigation success, you shall monitor the compensatory mitigation, avoidance, and preservation areas for ten years or until the success criteria described in the MMP are met, whichever is greater. The first period shall commence upon completion of the construction of the Morrison Creek replacement channel and wetlands. The second period will start upon completion of the intermittent/ephemeral drainage. Additionally, continued success of the mitigation wetlands, without human intervention, must be demonstrated for three consecutive years, once the success criteria have been met. The mitigation plan will not be deemed successful until this criterion has been met and you have been notified by the Corps.

13. You shall submit annual monitoring reports to this office for the ten (10) year monitoring period, and for each additional year, if remediation is required, by December 31st of each year. You shall submit an additional monitoring report at the end of the three (3) year period demonstrating continued success of the mitigation program without human intervention. The only exception to this last requirement shall be if the three (3) year period occurs wholly within the ten (1) year monitoring period. In which case, the ten (10) year report may be used to meet this requirement.

14. This Corps permit does not authorize you to take an endangered species, in particular (the vernal pool fairy shrimp (Branchinecta lynchi), valley elderberry longhorn beetle (Desmocerus californicus dimorphus), or designated critical habitat. In order to legally take a listed species, you must have separate authorization under the Endangered Species Act (e.g., an Endangered Species Act Section 10 permit, or a Biological Opinion under Endangered Species Act Section 7, with "incidental take" provisions with which you must comply). The enclosed Fish and Wildlife Service Biological Opinion and amendment (Numbers 1-1-02-F-0161 and

1-1-00-F-0179), dated March 18, 2002, and April 26, 2002, contains mandatory terms and conditions to implement the reasonable and prudent measures that are associated with "incidental take" that is also specified in the Biological Opinion. Your authorization under this Corps permit is conditional upon your compliance with all of the mandatory terms and conditions associated with incidental take of the attached Biological Opinion, which terms and conditions are incorporated by reference in this permit. Failure to comply with the terms and conditions associated with incidental take of the Biological Opinion, where a take of the listed species occurs, would constitute an unauthorized take, and it would also constitute non-compliance with your Corps permit. The Fish and Wildlife Service is the appropriate authority to determine compliance with the terms and conditions of its Biological Opinion, and with the Endangered Species Act. You must comply with all conditions of this Biological Opinion, including those ascribed to the Corps.

15. To assure the endowment is fully and adequately funded, you shall post a performance bond in the amount of $1,126,000 with a Federally approved surety for the approximate cost to conduct maintenance and monitoring of the created habitats and preserve in-perpetuity. With written Corps approval, the bond amount may be incrementally released as the endowment is funded. Additionally, with written Corps approval, a portion of the bond may be released if it is in excess of the agreed upon endowment amount. The draft performance bond must be submitted to this office for review and approval prior to posting. The performance bond must be posted prior to the start of any work within 150-feet of the ordinary high water mark of Morrison Creek, including the ox-bow.

16. You must allow representatives from the Corps to inspect the authorized activity and any mitigation, preservation, or avoidance areas at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

17. You shall design and construct all crossings of waters of the United States to retain a natural substrate, to not require within channel footings, and to accommodate all reasonably foreseeable wildlife passage and expected high flows without vegetative removal.

18. You are fully responsible for maintaining the recreated stream channel and aquatic habitats within the preserve in perpetuity, except for damage or non-compliance caused by events of force majeure. For such an exception to apply you bear the burden of demonstrating that the damage or non-compliance was caused by circumstances beyond your control or the control of any of your agents, employees, contractors, or consultants; and that neither you nor any individual under you control, including your agents, employees, contractors, or consultants could have reasonably foreseen and prevented such damage or non-compliance; that the period of damage or non-compliance was caused by such circumstances. In the case of an event of force majeure you shall meet with representatives of the Corps to discuss the course of action in response to such occurrence. In the meantime, you shall continue to manage and maintain the created aquatic habitats within the preserve in accordance with the approved MMP and OMP to the extent practicable.

The general conditions of the attached permit remain in full force and effect.

Please refer to identification number SPK-1994-00210 in any correspondence concerning this project. If you have any questions, please contact Angela L. De Paoli Conn at our California Delta Branch, 1325 J Street, Rm 1480, email angela.l.conn@*usace.army.mil*, or telephone 916-557-6782. You may also use our website: *www.spk.usace.army.mil/regulatory.html*.

Sincerely,

Michael S. Jewell,
Chief, Regulatory Division

Enclosures

Copy Furnished without enclosures

Paul Jones, U.S. Environmental Protection Agency, 75 Hawthorne Street (WTR-8), San Francisco, California 94105-3901

Water Quality Certification Unit, Central Valley Regional Water Quality Control Board, 11020 Sun Center Drive #200, Rancho Cordova, California 95670-6114

Ms. Jana Affonso, Sacramento Valley Branch, Endangered Species Division, U.S. Fish and Wildlife Service, 2800 Cottage Way, Suite W2605, Sacramento, California 95825-3901

ATTACHMENT B

Conservation Easements

Under Corps review – to be included once finalized.

ATTACHMENT C

PAR Printouts

Section 14 - Initial & Capital Tasks and Costs

Property Title: Morrison Creek PAR ID: MORCR 05/20/2013

Task List	Specific Description	Unit	Quantity	Cost / Unit	Annual Cost	Times Years	Cont %	Total Cost
OPERATIONS								
Legal & Emergency Fund	Establish Fund 1%	1% endow.	0.01	824,890.00	8,248.90	1.0	0.0	8,248.90
	Sub-Total							8,248.90
Subtotal								8,248.90
Administration								0.00
Total								8,248.90

Section 15 - Ongoing Tasks and Costs

Property Title: Morrison Creek PAR ID: MORCR 05/20/2013

Task List	Specific Description	Unit	Number of Units	Cost / Unit	Annual Cost	Years Divide	Cont %	Total Cost
BIOTIC SURVEYS								
General Inspection	Monitor	L. Hours	20.00	105.00	2,100.00	1.0	10.0	2,310.00
Wildlife Biologist	Biological Inspection	L. Hours	20.00	105.00	2,100.00	1.0	10.0	2,310.00
Sub-Total								4,620.00
GENERAL MAINTENANCE								
Sanitation Control	Trash	L. Hours	32.00	60.00	1,920.00	1.0	10.0	2,112.00
Sub-Total								2,112.00
HABITAT MAINTENANCE								
Exotic Animal Control	Beaver Management -	L. Hours	4.00	105.00	420.00	1.0	10.0	462.00
Exotic Pest Control	Exotic Pest	Unit	1.00	6,000.00	6,000.00	1.0	10.0	6,600.00
Slope Stabilization	Equipment	L. Hours	40.00	105.00	4,200.00	5.0	10.0	924.00
Sub-Total								7,986.00
OPERATIONS								
Legal & Emergency	Annual Fee	Annual	1.00	100.00	100.00	1.0	10.0	110.00
Sub-Total								110.00
PUBLIC SERVICES								
Other	Trail Bollards	Unit	20.00	100.00	2,000.00	25.0	10.0	88.00
Signage	Signs	Unit	21.00	85.00	1,785.00	7.0	10.0	280.50
Signs	Interpretive (4'x6')	Unit	7.00	650.00	4,550.00	15.0	10.0	333.66
Sub-Total								702.16
REPORTING								
Agency Report	Annual Report	L. Hours	16.00	110.00	1,760.00	1.0	10.0	1,936.00
Monitoring	General Inspection Memo	L. Hours	16.00	105.00	1,680.00	1.0	10.0	1,848.00
Other	Agency Liaison	L. Hours	8.00	120.00	960.00	1.0	10.0	1,056.00
Sub-Total								4,840.00
SITE CONSTRUCTION/MAINT.								
Fence - Installed	Post and Cable	Lin. Ft.	13,804.00	10.00	138,040.00	20.0	10.0	7,592.20
Sub-Total								7,592.20
Subtotal								27,962.36
Administration								5,033.22
Total								32,995.59

Section 16 - Financial Summary

Property Title: Morrison Creek Date: 05/20/2013

1st Budget Year: 2014 ***State:*** ***PAR Code: MORCR***

Item Descriptions	*Total*
Initial & Capital Financial Requirements	
Revenues	$0
Management Costs	$8,249
Contingency Expense	$0
Initial & Capital Management Total Costs	$8,249
Administrative Costs of Total Management Costs	$0
Initial & Capital Gross Costs	$8,249
Initial & Capital Net Costs	$8,249
Annual Ongoing Financial Requirements	
Revenues	$0
Ongoing Costs	$25,420
Contingency Expense	$2,542
Ongoing Management Total Costs	$27,962
Administrative Costs of Total Management Costs	$5,033
Ongoing Gross Costs	$32,996
Ongoing Net Costs	$32,996
Endowment Requirements for Ongoing Stewardship	
Endowment to Produce Income of $32,996	$824,890
Endowment per acre $9,165	
Stewardship costs are based on 4.00% of Endowment Earnings per Year	
Ongoing management funding per year is $32,996	
Resulting in a per acre per year cost of $367	
Total Funding Required	$833,139

ATTACHMENT D

Monitoring Timeline

ANNUAL LONG-TERM MONITORING TIMELINE
Morrison Creek Nature Preserve

January	February	March	April	May	June
	General Inspection** Although February is suggested, this General Inspection can happen at any time of year. See Section 4.2.		Spring Biological Inspection* See Section 4.3.	Preserve Manager to schedule ground nesting bird survey prior to mowing of firebreaks. See Section 8.6.	Preserve Manager to discuss coming year's grazing with grazing contractor. Take care of paperwork and contract.
July	**August**	**September**	**October**	**November**	**December**
		Fall Biological Inspection* See Section 4.3.	General Inspection** Although July is suggested, this General Inspection can happen at any time of year. See Section 4.2.		Preserve Manager/Monitoring Biologist – Submit Annual Letter Report to U.S. Fish and Wildlife Service and U.S. Army Corps of Engineers by December 31. See Section 4.5.

*Biological Inspection Tasks: evaluate habitat function, thatch accumulation, newly introduced non-native plant species, and overall Preserve function.
**General Inspection Tasks: evaluate erosion and sedimentation, fencing, gates, signage, trash accumulation, unauthorized motor vehicle use.

ATTACHMENT E

Preserve Inspection Sheets

PRESERVE INSPECTION SHEET
Morrison Creek Nature Preserve

DATE:_____ **STAFF:**_____

Preserve Condition	**Actions Taken (date and by whom)**
Trash Accumulation?	
Unauthorized Construction/Fill?	
Fencing/Gates/Signage?	
Unauthorized Motor Vehicle Use?	
Erosion/Sedimentation?	
Preserve Condition?	
Other Notes:	

ATTACHMENT F

Cal-IPC List

California Invasive Plant Council

Protecting California's wildlands from invasive plants through research, restoration, and education.

www.cal-ipc.org

Invasive plants are one of the most serious environmental issues facing California. They disrupt ecosystems by altering physical processes, displacing native plants, and degrading wildlife habitat. The California Invasive Plant Inventory is a vital resource for those working to protect the state's natural areas. The Inventory summarizes the impacts, potential for spread, and distribution of more than 200 non-native plants that invade wildlands in California. The Inventory represents the best available knowledge of the state's invasive plant experts. It is designed to prioritize plants for control at the state and local levels, to provide key information to those working in habitat restoration, to show areas where research is needed. to aid those preparing or commenting on environmental planning documents, and to educate public policy makers. Detailed assessments for each plant, with documented sources, are available online at **www.cal-ipc.org**.

Pampasgrass *(*Cortaderia selloana*) displaces native plant communities in coastal habitats. (Photo by Bob Case, California Native Plant Society).*

Front cover photo credits:
Centaurea solstitialis *(yellow starthistle) left, and*
Eichornia crassipes *(water hyacinth) bottom right, by Bob Case.*
Cynara cardunculus *(artichoke thistle) center right, by Jason and Jesse Giessow, Dendra, Inc.*
Delairea odorata *(Cape-ivy) top right, by Carolyn Martus, California Native Plant Society.*

Cal-IPC

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CALIFORNIA INVASIVE PLANT INVENTORY

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Cal-IPC

Published by the California Invasive Plant Council

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INVENTORY REVIEW COMMITTEE

Dr. Carla Bossard
Professor
St. Mary's College of California
Moraga, CA

Dr. Matt Brooks
Research Botanist
US Geological Survey
Henderson, NV

Dr. Joseph DiTomaso
Extension Non-Crop Weed Ecologist
University of California-Davis
Davis, CA

Dr. John Randall
Director, Invasive Species Initiative
The Nature Conservancy
Davis, CA

Cynthia Roye
Environmental Scientist
California State Parks
Sacramento, CA

Jake Sigg
California Native Plant Society
San Francisco, CA

Alison Stanton
Research Botanist
BMP Ecosciences
South Lake Tahoe, CA

Peter Warner
Environmental Scientist
California State Parks
Mendocino, CA

CAL-IPC STAFF

Dr. Elizabeth Brusati
Project Manager

Doug Johnson
Executive Director

Brianna Richardson

Gina Skurka

Cal-IPC

The California Invasive Plant Council (Cal-IPC) formed as a non-profit organization in 1992 to address the growing ecological and economic impacts caused by invasive plants in California's wildlands. We promote research, restoration, and education in pursuit of this goal. Formerly known as the California Exotic Pest Plant Council, Cal-IPC is a member-driven organization with land managers, researchers, policy makers, and concerned citizens working together to protect the state's natural areas from invasive plants. For more information, visit our website at www.cal-ipc.org.

PROVIDING INPUT FOR FUTURE REVISIONS

If you have additional information to add to a plant assessment, please submit it to info@cal-ipc.org. The Inventory Review Committee will meet periodically to consider additions and modifications to the Inventory.

ACKNOWLEDGMENTS

We gratefully acknowledge the effort of all those who volunteered their time to write plant assessment forms, provide comments on assessments, or add observations to fill gaps in information. Too many people contributed information for us to list them individually, but each assessment contains the name of its author and those who provided information on that species. In particular, we thank those who helped develop the criteria, including John Hall of The Nature Conservancy in Arizona, Ann Howald of Garcia and Associates, and Maria Ryan of University of Nevada Cooperative Extension. We also wish to thank Kristin Dzurella of UC Davis and John Knapp of the Catalina Island Conservancy for their contributions of time and data.

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UC IPM

CENTER FOR INVASIVE PLANT MANAGEMENT

Designed by Melanie Haage

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Introduction

Invasive plants damage ecosystems around the world. They displace native species, change plant community structure, and reduce the value of habitat for wildlife.[1] Invasive plants may disrupt physical ecosystem processes, such as fire regimes, sedimentation and erosion, light availability, and nutrient cycling. In aquatic ecosystems, invasive plants clog lakes, streams, and waterways, reducing oxygen levels for fish and degrading habitat for waterbirds. The impact is especially severe in California, with its rich diversity of natural resources.

The California Invasive Plant Inventory categorizes non-native invasive plants that threaten the state's wildlands. Categorization is based on an assessment of the ecological impacts of each plant. The Inventory represents the best available knowledge of invasive plant experts in the state. However, it has no regulatory authority, and should be used with full understanding of the limitations described later in this Introduction.

California is home to 4,200 native plant species, and is recognized internationally as a "biodiversity hotspot." Approximately 1,800 non-native plants also grow in the wild in the state. A small number of these, approximately 200, are the ones that this Inventory considers invasive. Improved understanding of their impacts will help those working to project California's treasured biodiversity.

The Inventory

The Inventory categorizes plants as High, Moderate, or Limited, reflecting the level of each species' negative ecological impact in California. Other factors, such as economic impact or difficulty of management, are not included in this assessment.

It is important to note that every species listed in Table 1 is invasive, regardless of its overall rating, and should be of concern to land managers. Although the impact of each plant varies regionally, its rating represents cumulative impacts statewide. Therefore, a plant whose statewide impacts are categorized as Limited may have more severe impacts in a particular region. Conversely, a plant categorized as having a High cumulative impact across California may have very little impact in some regions.

In the past 15 years, approximately $15 million has been spent statewide to control Arundo donax *(giant reed) in California. (Photo by David Chang, Santa Barbara County Agricultural Commissioner's office)*

Members of the Inventory Review Committee, Cal-IPC staff, and volunteers drafted assessments for each plant based on the formal criteria system described below. The committee solicited information from land managers across the state to complement the available literature. Assessments were released for public review before the committee finalized them. All plant assessments that form the basis for this summary document are available at www.cal-ipc.org. The final list includes 39 High species, 65 Moderate species, and 89 Limited species. Additional information, including updated observations, will be added to the Cal-IPC website periodically, with revisions tracked and dated.

Definitions

The Inventory categorizes "invasive non-native plants that threaten wildlands" according to the definitions below. Plants were evaluated only if they invade

Figure 1. The Criteria System

Section 1. Ecological Impact

1.1 Impact on abiotic ecosystem processes (e.g. hydrology, fire, nutrient cycling)
1.2 Impact on native plant community composition, structure, and interactions
1.3 Impact on higher trophic levels, including vertebrates and invertebrates
1.4 Impact on genetic integrity of native species (i.e. potential for hybridization)

Section 2. Invasive Potential

2.1 Ability to establish without anthropogenic or natural disturbance
2.2 Local rate of spread with no management
2.3 Recent trend in total area infested within state
2.4 Innate reproductive potential (based on multiple characteristics)
2.5 Potential for human-caused dispersal
2.6 Potential for natural long-distance (>1 km) dispersal
2.7 Other regions invaded worldwide that are similar to California

Section 3. Distribution

3.1 Ecological amplitude (ecological types invaded in California)
3.2 Ecological intensity (highest extent of infestation in any one ecological type)

Documentation Levels

Assessed as highest level of documentation for each criterion.

4 = Reviewed scientific publications
3 = Other published material (reports or other non-peer-reviewed documents)
2 = Observational (unpublished information confirmed by a professional in the field)
1 = Anecdotal (unconfirmed information)
0 = No information

Complete description of criteria system and detailed plant assessments available at www.cal-ipc.org.

Dense mats formed by aquatic plants such as water hyacinth (Eichhornia crassipes) *reduce habitat for waterfowl and fish. (Photo by Bob Case, California Native Plant Society)*

California wildlands with native habitat values. The Inventory does not include plants found solely in areas of human-caused disturbance such as roadsides and cultivated agricultural fields.

- **Wildlands** are public and private lands that support native ecosystems, including some working landscapes such as grazed rangeland and active timberland.
- **Non-native** plants are species introduced to California after European contact and as a direct or indirect result of human activity.
- **Invasive non-native plants that threaten wildlands** are plants that 1) are not native to, yet can spread into, wildland ecosystems, and that also 2) displace native species, hybridize with native species, alter biological communities, or alter ecosystem processes.

Criteria for Listing

The California Invasive Plant Inventory updates the 1999 "Exotic Pest Plants of Greatest Ecological Concern in California."[2] Cal-IPC's Inventory Review Committee met regularly between 2002 and 2005 to review 238 non-native species with known or suspected impacts in California wildlands. These assessments are based on the "Criteria for Categorizing Invasive Non-Native Plants that Threaten Wildlands"[3] which were developed in collaboration with the Southwestern Vegetation Management Association in Arizona (www.swvma.org) and the University of Nevada Cooperative Extension (www.unce.unr.

edu) so that ratings could be applied across political boundaries and adjusted for regional variation. The goals of the criteria system and the Inventory are to:

- Provide a uniform methodology for categorizing non-native invasive plants that threaten wildlands;
- Provide a clear explanation of the process used to evaluate and categorize plants;
- Provide flexibility so the criteria can be adapted to the particular needs of different regions and states;
- Encourage contributions of data and documentation on evaluated species;
- Educate policy makers, land managers, and the public about the biology, ecological impacts, and distribution of invasive non-native plants.

The criteria system generates a plant's overall rating based on an evaluation of 13 criteria, which are divided into three sections assessing Ecological Impacts, Invasive Potential, and Ecological Distribution (Fig. 1). Evaluators assign a score of A (severe) to D (no impact) for each criterion, with U indicating unknown. The scoring scheme is arranged in a tiered format, with individual criteria contributing to section scores that in turn generate an overall rating for the plant.

Detailed plant assessment forms list the rationale and applicable references used to arrive at each criterion's score. The level of documentation for each question is also rated, and translated into a numerical score for averaging (Fig. 1). The documentation score presented in the tables is a numeric average of the documentation levels for all 13 criteria.

Inventory Categories

Each plant in Table 1 has received an overall rating of High, Moderate or Limited based on evaluation using the criteria system. The meaning of these overall ratings is described below. In addition to the overall ratings, specific combinations of section scores that indicate significant potential for invading new ecosystems triggers an Alert designation so that land managers may watch for range expansions. Table 3 lists plants categorized as Evaluated But Not Listed because either we lack sufficient information to assign a rating or the available information indicates that the species does not have significant impacts at the present time.

- **High** – These species have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment. Most are widely distributed ecologically.

- **Moderate** – These species have substantial and apparent—but generally not severe—ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal, though establishment is generally dependent upon ecological disturbance. Ecological amplitude and distribution may range from limited to widespread.

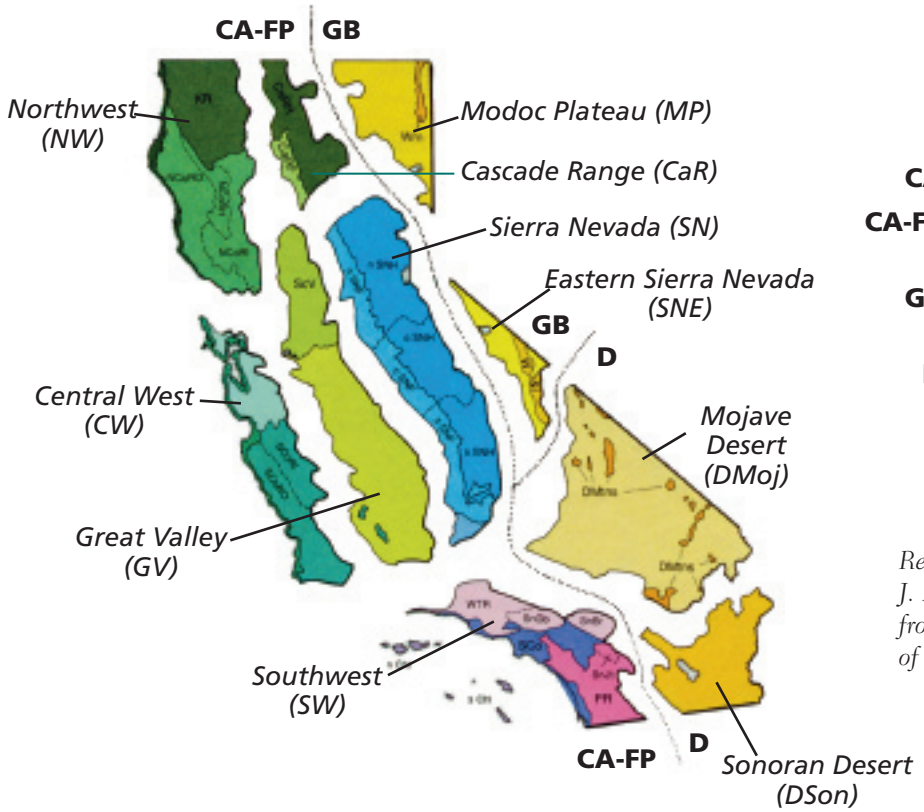
- **Limited** – These species are invasive but their ecological impacts are minor on a statewide level or there was not enough information to justify a higher score. Their reproductive biology and other attributes result in low to moderate rates of invasiveness. Ecological amplitude and distribution are generally limited, but these species may be locally persistent and problematic.

Reading the Tables

The core of the Inventory is Table 1, which lists those plants we have categorized as invasive plants that threaten California wildlands.. The types of information contained in Table 1 is described below.

When Bromus tectorum *(downy brome or cheatgrass) replaces native perennial grasses, the frequency of wildfires shortens from 60-100 years to 3-5 years. (Photo by Joe DiTomaso, UC Davis)*

Figure 2. Jepson Geographic Regions



CA = *all of California*

CA-FP = *California Floristic Province (NW, CaR, SN, GV, CW, SW)*

GB = *Great Basin Province (MP, SNE)*

D = *Desert Province (DMoj, DSon)*

Reprinted from The Jepson Manual, *J. Hickman, Ed., 1993, with permission from the Jepson Herbarium. © Regents of the University of California.*

Table 2 contains four plants that are native to specific regions of California but have become invasive in other regions of the state to which humans have moved them. Table 3 lists those plant species that were evaluated but did not meet the threshold for listing. Finally, Table 4 contains plants that were nominated for review but dismissed without a formal assessment because either they do not invade wildlands (except for isolated instances) or the Inventory Review Committee lacked adequate information to answer the criteria questions.

Table 1 summarizes rating information for all plant species categorized as invasive by this Inventory. The columns contain the following information:

- A diamond (◆) in the first column designates an Alert status for that species.
- Scientific nomenclature for most species follows *The Jepson Manual*.[4]
- For each species, the first common name is based on the Weed Science Society of America,[5] followed by other names commonly used in California. (Appendix 4 provides an index of common names.)
- The overall rating for the plant (High, Moderate, or Limited) is listed next. (Because Table 1 is organized alphabetically, we have included a listing organized by rating level in Appendix 1.)
- Section scores are shown for Ecological Impact, Invasive Potential, and Distribution. These can typically be interpreted as A=high, B=moderate, C=limited, D=none, U=unknown.
- Documentation Level presents the average level of the references used to evaluate that species, from 0 (no information) to 4 (all information based on peer-reviewed scientific publications).
- Ecological Types Invaded and Other Comments provides additional information of interest. The classification of ecological types is adapted from a system developed by the California Department of Fish and Game.[6] (Appendix 3 provides detailed examples of ecological types.)
- Regions Invaded are based on floristic regions described in *The Jepson Manual*[4] (Fig. 2) and indicate heavily impacted areas. This information is incomplete for many species, so regions listed in this column should be considered the minimum area invaded.

Cirsium vulgare *(bull thistle) is spreading at high elevations, such as in Yosemite National Park. (Photo by Bob Case, California Native Plant Society)*

Uses and Limitations

The California Invasive Plant Inventory serves as a scientific and educational report. It is designed to prioritize plants for control, to provide information to those working on habitat restoration, to show areas where research is needed, to aid those who prepare or comment on environmental planning documents, and to educate public policy makers. Plants that lack published information may be good starting points for student research projects.

The Inventory cannot address, and is not intended to address, the range of geographic variation in California, nor the inherently regional nature of invasive species impacts. While we have noted where each plant is invasive, only the cumulative statewide impacts of the species have been considered in the evaluation. The impact of these plants in specific geographic regions or habitats within California may be greater or lesser than their statewide rating indicates. Management actions for a species should be considered on a local and site-specific basis, as the inventory does not attempt to suggest management needs for specific sites or regions. The criteria system was designed to be adapted at multiple scales, and local groups are encouraged to use the criteria for rating plants in their particular area.

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Lepidium latifolium *(perennial pepperweed or tall whitetop) concentrates salt in marsh soils, threatening several rare plant species. (Photo by Bob Case)*

TABLE 1: Invasive Non-Native Plants that Threaten Wildlands in California

Alert ◆	Scientific Name	Common Name	Rating	Impacts	Invasiveness	Distribution	Doc. Level	Ecological Types Invaded and Other Comments	Regions Invaded
	Acacia melanoxylon	black acacia, blackwood acacia	Limited	C	C	B	2.7	Coniferous forest, chaparral, woodland, riparian. Impacts low in most areas.	NW, CW, SW
	Acroptilon repens	Russian knapweed	Moderate	B	B	B	3.2	Scrub, grasslands, riparian, pinyon-juniper woodland, forest. Severe impacts in other western states. Spreading in many areas of CA.	CA-FP, GB
	Aegilops triuncialis	barb goatgrass	High	A	A	B	3.6	Grassland, oak woodland. Spreading in NW and Central Valley.	CaR, CW, SN, GV
	Ageratina adenophora	croftonweed, eupatorium	Moderate	B	B	B	2.8	Coastal canyons, scrub, slopes. Very invasive in Australia, limited information and distribution in CA.	CW, SW
	Agrostis avenacea	Pacific bentgrass	Limited	C	C	C	2.4	Vernal pools, coastal prairie, meadows, grasslands. Impacts are low in most areas.	NW, SN, GV, CW, SW
	Agrostis stolonifera	creeping bentgrass	Limited	C	B	C	1.9	Wetlands, riparian; grown for domestic forage. Limited distribution and impacts unknown.	NW, SN, GV, CW, SW
	Ailanthus altissima	tree-of-heaven	Moderate	B	B	B	3.0	Riparian areas, grasslands, oak woodland. Impacts highest in riparian areas.	CA-FP
	Alhagi maurorum (=*A. pseudalhagi*)	camelthorn	Moderate	B	B	B	3.2	Grassland, meadows, riparian and desert scrub, Sonoran thorn woodland. Very invasive in southwestern states. Limited distribution in CA.	GV, D, SNE
◆	*Alternanthera philoxeroides*	alligatorweed	High	A	B	C	2.9	Freshwater aquatic systems, including marshes	GV, SW
	Ammophila arenaria	European beachgrass	High	A	B	B	3.2	Coastal dunes	NW, CW, SW
	Anthoxanthum odoratum	sweet vernalgrass	Moderate	B	B	B	2.7	Coastal prairie, coniferous forest. Little information available on impacts and limited ecological range.	NW, SN, CW
◆	*Arctotheca calendula* (fertile strains)	fertile capeweed	Moderate	B	B	C	3.6	Coastal prairie. Can produce seed. Important agricultural weed in Australia, but limited distribution in CA.	NW, CW
	Arctotheca calendula (sterile strains)	sterile capeweed	Moderate	B	B	B	2.8	Coastal prairie. Only propagates vegetatively. More competitive than fertile form, but limited distribution.	NW, CW
	Arundo donax	giant reed	High	A	B	A	2.8	Riparian areas. Commercially grown for musical instrument reeds, structural material, etc.	CW, SN, GV, SW

Scientific names based on *The Jepson Manual*. For each species, the first common name is based on the Weed Science Society of America's "Composite List of Weeds" (www.wssa.net), followed by other names used in California. Scores: A = Severe, B = Moderate, C = Limited, D = None, U = Unknown. Documentation level averaged. Regions invaded based on Jepson geographic regions. Plant assessment forms, literature citations, and full rating criteria available at www.cal-ipc.org.

TABLE 1: Invasive Non-Native Plants that Threaten Wildlands in California (continued)

Alert ◆	Scientific Name	Common Name	Rating	Impacts	Invasiveness	Distribution	Doc. Level	Ecological Types Invaded and Other Comments	Regions Invaded
◆	*Asparagus asparagoides*	bridal creeper	Moderate	B	B	D	2.6	Riparian woodland	CW, SW
◆	*Asphodelus fistulosus*	onionweed	Moderate	B	A	C	2.9	Coastal dunes, prairie, grasslands. Invasive in Australia. High invasiveness but limited distribution in CA.	GV, SW
	Atriplex semibaccata	Australian saltbush	Moderate	B	B	B	2.9	Coastal grasslands, scrub, upper salt marsh. Limited distribution, but can be very invasive regionally.	CA except CaR and SN
	Avena barbata	slender wild oat	Moderate	B	B	A	3.5	Coastal scrub, grasslands, oak woodland, forest. Very widespread, but impacts more severe in desert regions.	CA-FP, MP, DMoj
	Avena fatua	wild oat	Moderate	B	B	A	3.2	Coastal scrub, chaparral, grasslands, woodland, forest. Very widespread, but impacts more severe in desert regions.	CA-FP, MP, DMoj
	Bassia hyssopifolia	fivehook bassia	Limited	C	C	B	2.7	Alkaline habitats. Weed of agriculture or disturbed sites. Impacts minor in wildlands.	CA except NW
	Bellardia trixago	bellardia	Limited	C	C	C	1.9	Grasslands, including serpentine. Impacts and invasiveness appear to be minor.	NW, CW
◆	*Brachypodium sylvaticum*	perennial false-brome	Moderate	B	A	D	2.5	Redwoods and mixed evergreen forest in Santa Cruz Mtns. Expanding range rapidly in OR, potentially very invasive.	CW
	Brassica nigra	black mustard	Moderate	B	B	A	2.0	Widespread. Primarily a weed of disturbed sites, but can be locally a more significant problem in wildlands.	CA-FP
	Brassica rapa	birdsrape mustard, field mustard	Limited	C	B	B	1.8	Coastal scrub, grasslands meadows, riparian. Primarily in disturbed areas. Impacts appear to be minor or unknown in wildlands.	CA-FP
	Brassica tournefortii	Saharan mustard, African mustard	High	A	A	B	2.3	Desert dunes, desert and coastal scrub	SW, D
	Briza maxima	big quakinggrass, rattlesnakegrass	Limited	B	C	B	2.3	Grasslands. Widespread in coast range. Impacts generally minor, but locally can be higher.	NW, SN, CW, SW
	Bromus diandrus	ripgut brome	Moderate	B	B	A	3.3	Dunes, scrub, grassland, woodland, forest. Very widespread, but monotypic stands uncommon.	CA

Scientific names based on *The Jepson Manual*. For each species, the first common name is based on the Weed Science Society of America's "Composite List of Weeds" (www.wssa.net), followed by other names used in California. Scores: A = Severe, B = Moderate, C = Limited, D = None, U = Unknown. Documentation level averaged. Regions invaded based on Jepson geographic regions. Plant assessment forms, literature citations, and full rating criteria available at www.cal-ipc.org.

TABLE 1: Invasive Non-Native Plants that Threaten Wildlands in California (continued)

Alert ◆	Scientific Name	Common Name	Rating	Impacts	Invasiveness	Distribution	Doc. Level	Ecological Types Invaded and Other Comments	Regions Invaded
	Bromus hordeaceus	soft brome	Limited	B	C	A	2.8	Grasslands, sagebrush, serpentine soils, many other habitats. Very widespread, but primarily in converted annual grasslands.	CA
	Bromus madritensis ssp. *rubens* (=*B. rubens*)	red brome	High	A	B	A	3.0	Scrub, grassland, desert washes, woodlands. Impacts most significant in desert areas.	CA
	Bromus tectorum	downy brome, cheatgrass	High	A	B	A	3.1	Interior scrub, woodlands, grasslands. Most widely distributed invasive plant in the US.	SN, GB, D
	Cakile maritima	European sea-rocket	Limited	C	B	B	3.6	Coastal dunes. Widespread, but impacts appear to be minor.	NW, CW, SW
◆	*Cardaria chalepensis* (=*C. draba* ssp. *chalepensis*)	lens-podded whitetop	Moderate	B	B	C	3.2	Central Valley wetlands. Limited distribution in CA. May not be as invasive as *C. draba*.	CA-FP, GB
	Cardaria draba	hoary cress	Moderate	B	B	B	2.6	Riparian areas, marshes of central coast. More severe invasive in northern CA.	CW, SW
	Cardaria pubescens	hairy whitetop	Limited	C	B	C	2.5	Grasslands and meadows. Impacts unknown but may be significant in meadows of Cascade Range.	GV, SW
	Carduus acanthoides	plumeless thistle	Limited	B	C	C	3.0	Valley and foothill grasslands. Limited distribution in CA, impacts higher locally.	NW, SN, CW
	Carduus nutans	musk thistle	Moderate	B	B	B	3.1	Grasslands. More invasive in other western states. Limited distribution in CA.	NW, CaR, SN
	Carduus pycnocephalus	Italian thistle	Moderate	B	B	A	2.9	Forest, scrub, grasslands, woodland. Very widespread. Impacts may be variable regionally.	NW, SN, CW, SW
	Carduus tenuiflorus	slenderflower thistle	Limited	C	C	B	2.8	Valley and foothill grasslands. Limited distribution. Impacts appear to be minor.	NW, SN, CW, SW
	Carpobrotus chilensis (and *C. edulis* x *chilensis* hybrids)	sea-fig, iceplant	Moderate	B	B	A	1.8	Coastal dunes, scrub, prairie. Little information on species, most inferred from *C. edulis*.	NW, CW, SW
	Carpobrotus edulis	Hottentot-fig, iceplant	High	A	B	A	3.3	Coastal habitats, especially dunes	NW, CW, SW
◆	*Carthamus lanatus*	woolly distaff thistle	Moderate	A	B	C	2.8	Grasslands. Expanding in coast ranges, may become more severe. Current distribution limited.	NW, SN, CW

Scientific names based on *The Jepson Manual*. For each species, the first common name is based on the Weed Science Society of America's "Composite List of Weeds" (www.wssa.net), followed by other names used in California. Scores: A = Severe, B = Moderate, C = Limited, D = None, U = Unknown. Documentation level averaged. Regions invaded based on Jepson geographic regions. Plant assessment forms, literature citations, and full rating criteria available at www.cal-ipc.org.

TABLE 1: Invasive Non-Native Plants that Threaten Wildlands in California (continued)

Alert ◆	Scientific Name	Common Name	Rating	Impacts	Invasiveness	Distribution	Doc. Level	Ecological Types Invaded and Other Comments	Regions Invaded
	Centaurea calcitrapa	purple starthistle	Moderate	B	B	B	2.7	Grasslands. Impacts regionally variable. Relatively limited distribution.	NW, SN, GV, CW, SW
◆	*Centaurea debeauxii* (=*C. jacea* x *C. nigra*, *C.* x *pratensis*)	meadow knapweed	Moderate	B	B	C	2.7	Grasslands. Spreading rapidly in NW CA, but limited distribution elsewhere. Little known of impacts.	NW, CW
	Centaurea diffusa	diffuse knapweed	Moderate	B	B	B	3.3	Great Basin scrub, coastal prairie. Severe impacts in other western states. Limited distribution in CA with impacts higher in some locations.	Ca-R, CW, NW, SN
	Centaurea maculosa (=*C. bibersteinii*)	spotted knapweed	High	A	B	B	3.4	Riparian, grasslands, wet meadows, forests. More widely distributed in other western states.	CA-FP, GB
	Centaurea melitensis	Malta starthistle, tocalote	Moderate	B	B	B	2.6	Grasslands, oak woodland. Sometimes misidentified as *C. solstitialis*. Impacts vary regionally.	CW, SW, D
	Centaurea solstitialis	yellow starthistle	High	A	B	A	3.0	Grasslands, woodlands, occasionally riparian	CA-FP
	Centaurea virgata var. *squarrosa* (=*C. squarrosa*)	squarrose knapweed	Moderate	B	B	B	2.8	Scrub, grassland, pinyon-juniper woodland. Highly invasive in Utah and other western states. Limited distribution in CA.	NW, CaR, MP
	Chondrilla juncea	rush skeletonweed	Moderate	B	B	B	3.1	Grasslands. Very invasive in other western states, but currently limited distribution in CA.	NW, CaR, SN, GV, CW,
	Chrysanthemum coronarium	crown daisy	Moderate	B	B	B	2.0	Coastal prairie, dunes, and scrub. Impacts generally low to moderate, but can vary regionally.	CW, SW
	Cirsium arvense	Canada thistle	Moderate	B	B	B	2.8	Grasslands, riparian areas, forests. Severe impacts in other western states. Limited distribution in CA.	CA-FP, DMoj
	Cirsium vulgare	bull thistle	Moderate	B	B	B	3.3	Riparian areas, marshes, meadows. Widespread, can be very problematic regionally.	CA-FP, GB
	Conicosia pugioniformis	narrowleaf iceplant	Limited	C	B	C	2.1	Coastal dunes, scrub, grassland. Limited distribution. Impacts generally minor but can be higher locally.	CW
	Conium maculatum	poison-hemlock	Moderate	B	B	B	2.8	Riparian woodland, grassland. Widespread in disturbed areas. Abiotic impacts unknown. Impacts can vary locally.	CA-FP

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TABLE 1: Invasive Non-Native Plants that Threaten Wildlands in California (continued)

Alert ◆	Scientific Name	Common Name	Rating	Impacts	Invasiveness	Distribution	Doc. Level	Ecological Types Invaded and Other Comments	Regions Invaded
	Cordyline australis	giant dracaena, New Zealand-cabbage tree	Limited	C	C	C	2.0	Coniferous forest. Two reports of horticultural escape into wildlands. Appears best suited to moist, cool climates.	NW, CW
	Cortaderia jubata	jubatagrass	High	A	A	A	3.1	Many coastal and interior habitats	NW, CW, SW
	Cortaderia selloana	pampasgrass	High	A	A	B	3.2	Coastal dunes, coastal scrub, Monterey pine, riparian, grasslands, wetlands, serpentine soils. Still spreading both coastal and inland.	CW, SW
	Cotoneaster franchetii	orange cotoneaster	Moderate	B	A	B	2.6	Coniferous forest. Limited distribution. Abiotic impacts largely unknown.	NW, CW
	Cotoneaster lacteus	Parney's cotoneaster	Moderate	B	B	B	2.1	Many coastal habitats, mainly a problem from SF Bay Area north along coast. Limited distribution. Abiotic impacts largely unknown.	NW, CW
	Cotoneaster pannosus	silverleaf cotoneaster	Moderate	B	A	B	2.5	Many coastal habitats, mainly a problem from SF Bay Area north along coast. Limited distribution. Abiotic impacts largely unknown.	NW, CW
	Cotula coronopifolia	brassbuttons	Limited	C	C	B	2.2	Salt and freshwater marshes. Impacts largely unknown, but appear to be minor.	NW, CW, SW
	Crataegus monogyna	English hawthorn	Limited	C	B	C	3.4	Riparian habitats, woodland. Limited distribution. Impacts appear to be minor.	NW, CW, SW
	Crocosmia x *crocosmiiflora*	montbretia	Limited	C	B	B	2.6	Coastal scrub and prairie, north coast forests. Abiotic impacts unknown. Higher invasiveness in some areas.	NW, CW
	Crupina vulgaris	common crupina, bearded creeper	Limited	B	C	B	3.2	Forest, woodland, grassland. Limited distribution. More invasive in other western states.	NW, MP
	Cynara cardunculus	artichoke thistle	Moderate	B	B	B	4.0	Coastal grasslands. Impacts more severe in southern CA where monotypic stands are more common.	CW, SW
	Cynodon dactylon	bermudagrass	Moderate	B	B	B	3.3	Riparian scrub in southern CA. Common landscape weed, but can be very invasive in desert washes.	SW, DSon
	Cynoglossum officinale	houndstongue	Moderate	B	B	B	2.5	Woodland, forest, interior dunes. Abiotic impacts unknown. Limited distribution. Can have impacts in other western states.	CaR, SN

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	Cynosurus echinatus	hedgehog dogtailgrass	Moderate	B	B	A	2.5	Oak woodland, grassland. Widespread, impacts vary regionally, but typically not in monotypic stands.	NW, SN, GV, CW, SW
	Cytisus scoparius	Scotch broom	High	A	B	A	3.2	Coastal scrub, oak woodland, horticultural varieties may also be invasive.	CA-FP
	Cytisus striatus	Portuguese broom	Moderate	B	B	B	2.7	Coastal scrub, grasslands. Often confused with *C. scoparius.* Limited distribution.	NW, CW, SW
	Dactylis glomerata	orchardgrass	Limited	C	B	B	2.9	Grasslands, broadleaved forest, woodlands. Common forage species. Impacts appear to be minor.	CA-FP
	Delairea odorata (=*Senecio mikanioides*)	Cape-ivy, German-ivy	High	A	A	B	3.1	Coastal, occasionally other riparian areas.	CW, SW
	Descurainia sophia	flixweed, tansy mustard	Limited	C	B	B	1.9	Scrub, grassland, woodland. Impacts appear to be minor, but locally more invasive in NE CA.	CA
	Digitalis purpurea	foxglove	Limited	C	B	B	2.4	Forest, woodland. Widely escaped ornamental. Impacts largely unknown or appear to be minor.	NW, SN, CW
	Dipsacus fullonum	common teasel	Moderate	B	B	B	3.8	Grasslands, seep, riparian scrub. Impacts regionally variable, forms dense stands on occasion.	NW, CW, SN
	Dipsacus sativus	fuller's teasel	Moderate	B	B	B	3.8	Grasslands, seep, bogs. Impacts regionally variable, forms dense stands on occasion.	NW, CW, SW
◆	*Dittrichia graveolens*	stinkwort	Moderate	B	A	C	3.0	Grasslands, riparian scrub. Spreading rapidly, impacts may become more important in future.	NW, SN, CW, GV, SW
	Echium candicans	pride-of-Madeira	Limited	C	B	B	1.5	Two escaped populations near Big Sur and San Elijo Lagoon. Little information on impacts.	CW, NW, SW
	Egeria densa	Brazilian egeria	High	A	A	B	3.1	Streams, ponds, sloughs, lakes, Sacramento-San Joaquin Delta	SN, GV, SW
	Ehrharta calycina	purple veldtgrass	High	A	A	B	3.4	Sandy soils, especially dunes. Rapidly spreading on central coast.	CW, SW
	Ehrharta erecta	erect veldtgrass	Moderate	B	B	B	2.2	Scrub, grasslands, woodland, forest. Spreading rapidly. Impacts may become more important in future.	CW, SW

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◆	*Ehrharta longiflora*	long-flowered veldtgrass	Moderate	B	B	C	2.8	Coastal scrub. Limited distribution, but spreading rapidly in southern CA. Impacts largely unknown.	SW
◆	*Eichhornia crassipes*	water hyacinth	High	A	A	C	3.2	Aquatic systems in Sacramento-San Joaquin Delta	GV, CW, SW
	Elaeagnus angustifolia	Russian-olive	Moderate	B	A	B	3.3	Interior riparian. Impacts more severe in other western states. Current distribution limited in CA.	GV, CW, DMoj
◆	*Emex spinosa*	spiny emex, devil's-thorn	Moderate	B	B	D	1.6	Edges of beaches, other coastal habitats. Invasive in other states and countries. Spreading rapidly in southern CA. Impacts not well known.	SW
	Erechtites glomerata, E. minima	Australian fireweed, Australian burnweed	Moderate	C	B	A	3.2	Coastal woodland, scrub, forests. Widespread on coast, but impacts low overall. May vary locally.	NW, CW
	Erodium cicutarium	redstem filaree	Limited	C	C	A	3.1	Many habitats. Widespread. Impacts minor in wildlands. High-density populations are transient.	CA
	Eucalyptus camaldulensis	red gum	Limited	C	C	C	2.2	Mainly southern CA urban areas. Impacts, invasiveness and distribution all minor.	NW, GV, CW, SW
	Eucalyptus globulus	Tasmanian blue gum	Moderate	B	B	B	2.8	Riparian areas, coastal grasslands, scrub. Impacts can be much higher in coastal areas.	NW, GV, CW, SW
◆	*Euphorbia esula*	leafy spurge	High	A	A	C	3.5	Forests, woodlands, juniper forest. More widespread invasive in northern states.	NW, CaR, MP
	Euphorbia oblongata	oblong spurge	Limited	C	C	B	2.0	Meadows, woodlands. Limited distribution. Impacts unknown. Locally in dense stands.	GV, CW
◆	*Euphorbia terracina*	carnation spurge	Moderate	B	B	C	1.7	Coastal scrub. Limited distribution. Spreading in southern CA. Impacts unknown.	SW
	Festuca arundinacea	tall fescue	Moderate	B	B	A	2.9	Coastal scrub, grasslands; common forage grass. Widespread, abiotic impacts unknown.	CA-FP
	Ficus carica	edible fig	Moderate	B	A	B	2.6	Riparian woodland. Can spread rapidly. Abiotic impacts unknown. Can be locally very problematic.	CW, SW, GV
	Foeniculum vulgare	fennel	High	A	B	A	3.0	Grasslands, scrub.	CA-FP

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	Genista monspessulana	French broom	High	A	A	B	3.2	Coastal scrub, oak woodland, grasslands. Horticultural selections may also be invasive.	NW, CW, SW
	Geranium dissectum	cutleaf geranium	Limited	C	B	A	1.7	Numerous habitats but impacts appear minor.	CA-FP
	Glyceria declinata	waxy mannagrass	Moderate	B	B	B	1.9	Vernal pools, moist grasslands. Often confused with native *Glyceria*. Impacts largely unknown, but may be significant in vernal pools.	GV
	Halogeton glomeratus	halogeton	Moderate	B	A	B	3.0	Scrub, grasslands, pinyon-juniper woodland. Larger problem in NV. Monotypic stands are rare.	CaR, DMoj, GB
	Hedera helix, H. canariensis	English ivy, Algerian ivy	High	A	A	A	2.7	Coastal forests, riparian areas. Species combined due to genetics questions.	CA-FP
	Helichrysum petiolare	licoriceplant	Limited	C	B	C	2.0	North coastal scrub. Limited distribution. Impacts unknown, but can form dense stands.	NW, CW
	Hirschfeldia incana	shortpod mustard, summer mustard	Moderate	B	B	A	1.9	Scrub, grasslands, riparian areas. Impacts not well understood, but appear to be greater in southern CA.	CW, GV, NW, SN, SW
	Holcus lanatus	common velvet-grass	Moderate	B	B	A	2.9	Coastal grasslands, wetlands. Impacts can be more severe locally, especially in wetland areas.	CA-FP, DMoj, GB
	Hordeum marinum, H. murinum	Mediterranean barley, hare barley, wall barley	Moderate	B	B	A	2.8	Grasslands. *H. marinum* invades drier habitats, while *H. murinum* invades wetlands. Widespread, but generally do not form dominant stands.	CA
◆	*Hydrilla verticillata*	hydrilla	High	A	B	C	3.2	Freshwater aquatic systems. The most important submerged aquatic invasive in southern states.	NW, SN, GV, SW, D
◆	*Hypericum canariense*	Canary Island hypericum	Moderate	B	B	C	1.2	Coastal scrub, prairie. Impacts unknown. Limited distribution. Spreading rapidly on central coast.	SW, CW
	Hypericum perforatum	common St. Johnswort, klamathweed	Moderate	B	B	B	3.7	Many northern CA habitats. Abiotic impacts low. Biological control agents have reduced overall impact.	SN, CW, GV, NW, SW
	Hypochaeris glabra	smooth catsear	Limited	C	B	B	3.1	Scrub and woodlands. Widespread. Impacts appear to be minor. Some local variability.	CA-FP
	Hypochaeris radicata	rough catsear, hairy dandelion	Moderate	C	B	A	2.2	Coastal dunes, scrub, and prairie, woodland, forest. Widespread. Impacts unknown or appear to be minor.	CA-FP

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◆	*Ilex aquifolium*	English holly	Moderate	B	B	C	2.7	North coast forests. Expanding range south from Oregon.	CW, NW
	Iris pseudacorus	yellowflag iris	Limited	C	B	C	2.3	Riparian, wetland areas, especially southern CA. Limited distribution. Abiotic impacts unknown.	SN, GV, CW, SW
	Isatis tinctoria	dyer's woad	Moderate	B	B	A	3.0	Great Basin scrub and grasslands, coniferous forest. More severe impacts in other western states, but can be locally very invasive in northern CA.	CaR, NW, SN, MP
	Kochia scoparia	kochia	Limited	B	C	B	3.2	Scrub, chaparral, grasslands. Primarily a weed of disturbed sites.	CW, GV, D, GB
	Lepidium latifolium	perennial pepperweed, tall whitetop	High	A	A	A	3.1	Coastal and inland marshes, riparian areas, wetlands, grasslands. Has potential to invade montane wetlands.	CA-FP, GB
	Leucanthemum vulgare	oxeye daisy	Moderate	B	B	B	2.5	Montane meadows, coastal grasslands, coastal scrub. Expanding range, invasiveness varies locally.	CW, NW, SN, SW
	Linaria genistifolia ssp. *dalmatica* (=*L. dalmatica*)	Dalmation toadflax	Moderate	B	B	B	2.8	Grasslands, forest clearings. Limited distribution. More severe impacts in other western states.	CA-FP
	Lobularia maritima	sweet alyssum	Limited	C	B	B	2.4	Coastal dune, coastal scrub, coastal prairie, riparian.	NW, CW, SW
	Lolium multiflorum	Italian ryegrass	Moderate	B	B	A	2.6	Grasslands, oak woodland, pinyon-juniper woodland; widely used for post-fire erosion control. Widespread. Impacts can vary with region.	CA-FP
	Ludwigia peploides ssp. *montevidensis*	creeping water-primrose	High	A	B	B	2.5	Freshwater aquatic systems. Clarification needed on taxonomic identification.	NW, SN, GV, CW, SW, DMoj
◆	*Ludwigia hexapetala* (= *L. uruguayensis*)	Uruguay water-primrose	High	A	B	C	2.6	Freshwater aquatic systems. Clarification needed on taxonomic identification.	NW, CW, SW
	Lythrum hyssopifolium	hyssop loosestrife	Limited	C	B	B	3.0	Grasslands, wetlands, vernal pools. Widespread. Impacts unknown, but appear to be minor.	CA-FP
	Lythrum salicaria	purple loosestrife	High	A	A	B	3.8	Wetlands, marshes, riparian areas	NW, GV, MP
	Marrubium vulgare	white horehound	Limited	C	C	B	2.8	Grasslands scrub, riparian areas. Widespread. Rarely in dense stands. Impacts relatively minor.	CA-FP, DMoj

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	Medicago polymorpha	California burclover	Limited	C	C	A	2.8	Grasslands. Widespread weed of agriculture and disturbed areas. Impacts in wildlands minor.	CA-FP
	Mentha pulegium	pennyroyal	Moderate	C	A	A	2.7	Vernal pools, wetlands. Poisonous to livestock. Spreading rapidly. Impacts largely unknown.	CW, GV, NW, SW
◆	*Mesembryanthemum crystallinum*	crystalline iceplant	Moderate	B	B	C	3.7	Coastal bluffs, dunes, scrubs, grasslands. Limited distribution. Locally problematic, especially in southern CA.	CW, NW, SW
	Myoporum laetum	myoporum	Moderate	B	B	B	2.6	Coastal habitats, riparian areas. Mostly along the southern coast. Abiotic impacts unknown.	CW, SW
	Myosotis latifolia	common forget-me-not	Limited	C	B	B	2.2	Coniferous forest, riparian. Little information on impacts.	CA-FP
◆	*Myriophyllum aquaticum*	parrotfeather	High	A	B	C	2.8	Freshwater aquatic systems	NW, CaR, CW, SW
	Myriophyllum spicatum	Eurasian watermilfoil	High	A	A	B	2.8	Freshwater aquatic systems	SN, GV, CW
	Nicotiana glauca	tree tobacco	Moderate	B	B	B	2.5	Coastal scrub, grasslands, riparian woodland. Abiotic impacts unknown. Impacts vary locally. Rarely in dense stands.	NW, SN, GV, SW, D
	Olea europaea	olive	Limited	C	B	B	2.5	A problem in Australia. Rarely escapes in CA but is a concern due to the possibility of spread from planted groves.	CW, GV, NW, SW
	Ononis alopecuroides	foxtail restharrow	Limited	C	B	C	2.2	Grasslands, oak woodland. Highly invasive but impacts unknown. Nearly eradicated.	CW
	Onopordum acanthium	Scotch thistle	High	A	B	B	2.9	Wet meadows, sage brush, riparian areas	CA-FP, MP
	Oxalis pes-caprae	buttercup oxalis, Bermuda buttercup, yellow oxalis	Moderate	B	B	B	2.9	Coastal dunes, scrub, oak woodland. Impacts in coastal areas may prove more severe in time.	CW, NW, SW
	Parentucellia viscosa	yellow glandweed, sticky parentucellia	Limited	C	B	B	2.5	Coastal prairie, grassland, and dunes. Impacts unknown, but can be locally significant.	NW, CaR, SN, CW, SW
	Pennisetum clandestinum	kikuyugrass	Limited	C	C	B	2.3	Present at low levels in numerous wildland habitats. Impacts unknown. Common turf weed.	NW, CW, SW

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	Pennisetum setaceum	crimson fountaingrass	Moderate	B	B	B	2.9	Coastal dunes and scrub, chaparral, grasslands. Some horticultural cultivars sterile. Very invasive in Hawaii.	CW, NW, SN, SW
	Phalaris aquatica	hardinggrass	Moderate	B	B	B	2.6	Coastal sites, especially moist soils. Limited distribution. Can be highly invasive locally.	CW, NW, SN, SW
	Phoenix canariensis	Canary Island date palm	Limited	C	B	D	2.3	Desert washes; agricultural crop plant. Limited distribution in southern CA. Impacts can be higher locally.	CW, SW
	Picris echioides	bristly oxtongue	Limited	C	B	B	2.4	Coastal prairie, scrub, riparian woodland. Widespread locally. Abiotic impacts unknown.	CA-FP
	Piptatherum miliaceum	smilograss	Limited	C	B	B	2.4	Coastal dunes, scrub, riparian, grassland. Expanding range. Impacts largely unknown.	GV, CW, SW
	Plantago lanceolata	buckhorn plantain, English plantain	Limited	C	C	B	2.1	Many habitats. Turf weed primarily. Low density and impact in wildlands.	CA-FP
	Poa pratensis	Kentucky bluegrass	Limited	C	B	B	2.7	Grasslands scrub, riparian areas. Widespread turf plant. Abiotic impacts unknown.	CA
◆	*Polygonum cuspidatum (=Fallopia japonica)*	Japanese knotweed	Moderate	B	B	D	2.7	Riparian areas, wetlands, forest edges. More severe impacts in NW wetlands. Distribution limited in CA.	NW, CaR, SN, GV, CW
◆	*Polygonum sachalinense*	Sakhalin knotweed	Moderate	B	A	D	2.5	Riparian areas. More severe impacts in NW wetlands. Distribution limited in CA.	NW, CaR, SN, GV, CW
	Polypogon monspeliensis and subspp.	rabbitfoot polypogon, rabbitgoot grass	Limited	C	C	B	2.3	Margins of ponds and streams, seasonally wet places, edge of coastal dunes. Widespread. Impacts appear to be minor.	CA
	Potamogeton crispus	curlyleaf pondweed	Moderate	B	B	B	3.2	Freshwater aquatic systems. Can be very invasive locally.	NW, GV, CW, SW, DMoj
	Prunus cerasifera	cherry plum, wild plum	Limited	C	B	B	1.8	Riparian habitats, chaparral, woodland. Limited distribution. Abiotic impacts unknown.	NW, CW
	Pyracantha angustifolia, P. crenulata, P. coccinea	pyracantha, firethorn	Limited	C	B	B	2.8	Coastal scrub and prairie, riparian areas. Horticultural escape. Impacts unknown or minor.	NW, CW, SW
	Ranunculus repens	creeping buttercup	Limited	C	C	B	2.9	Riparian areas, coniferous forest. Impacts appear to be minor to negligible in most areas.	NW, CaR, SN, CW, SW
	Raphanus sativus	radish	Limited	C	C	B	2.5	Present at low levels in numerous habitats. Widespread in disturbed sites.	CA-FP

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◆	*Retama monosperma*	bridal broom	Moderate	B	B	C	1.8	Coastal scrub. Can spread rapidly but largely if uncontrolled. Limited distribution in CA.	SW
	Ricinus communis	castorbean	Limited	C	B	B	2.5	Coastal scrub and prairie, riparian areas. Widespread in southern CA. Impacts locally variable.	GV, CW, SW
	Robinia pseudoacacia	black locust	Limited	C	B	B	2.8	Riparian areas, canyons. Severe impacts in southern states. Impacts minor in CA.	CA-FP, GB
	Rubus armeniacus (= *R. discolor*)	Himalaya blackberry	High	A	A	A	3.0	Riparian areas, marshes, oak woodlands	CA-FP
	Rumex acetosella	red sorrel, sheep sorrel	Moderate	B	B	A	2.3	Many habitats, riparian areas, forest, wetlands. Widespread. Abiotic impacts unknown. Impacts can vary locally.	CA-FP
	Rumex crispus	curly dock	Limited	C	C	A	2.7	Grasslands, vernal pool, meadows, riparian. Widespread. Impacts appear to be minor.	CA
	Salsola paulsenii	barbwire Russian-thistle	Limited	C	C	C	2.9	Desert and Great Basin scrub. Limited distribution. Impacts in desert appear to be minor.	SW, SNE, DMoj
	Salsola tragus (=*S. kali*)	Russian-thistle	Limited	C	B	B	2.8	Desert dunes and scrub, alkali playa. Widespread. Impacts minor in wildlands.	CA
	Salvia aethiopis	Mediterranean sage	Limited	C	B	B	2.5	Sagebrush, juniper, bunchgrass. Limited distribution. Impacts minor but can be locally higher.	MP
◆	*Salvinia molesta*	giant salvinia	High	A	A	C	2.9	Freshwater aquatic systems	CW, DSon
◆	*Sapium sebiferum* (=*Triadica sebifera*)	Chinese tallowtree	Moderate	B	B	C	3.2	Riparian areas. Impacts severe in southeast US. Limited distribution, but spreading rapidly regionally.	GV
	Saponaria officinalis	bouncingbet	Limited	C	B	C	2.5	Riparian scrub and woodland. Impacts unknown or minor, but appear to be locally variable.	NW, GV, CW, SW, GB
	Schinus molle	Peruvian peppertree	Limited	C	B	B	2.5	Riparian. Limited distribution. Impacts largely unknown in CA.	GV, SN, CW, SW
	Schinus terebinthifolius	Brazilian peppertree	Limited	C	B	C	2.6	Riparian. Very invasive in tropics. Abiotic impacts unknown, but appear significant locally.	SW

Scientific names based on *The Jepson Manual*. For each species, the first common name is based on the Weed Science Society of America's "Composite List of Weeds" (www.wssa.net), followed by other names used in California. Scores: A = Severe, B = Moderate, C = Limited, D = None, U = Unknown. Documentation level averaged. Regions invaded based on Jepson geographic regions. Plant assessment forms, literature citations, and full rating criteria available at www.cal-ipc.org.

TABLE 1: Invasive Non-Native Plants that Threaten Wildlands in California (continued)

Alert ◆	Scientific Name	Common Name	Rating	Impacts	Invasiveness	Distribution	Doc. Level	Ecological Types Invaded and Other Comments	Regions Invaded
	Schismus arabicus, S. barbatus	mediterranean-grass	Limited	B	C	A	2.3	Scrub, thorn woodland. Widespread in deserts. Impacts can be more important locally.	GV, CW, SW, D
	Senecio jacobaea	tansy ragwort	Limited	C	B	B	2.8	Grasslands, riparian. Impacts generally minor. Can be locally important in NW CA.	CA-FP
◆	*Sesbania punicea*	red sesbania, scarlet wisteria	High	A	B	C	3.2	Riparian areas	GV
	Silybum marianum	blessed milkthistle	Limited	C	C	A	3.5	Grasslands, riparian. Widespread, primarily in disturbed areas. Impacts can be higher locally	NW, GV, CW, SW
	Sinapis arvensis	wild mustard, charlock	Limited	C	C	C	2.9	Grasslands. Primarily in disturbed sites. Impacts minor or unknown in wildlands.	CA-FP
	Sisymbrium irio	London rocket	Moderate	B	B	A	1.9	Scrub, grasslands. Widespread. Primarily in disturbed sites. Impacts vary locally.	GV, SW
◆	*Spartina alterniflora* (and *S. alterniflora* x *foliosa* hybrids)	smooth cordgrass & hybrids, Atlantic cordgrass	High	A	A	C	3.5	San Francisco Bay salt marshes and mudflats. Hybridizes with native *S. foliosa*.	CW
◆	*Spartina anglica*	common cordgrass	Moderate	B	B	D	3.4	San Francisco Bay salt marshes. Very severe impact in other countries. Limited distribution in CA.	CW
◆	*Spartina densiflora*	dense-flowered cordgrass	High	A	B	C	3.3	San Francisco and Humboldt Bay salt marshes	NW, CW
	Spartina patens	saltmeadow cordgrass	Limited	C	C	D	2.9	San Francisco Bay salt marshes. Very limited distribution. Impacts currently minor in CA, but high in other countries.	CW
	Spartium junceum	Spanish broom	High	A	B	B	3.2	Coastal scrub, grasslands, wetlands, oak woodland, forests	NW, CW, SW
◆	*Stipa capensis*	Mediterranean steppegrass, twisted-awned speargrass	Moderate	B	B	D	1.9	Desert scrub. First recorded in CA 1995. Limited distribution, but spreading rapidly in CA deserts.	DSon
	Taeniatherum caput-medusae	medusahead	High	A	A	A	3.4	Grasslands, scrub, woodland	CaR, NW, SN, GV, SW

Scientific names based on *The Jepson Manual*. For each species, the first common name is based on the Weed Science Society of America's "Composite List of Weeds" (www.wssa.net), followed by other names used in California. Scores: A = Severe, B = Moderate, C = Limited, D = None, U = Unknown. Documentation level averaged. Regions invaded based on Jepson geographic regions. Plant assessment forms, literature citations, and full rating criteria available at www.cal-ipc.org.

TABLE 1: Invasive Non-Native Plants that Threaten Wildlands in California (continued)

Alert ◆	Scientific Name	Common Name	Rating	Impacts	Invasiveness	Distribution	Doc. Level	Ecological Types Invaded and Other Comments	Regions Invaded
	Tamarix aphylla	athel tamarisk	Limited	C	B	B	3.5	Desert washes, riparian areas. Limited distribution. Impacts minor, but can be locally higher.	GV, SW, D
	Tamarix parviflora	smallflower tamarisk	High	A	A	B	3.1	Riparian areas, desert washes, coastal scrub	NW, GV, CW, Dmoj
	Tamarix ramosissima	saltcedar, tamarisk	High	A	A	A	3.3	Desert washes, riparian areas, seeps and springs	SN, GV, CW, SW, D, SNE
	Tanacetum vulgare	common tansy	Moderate	B	B	B	2.3	Riparian areas, forest. Limited distribution. Severe problem in other western states.	NW, CaR,
	Torilis arvensis	hedgeparsley	Moderate	C	B	A	2.3	Expanding range. Appears to have only moderate ecological impacts.	CA-FP, especially CW, NW
	Trifolium hirtum	rose clover	Moderate	C	B	B	2.8	Grasslands, oak woodland. Widely planted in CA. Impacts relatively minor in most areas.	CA-FP
	Ulex europaeus	gorse	High	A	B	B	2.9	Scrub, woodland, forest, coastal grassland	NW, CaR, SN, CW
	Undaria pinnatifida	wakame	Limited	C	B	C	3.3	Algae of estuaries. First recorded in CA in 2000. Impacts unknown, but do not appear to be significant	CW, SW
	Verbascum thapsus	common mullein, woolly mullein	Limited	C	B	B	3.8	Meadows, riparian, sagebrush, pinyon-juniper woodlands. Widespread. Impacts minor.	NW, CaR, SN
	Vinca major	big periwinkle	Moderate	B	B	B	2.8	Riparian, oak woodlands, coastal scrub. Distribution currently limited but spreading in riparian areas. Impacts can be higher locally.	CaR, SW, SN, GV
	Vulpia myuros	rattail fescue	Moderate	B	B	A	3.0	Coastal sage scrub, chaparral. Widespread. Rarely forms monotypic stands, but locally problematic.	CA-FP, D
◆	*Washingtonia robusta*	Mexican fan palm	Moderate	B	B	C	2.7	Desert washes. Limited distribution but spreading in southern CA. Impacts can be higher locally.	SW
	Watsonia meriana	bulbil watsonia	Limited	C	B	C	2.3	Coastal prairie, coniferous forest. Abiotic impacts unknown, but may be locally dense.	NW
	Zantesdeschia aethiopica	calla lily	Limited	C	B	C	2.1	Coastal prairie, wetlands. Impacts high in other countries and local impacts may be high in CA.	NW, CW, SW

Scientific names based on *The Jepson Manual*. For each species, the first common name is based on the Weed Science Society of America's "Composite List of Weeds" (www.wssa.net), followed by other names used in California. Scores: A = Severe, B = Moderate, C = Limited, D = None, U = Unknown. Documentation level averaged. Regions invaded based on Jepson geographic regions. Plant assessment forms, literature citations, and full rating criteria available at www.cal-ipc.org.

TABLE 2: Species Native to Part of California, but Invasive in Other Parts of the State

A few native species have become invasive in regions outside their natural range. This table lists those species that cause negative impacts in their introduced range. No overall rating is provided, since impacts are not statewide, but the section scores for each of the three plants assessed would result in Moderate ratings for the areas in which they are invasive.

Scientific Name	Common Name	Impacts	Invasiveness	Distribution	Doc. Level	Ecological Types Invaded and Other Comments	Native Range	Invasive Range
Cupressus macrocarpa	Monterey cypress	B	B	B	2.3	Native to Monterey area. Invades coastal prairie, desert scrub, riparian areas.	CW	NW
Lupinus arboreus	yellow bush lupine	B	B	B	3.5	Native south of Point Reyes. Invasive in north coast dunes.	SW, CW Bay Area	NW
Phragmites australis	common reed	Unable to score.				Genetic issues make it unclear which strains are native to CA.	Uncertain	
Pinus radiata cultivars	Monterey pine	B	B	B	2.6	Five populations native to CA. Invades coastal scrub, prairie, and chaparral.	CW	NW

Scientific names based on *The Jepson Manual*. For each species, the first common name is based on the Weed Science Society of America's "Composite List of Weeds" (www.wssa.net), followed by other names used in California. Scores: A = Severe, B = Moderate, C = Limited, D = None, U = Unknown. Documentation level averaged. Regions invaded based on Jepson geographic regions. Plant assessment forms, literature citations, and full rating criteria available at www.cal-ipc.org.

TABLE 3: Species Evaluated But Not Listed

In general, this designation is for species for which information is currently inadequate to respond with certainty to the minimum number of criteria questions (i.e., too many "U" responses), or for which the sum effects of Ecological Impacts, Invasive Potential, and Ecological Amplitude and Distribution fall below the threshold for ranking (i.e. the overall score falls below Limited). Many such species are widespread but are not known to have substantial ecological impacts (though such evidence may appear in the future). All species receiving a D score for Ecological Impacts, regardless of other section scores, are by default placed into this category.

Scientific Name	Common Name	Impacts	Invasiveness	Distribution	Doc. Level	Comments
Acacia paradoxa	kangaroothorn	D	C	C	2.5	Does not spread in wildlands.
Aeschynomene rudis	rough jointvetch	D	C	D	3.2	Serious agricultural weed, but not known to have impacts in wildlands.
Aira caryophyllea	silver hairgrass	D	C	A	2.6	Widespread in grasslands, but impacts appear negligible.
Aira praecox	European hairgrass	D	C	C	2.8	Appears to be spreading locally, but impacts unknown.
Albizia lophantha	plume acacia	U	B	C	1.5	Present in Golden Gate National Recreation Area. Need more information
Allium triquetrum	three-cornered leak	U	C	C	1.6	Impacts unknown.
Anthemis cotula	mayweed chamomile, dog fennel	D	B	B	2.4	Abiotic and wildife impacts unknown
Bellis perennis	English daisy	D	C	C	2.8	Present along trails, not known to spread into undisturbed areas.
Berberis darwinii	Darwin barberry	U	B	D	2.1	Impacts unknown.
Buddleja davidii	butterflybush	D	B	D	2.5	Not known to be invasive in CA, although it is a problem in Oregon.
Cestrum parqui	willow jessamine	U	B	C	2.0	Impacts unknown.
Chorispora tenella	blue mustard	U	C	C	1.5	Impacts unknown.
Cistus ladanifer	gum rockrose	D	C	C	3.3	Negligible known impacts in wildlands.
Convolvulus arvensis	field bindweed	D	B	B	3.5	Only known as agricultural weed.
Daucus carota	wild carrot, Queen Anne's lace	D	C	B	2.7	Very widespread, but primarily in disturbed sites, particularly roadsides.
Dimorphotheca sinuata	African daisy	D	C	B	1.8	Impacts to abiotic processes and plant communities unknown.
Erigeron karvinskianus	Mexican daisy	U	B	C	1.9	Impacts unknown, but appears to be expanding. May become more problematic in future.
Erodium botrys	broadleaf filaree	D	C	A	2.8	Present in wildlands but known impacts are negligible. Often transient.
Erodium brachycarpum	short-fruited filaree	D	C	A	2.6	Present in wildlands but known impacts are negligible. Often transient.
Erodium moschatum	whitestem filaree	D	C	A	2.7	Primarily an agricultural weed, little impact in wildlands.
Euphorbia lathyris	caper spurge	D	C	B	2.2	Abiotic impacts unknown.
Fumaria officinalis	fumitory	D	C	D	2.3	Abiotic impacts unknown.
Geranium molle	dovefoot geranium	D	B	A	1.7	Present in wildlands, but known impacts are negligible.

TABLE 3: Species Evaluated But Not Listed (continued)

Scientific Name	Common Name	Impacts	Invasiveness	Distribution	Doc. Level	Comments
Geranium retrorsum	New Zealand geranium	D	B	B	1.9	Present in wildlands, but known impacts are negligible.
Geranium robertianum	herb-robert, Robert geranium	D	B	C	2.8	Present in wildlands, but known impacts are negligible.
Gleditsia triacanthos	honey locust	D	B	C	3.3	Very limited distribution.
Lactuca serriola	prickly lettuce	D	C	B	3.1	Primarily an agricultural and roadside weed.
Leptospermum laevigatum	Australian tea tree	D	C	D	2.2	Very limited distribution.
Ligustrum lucidum	glossy privet	D	B	C	3.1	May prove problematic in riparian areas.
Lotus corniculatus	birdsfoot trefoil	D	B	B	2.8	Primarily a turf or agricultural weed in CA.
Malephora crocea	coppery mesembryan-themum	D	C	C	2.0	A problem on southern CA islands, but statewide impacts are limited.
Maytenus boaria	mayten	D	C	D	2.4	Infestation on Angel Island, San Francisco Bay.
Melilotus officinalis	yellow sweetclover	D	C	C	3.3	Present in human-disturbed habitats only.
Nerium oleander	oleander	D	B	D	2.6	Not known to be invasive, although reported from riparian areas in Central Valley and San Bernardino Mtns.
Nothoscordum gracile	false garlic	D	B	D	2.1	Mainly an urban garden weed.
Nymphaea odorata	fragrant waterlily	D	B	C	2.3	Present only at one site.
Oxalis corniculata	creeping woodsorrel	D	C	C	2.2	Primarily a turf weed in CA.
Parkinsonia aculeata	Mexican palo-verde	D	B	D	2.2	Has not escaped into wildlands enough to cause impacts.
Pistachia chinensis	Chinese pistache	U	C	D	0.9	Impacts unknown.
Pittosporum undulatum	Victorian box	D	C	D	2.7	Infestations in CA are small. More problematic on north coast.
Plantago coronopus	cutleaf plaintain	U	C	B	1.7	Impacts unknown. Common on north coast.
Solanum elaeagnifolium	silverleaf nightshade	D	B	B	2.8	Primarily an agricultural weed, but escaping to wildlands in other countries. May prove to be more important in future.
Sonchus asper	spiny sowthistle	D	B	B	3.1	Primarily an agricultural weed.
Taraxacum officinale	common dandelion	D	B	B	2.8	Primarily a turf weed in CA.
Tragopogon dubius	yellow salsify	D	C	B	3.2	Generally a minor component of disturbed areas.
Tropaeolum majus	garden nasturtium	D	C	C	1.4	Impacts on abiotic processes and native plants unknown.
Ulmus pumila	Siberian elm	D	B	B	2.5	Impacts unknown.
Verbena bonariensis, V. litoralis	tall vervain, seashore vervain	D	B	C	2.1	Often in disturbed areas of irrigation canals.
Vicia villosa	hairy vetch	D	C	B	2.8	Primarily an agricultural weed. Widespread but impacts minor in wildlands.
Vulpia bromoides	squirreltail fescue	D	C	B	2.9	Less common than *V. myuros.*

TABLE 4: Species Nominated but Not Reviewed

The following species were nominated for review, but not evaluated because either they are not known to escape into wildlands or we lacked sufficient information to complete an assessment.

Scientific Name	Common Name	Comments
Aptenia cordifolia	baby sun rose, heartleaf iceplant	Occasional ornamental escape.
Araujia sericifera	bladderflower	Need more information.
Brassica oleracea	cabbage	Disturbed areas along north and central coast.
Catalpa bignonioides	southern catalpa	Reported from Sacramento/San Joaquin Valley riparian corridors. Need more information.
Chrysanthemum segetum	corn daisy	Disturbed areas only.
Coprosma repens	creeping mirrorplant	1999 Cal-EPPC list indicated no evidence of wildland threat.
Crepis capillaris	smooth hawksbeard	Primarily in pastures and roadsides in coastal areas of northwest CA.
Erica lusitanica	Spanish heath	Reported from Humboldt and Del Norte Cos. Need more information.
Eriogonum fasciculatum	California buckwheat	Invades along roadsides and other areas of human disturbance. Not known to threaten wildlands.
Gazania linearis	gazania	Reported to invade in San Francisco Bay Area. Need more information.
Grindelia squarrosa	curlycup gumweed, gumplant	Mainly along roadsides. More a problem in Nevada.
Kniphofia uvaria	redhot poker	Primarily along roadsides.
Lathyrus latifolius	perennial sweetpea	Reported from the north coast. Need more information.
Lathyrus tingitanus	Tangier pea	Along roadsides. Need more information.
Limonium ramosissimum ssp. *provinciale*	sea-lavender	Present in salt marshes. Need more information.
Melilotus indicus	Indian sweetclover	Reported from disturbed sites. Need more information.
Mesembryanthemum nodiflorum	slenderleaf iceplant	Common in San Diego area along coast. Need more information on impacts.
Osteospermum fruticosum	shrubby daisybush	Occasional ornamental escape in southern CA. Does not appear to be invasive.
Passiflora caerulea	blue passionflower	Not known to invade wildlands.
Phalaris arundinacea	reed canarygrass	*Jepson Manual* lists it as native in CA. Acts like a native in most areas of the state. A problem in NW states.
Phoenix dactylifera	date palm	Reported from southern CA deserts. Need more information.
Phytolacca americana	pokeweed	Reported invading riparian areas in northern Sacramento Valley. Need more information.
Salsola soda	glasswort	Reported from San Francisco Bay shorelines and creek mouths. Need more information.
Ulmus parvifolia	Chinese elm	Present in disturbed areas or old homesites only.
Watsonia borbonica	watsonia	May be confused with *W. meriana*, which is invasive in Mendocino Co.
Zoysia spp.	zoysiagrass	Does not appear to have escaped from turf.

APPENDIX 1. Species Listed by Category

◆ = Alert

High

Aegilops triuncialis (barb goatgrass)

◆ *Alternanthera philoxeroides* (alligatorweed)

Ammophila arenaria (European beachgrass)

Arundo donax (giant reed)

Brassica tournefortii (Saharan mustard, African mustard)

Bromus madritensis ssp. *rubens* (=*B. rubens*) (red brome)

Bromus tectorum (downy brome, cheatgrass)

Carpobrotus edulis (Hottentot-fig, iceplant)

Centaurea maculosa (=*C. bibersteinii*) (spotted knapweed)

Centaurea solstitialis (yellow starthistle)

Cortaderia jubata (jubatagrass)

Cortaderia selloana (pampasgrass)

Cytisus scoparius (Scotch broom)

Delairea odorata (=*Senecio mikanioides*) (Cape-ivy, German-ivy)

Egeria densa (Brazilian egeria)

Ehrharta calycina (purple veldtgrass)

◆ *Eichhornia crassipes* (water hyacinth)

◆ *Euphorbia esula* (leafy spurge)

Foeniculum vulgare (fennel)

Genista monspessulana (French broom)

Hedera helix, H. canariensis (English ivy, Algerian ivy)

◆ *Hydrilla verticillata* (hydrilla)

Lepidium latifolium (perennial pepperweed, tall whitetop)

◆ *Ludwigia hexapetala* (=*L. uruguayensis*) (Uruguay water-primrose)

Ludwigia peploides ssp. *montevidensis* (creeping water-primrose)

Lythrum salicaria (purple loosestrife)

◆ *Myriophyllum aquaticum* (parrotfeather)

Myriophyllum spicatum (Eurasian watermilfoil)

Onopordum acanthium (Scotch thistle)

Rubus armeniacus (=*R. discolor*) (Himalaya blackberry, Armenian blackberry)

◆ *Salvinia molesta* (giant salvinia)

◆ *Sesbania punicea* (red sesbania, scarlet wisteria)

◆ *Spartina alterniflora* hybrids (smooth cordgrass, Atlantic cordgrass)

◆ *Spartina densiflora* (dense-flowered cordgrass)

Spartium junceum (Spanish broom)

Taeniatherum caput-medusae (medusahead)

Tamarix parviflora (smallflower tamarisk)

Tamarix ramosissima (saltcedar, tamarisk)

Ulex europaeus (gorse)

Moderate

Ageratina adenophora (croftonweed, eupatorium)

Ailanthus altissima (tree-of-heaven)

Alhagi maurorum (=*A. pseudalhagi*) (camelthorn)

Anthoxanthum odoratum (sweet vernalgrass)

◆ *Arctotheca calendula* (fertile) (fertile capeweed)

Arctotheca calendula (sterile) (sterile capeweed)

◆ *Asparagus asparagoides* (bridal creeper, smilax asparagus)

◆ *Asphodelus fistulosus* (onionweed)

Atriplex semibaccata (Australian saltbush)

Avena barbata (slender wild oat)

Avena fatua (wild oat)

◆ *Brachypodium sylvaticum* (perennial false-brome)

Brassica nigra (black mustard)

Bromus diandrus (ripgut brome)

◆ *Cardaria chalepensis* (=*C. draba* ssp. *chalepensis*) (lens-podded whitetop)

Cardaria draba (hoary cress)

Carduus nutans (musk thistle)

Carduus pycnocephalus (Italian thistle)

Carpobrotus chilensis (sea-fig, iceplant)

◆ *Carthamus lanatus* (woolly distaff thistle)

Moderate *(continued)*

Centaurea calcitrapa (purple starthistle)

◆ *Centaurea debeauxii* (=*C.* x *pratensis*) (meadow knapweed)

Centaurea melitensis (Malta starthistle, tocalote)

Centaurea virgata ssp. *squarrosa* (=*C. squarrosa*) (squarrose knapweed)

Chondrilla juncea (rush skeletonweed)

Chrysanthemum coronarium (crown daisy)

Cirsium arvense (Canada thistle)

Cirsium vulgare (bull thistle)

Conium maculatum (poison-hemlock)

Cotoneaster franchetii (orange cotoneaster)

Cotoneaster lacteus (Parney's cotoneaster)

Cotoneaster pannosus (silverleaf cotoneaster)

Cynara cardunculus (artichoke thistle)

Cynodon dactylon (bermudagrass)

Cynoglossum officinale (houndstongue)

Cynosurus echinatus (hedgehog dogtailgrass)

Cytisus striatus (Portuguese broom, striated broom)

Dipsacus fullonum (wild teasel)

Dipsacus sativus (fuller's teasel)

◆ *Dittrichia graveolens* (stinkwort)

Ehrharta erecta (erect veldtgrass)

◆ *Ehrharta longiflora* (long-flowered veldtgrass)

Elaeagnus angustifolia (Russian-olive)

◆ *Emex spinosa* (spiny emex, devil's thorn)

Erechtites glomerata, E. minima (Australian fireweed, Australian burnweed)

Eucalyptus globulus (Tasmanian blue gum)

◆ *Euphorbia terracina* (carnation spurge)

Festuca arundinacea (tall fescue)

Ficus carica (edible fig)

Geranium dissectum (cutleaf geranium)

Glyceria declinata (waxy mannagrass)

Halogeton glomeratus (halogeton)

Hirschfeldia incana (shortpod mustard, summer mustard)

Holcus lanatus (common velvetgrass)

Hordeum marinum, H. murinum (Mediterranean barley, hare barley, wall barley)

◆ *Hypericum canariense* (Canary Island hypericum)

Hypericum perforatum (common St. Johnswort, klamathweed)

Hypochaeris radicata (rough catsear, hairy dandelion)

◆ *Ilex aquifolium* (English holly)

Isatis tinctoria (dyer's woad)

Kochia scoparia (kochia)

Leucanthemum vulgare (oxeye daisy)

Linaria genistifolia ssp. *dalmatica* (=*L. dalmatica*) (Dalmation toadflax)

Lolium multiflorum (Italian ryegrass)

Lythrum hyssopifolium (hyssop loosestrife)

Mentha pulegium (pennyroyal)

◆ *Mesembryanthemum crystallinum* (crystalline iceplant)

Myoporum laetum (myoporum)

Nicotiana glauca (tree tobacco)

Oxalis pes-caprae (buttercup oxalis, yellow oxalis, Bermuda buttercup)

Pennisetum setaceum (crimson fountaingrass)

Phalaris aquatica (hardinggrass)

◆ *Polygonum cuspidatum* (=*Fallopia japonica*) (Japanese knotweed)

◆ *Polygonum sachalinense* (Sakhalin knotweed, giant knotweed)

Potamogeton crispus (curlyleaf pondweed)

◆ *Retama monosperma* (bridal broom)

Rumex acetosella (red sorrel, sheep sorrel)

◆ *Sapium sebiferum* (Chinese tallowtree)

Sisymbrium irio (London rocket)

◆ *Spartina anglica* (common cordgrass)

◆ *Stipa capensis* (Mediterranean steppegrass, twisted-awned speargrass)

Tanacetum vulgare (common tansy)

Torilis arvensis (hedgeparsley)

Trifolium hirtum (rose clover)

Vinca major (big periwinkle)

Vulpia myuros (rattail fescue)

◆ *Washingtonia robusta* (Mexican fan palm, Washington palm)

Limited

Acacia melanoxylon (black acacia, blackwood acacia)

Agrostis avenacea (Pacific bentgrass)

Agrostis stolonifera (creeping bentgrass)

Bassia hyssopifolia (fivehook bassia)

Bellardia trixago (bellardia)

Brassica rapa (birdsrape mustard, field mustard)

Briza maxima (big quackinggrass, rattlesnakegrass)

Bromus hordeaceus (soft brome)

Cakile maritima (European sea-rocket)

Cardaria pubescens (hairy whitetop)

Carduus acanthoides (plumeless thistle)

Carduus tenuifolius (slenderflower thistle)

Conicosia pugioniformis (narrowleaf iceplant)

Cordyline australis (giant dracaena, New Zealand-cabbage tree)

Cotula coronopifolia (brassbuttons)

Crataegus monogyna (English hawthorn)

Crocosmia x *crocosmiiflora* (montbretia)

Crupina vulgaris (common crupina, bearded creeper)

Dactylis glomerata (orchardgrass)

Descurainia sophia (flixweed, tansy mustard)

Digitalis purpurea (foxglove)

Echium candicans (pride-of-Madeira)

Erodium cicutarium (redstem filaree)

Eucalyptus camaldulensis (red gum)

Euphorbia oblongata (oblong spurge)

Helichrysum petiolare (licoriceplant)

Hypochaeris glabra (smooth catsear)

Iris pseudacorus (yellowflag iris)

Lobularia maritima (sweet alyssum)

Marrubium vulgare (white horehound)

Medicago polymorpha (California burclover)

Myosotis latifolia (common forget-me-not)

Olea europaea (olive)

Ononis alopecuroides (foxtail restharrow)

Parentucellia viscosa (yellow glandweed, sticky parentucellia)

Pennisetum clandestinum (kikuyugrass)

Phoenix canariensis (Canary Island date palm)

Picris echioides (bristly oxtongue)

Piptatherum miliaceum (smilograss)

Plantago lanceolata (buckhorn plantain, English plantain)

Poa pratensis (Kentucky bluegrass)

Polypogon monspeliensis and subspp. (rabbitfoot polypogon, annual beardgrass, rabbitfoot grass)

Prunus cerasifera (cherry plum, wild plum)

Pyracantha angustifolia, P. crenulata, P. coccinea, etc. (pyracantha, firethorn)

Ranunculus repens (creeping buttercup)

Raphanus sativus (radish)

Ricinus communis (castorbean)

Robinia pseudoacacia (black locust)

Rumex crispus (curly dock)

Salsola paulsenii (barbwire Russian-thistle)

Salsola tragus (Russian-thistle)

Salvia aethiopis (Mediterranean sage)

Saponaria officinalis (bouncingbet)

Schinus molle (Peruvian peppertree)

Schinus terebinthifolius (Brazilian peppertree)

Schismus arabicus, S. barbatus (mediterraneangrass)

Senecio jacobaea (tansy ragwort)

Silybum marianum (blessed milkthistle)

Sinapis arvensis (wild mustard, charlock)

Spartina patens (saltmeadow cordgrass)

Tamarix aphylla (athel tamarisk)

Undaria pinnatifida (wakame)

Verbascum thapsus (common mullein, woolly mullein)

Watsonia meriana (bulbil watsonia)

Zantesdeschia aethiopica (calla lily)

APPENDIX 2. Cal-IPC Species Listed by Other Ratings Systems

This table is provided so that those familiar with other commonly-used ratings systems may compare those lists to the 2006 Cal-IPC ratings. See the cited websites for explanations of rating systems. Species not included in this appendix do not appear on any of these lists.

Cal-EPPC 1999 – Cal-EPPC. 1999. The Cal-EPPC List: Exotic Pest Plants of Greatest Ecological Concern in California. California Exotic Pest Plant Council: San Juan Capistrano, CA. Available: www.cal-ipc.org.

CDFA – CDFA. 2005. EncycloWeedia: Notes on Identification, Biology, and Management of Plants Defined as Noxious Weeds by California Law. California Department of Food and Agriculture: Sacramento, CA. Available: www.cdfa.ca.gov/weedhome.

USDA – Plant Protection and Quarantine. 2002. Federal Noxious Weed List. USDA Animal and Plant Health Inspection Service. US Department of Agriculture: Washington, D.C. Available: plants.usda.gov.

AZ – Arizona Invasive Plant Working Group. 2005. Invasive Non-native Plants that Threaten Wildlands in Arizona. Southwest Vegetation Management Association. Available: www.swvma.org.

NatureServe – NatureServe. 2005. Invasive Species Impact Ranks for the United States: Summary of Results as of January 10, 2005. NatureServe: Arlington, VA. Available: www.natureserve.org.

Scientific Name	Cal-EPPC 1999	CDFA	USDA	Arizona	NatureServe
Acacia melanoxylon	Need More Info				Medium/Insignificant
Acacia paradoxa		B			
Acroptilon repens		B		High	High/Medium
Aegilops triuncialis	Annual Grasses	B			
Aeschynomene rudis	Need More Info	A			
Ageratina adenophora	B		✔		
Agrostis avenacea	Need More Info				
Ailanthus altissima	A-2	*			Medium/Low
Aira caryophyllea					Medium/Insignificant
Albizia lophantha	Considered, not listed				
Alhagi maurorum (=*A. pseudalhagi*)	Red Alert	A		Medium	Medium/Low
Alternanthera philoxeroides		A			Medium
Ammophila arenaria	A-1				High/Medium
Anthemis cotula					Medium/Insignificant
Anthoxanthum odoratum	Considered, not listed				
Aptenia cordifolia	Need More Info				
Araujia sericifera		B			
Arctotheca calendula (fertile strains)	Red Alert	A			

APPENDIX 2: Cal-IPC Species Listed by Other Rating Systems (continued)

Scientific Name	Cal-EPPC 1999	CDFA	USDA	Arizona	NatureServe
Arundo donax	A-1	*		High	High
Asparagus asparagoides					Low/Insignificant
Asphodelus fistulosus	Need More Info		✔	Low	
Atriplex semibaccata	A-2				High/Low
Avena barbata	Annual Grasses				
Avena fatua	Annual Grasses			Medium	High/Low
Bassia hyssopifolia	B				Low/Insignificant
Bellardia trixago	B				Medium/Insignificant
Brachypodium sylvaticum					High/Low
Brassica nigra	B				
Brassica tournefortii	A-2			Medium	High/Low
Bromus diandrus	Annual Grasses			Medium-Alert	
Bromus madritensis ssp. *rubens* (=*B. rubens*)	A-2			High	
Bromus tectorum	A-1			High	High
Buddleja davidii					High/Low
Cardaria chalepensis (=*C. draba* ssp. *chalepensis*)	B	B		Medium-Alert	
Cardaria draba	A-2	B		Medium-Alert	
Cardaria pubescens		B		Medium-Alert	
Carduus acanthoides	Need More Info	A			Medium/Low
Carduus nutans		A		Medium	High/Low
Carduus pycnocephalus	B	C			Medium
Carduus tenuifolius		C			Unknown
Carpobrotus chilensis	Considered, not listed				Medium
Carpobrotus edulis	A-1				High
Carthamus lanatus		B			
Centaurea debeauxii (=*C.* x *pratensis*)		A			
Centaurea diffusa		A		Medium	
Centaurea maculosa (=*C. bibersteinii*)	Red Alert	A		Medium	
Centaurea melitensis	B	C		Medium	Medium/Low
Centaurea solstitialis	A-1	C		High	High/Medium
Centaurea virgata ssp. *squarrosa* (=*C. squarrosa*)		A			
Chondrilla juncea		A		Medium-Alert	Medium/Insignificant
Chorispora tenella		B			Insignificant
Cirsium arvense	B	B		Medium	
Cirsium vulgare	B	*		Low	
Cistus ladanifer	Need More Info				
Conicosia pugioniformis	A-2				

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APPENDIX 2: Cal-IPC Species Listed by Other Rating Systems (continued)

Scientific Name	Cal-EPPC 1999	CDFA	USDA	Arizona	NatureServe
Conium maculatum	B			Medium-Alert	Medium/Low
Convolvulus arvensis	Considered, not listed	C		Medium	Medium/Low
Coprosma repens	Considered, not listed				
Cordyline australis	Need More Info				
Cortaderia jubata	A-1	*			Medium
Cortaderia selloana	A-1			Medium	Medium/Low
Cotoneaster franchetii	Need More Info				
Cotoneaster lacteus	A-2				
Cotoneaster pannosus	A-2				Medium
Crataegus monogyna	B				
Crocosmia x *crocosmiiflora*	Considered, not listed				
Crupina vulgaris	Red Alert	A	✔		Medium/Low
Cupressus macrocarpa	Need More Info				
Cynara cardunculus	A-1	B			Medium
Cynodon dactylon		C		Medium	Medium/Low
Cynoglossum officinale				Low	Medium/Low
Cytisus scoparius	A-1	C			High/Medium
Cytisus striatus	A-2				
Dactylis glomerata					Medium/Insig
Daucus carota					Low
Delairea odorata	A-1	*			Medium
Descurainia sophia	Need More Info				Medium/Low
Digitalis purpurea	Considered, not listed				Medium/Insignificant
Dimorphotheca sinuata	Need More Info				
Dipsacus fullonum	Considered, not listed				High/Low
Dipsacus sativus	Considered, not listed				
Echium candicans	Need More Info				
Egeria densa	A-2	C			High/Medium
Ehrharta calycina	A-2				Medium/Low
Ehrharta erecta	B				Medium/Insignificant
Ehrharta longiflora	Need More Info				
Eichhornia crassipes	A-2			High-Alert	High
Elaeagnus angustifolia	A-2			High	High
Emex spinosa			✔		Insignificant
Erechtites glomerata, E. minima	B				Medium/Insignificant
Erica lusitanica	Need More Info				
Erodium brachycarpum					Insignificant

APPENDIX 2: Cal-IPC Species Listed by Other Rating Systems (continued)

Scientific Name	Cal-EPPC 1999	CDFA	USDA	Arizona	NatureServe
Erodium cicutarium				Medium	Medium/Low
Eucalyptus globulus	A-1				Medium
Euphorbia esula	A-2	A		High-Alert	High/Medium
Euphorbia lathyris	Need More Info				
Euphorbia oblongata		B			
Festuca arundinacea	B				
Ficus carica	A-2				Medium
Foeniculum vulgare	A-1				Medium/Low
Fumaria officinalis	Considered, not listed				
Gazania linearis	Need More Info				
Genista monspessulana	A-1	C			Medium
Glyceria declinata	Need More Info				
Halogeton glomeratus	Red Alert	A			High/Medium
Hedera helix	B				High/Medium
Hedera canariensis	Need More Info				
Helichrysum petiolare	Red Alert				
Hirschfeldia incana	Need More Info				High/Low
Holcus lanatus	B				
Hordeum marinum, H. murinum				Medium	High/Low
Hydrilla verticillata	Red Alert	A	✔	Not listed	High/Medium
Hypericum canariense	Need More Info				Low
Hypericum perforatum	B	C			High/Medium
Hypochaeris radicata	Need More Info				High/Low
Ilex aquifolium	B				High/Low
Iris pseudacorus	B				
Isatis tinctoria	Need More Info	B			High/Low
Lactuca serriola					Low/Insignificant
Lepidium latifolium	A-1	B		High-Alert	High
Leucanthemum vulgare	B			Low	Medium/Low
Ligustrum lucidum	Need More Info				
Limonium ramosissimum ssp. *provincale*	Need More Info				
Linaria genistifolia ssp. *dalmatica (=L. dalmatica)*		A		Medium-Alert	
Lolium multiflorum	Annual Grasses				
Lotus corniculatus					Medium/Low
Ludwigia hexapetala (=L. uruguayensis)	Need More Info				
Lupinus arboreus	A-2				
Lythrum salicaria	Red Alert	B			

APPENDIX 2: Cal-IPC Species Listed by Other Rating Systems (continued)

Scientific Name	Cal-EPPC 1999	CDFA	USDA	Arizona	NatureServe
Malephora crocea	Need More Info				
Marrubium vulgare					Medium/Low
Maytenus boaria	Need More Info				
Medicago polymorpha	Considered, not listed				
Melilotus officinalis	Considered, not listed			Medium	Medium/Low
Mentha pulegium	A-2				
Mesembryanthemum crystallinum	B			Low	
Mesembryanthemum nodiflorum	Need More Info			Medium-Alert	
Myoporum laetum	A-2				
Myriophyllum aquaticum	B			High-Alert	High/Medium
Myriophyllum spicatum	A-1			High-Alert	High
Nerium oleander	Considered, not listed				Low/Insignificant
Nicotiana glauca	Need More Info				High/Low
Olea europaea	B				
Ononis alopecuroides	Red Alert	Q			
Onopordum acanthium		A		Low	
Oxalis pes-caprae	Need More Info				
Parentucellia viscosa	Need More Info				
Passiflora caerulea	Need More Info				
Pennisetum clandestinum	Need More Info	C	✔		
Pennisetum setaceum	A-1			High	High/Medium
Phalaris aquatica	B				
Picris echioides	Considered, not listed				
Pinus radiata cultivars	Need More Info				
Piptatherum miliaceum	Need More Info				
Pistachia chinensis	Need More Info				
Pittosporum undulatum					High/Low
Plantago lanceolata					High/Low
Polygonum cuspidatum (=Fallopia japonica)		B			
Polygonum sachalinense					High/Medium
Polypogon monspeliensis and subspp.					High/Low
Potamogeton crispus	B				Medium
Prunus cerasifera	Need More Info				Medium/Insignificant
Pyracantha angustifolia, crenulata, coccinea, etc.	Need More Info				Hi/Low, Low/Insig
Ranunculus repens					High/Medium
Retama monosperma	Red Alert				
Ricinus communis	B				

APPENDIX 2: Cal-IPC Species Listed by Other Rating Systems (continued)

Scientific Name	Cal-EPPC 1999	CDFA	USDA	Arizona	NatureServe
Robinia pseudoacacia	B				
Rubus armeniacus (=*R. discolor*)	A-1			Medium-Alert	Medium/Insignificant
Salsola paulsenii		C		Medium	Low
Salsola soda	Need More Info				
Salsola tragus (=*S. kali*)	Need More Info	C		Medium	
Salvia aethiopis	Need More Info	B			Low
Salvinia molesta	Red Alert		✔	High-Alert	Medium
Sapium sebiferum	Red Alert				
Saponaria officinalis	A-2				Low/Insignificant
Schinus molle	B				Medium/Low
Schinus terebinthifolius	B				
Schismus arabicus, S. barbatus	Annual Grasses			Medium	Medium, Hi/Medium
Senecio jacobaea	B	B			Low
Sesbania punicea	Red Alert				
Silybum marianum	Considered, not listed				Medium/Low
Sisymbrium irio					Medium/Insignificant
Solanum elaeagnifolium		B			
Sonchus asper				Medium	
Spartina alterniflora hybrids	A-2				
Spartina anglica	Red Alert				
Spartina densiflora	Red Alert				High/Medium
Spartina patens	Red Alert				
Spartium junceum	B	*			
Stipa capensis	Need More Info				
Taeniatherum caput-medusae	A-1	C			High
Tamarix aphylla	Need More Info			Low	
Tamarix parviflora	A-1	*			
Tamarix ramosissima	A-1	*		High	High
Tanacetum vulgare	Need More Info				Low
Ulex europaeus	A-1	B			
Ulmus pumila				Medium	Medium/Low
Verbascum thapsus	B			Not listed	Medium
Verbena bonariensis, V. litoralis	Need More Info				
Vinca major	B			Medium-Alert	
Zantesdeschia aethiopica	Considered, not listed				Medium/Low
Zoysia spp.	Considered, not listed				

*Under consideration. Not yet rated.

APPENDIX 3. Examples of Ecological Types

These ecological types were used to score the Distribution section of plant assessment forms. Adapted from "Preliminary Descriptions of the Terrestrial Natural Communities of California" drafted by R. F. Holland for the California Department of Fish and Game (1986). Communities within minor ecotypes include all those listed in Holland (1986). Additional information from Sawyer, J. O., and T. Keeler-Wolf. 1995. A Manual of California Vegetation. California Native Plant Society: Sacramento, CA.

Major Ecological Types	Minor Ecological Types	Communities within Minor Ecotypes
Marine Systems	marine systems	kelp and other macroalgae
Freshwater and Estuarine Aquatic Systems	lakes, ponds, reservoirs	submergent and emergent vegetation in standing water
	rivers, streams, canals	submergent and emergent vegetation in moving ephemeral, intermittent or perennial water
	estuaries	submergent vegetation in estuaries (seagrass beds)
Dunes	coastal	foredunes, dune scrub
	desert	desert dunes and sand fields
	interior	interior and relictual dunes, primarily in the Great Valley
Scrub and Chaparral	coastal bluff scrub	northern and southern coastal bluff scrub
	coastal scrub	coyote bush, salal, silk-tassel, coastal sage, maritime succulent, Diegan coastal, Diablan, and Riversidian sage scrubs
	Sonoran desert scrub	Sonoran creosote bush, Sonoran mixed woody and succulent scrubs
	Mojavean desert scrub	Mojave creosote bush, blackbush, Mojave mixed woody, Mojave mixed steppe, and Mojave wash scrubs; Joshua tree woodland
	Great Basin scrub	big sagebrush and rabbitbrush scrubs; sagebrush steppe
	chenopod scrub	desert saltbush, desert sink, desert greasewood, shadscale, valley sink, and valley saltbush scrubs
	montane dwarf scrub	low sagebrush series
	Upper Sonoran subshrub scrub	bladderpod-California ephedra-narrowleaf goldenbush series
	chaparral	mixed, redshank, semi-desert, and montane (mixed, ceanothus, manzanita) chaparrals; chamise
Grasslands, Vernal Pools, Meadows, and other Herb Communities	coastal prairie	coastal terrace and bald hills prairies
	valley and foothill grassland	valley needlegrass, valley sacaton, serpentine bunchgrass, valley wildrye and, pine bluegrass grasslands
	Great Basin grassland	open, steppe-like vegetation of perennial bunchgrasses
	vernal pool	hardpan, claypan, basalt flow, and San Diego mesa vernal pools
	meadow and seep	wet or dry montane meadows; wet or dry subalpine or alpine meadows; alkali meadows and seeps; freshwater seep
	alkali playa	low, grayish, microphyllous, and succulent shrubs primarily in transmontane deserts
	pebble plain	dense clay soils with quartzite pebbles

APPENDIX 3: Examples of Ecological Types (continued)

Major Ecological Types	Minor Ecological Types	Communities within Minor Ecotypes
Bog and Marsh	bog and fen	sphagnum bog, Darlingtonia bog, fen
	marsh and swamp	salt, brackish, freshwater, transmontane alkali, and vernal marshes; freshwater swamp
Riparian and Bottomland	riparian forest	cottonwood, cottonwood-sycamore, red alder, white alder, aspen, willow, live oak, valley oak, Mojave, and mixed riparian forests; mesquite bosque
	riparian woodland	sycamore, sycamore-alder, desert dry wash, and fan palm oasis woodlands
	riparian scrub	riparian, mulefat, willow, mesquite, and buttonbush, desert wash, tamarisk and arrowweed scrubs; elderberry savanna; desert washes
Woodland	cismontane	blue oak, coast live oak, interior live oak, valley oak, island oak, California walnut, and foothill pine woodlands
	piñon and juniper	juniper woodland and scrub, pinon woodland
	Sonoran thorn	crucifixion thorn and Arizona woodlands
Forest	broadleaved upland	mixed evergreen, California bay, coast live oak, black oak, tan oak, red alder, and aspen forests
	North Coast coniferous	redwood , Sitka spruce-grand fir, western hemlock, Douglas-fir, and Port Orford Cedar forests
	closed cone coniferous	beach pine, bishop pine, Monterey pine, Torrey pine, Monterey cypress, pygmy cypress, interior cypress, knobcone pine forests
	lower montane coniferous	Coast Range coniferous, Klamath coniferous, ponderosa pine, Coulter pine, white pine, white fir, and big tree forests
	upper montane coniferous	Jeffrey pine, upper montane mixed coniferous, upper montane fir, and Klamath enriched coniferous forests
	subalpine coniferous	lodgepole pine, whitebark pine, foxtail pine, bristlecone pine, and limber pine forests
Alpine Habitats	alpine boulder and rock field	fell-field, talus and scree slope, snow margin
	alpine dwarf scrub	shrub dominated communities above the treeline

APPENDIX 4. Species by Common Name

Includes Species from Tables 1, 2, 3 and 4.

acacia, blackwood	*Acacia melanoxylon*
acacia, plume	*Albizia lophantha*
alligatorweed	*Alternanthera philoxeroides*
alyssum, sweet	*Lobularia maritima*
asparagus, smilax	*Asparagus asparagoides*
barberry, Darwin	*Berberis darwinii*
barbwire Russian-thistle	*Salsola paulsenii*
barley, Mediterranean	*Hordeum marinum,*
barley, wall	*Hordeum murinum*
beachgrass, European	*Ammophila arenaria*
beardgrass, annual	*Polypogon monspeliensis* and subspp.
bellardia	*Bellardia trixago*
bentgrass, creeping	*Agrostis stolonifera*
bentgrass, Pacific	*Agrostis avenacea*
bermudagrass	*Cynodon dactylon*
bindweed, field	*Convolvulus arvensis*
birdsfoot trefoil	*Lotus corniculatus*
blackberry, Armenian	*Rubus armeniacus (=R. discolor)*
blackberry, Himalaya	*Rubus armeniacus (=R. discolor)*
bladderflower	*Araujia sericifera*
bluegrass, Kentucky	*Poa pratensis*
blue gum, Tasmanian	*Eucalyptus globulus*
bouncingbet	*Saponaria officinalis*
brassbuttons	*Cotula coronopifolia*
brome, downy	*Bromus tectorum*
brome, red	*Bromus madritensis* ssp. *rubens (=B. rubens)*
brome, ripgut	*Bromus diandrus*
brome, soft	*Bromus hordeaceus*
broom, bridal	*Retama monosperma*
broom, French	*Genista monspessulana*
broom, Portuguese	*Cytisus striatus*
broom, Scotch	*Cytisus scoparius*
broom, Spanish	*Spartium junceum*
broom, striated	*Cytisus striatus*
buckwheat, California	*Eriogonum fasciculatum*
burclover, California	*Medicago polymorpha*
burnweed, Australian	*Erechtites glomerata, E. minima*
buttercup, Bermuda	*Oxalis pes-caprae*
buttercup, creeping	*Ranunculus repens*
butterflybush	*Buddleja davidii*
cabbage	*Brassica oleracea*
cabbage tree, New Zealand	*Cordyline australis*
calla lily	*Zantesdeschia aethiopica*
camelthorn	*Alhagi maurorum (=A. pseudalhagi)*
canarygrass, reed	*Phalaris arundinacea*
Cape-ivy	*Delairea odorata (=Senecio mikanioides)*
capeweed, fertile	*Arctotheca calendula* (fertile)
capeweed, sterile	*Arctotheca calendula* (sterile)
carrot, wild	*Daucus carota*
castorbean	*Ricinus communis*
catalpa, southern	*Catalpa bignonioides*
catsear, rough	*Hypochaeris radicata*
catsear, smooth	*Hypochaeris glabra*
chamomile, mayweed	*Anthemis cotula*
charlock	*Sinapis arvensis*
cheatgrass	*Bromus tectorum*
cherry plum	*Prunus cerasifera*
Chinese tallowtree	*Sapium sebiferum*
clover, California bur	*Medicago polymorpha*
clover, rose	*Trifolium hirtum*
cordgrass, Atlantic	*Spartina alterniflora*
cordgrass, common	*Spartina anglica*
cordgrass, dense-flowered	*Spartina densiflora*
cordgrass, saltmeadow	*Spartina patens*
cordgrass, smooth	*Spartina alterniflora* hybrids
cotoneaster, orange	*Cotoneaster franchetii*
cotoneaster, Parney's	*Cotoneaster lacteus*
cotoneaster, silverleaf	*Cotoneaster pannosus*
creeper, Australian bluebell	*Sollya heterophylla*
creeper, bearded	*Crupina vulgaris*
creeper, bridal	*Asparagus asparagoides*
cress, hoary	*Cardaria draba*
croftonweed	*Ageratina adenophora*
crupina, common	*Crupina vulgaris*
cypress, Monterey	*Cupressus macrocarpa*
daisy, African	*Dimorphotheca sinuata*
daisy, corn	*Chrysanthemum segetum*
daisy, crown	*Chrysanthemum coronarium*
daisy, English	*Bellis perennis*
daisy, Mexican	*Erigeron karvinskianus*
daisy, oxeye	*Leucanthemum vulgare*
daisybush, shrubby	*Osteospermum fruticosum*
dandelion, common	*Taraxacum officinale*
dandelion, hairy	*Hypochaeris radicata*
devil's thorn	*Emex spinosa*
dock, curly	*Rumex crispus*
dogtailgrass, hedgehog	*Cynosurus echinatus*
dracaena, giant	*Cordyline australis*
dyer's woad	*Isatis tinctoria*
egeria, Brazilian	*Egeria densa*

APPENDIX 4: Species by Common Name (continued)

elm, Chinese	*Ulmus parvifolia*
elm, Siberian	*Ulmus pumila*
emex, spiny	*Emex spinosa*
eupatorium	*Ageratina adenophora*
false-brome, perennial	*Brachypodium sylvaticum*
fennel	*Foeniculum vulgare*
fennel, dog	*Anthemis cotula*
fescue, rattail	*Vulpia myuros*
fescue, squirreltail	*Vulpia bromoides*
fescue, tall	*Festuca arundinacea*
fig, edible	*Ficus carica*
filaree, broadleaf	*Erodium botrys*
filaree, redstem	*Erodium cicutarium*
filaree, shortfruited	*Erodium brachycarpum*
filaree, whitestem	*Erodium moschatum*
firethorn	*Pyracantha* spp.
fireweed, Australian	*Erechtites glomerata, E. minima*
fivehook bassia	*Bassia hyssopifolia*
flixweed	*Descurainia sophia*
forget-me-not, common	*Myosotis latifolia*
fountaingrass, crimson	*Pennisetum setaceum*
foxglove	*Digitalis purpurea*
foxtail restharrow	*Ononis alopecuroides*
fumitory	*Fumaria officinalis*
garlic, false	*Nothoscordum gracile*
gazania	*Gazania linearis*
geranium, cutleaf	*Geranium dissectum*
geranium, dovefoot	*Geranium molle*
geranium, New Zealand	*Geranium retrorsum*
geranium, Robert	*Geranium robertianum*
German-ivy	*Delairea odorata*
glandweed, yellow	*Parentucellia viscosa*
glasswort	*Salsola soda*
goatgrass, barb	*Aegilops triuncialis*
gorse	*Ulex europaeus*
grass, rabbitfoot	*Polypogon monspeliensis*
gumweed, curlycup	*Grindelia squarrosa*
hairgrass, European	*Aira praecox*
hairgrass, silver	*Aira caryophyllea*
halogeton	*Halogeton glomeratus*
hardinggrass	*Phalaris aquatica*
hawksbeard, smooth	*Crepis capillaris*
hawthorn, English	*Crataegus monogyna*
heath, Spanish	*Erica lusitanica*
hedgeparsley	*Torilis arvensis*
herb-robert	*Geranium robertianum*
holly, English	*Ilex aquifolium*
horehound, white	*Marrubium vulgare*
Hottentot-fig	*Carpobrotus edulis*
houndstongue	*Cynoglossum officinale*
hydrilla	*Hydrilla verticillata*
hypericum, Canary Island	*Hypericum canariense*
iceplant	*Carpobrotus chilensis*
iceplant	*Carpobrotus edulis*
iceplant, crystalline	*Mesembryanthemum crystallinum*
iceplant, heartleaf	*Aptenia cordifolia*
iceplant, narrowleaf	*Conicosia pugioniformis*
iceplant, slenderleaf	*Mesembryanthemum nodiflorum*
iris, yellowflag	*Iris pseudacorus*
ivy, Algerian	*Hedera canariensis*
ivy, English	*Hedera helix*
jessamine, willow	*Cestrum parqui*
jointvetch, rough	*Aeschynomene rudis*
jubatagrass	*Cortaderia jubata*
kangaroothorn	*Acacia paradoxa*
kikuyugrass	*Pennisetum clandestinum*
klamathweed	*Hypericum perforatum*
knapweed, diffuse	*Centaurea diffusa*
knapweed, meadow	*Centaurea debeauxii* (=*C.* x *pratensis*)
knapweed, Russian	*Acroptilon repens*
knapweed, spotted	*Centaurea maculosa* (=*C. bibersteinii*)
knapweed, squarrose	*Centaurea virgata* ssp. *squarrosa* (=*C. squarrosa*)
knotweed, Japanese	*Polygonum cuspidatum* (=*Fallopia japonica*)
knotweed, Sakhalin	*Polygonum sachalinense*
kochia	*Kochia scoparia*
leek, three-cornered	*Allium triquetrum*
lettuce, prickly	*Lactuca serriola*
licoriceplant	*Helichrysum petiolare*
locust, black	*Robinia pseudoacacia*
locust, honey	*Gleditsia triacanthos*
London rocket	*Sisymbrium irio*
loosestrife, hyssop	*Lythrum hyssopifolium*
loosestrife, purple	*Lythrum salicaria*
lupine, yellow bush	*Lupinus arboreus*
mannagrass, waxy	*Glyceria declinata*
mayten	*Maytenus boaria*
Mediterraneangrass	*Schismus arabicus, S. barbatus*
Mediterranean sage	*Salvia aethiopis*
medusahead	*Taeniatherum caput- medusae*
mesembryanthemum, coppery	*Malephora crocea*
milkthistle, blessed	*Silybum marianum*
mirrorplant, creeping	*Coprosma repens*

APPENDIX 4: Species by Common Name (continued)

montbretia	*Crocosmia* x *crocosmiiflora*
mullein, common	*Verbascum thapsus*
mullein, woolly	*Verbascum thapsus*
mustard, birdsrape	*Brassica rapa*
mustard, black	*Brassica nigra*
mustard, blue	*Chorispora tenella*
mustard, field	*Brassica rapa*
mustard, Saharan	*Brassica tournefortii*
mustard, shortpod	*Hirschfeldia incana*
mustard, summer	*Hirschfeldia incana*
mustard, tansy	*Descurainia sophia*
mustard, wild	*Sinapis arvensis*
myoporum	*Myoporum laetum*
nasturtium, garden	*Tropaeolum majus*
nightshade, silverleaf	*Solanum elaeagnifolium*
oat, slender wild	*Avena barbata*
oat, wild	*Avena fatua*
oleander	*Nerium oleander*
olive, Russian-	*Elaeagnus angustifolia*
olive	*Olea europaea*
onionweed	*Asphodelus fistulosus*
orchardgrass	*Dactylis glomerata*
oxalis, buttercup	*Oxalis pes-caprae*
oxalis, yellow	*Oxalis pes-caprae*
oxtongue, bristly	*Picris echioides*
palm, Canary Island date	*Phoenix canariensis*
palm, date	*Phoenix dactylifera*
palm, Mexican fan	*Washingtonia robusta*
palm, Washington	*Washingtonia robusta*
paloverde, Mexican	*Parkinsonia aculeata*
pampasgrass	*Cortaderia selloana*
parentucellia, sticky	*Parentucellia viscosa*
parrotfeather	*Myriophyllum aquaticum*
passionflower, blue	*Passiflora caerulea*
pea, perennial sweet	*Lathyrus latifolius*
pea, Tangier	*Lathyrus tingitanus*
pennyroyal	*Mentha pulegium*
peppertree, Brazilian	*Schinus terebinthifolius*
peppertree, Peruvian	*Schinus molle*
pepperweed, perennial	*Lepidium latifolium*
periwinkle, big	*Vinca major*
pine, Monterey	*Pinus radiata* cultivars
pistache, Chinese	*Pistachia chinensis*
plantain, buckhorn	*Plantago lanceolata*
plantain, cutleaf	*Plantago coronopus*
plantain, English	*Plantago lanceolata*
plum, wild	*Prunus cerasifera*
poison-hemlock	*Conium maculatum*
pokeweed	*Phytolacca americana*
polypogon, rabbitfoot	*Polypogon monspeliensis* and subspp.
pondweed, curlyleaf	*Potamogeton crispus*
pride-of-Madeira	*Echium candicans*
privet, glossy	*Ligustrum lucidum*
pyracantha	*Pyracantha* spp.
quackinggrass, big	*Briza maxima*
Queen Anne's lace	*Daucus carota*
radish	*Raphanus sativus*
ragwort, tansy	*Senecio jacobaea*
rattlesnakegrass	*Briza maxima*
red gum	*Eucalyptus camaldulensis*
redhot poker	*Kniphofia uvaria*
reed, common	*Phragmites australis*
reed, giant	*Arundo donax*
rockrose, gum	*Cistus ladanifer*
rose, baby sun	*Aptenia cordifolia*
Russian-thistle	*Salsola tragus*
ryegrass, Italian	*Lolium multiflorum*
salsify, yellow	*Tragopogon dubius*
saltbush, Australian	*Atriplex semibaccata*
saltcedar	*Tamarix ramosissima*
salvinia, giant	*Salvinia molesta*
sea-fig	*Carpobrotus chilensis*
sea-lavender	*Limonium ramoissimum* ssp. *provincale*
sea-rocket, European	*Cakile maritima*
sesbania, red	*Sesbania punicea*
skeletonweed, rush	*Chondrilla juncea*
smilograss	*Piptatherum miliaceum*
sorrel, red	*Rumex acetosella*
sorrel, sheep	*Rumex acetosella*
sowthistle, spiny	*Sonchus asper*
speargrass, twisted-awned	*Stipa capensis*
spiny emex	*Emex spinosa*
spurge, caper	*Euphorbia lathyris*
spurge, carnation	*Euphorbia terracina*
spurge, leafy	*Euphorbia esula*
spurge, oblong	*Euphorbia oblongata*
St. Johnswort, common	*Hypericum perforatum*
starthistle, Malta	*Centaurea melitensis*
starthistle, purple	*Centaurea calcitrapa*
starthistle, yellow	*Centaurea solstitialis*
steppegrass, Mediterranean	*Stipa capensis*
stinkwort	*Dittrichia graveolens*
sweetclover, Indian	*Melilotus indicus*
sweetclover, yellow	*Melilotus officinalis*
sweetpea, perennial	*Lathyrus latifolius*
tallowtree, Chinese	*Sapium sebiferum*

APPENDIX 4: Species by Common Name (continued)

tamarisk	*Tamarix ramosissima*
tamarisk, athel	*Tamarix aphylla*
tamarisk, smallflower	*Tamarix parviflora*
tansy, common	*Tanacetum vulgare*
tea tree, Australian	*Leptospermum laevigatum*
teasel, fuller's	*Dipsacus sativus*
teasel, wild	*Dipsacus fullonum*
thistle, artichoke	*Cynara cardunculus*
thistle, bull	*Cirsium vulgare*
thistle, Canada	*Cirsium arvense*
thistle, Italian	*Carduus pycnocephalus*
thistle, musk	*Carduus nutans*
thistle, plumeless	*Carduus acanthoides*
thistle, Scotch	*Onopordum acanthium*
thistle, slenderflower	*Carduus tenuifolius*
thistle, woolly distaff	*Carthamus lanatus*
toadflax, Dalmatian	*Linaria genistifolia* ssp. *dalmatica (=L. dalmatica)*
tobacco, tree	*Nicotiana glauca*
tocalote	*Centaurea melitensis*
tree-of-heaven	*Ailanthus altissima*
veldtgrass, erect	*Ehrharta erecta*
veldtgrass, long-flowered	*Ehrharta longiflora*
veldtgrass, purple	*Ehrharta calycina*
velvetgrass, common	*Holcus lanatus*
vernalgrass, sweet	*Anthoxanthum odoratum*
vervain, seashore	*Verbena litoralis*
vervain, tall	*Verbena bonariensis*
vetch, hairy	*Vicia villosa*
Victorian box	*Pittosporum undulatum*
wakame	*Undaria pinnatifida*
water hyacinth	*Eichhornia crassipes*
waterlily, fragrant	*Nymphaea odorata*
watermilfoil, Eurasian	*Myriophyllum spicatum*
water-primrose, creeping	*Ludwigia peploides* ssp. *montevidensis*
water-primrose, Uruguay	*Ludwigia hexapetala (=L. uruguayensis)*
watsonia	*Watsonia borbonica*
watsonia, bulbil	*Watsonia meriana*
whitetop, hairy	*Cardaria pubescens*
whitetop, lens-podded	*Cardaria chalepensis (=C. draba* ssp. *chalepensis)*
whitetop, tall	*Lepidium latifolium*
wisteria, scarlet	*Sesbania punicea*
woodsorrel, creeping	*Oxalis corniculata*
zoysiagrass	*Zoysia* spp.

The Nation Park Service's Exotic Plant Management Team removes satellite infestations of Centaurea solstitialis *(yellow starthistle) to prevent the plant's spread. (Photo by Bobbi Simpson, Point Reyes National Seashore)*

California Invasive Plant Council 2006 Board of Directors

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Brianna Richardson
Montgomery Law Group, LLP

(Affiliations for identification purposes only)

Circular clones of Spartina alterniflora *x* foliosa *(smooth cordgrass hybrid) spread in San Francisco Bay. (Photo by Stephen Joseph, Invasive Spartina Project)*

New Weeds Added to Cal-IPC Inventory

The California Invasive Plant Inventory will be updated annually to reflect new information submitted to Cal-IPC. In February 2007, the Inventory Review Committee met to review submissions received between February 2006 and January 2007. Seven species were added to the Inventory and two were evaluated but not listed. Minor revisions were made to four listed species. Ratings were not changed for any species listed in the 2006 Inventory. The Inventory may be downloaded as a free pdf file from our website (choose Invasive Plant Inventory from the Quicklinks box at *www.cal-ipc.org*). Complete Plant Assessment Forms with detailed information and literature citations may be viewed in the online Inventory database.

New Species Reviewed

Acacia dealbata	silver wattle	Moderate
Brachypodium distachyon	annual false-brome	Moderate
Bromus japonicus	Japanese brome	Limited
Fraxinus uhdei	evergreen ash	Evaluated But Not Listed
Linaria vulgaris	yellow toadflax	Moderate
Pennisetum villosum	feathertop	Evaluated But Not Listed
Phytolacca americana	common pokeweed	Limited
Salsola soda	oppositeleaf Russian thistle	Moderate
Saccharum ravennae	ravennagrass	Moderate - Alert

Revisions to Listed Species

Cupressus macrocarpa	Monterey cypress	Remove Sonoran shrub as ecotype invaded and change distribution in coastal scrub from C to D.
Sesbania punicea	scarlet wisteria	Add Central West as invaded Jepson region
Taeniatherum caput-medusae	medusahead	Add Central West as invaded Jepson region
Vinca major	periwinkle	Add Central West as invaded Jepson region

Species Nominated But Not Reviewed

If you have information on these species, please submit it to Elizabeth Brusati, edbrusati@cal-ipc.org.

Acacia baileyana, A. cyclops, A. longifolia	cootamundra wattle, cyclops acacia, Sydney golden wattle	Not widespread in wildlands, no information on impacts
Agrostis capillaris	colonial bentgrass	Impacts not known
Alopecurus pratensis	meadow foxtail	Too limited in wildlands to review
Casuarina equisetifolia	beach sheoak	Impacts not known
Descurainia pinnata	western tansymustard	Native to California according to the Jepson Manual
Festuca pratensis	meadow fescue	Impacts not known
Gypsophila paniculata	baby's breath	Too limited in wildlands to review
Hedera hibernica	Atlantic ivy	Not confirmed present in California
Lapsana communis	common nipplewort	Impacts not known
Melilotus alba	yellow sweetclover	Impacts not known
Nassella tenuissima	finestem needlegrass	On Symposium weed alerts, but too limited to review
Phleum pratense	timothy	Impacts not known
Poa annua	annual bluegrass	Not a wildland weed
Polypogon interruptus	ditch rabbitsfoot grass	Too limited in wildlands to review
Populus alba	white poplar	Impacts not known
Salsola kali	Russian thistle	Synonym of *Salsola tragus* (Limited)
Schinus polygamous	Hardee peppertree	No information
Sisymbrium altissimum	tall tumblemustard	Impacts not known

ATTACHMENT G

Bridge/Crossing Detail

To Be Attached Once Received

ATTACHMENT H

Preserve Sign Sample

Open Space Wetland Preserve

This is a protected area. No trespassing, motorized vehicles, bicycles, dogs, dumping or other disturbance of protected wetland habitats.

Please respect and help preserve our open spaces!

Trespassers will be prosecuted and held liable for any damages (California Penal Code Section 602.8)

Proper Preserve Sign Installation

The U.S. Fish and Wildlife Service has recently requested the implementation of an important modification to certain preserve sign fence posts in order to avoid raptor deaths. Posts with bolt holes at the top pose a danger to perching birds as their talons may become caught, effectively trapping the bird, which can lead to injury or death. If posts with holes must be used, the top three holes should have bolts installed to prevent talons from entering them, thus avoiding unnecessary injury or death of raptor species.

Great horned owl stuck in fence post

Easy method to avoid raptor deaths

Audubon CALIFORNIA
Kern River Preserve

LANDOWNER STEWARDSHIP INFORMATION

OPEN VERTICAL PIPES ARE DEATHTRAPS FOR BIRDS AND WILDLIFE

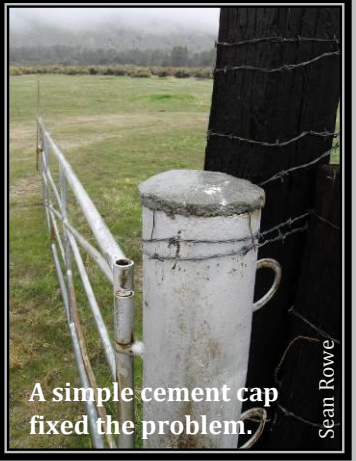
Open top vertical pipes are a hazard to birds, lizards, small mammals and other wildlife that get into these pipes and are unable to get out. Birds looking for nest cavities, animals escaping from predators or lizards just scampering into open pipes are frequently trapped. This leads to a miserable death from starvation and exposure, which is completely unnecessary.

Last fall on a property adjacent to the Kern River Preserve, a 20 foot tall by 8 inch diameter vent tube on an abandoned irrigation system rusted and fell over. When Audubon stewardship staff picked up the pipe they were shocked to find inside a 7 foot long, black mass composed entirely of decomposed carcasses of **hundreds** of dead birds and animals including kestrels, flickers, bluebirds and fence lizards. The date etched into the concrete at the base of this vent pipe showed that it had been in place for over 50 years. All that time animals had been silently suffering and dying in this trap as unsuspecting people went about their business nearby.

After learning about this problem, Kern River Preserve staff started seeing open topped pipes all over the landscape on our Preserve and on neighboring lands. We were disgusted by the senseless loss of life in pipes as small as **1 inch and up to 10 inches** in diameter. We immediately began to remove, cap or screen open topped pipes found on our preserve as well as neighboring properties – there is still a lot of work to do.

Please look around and you will find open top vertical pipes on signs, fence posts, survey markers, buildings and irrigation systems. <u>All responsible landowners should cap, close, remove or screen all open topped pipes on their property.</u>

50 year old uncapped irrigation vent pipe.
Sean Rowe


A simple cement cap fixed the problem.
Sean Rowe

Bones, a dead fence lizard and a dead Northern Flicker were found in this pipe.
Jeff King

Thousands of skulls were found in seven feet of detritus in a 20' irrigation pipe that had fallen down.
Jeff King

Audubon CALIFORNIA
Kern River Preserve
18747 Highway 178
P.O. Box 1662
Weldon, CA 93283

For more information please visit our website:

www.kern.audubon.org

Phone: 760-378-2531
Email: srowe@audubon.org

ATTACHMENT I

Guidelines for Native Grass Seed Mixes, Application, and Suppliers

SEED MIX - UPLAND

FOR UPLAND AREAS DOWN TO 2' ABOVE TOE OF SLOPE

SPECIES	PLS LBS/ACRE	MIN. GERM. %
NASELLA PULCHRA (PURPLE NEEDLEGRASS)	10.0	60
ELYMUS GLAUCUS (BLUE WILDRYE)	8.0	60
NASELLA CARNUA (NODDING NEEDLEGRASS)	6.0	60
MELICA CALIFORNICA (CALIFORNIA MELIC)	6.0	50
VULPIA MICROSTACHYS (THREE WEEKS FESCUE)	6.0	60
POA SECUNDA (NATIVE PINE BLUEGRASS)	3.0	80
TOTAL	39 LBS. PER ACRE (PLS)	

SEED MIX - CHANNEL / WETLAND EDGES / LOWLANDS

FOR CHANNEL AREAS TO 2' ABOVE TOE OF SLOPE

SPECIES	PLS LBS/ACRE	MIN. GERM. %
ELYMUS TRACHYCAULUS (SLENDER WHEATGRASS)	12.0	45
HORDEUM BRACHYANTHERUM (MEADOW BARLEY)	10.0	40
LEYMUS TRICTICOIDES 'YOLO' (CREEPING WILDRYE)	9.0	45
NASELLA LEPIDA (FOOTHILL NEEDLEGRASS)	3.0	45
DESCHAMPSIA CAESPITOSA (TUFTED HAIRGRASS)	3.0	40
TOTAL	34 LBS. PER ACRE (PLS)	

SEED MIX - PATH

LOW MIX FOR AREAS WITHIN 15' OF PATHS (OR AS SPECIFIED)

SPECIES	PLS LBS/ACRE	MIN. GERM. %
FESTUCA RUBRA MOLATE (NATIVE RED FESCUE)	13.0	45
FESTUCA IDAHOENIS (IDAHO FESCUE)	10.0	45
FESTUCA OCCIDENTALIS (WESTERN FESCUE)	10.0	45
VULPIA MICROSTACHYS (SIX WEEKS FESCUE)	10.0	45
CLARKIA AMOENA (FAREWELL TO SPRING)	0.5	45
ESCHSCHOLZIA CALIFORNICA (CALIFORNIA POPPY)	2.0	45
LUPINUS NANUS (SKY LUPINE)	3.5	45
NEMOPHILA MENZIESII (BABY BLUE EYES)	1.5	45
TOTAL	46.5 LBS.	

FERTILIZER COMPONENT	INGREDIENT %
NITROGEN	7
PHOSPHORUS	2
POTASSIUM	3

FERTILIZER SHALL BE NATURAL & SLOW RELEASE.
ADD MYCORRHIZAL INNOCULANT AT 60 LBS/ACRE

ANY CHANGES TO THE ABOVE SEED MIXES MUST BE APPROVED BY ECORP CONSULTING BEFORE APPLICATION.

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

3-STEP SEED APPLICATION PROCESS

USE 3-STEP APPLICATION PROCESS IN AREAS RECEIVING HYDROSEED ONLY.

STEP 1: APPLY FIBER, SEED, FERTILIZER, & INNOCULANT AS SPECIFIED BELOW:

CELLULOSE WOOD FIBER	600 LBS./ACRE
SEED	AS SPECIFIED
FERTILIZER	1000 LBS/ACRE (ORGANIC 7-2-3)
MYCORRHIZAL INOCULATE	60 LBS./ACRE
BINDER	100 LBS./ACRE

STEP 2: APPLY STRAW MULCH: 4,000 lbs. /acre
WEED FREE RICE
SUBSTITUTE MUST BE APPROVED

STEP 3: APPLY FIBER & BINDER:

CELLULOSE WOOD FIBER	500 LBS./ACRE
ORGANIC BINDER	100 LBS./ACRE

2-STEP SEED APPLICATION PROCESS

USE 2-STEP APPLICATION PROCESS IN AREAS RECEIVING HYDROSEED UNDER TRM OR ECB.

STEP 1: APPLY FIBER, SEED, FERTILIZER, BINDER & INNOCULANT AS SPECIFIED BELOW:

CELLULOSE WOOD FIBER	600 LBS./ACRE
SEED	AS SPECIFIED
FERTILIZER	1000 LBS/ACRE (ORGANIC 7-2-3)
MYCORRHIZAL INOCULATE	60 LBS./ACRE
ORGANIC BINDER	100 LBS./ACRE

STEP 2: APPLY TRM OR ECB AS SPECIFIED IN PLANS. ALL AREAS RECEIVING BOTH HYDROSEED AND TRM OR ECB SHALL RECEIVE HYDROSEED BEFORE FABRIC.

NATIVE SEED SUPPLIERS

Hedgerow Farms
21740 County Road 88
Winters, CA 95694
Phone: (530) 662-4570
Fax: (530) 668-8369
Web: www.hedgerowfarms.com

Pacific Coast Seed, Inc.
6144-A Industrial Way
Livermore, CA 94551-9749
Phone: (925) 373-4417
Fax: (925) 373-6855
Email: pcseed@attglobal.net

S&S Seeds
P.O. Box 1275
Carpenteria, CA 93014-1275
Phone: (805) 684-0436
Fax: (805) 684-2798
Web: www.ssseeds.com

For more information on native seed providers contact the California Native Grass Association P.O. Box 72405, Davis, CA, 95617-6405, Phone: (530) 759-8458; admin@cnga.org.

ATTACHMENT J

Native Plants for Use in Restoration

Native Plants for Use in Restoration

Scientific Name	Common Name
Trees	
Acer negundo	Box elder
Aesculus californica	California buckeye
Alnus rhombifolia	White alder
Fraxinus latifolia	Oregon ash
Juglans californica	California black walnut
Platanus racemosa	Western sycamore
Populus fremontii	Fremont cottonwood
Quercus douglasii	Blue oak
Quercus lobata	Valley oak
Quercus wislizeni	Interior live oak
Salix exigua	Narrowleaf willow
Salix gooddingii	Gooding's black willow
Salix laevigata	Red willow
Salix lasiolepis	Arroyo willow
Shrubs	
Baccharis pilularis	Coyote brush
Ceanothus cuneatus	Wedgeleaf ceanothus
Cephalanthus occidentalis	Button-willow
Cercis occidentalis	Western redbud
Fremontodendron californicum	Flannelbush
Heteromeles arbutifolia	Toyon
Mimulus aurantiacus	Bush monkeyflower
Rhamnus ilicifolia	Hollyleaf redberry
Rhamnus tomentella	Hoary coffeeberry
Rubus ursinus	California blackberry
Rosa californica	California rose
Salix exigua	Narrow-leaved willow
Salix lasiolepis	Arroyo willow
Vitis californica	California wild grape
Grasses	
Bromus carinatus	California brome
Elymus elymoides	Squirreltail
Elymus glaucus	Blue wildrye
Frestuca idahoiensis	Idaho fescue
Hordeum branchyantherum	Meadow barley
Leymus triticoides	Creeping wildrye
Melica californica	Oniongrass
Muhlenbergia rigens	Deer grass
Nassella pulchra	Purple needle grass
Poa secunda	One-sided bluegrass

Final Environmental Impact Report
Environmental Impact Statement

Morrison Creek Mining Reach Downstream (South) of Jackson Highway

Community Plan Amendment, Rezone, Use Permit, Amendment to Existing Use Permit, and Section 404 (Wetlands) Permit Application

State Lead Agency: County of Sacramento
Department of Environmental Review and Assessment
Contact: Catherine Hack
827 Seventh Street, Room 220
Sacramento, California 95814
(916) 874-7914

Federal Lead Agency: U.S. Army Corps of Engineers
Sacramento District
Contact: Larry Vinzant
1325 J Street
Sacramento, California 95814
(916) 557-5263

Control Numbers: 94-UPB-0484 (Aspen III South), 91-CZB-UPB-0118 (Vineyard I), 90-CZB-UPB-1607 (Aspen IV South), and 94-CZB-UPB-0671 (Aspen V South)

State Clearinghouse Number: 95102057
Public Notice Number: 199400102

July 7, 1999

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(WHITE BOND)

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO, CALIFORNIA 95814-2922

COUNTY OF SACRAMENTO
DEPARTMENT OF ENVIRONMENTAL REVIEW AND ASSESSMENT
827 SEVENTH STREET, ROOM 220
SACRAMENTO, CALIFORNIA 95814

July 9, 1999

TO; **All Interested Parties**

SUBJECT: FINAL ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL IMPACT STATEMENT FOR THE MORRISON CREEK MINING REACH DOWNSTREAM (SOUTH) OF JACKSON HIGHWAY (Control Numbers: 94-UPB-0484 [Aspen III South], 91-CZB-UPB-0118 [Vineyard I], 90-CZB-UPB-1607 [Aspen IV South] and 94-CZB-UPB-0671 [Aspen V South])

The subject Final Environmental Impact Report/Environmental Impact Statement (EIR/EIS) is attached hereto for your review. The EIR/EIS has been prepared jointly by the U.S. Army Corps of Engineers and Sacramento County in compliance with the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). The EIR/EIS will be used by the U.S. Army Corps of Engineers in evaluating applications for permits pursuant to Section 404 of the Clean Water Act, and by Sacramento County in determining whether to grant requests for land use entitlements (Community Plan amendments, rezones, use permits, and an amendment to an existing use permit) to allow mining and subsequent reclamation on the project site as described in the Project Description contained in the EIR/EIS.

The Final EIR and mining projects are scheduled to be heard before the County Board of Supervisors on Wednesday, July 21, 1999, at 6:00 p.m. The hearing is to be held in Room 1450 of the County Administration Building, 700 "H" Street, Sacramento, California. Please call the Clerk of the Board at 916/874-5451 to verify the date, time and place of the hearing.

The Final EIS will be subject to a 30-day review period prior to any decision by the Corps on the Section 404 permit applications. Please call the Corps at 916/557-5263 concerning the status of the Section 404 permits.

Please contact Larry Vinzant at the U.S. Army Corps of Engineers (916/557-5263) or Catherine Hack at the Sacramento County Department of Environmental Review and Assessment (916/874-7914) if you have any questions concerning this Final EIR/EIS.

Sincerely,

Art Champ
Chief, Regulatory Branch

Dennis E. Yeast
Environmental Coordinator

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LIST OF ACRONYMS

ac-ft	acre-feet
AFB	Air Force Base
ALUC	Airport Land Use Commission
ATAC	Aggregate Technical Advisory Committee
bhp	brake horsepower
CARB	California Air Resources Board
C.Y.	cubic yard
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
cfs	cubic feet per second
CLUP	Comprehensive Land Use Plan
CNEL	Community Noise Equivalent Levels
CNPS	California Native Plant Society
CSD	County Sanitation District
dB	decibel
dBA	A-weighted decibel
DSOD	Department of Safety of Dams
DWR	Sacramento County Division of Water Resources
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
MCMR-DMP	Morrison Creek Mining Reach Drainage Mitigation Plan
MMRP	Mitigation Monitoring and Reporting Program
MSL	mean sea level
NEPA	National Environmental Policy Act
NOx	Nitrogen Oxides
NRHP	National Register of Historic Places
PG&E	Pacific Gas and Electric Company
PM-10	particulate matter less than 10 microns in diameter
PMF	probable maximum flood
PPM	parts per million
ROD	Record of Decision
ROG	Reactive Organic Gases
SACOG	Sacramento Area Council of Governments
SMAQMD	Sacramento Metropolitan Air Quality Management District
SMUD	Sacramento Municipal Utility District
SRCSD	Sacramento Regional County Sanitation District
SVGWB	Sacramento Valley Ground Water Basin
USFWS	United States Fish and Wildlife Service
USGS	United States Geologic Survey

Preface

This Final EIR/EIS has been prepared consistent with the requirements of the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). The County of Sacramento and the United States Army Corps of Engineers will use this document in their capacities as CEQA and NEPA Lead Agencies, respectively, for the proposed project. The discretionary actions that will be considered by the decision-makers for the two Lead Agencies are: approval of conditional use permits (for proposed mining and reclamation), approval of a Section 404 permit for the fill of waters of the United States, and approval of the Community Plan Amendment and Rezone.

The contents of this Final EIR/EIS are:

- A revised Draft EIR/EIS (changes are presented in redline ~~strikeout~~).
- A list of persons, organizations, and public agencies commenting on the Draft EIR/EIS.
- Comments and recommendations received on the Draft EIR/EIS.
- The responses of the Lead Agencies to significant environmental points raised in the comments on the Draft EIR/EIS.

The comment period for the Draft EIR/EIS closed on April 29, 1997. Following review of the document, County Policy Planning Commission hearings were held on the Draft EIR/EIS and the project. Comments, both written and oral, received during the hearings and until the close of the public comment period (August 12, 1999), as well as the Planning Commission's Recommended Conditions of Approval, were considered and incorporated into the Final EIR/EIS. Following this EIR/EIS is an index of comments received on the Draft EIR/EIS followed by copies of all comment letters and responses to each of the environmental points raised.

The Policy Planning Commission, in regular session on October 30, 1997, June 10, 1998, and August 12, 1998, conducted public hearings on the *Morrison Creek Mining Reach Downstream (South) of Jackson Highway Draft EIR/EIS*. Members of the Vineyard community at those hearings presented a number of comments on the Draft EIR. Those comments are contained in the "Response to Comments" section of this final EIR. On August 12, 1998, the Planning Commission voted unanimously to recommend approval of the project with conditions as set forth in the Planning Staff Report as amended by the Commission. The Planning Staff Report and Policy Planning Commission's recommendations are included as Appendix E of the Final EIR.

PRINT TWO SIDED
(WHITE BOND)

Executive Summary

This Environmental Impact Report/Environmental Impact Statement (EIR/EIS) analyzes the anticipated environmental impacts of four surface mining applications, collectively referred to as the Morrison Creek Mining Reach Downstream (South) of Jackson Highway Project. A complete description of the proposed project and alternatives is provided in Chapter 3 (Project Description) and Chapter 4 (Alternatives to the Proposed Project).

Table ES-1 presents an overview of the environmental impact analysis provided in Chapter 5, Affected Environment and Environmental Consequences. Table ES-1 is organized into four basic columns:

- environmental impacts of the project and alternatives;
- recommendations/requirements of relevant regulatory agencies;
- recommended mitigation (focused on reducing impacts to a less-than-significant level); and
- projected level of significance after compliance with existing requirements and implementation of recommended mitigation.

Chapter 6 (Disposition of Impacts) describes the cumulative and indirect impacts of the proposed project as well as a summary of the significant unavoidable impacts and other issues required by the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA).

Subsequent to the publication of the Draft EIR/IS, the Smith property, which borders the southern boundary of the Aspen III South property was purchased by the proponents. As a result of this buy-out, responses to comments raised by the Smiths were not vigorously addressed in the Response to Comments section in the FEIR/EIS because land use issues no longer existed.

Table ES-1: SUMMARY OF IMPACTS AND MITIGATION MEASURES			
Environmental Impact/Level of Significance	**Requirements/Recommendations of Public Agencies**	**Mitigation Measures**	**Level of Significance After Mitigation**
Surface Water Hydrology and Quality			
All Mining Alternatives: Impact #1: Risk of flow, pit capture and disruption of downstream flows (*S*)	Prior to construction, the proponents shall file a Notice of Intent (NOI) to obtain coverage under the State's General Construction Stormwater Permit as well as Waste Discharge requirements as administered by the RWQCB. As a condition of the General Permit, the proponent shall also prepare and implement a Stormwater Pollution Prevention Plan. Consistency with the adopted Water Quality Control Plan will be required and administered by the SWRCB and RWQCB during their review of the proposed project (*State Water Resources Control Board/Regional Water Quality Control Board*). The proposed mining operations shall be consistent with the Drainage Mitigation Plan for the Morrison Creek Mining Reach. An analysis shall be submitted to WRD showing the reclamation plan and ultimate land use for the site. This analysis shall be consistent with WRD studies and the Drainage Mitigation Plan for the Morrison Creek Mining Reach. The analysis shall also consider the possibility that mining (and detention) may not occur upstream of Jackson Highway (as currently proposed), and detention may be required downstream of Jackson Highway (*Public Works Agency, Water Resources Division*). The project shall continue acceptance of any off-site runoff during all phases of mining operations. Furthermore, all drainage facilities must be reviewed and approved by WRD prior to commencement of mining operations (*Public Works Agency, Water Resources Division*). ~~Drainage easements shall be provided and facilities installed pursuant to the Sacramento County Floodplain Management Ordinance, Sacramento County Land Grading and Erosion Control Ordinance, Sacramento County Water Agency Code, and Sacramento County Improvement Standards, including any fee required by Ordinance No. 1 of the County Water Agency (*Public Works Agency, Water Resources Division*).~~ All applicable State Fish & Game and U.S. Army Corps of Engineers permits shall be obtained prior to grading or building permit issuance (*Public Works Agency, Water Resources Division*).	MM #1: The risk of flow capture from Morrison Creek into gravel extraction pits and disruption of downstream flows shall be minimized by construction of hydraulic structures (berms, weirs and inlet works) that would direct flows up to the 100-year peak flow (as calculated by WRD for ultimate watershed development conditions, with or without the North of Jackson Highway Drainage mitigation features in place) from the Jackson Highway crossing to the bypass channel system on Aspen IV South parcel and away from gravel pits. Engineered grading plans for the improvements, representing yearly mined conditions, as well as ultimate conditions, shall be submitted by the proponent, and approved by WRD prior to commencement of mining operations South of Jackson Highway. WRD shall coordinate approval of such plans with Caltrans with regard to the stability of the Jackson Highway bridge and roadway. These plans shall include the following: 1) A berm extending from Jackson Highway across the northern boundary of the Aspen V South parcel to the proposed bypass channel inlet at the Aspen IV South adequate to safely convey the peak 100-year flood; 2) armored weirs at the inlets to the proposed ~~pit floor~~ wetland mitigation sites on Aspen V South, Aspen IV South and the flood detention basin/wetlands Vineyard I to safely carry as proposed by the project; 3) plans for erosion control at the bypass channel inlet and along the proposed berm as necessary to prevent their failure; and 4) an erosion control and repair plan to restore flow and stability to Morrison Creek and to control offsite discharge of sediment *(PP (A); PP (A-P); PB (DB)(VD))*. *Applicable to all sites.* MM #2: Application shall be made to the California State Water Resources Control Board (SWRCB) for any surface water diversion of low flows from Morrison Creek into the wetlands mitigation sites on the Aspen V South, Aspen IV South, and Vineyard I parcels. This measure shall not be necessary if other proven long term water supplies (e.g. groundwater and reliable urban or agricultural flows) for perennial marsh, open water, emergent marsh and riparian vegetation are demonstrated and utilized *(PP (A); PP (A-P); PB (DB)(VD))*. *Applicable to the Vineyard~~land~~ Aspen IV and Aspen V South sites.*	*LS*

B = beneficial
LS = less than significant
S = significant
SU = significant and unavoidable

PP (A) = Proposed Project (Part A)
PP (A-P) = Proposed Project without the Vineyard I Processing Plant Alternative
PB (PE) = Pump Everything Small Pump Alternative
PB (DB) = Downstream Bypass Channel Alternative
PB (VD) = Volume Detention Bypass Channel Alternative
100FP = 100-Year Floodplain Protection Alternative
CB = Creek Buffer Alternative

Table ES-1: SUMMARY OF IMPACTS AND MITIGATION MEASURES			
Environmental Impact/Level of Significance	**Requirements/Recommendations of Public Agencies**	**Mitigation Measures**	**Level of Significance After Mitigation**
	~~Prior to the improvement plan approval or recordation of the final map, whichever occurs first, a fair share contribution to the costs of the following shall be paid: delineating wetlands; preparing a drainage master plan; acquiring right of way for and constructing flood control detention and water quality facilities; and providing environmental mitigation for drainage improvements, as determined in the drainage master plan for that watershed. The fair share contribution shall not exceed $6,000 per acre. The Administrator of the Public Works Agency shall reduce the amount if it is determined prior to payment that the actual costs of the above studies, improvements, and mitigation is less than is projected. Subsequent adoption and payment of a revised drainage fee for this purpose shall satisfy this condition. If the amount of the obligation under the revised drainage fee is less than that of the fair share contribution paid, the County shall enter into an agreement with the payer of the fair share contribution, providing for reimbursement of the difference. (Note: this project shall be exempt from payment of this fair share contribution until such time as the area is used for purposes that would otherwise be subject to the prescribed fee, consistent with Chapter 3, Article II, Section B of the Drainage Ordinance.) (*Public Works Agency, Water Resources Division*).~~ All mining plans shall be required to comply with the County's Land Grading and Erosion Control Ordinance (*Public Works Agency, Water Resources Division*).		
All Mining Alternatives: Impact #2: Impacts on water quality, erosion, and channel stability (*S*)	The proponent is required to submit a Drainage Plan to the Public Works Agency, Water Resources Division, for review and approval, before a work authorization permit can be issued (Section 235-51) (*Zoning Code*).		*LS*
All Mining Alternatives: Impact #3: Potential surface water contamination caused by flooding of onsite machinery/equipment (*S*)		MM #3: Mining equipment and any toxic substance associated with mining or reclamation operations shall be protected from flooding and from contact with surface waters *(PP (A); PP (A-P); PB (DB)(PE)(VD); 100FP; CB)*. *Applicable to all sites.*	*LS*
All Mining Alternatives: Impact # 4: Potential surface water contamination cause by post-reclamation uses (*S*)		MM #4: Given the risks involved to groundwater and surface water contamination, measures shall be implemented to minimize risk of toxic contamination of surface and/or groundwater during mining, reclamation, and post-reclamation activities. These measures shall include an aggressive policy to restrict use of toxic contaminants within the project site to those absolutely necessary to conduct operations. Any form of pollutant spilled shall be immediately	*LS*

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PP (A) = Proposed Project (Part A)
PP (A-P) = Proposed Project without the Vineyard I Processing Plant Alternative
PB (PE) = Pump Everything Small Pump Alternative
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PB (VD) = Volume Detention Bypass Channel Alternative
100FP = 100-Year Floodplain Protection Alternative
CB = Creek Buffer Alternative

Table ES-1: SUMMARY OF IMPACTS AND MITIGATION MEASURES			
Environmental Impact/Level of Significance	**Requirements/Recommendations of Public Agencies**	**Mitigation Measures**	**Level of Significance After Mitigation**
		contained and removed from the project site and safely disposed. Storage of toxic materials shall not be allowed in the gravel pits. Storage of toxic materials will only be allowed in restricted upland areas where the opportunity for containment over less permeable ground exists *(PP (A); PP (A-P); 100FP; CB)*. *Applicable to all sites.* MM #5: An agricultural management plan shall be developed to ensure that post-mining agricultural practices do not result in groundwater or surface water contamination. The plan shall be submitted for review by the Agricultural Commissioner and approval by the Environmental Management Department (EMD). The plan shall provide information on crops, crop rotation, pesticides, fertilizers, irrigation and drainage. EMD shall be notified of any changes in the plan *(PP (A); PP (A-P); 100FP; CB)*. *Applicable to all sites.*	
PB (DB): Impacts #1 & #2: Further disruption of natural flows (*S*)		MM #1: To avoid uncontrolled flow into the mining pit, an engineered armored weir and armored drop structure shall be installed at the inlet on the Vineyard parcel. It shall be designed to withstand the 100-year peak flow anticipated under this alternative *(PB (DB))*. *Applicable to the Vineyard I site.*	*LS*
PB (DB): Impact #3: Reduction in discharge to flood prone areas (*B*)		None required.	
CB: Implementation of the Creek buffer Alternative could result in flooding and pit capture.		MM#2: The Creek Buffer Alternative would be subject to one of the flood control measure below or another equivalently effective measure. Each measure is designed to accommodate the 100-year flood event and mitigate the potential for flooding and pit capture to a less-than-significant level. Detention may be required along with performance criteria that states that there will be no increase in the magnitude or duration of flood flows downstream. The options presented below are conceptual and may be subject to revision. Also, other options may be available. Final design and implementation of any of the following flood control options shall be subject to the review and approval of the Sacramento County Public Works Agency Water Resources Division (CB). *Applicable to all sites.* Option 1: Install a weir structure to divert flood flows to the proposed pit floor. The weir structure would be designed to divert high water flows (i.e., those in excess of 400 cfs – the estimated capacity of the elevated creek corridor/buffer area). The weir structure would be located on the Aspen IV South site, near Bradshaw Road. Approximately 2,700 acre-feet of storage would be required assuming that the mining and reclamation occurs on the north project site as proposed. (If mining is permanently precluded within the 150-foot buffer area on the north site, additional detention	~~*To be Determined*~~ ***LS***

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PP (A) = Proposed Project (Part A)
PP (A-P) = Proposed Project without the Vineyard I Processing Plant Alternative
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PB (DB) = Downstream Bypass Channel Alternative
PB (VD) = Volume Detention Bypass Channel Alternative
100FP = 100-Year Floodplain Protection Alternative
CB = Creek Buffer Alternative

Table ES-1: SUMMARY OF IMPACTS AND MITIGATION MEASURES			
Environmental Impact/Level of Significance	**Requirements/Recommendations of Public Agencies**	**Mitigation Measures**	**Level of Significance After Mitigation**
		will be necessary on the south site.) Under this flood control option, a 50 cfs pump facility would be constructed on the southern side of Morrison Creek at Hedge Avenue on the Vineyard I site. This pump facility would be used to return diverted flows to the stream system. This option represents a variation of the Alternative 5 presented in the Drainage Mitigation Plan (Montgomery Watson, August 1995) for the mining reach. Option 2: Install a perimeter bypass channel in the same basic alignment proposed for the "Part A Drainage Alternative" (refer to Figure 3-7). The channel would be sized to accommodate flows of 400 cfs. Flows in excess of the capacity of the elevated creek corridor (400 cfs) would be diverted to the bypass channel. In-flow and out-flow structures where the creek and bypass channel connect would be needed. A large variable speed pump station (400 cfs) would be located on the Vineyard I site near Hedge Avenue (at the downstream end of Morrison Creek within the project site). If mining is permanently precluded within the 150-foot buffer area on the north property, then additional capacity within the perimeter channel will be needed. Option 3: Construct and maintain a containment levee at the edge of the 150-foot buffer area. The levee shall be designed to safely convey the 100-year flood flows through the project site without resulting in pit capture and or other flooding impacts. Levee strength and maintenance would be subject to review and monitoring by the Sacramento County Public Works Agency Water Resources Division.	
Groundwater Hydrology and Quality			
All Mining Alternatives: Impact #1: Alteration of drainage and groundwater flows and quality which could affect surrounding properties and domestic, septic leachfield systems (*S*)	The proponent shall show all individual sewage disposal systems within three hundred feet of the proposed mining area. In the event there are individual sewage disposal systems near or within the mining site, the mining setbacks shall conform to the provisions of the Sacramento County Code, Chapter 6.32 - SANITARY SEWAGE SYSTEM and the rules and regulations adopted pursuant thereto, and shall be subject to approval of the Sacramento County Health Agency and the Regional Water Quality Control Board. Approval of these agencies shall be obtained on the minimum mining setback before a work authorization permit can be obtained (*Zoning Code*).	MM #1: The proponents shall store contaminants in the gravel operation area in a manner that will contain any spills (i.e. containment berms). Any spills occurring in operational areas should be cleaned up immediately *(PP (A); PP (A-P); PB (DB)(PE)(VD); 100FP; CB). Applicable to all sites.* MM #2: The proponents shall obtain all necessary permits for the construction or removal/abandonment of any water wells and septic systems from the Sacramento County Environmental Management Department, Environmental Health Division *(PP (A); PP (A-P); PB (DB)(PE)(VD); 100FP; CB). Applicable to all sites.*	*LS*

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PP (A) = Proposed Project (Part A)
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100FP = 100-Year Floodplain Protection Alternative
CB = Creek Buffer Alternative

Table ES-1: SUMMARY OF IMPACTS AND MITIGATION MEASURES			
Environmental Impact/Level of Significance	**Requirements/Recommendations of Public Agencies**	**Mitigation Measures**	**Level of Significance After Mitigation**
		MM #3: The proponents shall revise the proposed Mining Plan to specifically identify all sewage disposal systems within 300 feet of the proposed mining area. Prior to issuance of the work authorization permit, approval of the Sacramento County Environmental Management Department, Environmental Health Division and the California Regional Water Quality Control Board on the minimum mining setback from these sewage disposal systems shall be required *(PP (A); PP (A-P); PB (DB)(PE)(VD); 100FP; CB)*. *Applicable to all sites.*	
All Mining Alternatives: Impact #2: Alteration or disruption of any future monitoring of the Mather Field contamination plume (*S*)	The proponents shall coordinate mining in the vicinity of groundwater contamination with the Air Force's planned groundwater extraction and reinjection system, and shall explore options for well removal, replacement, and/or abandonment (*Air Force Base Conversion Agency*).	MM #4: The proponents shall coordinate ~~the removal of groundwater wells with the~~ mining activities with the Air Force to avoid potential disruption of the ongoing Mather Field groundwater cleanup program to ensure that vital data collection is not disrupted ~~. This may require the proponents to avoid some wells or to re-construct wells destroyed by extraction~~ *(PP (A); PP (A-P); PB (DB)(PE)(VD); 100FP)*. *Applicable to all sites.*	*LS*
Cultural Resources			
All Mining Alternatives: Impact #1: Removal of historic resources/structures (*LS*)	As a condition for issuance of a Department of the Army/U.S. Army Corps of Engineers(Corps) permit under section 404 of the Clean Water Act, the Corps shall satisfy the consultation requirement of Section 106 of the Historic Preservation Act of 1966. Section 106 requires the Corps to consult with the State Historic Preservation Office (SHPO) and the Advisory Council on Historic Preservation (ACHP) regarding project impacts to cultural resources. The consultation process is described in 36 CFR 800 (*National Historic Preservation Act*).	MM # 1: Should any cultural resources, such as structural features, unusual amounts of bone or shell, artifacts, human remains, or architectural remains be encountered during any development activities, work shall be suspended and the Department of Environmental Review and Assessment (440-7914) and Army Corps of Engineers (557-5263) shall be immediately notified. At that time the Department of Environmental Review and Assessment and the Corps will coordinate any necessary investigation of the find with appropriate specialists as needed. The project proponent shall be required to implement any mitigation deemed necessary for the protection of the cultural resources. In addition, pursuant to Section 5097.97 of the State Public Resources Code and Section 7050.5 of the State Health and Safety Code, in the event of the discovery of human remains, all work is to stop and the County Coroner shall be immediately notified. If the remains are determined to be Native American, guidelines of the Native American Heritage Commission shall be adhered to in the treatment and disposition of the remains *(PP (A); PP (A-P); PB (DB)(PE)(VD); 100FP; CB)*. *Applicable to all sites.*	*LS*

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All Mining Alternatives: Impact # 2: Potential disturbance of buried cultural resources (*S*)	If, during ground-disturbing activities, human remains are encountered, the County Coroner shall be contacted. Disinterring, disturbing, or removing human remains shall be prohibited (California Health and Safety Code Section 7050.5 or 7051). Obtaining or possessing Native American artifacts or human remains taken from a Native American grave or cairn shall be prohibited (Chapter 1.75 - Native American Historical, Cultural, and Sacred Sites--Section 5097.9 to 5097.99) (*State of California Public Resources Codes*). In the event of discovery or recognition of any human remains, procedures sets forth in ~~Appendix K and~~ Supplementary Document J of the CEQA Statutes and Guidelines shall be carried out . If the remains are of Native American in origin, the Native American Heritage Commission shall have a role in the treatment and disposition of human remains and any associated grave goods (California Environmental Quality Act).	Same as above.	*LS*
Air Quality			
All Mining Alternatives: Impact #1: Temporary increase in emissions along roadways (*S*)	The proponents would be required to comply with the Sacramento Metropolitan Air Quality Management District Rules and Regulations including: Rule 402; Rule 403: Regulation 2; and Rule 801 (*SMAQMD*). The proponents shall submit to the Sacramento Metropolitan Air Quality Management District an Air Pollution Control Plan for review and approval prior to commencement of grading operations (*Zoning Code*).	MM #1: Carry-out of mud or dirt onto public roads shall be controlled by creating either a gravel apron or a mud trap (series of metal bars or grating with space underneath to accumulate material) to remove the mud or dust from truck tires. This would be applicable to all phases of the project, including overburden removal and/or operation of a processing plant. Public roads near site access points will be regularly swept to avoid accumulation of dust on the road surface *(PP (A); PP (A-P); PB (DB)(PE)(VD); 100FP; CB)*. *Applicable to all sites.* MM #2: Unpaved haul roads shall be regularly sprayed with water or treated with non-toxic chemical dust suppressants either mixed into the road surface or added to the water being applied to the road surface. The frequency of application can vary according to the weather and moisture level of the soils on the site, but shall be frequent enough to avoid visible dust plumes *(PP (A); PP (A-P); PB (DB)(PE)(VD); 100FP; CB)*. *Applicable to all sites.* MM #3: Overburden stockpiles shall be treated with an appropriate dust suppressant, regularly watered or otherwise treated to minimize wind erosion *(PP (A); PP (A-P); PB (DB)(PE)(VD); 100FP; CB)*. *Applicable to all sites.* MM #4: Every effort shall be made to remove overburden during the period of the year when surface soils are moist. If overburden is removed when surface soils are dry, water spraying equipment shall be used to reduce dust emission. Water spraying equipment shall likewise be used, as needed, when removing aggregate. The	*LS*

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		duration and timing of water spraying shall be determined by the Public Works Agency *(PP (A); PP (A-P); PB (DB)(PE)(VD); 100FP; CB). Applicable to all sites.*	
All Mining Alternatives: Impact #2: Introduction of new on-site air pollutant emission sources, (*LS*)	See above.	MM #5: The moisture content of material being conveyed (on- and off-site) shall be maintained at a level sufficient to avoid visible dust from the conveyor loading and transfer points *(PP (A); PP (A-P); PB (DB)(PE)(VD); 100FP; CB). Applicable to all sites.*	*LS*
Geology and Slope Stability			
All Mining Alternatives: Impact #1: Permanent alteration of the project site's landform (*SU*)		None available.	*SU*
All Mining Alternatives: Impact #2: Reclaimed slopes may be subject to slope instability (*S*)		MM #1: The proponents shall limit the planned slopes of the Morrison Creek bypass channel to 2:1 (horizontal:vertical). The overburden soils shall be placed and compacted in six-inch lifts to at least 90 percent of the maximum dry density, at or near optimum moisture conditions. Since local stability of the slope is critically dependent upon proper compaction of the overburden soils, a qualified soils engineer shall be regularly present throughout grading operations to determine compliance with job specifications *(PP (A); PP (A-P); PB (DB)(PE)(VD); 100FP; CB). Applicable to the Aspen III South, Aspen IV South and Vineyard I sites.* MM #2: The proponents shall limit finished side slopes to 1.5:1 (horizontal:vertical) to ensure stability for existing soil conditions. Soils shall be placed and compacted to 90 percent of the maximum dry density, at or near optimum moisture conditions, in all finished slopes. Since local stability of the slope is critically dependent upon proper compaction of the overburden soils, a qualified soils engineer shall be regularly present throughout grading operations to determine compliance with job specifications *(PP (A); PP (A-P); PB (DB)(PE)(VD); 100FP; CB). Applicable to all sites.*	*LS*
All Mining Alternatives: Impact #3: Reclaimed slopes may be subject to erosion (*S*)		MM # 3: The proponents shall ensure that the side slopes of the pit are vegetated following final slope placement to prevent excessive erosion and enhance slope stability. The side slopes shall be revegetated with an erosion control mix for which species, seeding rates and methodology are specified in an Erosion Control Plan, which the proponents shall prepare and submit to the County prior to	*LS*

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		issuance of the work authorization. The species chosen for the erosion control mix shall not be invasive in the wetland creation areas. This reclamation revegetation shall occur on an annual basis prior to the wet season (i.e., before October 1). The Erosion Control Plan shall include performance standards that can be used to determine the success of erosion control measures and the revegetation effort, and shall discuss monitoring requirements. The plan shall include remedial measures to be implemented if revegetation is not successful *(PP (A); PP (A-P); PB (DB)(PE)(VD); 100FP; CB). Applicable to all sites.*	
Paleontological Resources			
All Mining Alternatives: Impact #1: Potential disruption of fossil resources (*S*)		MM #1: Should fossils be discovered within the project site, the proponents shall terminate work in the immediate area of the discovery and contact the Sacramento County Department of Environmental Review and Assessment and the University of California at Davis or California State University Sacramento to jointly develop an action plan to assess and/or preserve fossil resources *(PP (A); PP (A-P); PB (DB)(PE)(VD); 100FP; CB). Applicable to all sites.*	*LS*
Biological Resources			
PP (A); PP (A-P): Impact #1: Loss of existing natural vegetation communities (*S*) Impact #2: Changes in vernal pool hydrology (*S*)	The proponents shall secure a Streambed Alteration Agreement (CDFG 1601-1607) with CDFG before re-routing existing stream channels. The Streambed Alteration Agreement shall include a program and appropriate plans to protect upstream and downstream habitats. Best Management Practices shall be employed to minimize alterations of natural water flows and reduce downstream sediment (*CDFG*).	MM #1: Except as modified below for the proposed wetland mitigation, the proponents shall implement the proposed reclamation plans as presented in the surface mining application documents, including the wetland mitigation plans to mitigate for impacts to the riparian forest/riparian scrub communities, wetlands, and wildlife habitats within the project site, including habitat for special status wildlife species. The following modifications to the wetland mitigation plans shall be made:	*LS* *LS*

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Impact #3: Impact on waters/wetlands (*S*) Impact #4: Loss of existing wildlife habitat and individual animals (*S*) Impact #5: Disruption of wildlife movement corridor (*LS*) Impact #6: Disruption to wildlife feeding and breeding due to increased human presence (*LS*) Impact #7: Loss of existing warmwater fisheries habitat (*S*) Impact #8: Disruption of fish migration (*S*) Impact #9: Loss of existing American badger habitat and potential den sites (*LS*) Impact #10: Temporary loss of potential roosting habitat for pallid bat and Townsend's western big-eared bat (*LS*)	The proponents shall develop and implement a water quality and erosion control plan for all construction-related project activities; the plan shall include the following: a. Control disposal of runoff within the construction and staging as well as any water encountered during construction. There must not be any discharge to State waters unless authorized under permit by the CDFG and the Central Valley RWQCB; b. Methods to control surface discharge away from disturbed areas and along roadways; c. Methods to be used for slope stabilization and to limit erosion on disturbed areas or any other area subject to erosion; d. Methods to be implemented that assure proper operation, maintenance, and use of erosion control devices; e. Seasonal variation in use of erosion control measures must be addressed, including winterizing all areas from October 15 through May 15 of each year; and f. A detailed revegetation and slope stabilization plan (CDFG). In order to comply with Public Resources Code Section 21081.6, a detailed monitoring program shall be developed for all mitigation conditions. The monitoring program shall include, but may not be limited to, the following: a. Specific criteria to measure the effectiveness of the mitigation; b. Annual monitoring reports for a minimum of five years; annual reports must be submitted to Sacramento County, the Corps and CDFG; and	a. The flows to be regulated and maintained in the mitigation corridor (to be located on the Aspen IV South and Vineyard I parcels), by releases from the bypass channel, shall be determined in consultation with the USFWS, CDFG, Corps, and County and shall be sufficient to support the mosaic of habitats proposed for the corridor. This consultation shall establish the minimum low flow and optimal high flow conditions to be maintained within the mitigation corridor to achieve the hydrological goals of the mitigation and support the various habitats as expected *(Mitigates Impacts 1, 3, 4, 7, 8, 12)*. b. To ensure mitigation for Valley elderberry longhorn beetle, elderberry planting shall be conducted within the mitigation corridor on the Aspen IV South parcel following the USFWS's *General Compensation Guidelines for the Valley Elderberry Longhorn Beetle (Mitigates Impact 13)*. c. The monitoring effort for the riparian woodland, riparian scrub, and Valley oak savanna habitats shall be performed for a period of ten years to ensure success of the plantings and development of the habitats anticipated *(Mitigates Impacts 1, 3, 12)*. d. Monitoring efforts on the Aspen V South parcel shall include hydrological and botanical monitoring of the vernal pools on the parcel to document consistency or any changes in these communities. Hydrological monitoring shall entail recording the period and duration of inundation; botanical monitoring shall be conducted as in the emergent marsh mitigation to be constructed. This additional monitoring would be incorporated into the five year monitoring program. Should the monitoring reveal that the vernal pools have been significantly impacted, additional mitigation for the vernal pools shall be developed in consultation with the USFWS, CDFG, Corps, and the County *(Mitigates Impacts 2, 14) (PP (A); PP (A-P); CB)*. *Applicable to all sites.*	*LS* *LS* *LS* *LS* *LS* *LS* *LS* *LS*
Impact #11: Loss of potential foraging habitat for Swainson's hawk and other special status birds (*S*)	c. The annual monitoring reports must include corrective recommendations that shall be implemented in order to ensure that mitigation efforts are successful (*CDFG*). Pursuant to Public Resource Code 21092 and 21092.2, the CDFG shall be notified in writing of any proposed actions and/or pending decisions regarding this project; the written notification(s) shall be sent to the CDFG Region 2 office, Rancho Cordova (*CDFG*).	MM #2: After the five year monitoring period for mitigation of wetlands and other habitats, a written determination shall be made as to the success or failure of the wetland and habitat mitigation. The determination of success shall be made by a qualified biologist in consultation with and concurrence by the USFWS, CDFG, Corps and the County. If the determination concludes that the wetland, riparian, and/or oak woodland habitats have not met the success criteria, the proponents shall develop additional habitats and/or implement other remediation that is approved by the above mentioned agencies	*LS*

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		(Mitigates Impacts 1, 3, 12) (PP (A); PP (A-P); CB). Applicable to the Aspen IV South, Aspen V South and Vineyard I sites.	
Impact #12: Temporary loss of potential breeding habitat for California tiger salamander and western spadefoot toad and potential loss of individuals of these species (*S*)	The proposed project (through the Corps) shall comply with the consultation requirements set forth in Section 7 of the federal Endangered Species Act (per 16 USC Sec. 1531 *et seq.*), and the Fish and Wildlife Coordination Act (16 USC Sec. 661 *et seq.*) (*USFWS*). The proponent shall obtain a Section 404 permit prior to construction of the conveyor system should there be any work in wetlands and other waters of the U.S. under Section 404 of the federal Clean Water Act (*Clean Water Act*).	MM #3: To mitigate for impacts to fish and aquatic wildlife movement/migration in Morrison Creek, the bypass channel shall be designed to incorporate suitable habitat features. The features shall be developed in consultation with the USFWS, CDFG, Corps, and the County, and shall provide opportunities for the native Sacramento blackfish as well as other species of aquatic wildlife, including special status amphibians and reptiles *(Mitigates Impacts 7, 8) (PP (A); PP (A-P). Applicable to the Aspen III South, Aspen IV South and Vineyard I sites.* MM #4: The following mitigation is recommended to minimize the potential impacts to Swainson's hawk, burrowing owl and other special status birds. The measures listed below are related to the aforementioned species only. a. Prior to issuance of any grading permits, the proponents shall submit, to the Department of Environmental Review and Assessment, a current survey conducted by a qualified wildlife biologist indicating the location and status of any active nest within the project site *(Mitigates Impact 11)*.	*LS*
Impact #13: Loss of elderberry bushes and potential loss of valley elderberry longhorn beetles (*SU*)		b. Prior to the disturbance or removal of any raptor nest, the proponents shall secure the required permits from the USFWS for such removal, pursuant to the Migratory Bird Treaty Act *(Mitigates Impact 11)*.	*LS*
Impact #14: Elimination of potential habitat for fairy shrimp~~,~~ and tadpole shrimp, ~~and Delta green ground beetle,~~ and potential loss of individuals of these species (*S*)		c. No construction shall be allowed within 150 feet of any active raptor or tricolored blackbird nest site until all of the young have fledged, or a permit has been secured from the appropriate resource agency to allow disturbance or removal of the active nests. The 150-foot "no construction" buffer zone must be adequately fenced and signed *(Mitigates Impact 11)*.	*LS*

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		d. The post-reclamation agricultural areas shall be planted only with crops that are suitable for Swainson's hawk foraging; these crops shall be approved by the CDFG *(Mitigates Impact 11)*. e. The post-reclamation project site shall not be operated with any rodent or small mammal control program that would indiscriminately eradicate all rodents and small mammals from the project site. The proponents shall ensure that any rodent or small mammal control program is approved by the CDFG, Corps, and the County prior to its implementation *(Mitigates Impact 11) (PP (A); PP (A-P); 100FP; CB)*. *Applicable to all sites.* MM #5: The proponents shall comply with the implementing measures included in the County's standard tree preservation ordinance for all oak trees on the project site to be preserved and protected from mining operations. Any native oak trees greater than 4 inches dbh proposed for removal shall be compensated for by planting native oak trees (valley oak/*Quercus lobata*, blue oak/*Q. douglasii*, and/or interior live oak/*Q. wislizenii*) based on the compensation ratio provided below. The trees shall be planted on the project site or off-site, preferably at a nearby community park. Prior to issuance of the work authorization, a replacement Oak Tree Planting Plan shall be prepared by a certified arborist or a licensed landscape architect and shall be submitted to the Environmental Coordinator for review. The plan shall identify the planting location, the number and species of trees to be planted, the funding source for planting and maintenance, and maintenance agreements identifying the entity which shall provide care for the trees during a 3-year establishment period. In addition to oak tree replacement, the plan shall provide for the replacement of all landmark size (19 dbh or greater) native trees (except cottonwoods and willows) removed as a result of the project on an in-kind and inch-for-inch basis. The following compensation ratio for oak tree replacement is required: • One 15-gallon oak tree equals 1-inch dbh • One 24-inch box oak tree equals 2-inches dbh • One 36-inch box oak tree equals 3-inches dbh No replacement oak tree shall be planted within 15 feet of the driplines of oak trees which are retained on-site, or within 15 feet of a building foundation *(Mitigates Impact 1) (PP (A); PP (A-P); 100FP; CB)*. *Applicable to all sites.*	

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All Part B Alternatives:			
Impact #1: Additional (beyond the proposed project) disruption to future wildlife feeding and breeding areas due to increased human presence (*S*)		MM #1: All of the mitigation measures described above for the proposed project shall be implemented for all Part B alternatives *(PB (PE) (DB)(VD))*. *Applicable to all sites.* MM #2: To mitigate for increased human use of the project site that may result from the development of recreational features under the Part B alternatives, the proponents shall incorporate public signs into the recreational design to inform the users about the history of the project site, its wildlife value, and sensitivity of wildlife species which may be feeding or breeding onsite *(PB (PE)(DB)(VD))*. *Applicable to all sites.*	*LS*
Impact #2: Increased permanent loss of plant and animal habitat (*S*)			*LS*
Impact #3: Impacts to fish/general wildlife due to lining the bypass channel (*S*)		None available.	*SU*
PB (DB):			
Impact #4: Increased loss of suitable foraging habitat for Swainson's hawk and suitable foraging and nesting habitat for burrowing owls (*SU*)		None available.	*SU*
100FP:			
Impact #1: Loss of ruderal, disced, and cultivated habitats and 0.11 acre of seasonal wetland ~~associated wildlife habitat values~~ outside of 100-year floodplain (*S*)		MM #1: Mitigation measures 4 and 5 for the proposed project shall apply to this alternative, as appropriate. In addition, the 0.11 acre of seasonal wetland impacted by this alternative shall be mitigated on a 1.5:1 ratio (0.17 acre) within the 100-year floodplain at the Vineyard I and Aspen IV South sites, or other mitigation approved by the County, Corps, USFWS and CDFG. The same monitoring requirements and success criteria described in the mitigation plans shall apply to this alternative *(100FP)*. *Applicable to the Aspen IV South and Vineyard I sites.*	*LS*

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CB:		MM#1: Mitigation measures 1, 2, 4, and 5 for the proposed project shall apply to this alternative, as appropriate. In addition, the 1.14 acres of riparian woodland/drainage channel, 1.3 acres of perennial marsh, and 5.56 acres of seasonal marsh impacted by this alternative shall be mitigated within the creek buffer area. The same replacement ratios, monitoring requirements and success criteria described in the mitigation plans shall apply to this alternative. Habitat shall be provided within the creek buffer area on the mining sites where the habitat would be lost, as described under the impact conclusion statement (Mitigates Impact 1) (CB). *Applicable to Vineyard I, Aspen IV South and Aspen V South sites.*	*LS*
Impact #1: Loss of ruderal, disced, and cultivated habitats and 8.0 total acres of jurisdictional waters (*S*)			
Impact #2: Loss of potential foraging habitat for Swainson's hawk (*S*)			*LS*
Impact #3: Loss of at least 4 elderberry bushes and potential loss of valley elderberry longhorn beetles (*S*)			*LS*
Impact #4: Temporary loss of potential breeding habitat for California tiger salamander, western spadefoot toad, fairy shrimp, and tadpole shrimp.			*LS*
Traffic and Circulation			
All Mining Alternatives(Except Scenario 4a):	No truck access for overburden removal or aggregate shall be allowed onto Fruitridge Road between South Watt Avenue and the Aspen III South access point (*County Transportation Division*).	MM#1: The proponents shall limit total material to be removed from the site by truck to the initial ~~430,000~~ 1,000,000 cubic yards of overburden (100,000 cy from the Vineyard I site and a total of 900,000 cy from the Aspen III-V sites). ~~and the truck traffic associated with operation of the Vineyard I processing plant.~~ No direct access to Jackson Road shall be permitted. (PP(A); PP(A-P); PB(DB)(PE)(VD); 100FP; CB). Applicable to all sites.	*LS*
Impact #1: Deterioration of existing LOS (*S*)	Grant the County right-of-way for Fruitridge Road based on an 84' standard and install public street improvements pursuant to the Sacramento County Improvement Standards (*County Transportation Division*). Grant the County right-of-way for Mayhew Road based on an 84' standard and widen/upgrade it to accommodate two-way truck traffic to the satisfaction of the Transportation Division (*County Transportation Division*).	MM#2: The proponents shall transport mined aggregate material to the processing plants only by conveyor and not by trucks. (PP(A); PP(A-P); PB(DB)(PE)(VD)). Applicable to all sites. MM#3: The proponents shall contribute fair-share funding for construction of a traffic signal at the intersection of Elder Creek Road at South Watt Avenue. Fair-share funding shall be determined by the Director of the Transportation Division of the Public Works Agency.	

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	Grant the County right-of-way for Fruitridge Road, Mayhew Road, and Elder Creek Road based on 84' standard and install public street improvements pursuant to the Sacramento County Improvement Standards (*County Transportation Division*). Grant the County right-of-way for Bradshaw Road and Jackson Road based on 108' standard and install public street improvements pursuant to the Sacramento County Improvement Standards (*County Transportation Division*). Grant the County right-of-way for Hedge Avenue based on 60' standard and install public street improvements pursuant to the Sacramento County Improvement Standards (*County Transportation Division*). Grant the County additional right-of-way on Fruitridge Road/Mayhew Road, Elder Creek Road/Mayhew Road, Elder Creek Road/Hedge Avenue, and Bradshaw Road/Jackson Road for intersection widening per standard drawings H-24 and H-25 of the Sacramento County Improvement Standards (*County Transportation Division*). The proposed conveyor tunnels under various roadways shall be designed to accommodate the ultimate roadway cross-section to the satisfaction of the Transportation Division of the Public Works Agency/Caltrans (*County Transportation Division*). Fruitridge Road between the Aspen III South driveway and Mayhew Road shall be overlaid to the satisfaction of the Transportation Division of the Public Works Agency. This overlay shall be done within three months of the completion of the initial overburden removal for the Aspen III South project (*County Transportation Division*). No truck access for overburden removal or aggregate shall be allowed onto Fruitridge Road between South Watt Avenue and the previously approved Aspen III South access point (*County Transportation Division*). ~~Pave Mayhew Road from Elder Creek Road to 200 feet north of Elder Creek Road (*County Transportation Division*).~~ The location, number and design of project access driveways for various project sites ~~on Mayhew Road~~ shall be to the satisfaction ~~requirements~~ of the Transportation Division of the Public Works Agency (*County Transportation Division*).	~~After installation of the traffic signal, the intersection would operate at LOS E during the PM peak period, in compliance with the County standard for urban roadways~~. (PP(A); PP(A-P); PB(DB)(PE)(VD)) 100FP; CB). Applicable to all sites. MM#4: The proponent shall contribute fair share funding for construction of a second left turn lane on the eastbound Elder Creek Road approach to the Elder Creek Road/Bradshaw Road intersection. The complete improvements shall feature two left turn lanes and a combination right-through lane on the eastbound intersection approach. The installation of this improvement would require roadway widening on the west leg of the intersection to accommodate the new lane and on the east leg to accommodate the taper for the new lane. Bradshaw Road is scheduled to be improved to from two-lanes to four-lanes in the 2000-2002 time period. The above-described condition should be included in the Bradshaw Road project. Thus, the payment of countywide roadway and transit fees will cover the proponents fair share funding. (PP(A); PP(A-P); PB(DB)(PE)(VD); 100FP; CB) Applicable to all sites. ~~A new left turn lane shall be constructed for the eastbound Elder Creek Road approach at the Bradshaw Road intersection. The completed improvements shall feature two left turn lanes and a combination right through lane for the eastbound approach. This improvement would require roadway widening on the west leg of the intersection for the new lane, and on the east leg of the intersection to provide a smooth travel path for through traffic on Elder Creek Road. Design of the improvements shall be in accordance with County Improvement Standards and approved by the Transportation Division. (After improvements are completed, the intersection would operate at LOS D.)~~	

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Environmental Impact/Level of Significance	**Requirements/Recommendations of Public Agencies**	**Mitigation Measures**	**Level of Significance After Mitigation**
All Mining Alternatives (Except Scenario 4a): Impact #2: Impacts on traffic safety (*S*)		MM#5: The intersection of Mayhew Road and Elder Creek Road shall be improved to provide a westbound right turn lane with sufficient improvements to roadway turning radii to prevent turning trucks from encroaching on the travel path of opposing traffic lanes. Design of the improvements shall be in accordance with County Improvement Standards and approved by the Transportation Division. (PP(A); PP(A-P); PB(DB)(PE)(VD); 100FP;CB). Applicable to the Vineyard I site. MM#6: Mayhew Road shall be widened in accordance with County Improvement Standards. The design shall be approved by the Transportation Division before improvements are made. (PP(A); PP(A-P); PB(DB)(PE)(VD); 100FP;CB). Applicable to all sites. MM#7: Turn lanes shall be added on Bradshaw Road adjacent to the proposed access driveway to Aspen V South prior to overburden removal from the site. Design and location of the turn lanes shall be in accordance with County Improvement Standards and approved by the Transportation Division. (PP(A); PP(A-P); PB(DB)(PE)(VD); 100FP; CB). Applicable to the Aspen V South site.	*LS*
All Mining Alternatives (Except Scenario 4a): Impact #3 : Potential deterioration of roadway pavement/structural section (*S*)		MM#8: The proponents shall agree to repair any damages to structural paving material along sections of project site roadway segments upon which loaded trucks are routed, to the extent such damage is caused by traffic which occurs during the period of hauling operations. Such agreement with the County Transportation Division of the Public Works Agency shall be formalized prior to issuance of the work authorization. (PP(A); PP(A-P); PB(DB)(PE)(VD); 100FP;CB). Applicable to all sites. MM#9: No mining shall take place within 25 feet of the ultimate right-of-way of Fruitridge Road and Mayhew Road, except that the Public Works Director may authorize mining to proceed up to 12 feet from the ultimate right-of-way, with appropriate backfill and compaction to preexisting grade to the required 25 foot setback line (with a slope no steeper than 1 1/2:1). The mining and backfilling proposal shall be supported by a soils report prepared by a qualified soils engineer, certifying that the overburden and underlying aggregate can support the proposed activity and anticipated traffic levels of Fruitridge Road and Mayhew Road without adversely affecting the County right-of-way. The 25 foot setback area adjacent to the right-of-way of Fruitridge Road and Mayhew Road shall be backfilled and compacted prior to the onset of the rainy season, and the compaction shall be certified to at least 90% by a soils engineer. (PP(A); PP(A-P); PB(DB)(PE)(VD); 100FP; CB). Applicable to the Aspen III South,	*LS*

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		Aspen IV South, and Vineyard I sites.	
All Mining Alternatives (Except Scenario 4a): Impact #4: Deterioration of the LOS for cumulative conditions (*SU*)		MM#10: Beginning in the year 2005, hauling of materials from the project site shall not occur during the peak traffic periods for cumulative conditions: 7:00-9:00 AM and 4:00-6:00 PM. The year of mitigation has been determined by straight line interpolation of volume/capacity ratios between 1995 and 2010 for the roadway segment on Elder Creek Road between Mayhew Road and Bradshaw Road. The requirement for mitigation by 2005 may be reconsidered by the County at a later time if a competent traffic study shows future traffic operations on Elder Creek Road is expected to comply with County level of service policies. (PP(A); PP(A-P); PB(DB)(PE)(VD); 100FP; CB). Applicable to the Vineyard I site.	*SU*
Scenario 4a (Proposed Project without Vineyard I Processing Plant – with new conditions): Impact #1: Similar LOS, traffic safety, roadway deterioration, and cumulative impacts as project (*S*)	Same as above	Mitigation Measures # 2, 6, 7, 8, and 9 above shall apply to Scenario 4a. In addition, the following measures shall also be required to mitigate traffic impacts to a less-than-significant level. MM#1: All overburden removed from the site by trucks shall be routed onto Mayhew Road north to Jackson Road via an on site crossing of Morrison Creek. If required, the creek crossing shall be consistent with all Corps of Engineers, USFWS and CDFG permits required for the project. Overburden hauling (truck trips) at the Vineyard I site shall not exceed 30 per hour during peak the traffic periods. Overburden hauling at the Aspen III, Aspen IV and Aspen V sites shall not exceed 24 per hour during peak the traffic periods. MM#2: The proponent shall contribute fair share funding for construction of a right-turn lane on the northbound Mayhew Road approach to the Jackson Road intersection	*LS*
Land Use			
All Mining Alternatives: Impact #1: Mining operations may conflict with onsite and surrounding land uses (*S*)	The proponents shall maintain 25-foot minimum setbacks from adjoining rural residential land uses, the first 5 feet of which shall consist of undisturbed land, and 25-foot minimum setbacks from all public streets consisting entirely of unmined land. The setback area consisting of mined land shall be reclaimed to original grade within one year or less of completion of mining. The County may require additional setbacks from the mined areas to reduce potential nuisances, hazards or land use impacts). The County may also waive this requirement if evidence is provided by the proponents that the setback can be reduced by engineering design, or that the neighboring property owners consent to the request (Section 235-59)	MM #1: In order to mitigate potential impacts to surrounding land uses, the proponents shall be required to comply fully with mitigation measures identified in the Noise, Traffic and Circulation; Air Quality; and Visual Resources sections of this EIR/EIS. These mitigation measures employ appropriate state-of-the-art techniques for erosion control, reclamation, nuisance prevention, and environmental impact mitigation relative to surface mining operations *(PP (A); PP (A-P); PB (DB)(PE)(VD); 100FP; CB). Applicable to all sites.*	*SU*

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	(*Zoning Code*). Unless otherwise provided as a condition of use permit, the proponents shall limit proposed operating hours (for both processing and extraction activities) to Monday through Friday: 6:00 a.m. to 10:00 p.m., and Saturday: 6:00 a.m. to 3:00 p.m. No work shall be conducted on Sundays and labor union holidays. The Zoning Administrator may permit different operating hours on an interim basis from the specified operating hours if it is determined that the public benefit outweighs the community hardship and/or the work requires a continuous pour of concrete *(Zoning Code)*.		
All Mining Alternatives: Impact #2: Disruption of farmland (*S*)	An Agricultural Management Plan shall be submitted to the County as part of the required work authorization. The Agricultural Management Plan shall describe how the agricultural end use will be accomplished (SMARA Section 2772(h)) Surface Mining and Reclamation Act of 1975 (*SMARA*). Non-prime agricultural lands reclaimed to agricultural uses shall be reclaimed so as to be capable of sustaining economically viable production of crops commonly grown in the surrounding areas (Section 3708) (*State Mining and Geology Board Regulations*). When an approved reclamation plan calls for revegetation or cultivation of disturbed lands, specific performance standards shall apply to topsoil salvage, maintenance, and redistribution activities (Section 3711) (*State Mining and Geology Board Regulations*).	MM #2: Prior to issuance of the work authorization, the proponents shall prepare a plan for the preservation and salvage of topsoil resources suitable for sustaining economically viable agricultural uses, consistent with the performance standards set forth in Sections 3708 and 3711 of the State Mining and Geology Board Reclamation Regulations *(PP (A); PP (A-P); PB (DB)(PE)(VD); 100FP; CB)*. *Applicable to all sites.*	*LS*
All Mining Alternatives: Impact #3: Potential restrictions for future development of project site (*S*)	Pertinent applications, plans and environmental documents shall be provided to all agencies that may be involved with future reclamation uses, including service providers, parks agencies, and resource management agencies (Conservation Element Implementation Measure "C," p. 36) (*Sacramento County General Plan*). The County shall not allow surface mining until the Board of Supervisors has approved an adequate plan for reclamation of mined areas. The project site shall be reclaimed after completion of mining operations consistent with the approved reclamation plan. The site shall be free of derelict machinery, scrap, and nonnatural waste materials (Sections 235-45 and 235-61) (*Zoning Code*).	MM #3: Within six months of completing all mining and reclamation, the proponents shall identify, record, and grant to the County of Sacramento 600-foot wide open space easements as needed to delineate riparian corridors associated with the constructed seasonal drainages south of the reconstructed Morrison Creek bypass channel. Those easements shall identify the limits of agricultural activity so as to guarantee sufficient area to allow for regeneration of the riparian corridor, and shall also allow for the subsequent establishment of a public trail system when deemed appropriate by the County as part of an areawide trail network involving urban stream corridors *(PP (A); PP (A-P); PB (DB)(PE)(VD); 100FP; CB)*. *Applicable to the Aspen IV South and Vineyard I sites.*	*LS*

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***PP (A); PP (A-P); PB* (DB)(PE)(VD)** Impact #4: Modification to the Flood Combining Zone boundary (*LS*)		None Required.	*LS*
Noise			
All Mining Alternatives: Impact #1: Noise levels in excess of 75 dBA may occur at nearby residences and other sensitive receivers (*S*)	Unless otherwise provided as a condition of use permit, the proponents shall limit hours of excavation to be consistent to those required by Section 235-53 of the Zoning Code (*Zoning Code*).	MM #1: ~~The proponent of Vineyard I shall c~~Construct an earthen berm, sound wall, or combination berm/sound wall no less than 15 feet high early in the stripping phase along all common residential/project property lines within 1,200 feet of the Vineyard I processing plant to break the line of sight of loaders and crushers at the processing plant from any sensitive off-site receptor. (Note: This mitigation measure does not apply to the Proposed Project Without the Vineyard I Processing Plant Alternative.)*(PP (A); PB (DB)(PE)(VD);~~100FP~~; Applicable to the Vineyard I site.* MM #2: For all other common residential/project property lines, the proponents shall provide noise barriers consisting of 8-foot high earthen berms or temporary portable barriers installed and moved along property boundaries as mining progresses. The noise barriers shall be maintained at least until sufficient pit excavation has occurred to block the line of sight between nearby residences and mining activities. If temporary portable barriers are used, they shall either be constructed with 4 x 8 sheets of ¾-inch plywood, placed side by side with an overlap of 1-2 inches to prevent gapping, or shall be constructed with other materials which achieve equivalent or greater sound attenuation as verified by a qualified acoustical consultant. (Note: While the above cited ¾-inch plywood can provide acceptable temporary noise attenuation, this method as currently practiced is subject to weather damage, and lack of maintenance severely limits its effectiveness and aesthetic appeal. Alternatives which provide durability and improved aesthetics for nearby residents and passersby should be explored.)*(PP (A); PP (A-P); PB (DB)(PE)(VD); 100FP; CB). Applicable to all sites.* MM #3: The proponents shall provide for continuous movement of the excavation along the mining face of all common residential/project property lines to prevent noise from concentrating on any one receptor *(PP (A); PP (A-P); PB (DB)(PE)(VD); 100FP; CB). Applicable to the Vineyard I site.*	*LS*
PP (A); PB (DB)(PE)(VD);~~100FP~~:		MM #4: The proponent of Vineyard I shall lower the processing plant elevation to no less than 15 feet below existing grade and maintain	*LS*

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Impact #2: The processing plant would increase noise levels at the project site boundary (*S*)		stockpiles at least 25 feet in height between the plant and residential receptors. (Note: This mitigation measure does not apply to the Proposed Project Without the Vineyard I Processing Plant Alternative.) *(PP (A); PB (DB)(PE)(VD); 100FP; CB). Applicable to the Vineyard I site.* MM # 5: After processing plant start-up, the proponent of Vineyard I shall conduct a noise investigation of the plant to determine what adjustments if any must be made to comply with Sacramento County Code Section 6.68.070 (b-1,2,3,4,5 & d) (Noise Ordinance). If noise readings taken during initial start-up indicate that noise standards are exceeded by processing plant activities, additional noise measures potentially including but not limited to rubber top deck screens, covers over the top deck screens, and rubber or spread metal liners on the bottom surfaces of rock chutes shall be utilized as necessary to ensure noise standards are met. (Note: This mitigation measure does not apply to the Proposed Project Without the Vineyard I Processing Plant Alternative.) *(PP (A); PB (DB)(PE)(VD); 100FP; CB). Applicable to the Vineyard I site.*	
All Mining Alternatives: Impact #3: Potential violation of the Zoning Code Noise Standard by conveyor system (*LS*)		None Required.	*LS*
All Mining Alternatives: Impact #4: Impacts due to heavy truck traffic during overburden removal and operation (*LS*)		None Required.	*LS*
Public Safety			
All Mining Alternatives: Impact #1: Creation of potentially hazardous conditions during operation (*S*)	An application for construction shall be filed with the California Division of Safety of Dams (DSD) and approved prior to start of construction for any new dam that falls under the State jurisdiction for safety (*California Division of Safety of Dams*). The proponents shall install fences and provide warning/trespass signs to comply with Sections 235-54 and 235-55 of the Zoning Code (*Zoning Code*). Existing public infrastructure (roads, water and sewer, electrical, etc.) shall be protected from undermining and collapse. To protect the roadway infrastructure, the proponents shall be required to construct	MM # 1: All perimeter fencing shall be retained until post-reclamation development/future use of the project site occurs *(PP (A); PP (A-P); PB (DB)(PE)(VD); 100FP; CB)* ~~MM # 2: As required as a condition of the existing permit, the proponent of Aspen III South shall install perimeter fencing between the existing driveway (exiting on Fruitridge Road) and the site to prevent public access to the mining area *(PP (A); PP (A-P); PB (DB)(PE)(VD); 100FP).*~~ ~~MM # 3: As required as a condition of the existing permit, the proponent of Aspen III South shall provide protection from truck traffic for pedestrians who use the existing driveway along the site's~~	*LS*

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	adjacent pit sides to standards approved by WRD. The proponents shall submit to WRD for approval: a) studies and design for appropriate embankment protection or other needs; and b) the plan, an ongoing construction inspection program, and the results of a program of soils testing during construction (*Water Resources Division Design and Construction Standards and Objectives*). In anticipation that the elevated channel would be ultimately accepted as a public facility, the proponents should be conditioned to submit to WRD studies and designs for channel-lining, and the plan and results of a program for soils testing during construction (*Water Resources Division Design and Construction Standards and Objectives*).	~~northwest boundary for access to Fruitridge Road. Such protection could consist of a protected pedestrian walkway, formed by providing additional chain link fencing along the entire length of the haul route, between the truck travel way on the driveway and the site boundary. Such fencing should be at least six feet high, and the pedestrian walkway should be at least three feet wide, provided on level ground and signed to indicate that it is for pedestrian/bicycle use. This fencing used to form the pedestrian walkway could be removed after all mining and reclamation activities are completed. Alternative methods of providing for pedestrian protection/safety may be considered, and could be implemented if found to be acceptable by the County Public Works Department. Such alternative methods might include restricting truck traffic on the driveway to the northernmost portion of the roadway *(PP (A); PP (A-P); PB (DB)(PE)(VD); 100FP).*~~	
Part B Alternatives: Impact #2: Creation of potentially hazardous conditions post-reclamation (*LS*)		None required.	*LS*
Aesthetics and Visual Resources			
All Mining Alternatives: Impact #1: Impacts related to views of the project site (*S*)		MM #1: The proponents shall screen mining operations from public roadways, private property, and other sensitive receptors by providing a combination of visual enhancements. These enhancements shall include 25-foot minimum buffers, chain link fencing, berming, and landscaping with fast-growing, closely spaced shrubs. To the extent possible, earthern berms shall meander and be contoured to reflect a more natural pattern with variations in width, height and direction *(PP (A); PP (A-P); PB (DB)(PE)(VD); 100FP; CB)*. *Applicable to all sites.* MM #2: Landscaping shall be initiated upon issuance of the use permit and, if possible, at least one year prior to commencement of the mining operations to allow plant establishment and sufficient screening growth. Plantings shall be irrigated by trenching or with individual bubblers on an automatic irrigation system. Landscaping shall be installed *exterior* to earthen berms or chain link fencing to provide the least "industrial" appearance and the highest compatibility with neighboring uses. Slats may be used in the fencing only if mining occurs before vegetation has reached screening height and density. *(PP (A); PP (A-P); PB (DB)(PE)(VD); 100FP; CB)*. *Applicable to all sites.*	*LS*

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PP (A); PB (DB)(PE)(VD); 100FP; CB Impact #2: Impacts related to the nighttime landscape (S)		MM #3: Any lighting shall be arranged and controlled so as not to illuminate public rights-of-way or adjacent properties. Mercury vapor type lights shall be used, similar to the type used as residential outdoor security lights. The top of the lights shall be covered with a metal cap, and a 10-12 inch plastic shield shall surround the bulb. The design of the light shall result in a minimum 90% of the light being projected downward, and the plastic shield shall prevent glare *(PP (A); PB (DB)(PE)(VD); 100FP; CB). Applicable to all sites.*	*LS*
Public and Private Utilities			
All Mining Alternatives: Impact #1: Elimination of possible routes for gravity sewers being considered by SRCSD and CSD-1 (*S*)	As a condition of approval of this project, the proponents shall enter into an agreement with SRCSD for the dedication of a 130-foot wide strip of land to provide for construction of sanitation pipeline and/or drainage facilities. If interceptor construction occurs prior to mining, the proponent will not mine in the 40-foot strip of land designated SRCSD permanent easement. The proponents will protect the integrity of the pipeline from mining activities conducted adjacent to the permanent easement. ~~As a condition of approval of the project, the proponents shall enter into a formal agreement with Sacramento Regional County Sanitation District and County Sanitation District 1, and the Sacramento County Stormwater Utility, for the dedication of a strip of land along a 130 foot right of way for the purpose of constructing two public utility corridors. Where surface mining activities have lowered the grade below the expected flowline, suitable fill shall be required below the pipe to provide support and approximately 5 feet of fill shall be required over the pipe to protect it from surface impacts. If substantial deviations from Expansion Study routes are required to preserve aggregate resources, the proponents shall compensate SRCSD for the cost of additional interceptor line needed to go around the mining resources. Where the interceptor line is also in a drainage corridor, protection from erosion shall be required where the creek could overflow into the mining pit. Staff of the Water Quality Division and the Water Resources Division, and the project proponents shall negotiate further specific requirements within the strip of land as part of the formal agreement. The dedication shall not include mining rights to the areas encumbered by the dedication~~ (*Water Quality Division, Public Infrastructure Planning and Finance and Water Resources Division*).	MM #1: The proponents shall enter into an agreement with the SRCSD regarding the placement and disposition of the utility corridors (to accommodate the gravity sewerage system) as they relate to the project site and the proposed project. The final plans shall be approved by SRCSD prior to implementation of the project. ~~The proponents shall consult with the County Water Quality Division regarding the placement of the utility corridors (to accommodate the gravity sewerage system) as they relate to the project site and the proposed project. The decision on placement of such corridors shall remain the sole discretion of the County, and the proponents shall work with the County to facilitate final plans~~ *(PP (A); PP (A-P); PB (DB)(PE)(VD); 100 FP; CB). Applicable to all sites.*	*LS*

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All Mining Alternatives: Impact #2: Impacts related to existing septic systems (*S*)	The proponents shall submit plans for proposed mining setbacks from existing sewage disposal systems to the County Environmental Management Department and the Regional Water Quality Control Board for approval in conformance with the provisions of Section 235-59(d) of the Zoning Code. The Project Planning Commission and the Board shall consider the setbacks and other relevant information in establishing setbacks from the mined areas. If setbacks are established which exceed those normally prescribed by the relevant Zoning/County Codes, the Board shall specify in writing the reasons for requiring the additional setback (*Zoning Code*).		*LS*
All Mining Alternatives: Impact #3: Removal of onsite septic systems (*LS*)	The proponents shall submit for review by the Environmental Management Department a site plan showing the exact locations of existing wells and septic systems (including leach lines and seepage pits) within 300 feet of the project site. This plan shall also indicate the wells proposed for use during the mining operation, the wells and/or septic systems proposed for abandonment, and the proposed locations for any new wells (*Environmental Management Department*). The proponents shall abandon any existing septic systems according to the Environmental Management Department and Building Department procedures and standards. Use of the system to be excavated shall be discontinued six months prior to excavation and the tanks shall be pumped at that time. Should any septic system be uncovered during mining activities, it shall be destroyed as per the requirements of the Environmental Management Department (*Environmental Management Department*).		*LS*
All Mining Alternatives: Impact #4: Use of on-site water (*LS*)	The proponents shall submit for review by the Environmental Management Department a site plan showing the exact locations of existing wells and septic systems (including leach lines and seepage pits) within 300 feet of the project site. This plan shall also indicate the wells proposed for use during the mining operation, the wells and/or septic systems proposed for abandonment, and the proposed locations for any new wells (*Environmental Management Department*).	MM #2: All new wells constructed within the project site shall be located and designed to minimize interference with existing wells within and outside the project site, to the satisfaction of the Environmental Management Department *(PP (A); PP (A-P); PB (DB)(PE)(VD); 100 FP; CB)*. *Applicable to all sites.*	*LS*
All Mining Alternatives: Impact #5: Removal of water wells (*LS*)	The proponents shall ensure that water wells located in each phase of mining shall be abandoned to the satisfaction of the Environmental Management Department prior to initiation of the mining of that phase. Any existing wells shall be abandoned according to the Environmental Management Department and Building Department procedures and standards. Should any well be uncovered during mining activities, it shall be destroyed as per the requirements of the Environmental Management Department (*Environmental*		*LS*

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	Management Department).		
PP (A); PB (DB)(PE)(VD); 100 FP; CB Impact #6: Installation of electrical facilities (*LS*)	The proponents shall contact the SMUD Distribution Planning Department and consult with SMUD through project planning and development so that any required facilities and easements would be developed in a coordinated manner. The proponents shall keep SMUD informed of all decisions or changes in schedules that pertain to the proposed project including setbacks, landscaped corridors, processing plant needs, or any other planning efforts which may affect SMUD electrical facilities. The proponents shall coordinate with SMUD for the construction of SMUD facilities during the different phases of development (*Sacramento Municipal Utility District*).	MM #4: The proponents shall phase the start-up of the processing plant to avoid a major surge in demand on the system *(PP (A); PB (DB)(PE)(VD); 100 FP; CB). Applicable to the Vineyard I site (with on-site processing plant option only)* MM #5: Any existing overhead power lines shall remain and, if necessary, be relocated at the proponents' expense as the operation proceed *(PP (A); PB (DB)(PE)(VD); 100 FP; CB). Applicable to all sites.*	*LS*
PP (A); PB (DB)(PE)(VD); 100 FP; CB Impact #7: Installation of natural gas facilities (*LS*)		None required.	*LS*
Socioeconomics and Environmental Justice			
All Mining Alternatives: Impact #1: Continuation and extension of existing mining activities (Beneficial)		None required.	*B*
Impact #2: Environmental Justice impacts (*LS*)		None required.	*LS*
All Part B Alternatives: Impact #3: Additional short-term economic benefits (*B*)		None required.	*B*

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Consistency with Mather Field			
All Mining Alternatives: Impact #1: ~~Conditions related to safety and noise (*S*)~~ No potential inconsistencies with the Adopted CLUP would occur (*LS*)	~~Mining within the Approach-Departure Zone shall not result in a large concentration of people as defined by the CLUP (*Mather Air Force Base CLUP*).~~ Mining within the ~~Approach-Departure Zone and~~ Overflight Zone shall not result in a possibility that a water area may cause ground fog or result in a water hazard (*Mather Field ~~Air Force Base~~ CLUP*). ~~Measures to achieve an interior noise level of 50 CNEL shall be incorporated into the design and construction of portions of buildings where the public is received, office areas, and other areas where people work or congregate (*Mather Air Force Base CLUP*).~~	None required.	*LS*

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1.0 Background for EIR/EIS

1.1 PROJECT OVERVIEW

The proposed project is a request for land use entitlements to allow surface mining of sand and gravel and subsequent reclamation along 881.7 acres of the 966.3-acre Downstream Mining Reach of Morrison Creek (project site) in the community of Vineyard, Sacramento County (County). The project site is comprised of four mining sites: ~~that would have direct impacts on this portion of Morrison Creek:~~ Aspen III South, Vineyard I, Aspen IV South, and Aspen V South. The current land use entitlement applications, on-file at the County, request modification to the previously approved use permit for the Aspen III South site, as well as consideration of the applications for the Vineyard I, Aspen IV South, and Aspen V South sites. Together, the mining applications constitute the current proposed project which is also referred to as the Morrison Creek Mining Reach Downstream (South) of the Jackson Highway Project. The proposed project would allow Teichert Aggregates and Granite Construction Company (proponents) to continue supplying aggregate products to the Sacramento Metropolitan Area by providing a supply of raw material for their processing plants.

The proponents would be required to reclaim the mining pits after mining operations are complete, as described by their mining permits. The proponents have included in their reclamation and drainage mitigation plans a scenario involving the reconstruction of the mined areas with portions used as a drainage detention basin (referred to as the Miners' Preferred Alternative or Part A). Bypass channels would be used to pass drainage flows around the mined areas. Sacramento County can either accept the proponents' reclamation and drainage mitigation plans, or choose to supplement them with additional County-funded facilities (known as the Part B Alternatives). This Environmental Impact Report/Environmental Impact Statement (EIR/EIS) evaluates the impacts of both the Part A and Part B Alternatives.

It should be noted that the proponents also submitted four applications for additional mining projects in the area [Aspen VI Control Number: 89-CZB-UPB-1195, Granite I (Control Number: 89-CZB-UPB-1194), and Aspen V and VA (Control Number: 94-UPB-06540]. All of these projects are located within the upstream portion of the Morrison Creek Mining Reach, and were the subject of a separate, but related, *Morrison Creek Mining Reach Upstream (North) of Jackson Highway EIR/EIS* (completed in October 1995). On April 24, 1996, the Sacramento County Board of Supervisors granted permits for the Aspen V, VA and VI requests, and on May 8, 1996 approved the Granite I request. In August 1996, the Army Corps of Engineers gave its approval for the Morrison Creek North project through issuance of a 10-year permit to operate for the Granite I site, and a 15-year permit to operate for the remaining Aspen sites. However, under its permits, the Corps prohibited mining and grazing within 150 feet of jurisdictional waters associated with Morrison Creek within the first five years of the permits to determine if avoiding the creek corridor is feasible and will result in a stable and viable riparian community. If the proponents provide sufficient information within the next five years that a stable and viable riparian community will not develop, the Corps will allow mining of the creek corridor.

1.2 PURPOSE OF THE EIR/EIS

The purpose of this EIR/EIS is to fully disclose and assess the potential impacts of the proposed project pursuant to the requirements of the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). According to CEQA and NEPA, the County of Sacramento (County) and the U.S. Army Corps of Engineers, Sacramento District (Corps), are designated as the State and Federal Lead Agencies, respectively, for the environmental review process.

The potential environmental impacts of implementing the proposed project and alternatives are analyzed in a programmatic manner as part of this EIR/EIS. To date, the County has not identified a preferred alternative. Should the County Board of Supervisors approve mining within the 100-year floodplain for Morrison Creek, they would also decide which flood control and drainage mitigation plan should be implemented. This decision would be based on studies now underway and review of this EIR/EIS. The Board-approved plan would be applied to all mining that takes place in the floodplain of Morrison Creek.

1.3 SCOPE OF THE EIR/EIS

The focus of this EIR/EIS is limited to specific issues and concerns identified by the County and the Corps as significant or possibly significant in the Initial Study Checklist and Notice of Intent, and by the other agencies, organizations and the general public in their comment letters. These issues of concern include:

- The demand for additional aggregate material in Sacramento;
- Impacts to wetlands;
- Impacts to threatened and endangered species;
- Public health and safety;
- Impacts to wildlife;
- Impacts to the hydrology of the Morrison Creek drainage basin;
- Need for flood storage in the Morrison Creek drainage basin;
- Impacts on water quality;
- Impacts on existing transportation facilities and traffic safety;
- Impacts on air quality and noise levels;
- Impacts on slope stability and geology;
- Land use impacts and compatibility with surrounding uses including Mather Field;
- Socioeconomics and environmental justice impacts;
- Impacts to aesthetic and visual resources;
- Impacts to cultural (historical and archeological) resources; and
- Need for, and impacts to, public utilities.

1.4 INTENDED USE OF THE EIR/EIS

This EIR/EIS will be used by the County of Sacramento during its deliberation on the land use entitlements requested by the project proponents. The public and other government agencies will have an opportunity to comment on the Draft EIR/EIS during the 45-day public review period which will include a public hearing before the Sacramento County Planning Commission where

oral comments will be accepted on the Draft EIR/EIS. All comments received on the draft document will be responded to (and the EIR/EIS will be modified if necessary), and a Final EIR/EIS will be prepared.

The Final EIR/EIS will be presented to the Sacramento County Board of Supervisors (Board) for consideration. The Board will review the document and vote on whether or not to certify the Final EIR/EIS. Certification means that the document has been deemed adequate and complete according to the requirements of CEQA. Once the Final EIR/EIS has been certified, the Board may render a decision to approve, conditionally approve, or deny the requested land use entitlements.

This EIR/EIS will also be used by the Corps during its review and consideration of the required Section 404 permits for the proposed project. The Corps will review and comment on the contents of this document. Once the Final EIR/EIS has been prepared, the Corps will approve, conditionally approve, or deny a permit to work in waters of the United States. This decision will be explained in a Record of Decision (ROD).

Additional discussion of the proposed permit and land use entitlement applications is provided in Sections 2.3 and 3.0 of this EIR/EIS.

1.5 TERMINOLOGY USED IN THE ~~EIR/EIS~~ DOCUMENT

This EIR/EIS uses the following levels to denote the significance of impacts. The document uses the following terminology consistent with CEQA:

- A *less than significant* impact is one which would not have a substantial adverse effect on the environment;
- A *potentially significant* impact is one that may result in a substantial adverse effect on the environment, and where specific information is not available to make a definitive determination;
- A *significant impact* is one that would cause a substantial adverse effect on the environment;
- A *significant and unavoidable* impact is one that would cause a substantial adverse effect on the environment and for which no mitigation is available or identified to reduce the impact to a less-than-significant level if the project is approved as proposed; and
- ~~A~~

The document also identifies a *beneficial* impact as one that would have a beneficial effect on the environment.

This EIR/EIS also identifies mitigation measures wherever possible for impacts which are determined to be significant. For the purpose of this report, mitigation is defined as:

- Avoiding the impact altogether by not taking a certain action or parts of an action;

- Minimizing impacts by limiting the degree or magnitude of the action and its implementation;
- Rectifying the impact by repairing, rehabilitating, or restoring the impacted environment;
- Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and/or
- Compensating for the impact by replacing or providing substitute resources or environments.

2.0 Purpose and Need for Action

This section of the EIR/EIS discusses the purpose and need for the proposed project, as described by the proponents, and summarizes the County of Sacramento's and the Sacramento District of the Army Corps of Engineers' positions on the proposed project.

The project is the proposed aggregate mining and reclamation activities located along the Morrison Creek Mining Reach Downstream (South) of Jackson Highway in the unincorporated area of Sacramento County, within the community of Vineyard (Figure 3-1). A detailed description of the proposed project is provided in Chapter 3.0 of this EIR/EIS.

The project proponents are two mine operators, Teichert Aggregates and Granite Construction Company, who submitted four separate applications for land use entitlements to mine approximately 881.7 acres on four adjoining properties. The four properties are known as the Aspen III South, Vineyard I, Aspen IV South and Aspen V South sites, and collectively they represent the 966.3-acre project site (Figure 3-2).

2.1 NEED FOR ACTION

The following discussion represents the proponents' justification for the proposed project, and does not necessarily represent the views of the County or the Corps. The views of the County and Corps are presented directly following this discussion (in Section 2.2).

2.1.1 Use and Demand for Aggregate Resources

The project site is one of the few remaining sources of construction grade aggregates (sand and gravel) in Sacramento County. Aggregates are used extensively as a foundation and road base material in all types of road pavement and construction concrete. Like wood, steel, and other building materials, aggregates are essential to the construction and repair of existing infrastructure. In Sacramento County, demand for aggregates is increasing with the increased growth of the Sacramento region (3.4 percent growth since 1986). Local aggregate sources are needed to meet this demand and avoid the need for more expensive non-local aggregate materials.

2.1.2 Supply of Aggregate Resources

The supply of aggregate resources in the Sacramento region is limited to areas of specific geological formations. In general, aggregate deposits have formed from a combination of glaciation, stream transportation, abrasive action of the stream to smooth the rocks, and natural sorting and washing away of soft particles. In the Sacramento region, the ancestral American River shifted its course over the past half million years, gradually creating a broad wedge of floodplain materials (soils).

The State of California and local municipal ordinances have established standards and specifications for aggregates used in construction activities. Some stream channel deposits are unsuitable because they contain an unacceptably high proportion of material such as physically unsound rock or severely decomposed material such as peaty soil which do not meet quality specifications. Other factors which limit the suitability of deposits for mining are undesirable

coatings of opaline silica and extensive degrees of weathering. There may also be deposits that are too deep to be removed by conventional mining practices. Such deposits may be submerged by groundwater or may be covered by a layer of overburden (surface soils) too thick to be removed feasibly.

In addition to geologic constraints, the extraction of existing construction grade aggregate resources may be constrained in other ways. Sites may effectively be precluded from mining due to development constraints or policy-driven constraints, including land use compatibility. Existing urban infrastructure (roads, airports and utility easements) may also restrict areas in which mining can occur.

In 1986, the Aggregate Technical Advisory Committee (ATAC) published the Final Report: Sacramento County Aggregate Resources - A Response to the State Aggregate Mineral Land Classification of the Production-Consumption Region. According to this report, there were approximately 126 million tons of "likely resources" (aggregate) in the Sacramento region in 1986. Based on an assumed consumption rate of 8.5 million tons per year, it was estimated that those reserves will be depleted by the year 2001, assuming that all of the aggregates were permitted, mined, and that the population continued to increase at historic rates (ATAC, 1986).

The proposed project would continue and extend existing surface mining operations in the area, and would provide an estimated 36.7 million tons of aggregate from the 881.7 acres proposed for mining. This amount represents approximately 29 percent of the remaining "likely" supply in the Sacramento region. The purpose and intent of the proposed project is to mine these resources to meet this local demand.

One optional source for aggregate supply is the importation of resources from out-of-county sources. The nearest out-of-county source for aggregate is the Marysville area. Marysville is located approximately 40 miles north of Sacramento, and has also been suggested as an alternative supply for the San Francisco Bay Area, and San Joaquin and Yolo counties. Although importing aggregate from out-of-county sources, such as Marysville, may address the issue of supply, it could also have economic and environmental consequences.

From an economic perspective, attempting to satisfy local demand for aggregate construction materials from distant sources would result in significantly higher prices due to transportation costs. According to the California Public Utilities Commission's 1993 Minimum Rate Tariff Area 7 rates, transporting aggregate 40 miles would increase the cost at least 65 percent (as compared with the cost of aggregate not requiring such transportation). In a market oriented to buying and selling aggregates based on cost differences of pennies per ton, such an increase would be considered substantial to consumers.

Importing aggregate materials would also have adverse impacts on the environment. Given the current methods for importing aggregate, it would require approximately 340,000 truck loads, or about 27.2 million vehicle miles per year. Those truck trips and miles traveled from a distance of least 40 miles could result in tangible environmental effects, including additional expenditure of energy in the form of petrochemical fuels, increased air pollutants in a non-attainment area, and increased congestion and noise on area highways.

2.2 COUNTY AND CORPS' POSITION ON THE PROPOSED PROJECT

2.2.1 Sacramento County's Position

The proponents have prepared and submitted applications for the proposed mining, reclamation, drainage mitigation, and wetland mitigation plans to the County of Sacramento Planning and Community Development Department for eventual review and consideration by the County's Policy Planning Commission and Board of Supervisors. The County understands and recognizes the importance of long-range planning, including ultimate drainage and flood control infrastructure as well as the value and role of aggregate resources in Sacramento County. It is the Department of Environmental Review and Assessment's responsibility to implement the environmental review procedures required by the California Environmental Quality Act (CEQA) for this project, which includes the preparation of an EIR. After the environmental review process has been completed, the County will make a determination on the proposed project. This determination may include one of the following scenarios: approve the project as proposed by the proponents, conditionally approve the project, or deny the project. In addition, the County is currently considering several drainage alternatives for the entire Morrison Creek Mining Reach. These alternatives are discussed (and analyzed on a programmatic-level) in this EIR/EIS. The Water Resources Division of the Public Works Agency has recommended several of these "County Drainage Alternatives" for further consideration; however, at this time the County has not made a decision on this issue (please refer to Section 4.0 for a detailed discussion).

2.2.2 Corps' Position

The project proponents have each applied to the Army Corps of Engineers (Corps) for permits pursuant to Section 404 of the Clean Water Act. The proponents have also submitted an alternatives analysis in accordance with EPA's Section 404(b)(1) Guidelines. The Corps has determined that the cumulative affects to 17.22 ~~21.95~~ acres of wetlands and other waters subject to Corps jurisdiction on the Granite Vineyard site, 1.78 acres of wetlands and other waters subject to Corps jurisdiction on the Aspen IV South site, and 0.83 acre ~~4.74 acres~~ of wetlands and other waters subject to Corps jurisdiction on the Aspen V South site would significantly impact the quality of the human environment. Therefore, the proposed projects would require the preparation of an EIS according to the requirements of the National Environmental Policy Act (NEPA). The Aspen III South site has no waters of the United States subject to Corps jurisdiction and, therefore, can be mined without a Corps permit. Once the required environmental review process has been completed, the Corps can either issue the permits as requested by the proponents, issue the permits with modifications, or deny the permits for the Granite Vineyard, Aspen IV South, and Aspen V South sites. Regardless of the alternative the Corps can only permit the least environmentally damaging practicable alternative. "Practicable" is defined in terms of costs, logistics and technology.

2.3 POLICIES, LAWS, AND REGULATIONS RELATED TO THE PROJECT

The primary public policies, laws, and regulations related to the proposed project are: Sections 401 and 404 of the Clean Water Act, as amended (33 U.S.C. 1341 and 1344); the Sacramento County General Plan, County Code and Zoning Code; the Vineyard Community Plan; the California Surface Mining and Reclamation Act of 1975; the State Mining and Geology Board regulations for surface mining and reclamation practice; the California Environmental Quality

Act (CEQA); and the National Environmental Policy Act (NEPA). Other relevant laws and regulations which will be considered during the environmental review process for the proposed project include: the Fish and Wildlife Coordination Act (16 U.S.C. 661 *et seq.*); the National Historic Preservation Act of 1966, as amended (16 U.S.C. 470 *et seq.*); the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*); Executive Order 11988, "Protection of Wetlands;" and Executive Order 11990, "Floodplain Management."

As noted in Section 1.2, the Lead State and Federal Agencies for the CEQA and NEPA environmental review process are the County of Sacramento and the U.S. Army Corps of Engineers, Sacramento District, respectively. In addition to these two agencies, other agencies may have statutory responsibilities or an interest in the proposed project. These other agencies include:

- City of Sacramento (agreement between City and County for the installation, operation, and maintenance of the detention facility);
- California Department of Conservation, Office of Mine Reclamation, Reclamation Unit (reclamation plan and mine reclamation issues);
- California Department of Fish and Game (fish and wildlife resources and streambed alteration);
- California Department of Transportation (SR16 access requirements and/or restrictions);
- California Department of Transportation, Division of Aeronautics, the Airport Land Use Commission c/o Sacramento Area Council of Governments, and the Federal Aviation Administration (compatibility with aircraft operations at Mather Field);
- California Division of Safety of Dams (dams that fall under State jurisdiction for safety);
- California Regional Water Quality Control Board (water quality);
- California State Water Resources Control Board (surface water diversion and stormwater discharges)
- Federal Emergency Management Agency (floodplain encroachment);
- Sacramento Metropolitan Air Quality Management District (proposed project emissions and issues of regional air quality);
- U.S. Air Force (coordination of the Mather Field environmental cleanup plan); and
- U.S. Fish and Wildlife Service (fish and wildlife resources, wetlands, and other habitats).

INSERT

TAB

33

3.0 Project Description

3.1 PROJECT PROPONENTS

The project proponents are two mining companies: Teichert Aggregates and Granite Construction Company. Their names, addresses and telephone numbers are provided below.

- Teichert Aggregates
  P.O. Box 15002
  Sacramento, CA 95851
  (916) 484-3317

- Granite Construction Company
  P.O. Box 15287
  Sacramento, CA 95851
  (916) 855-4400

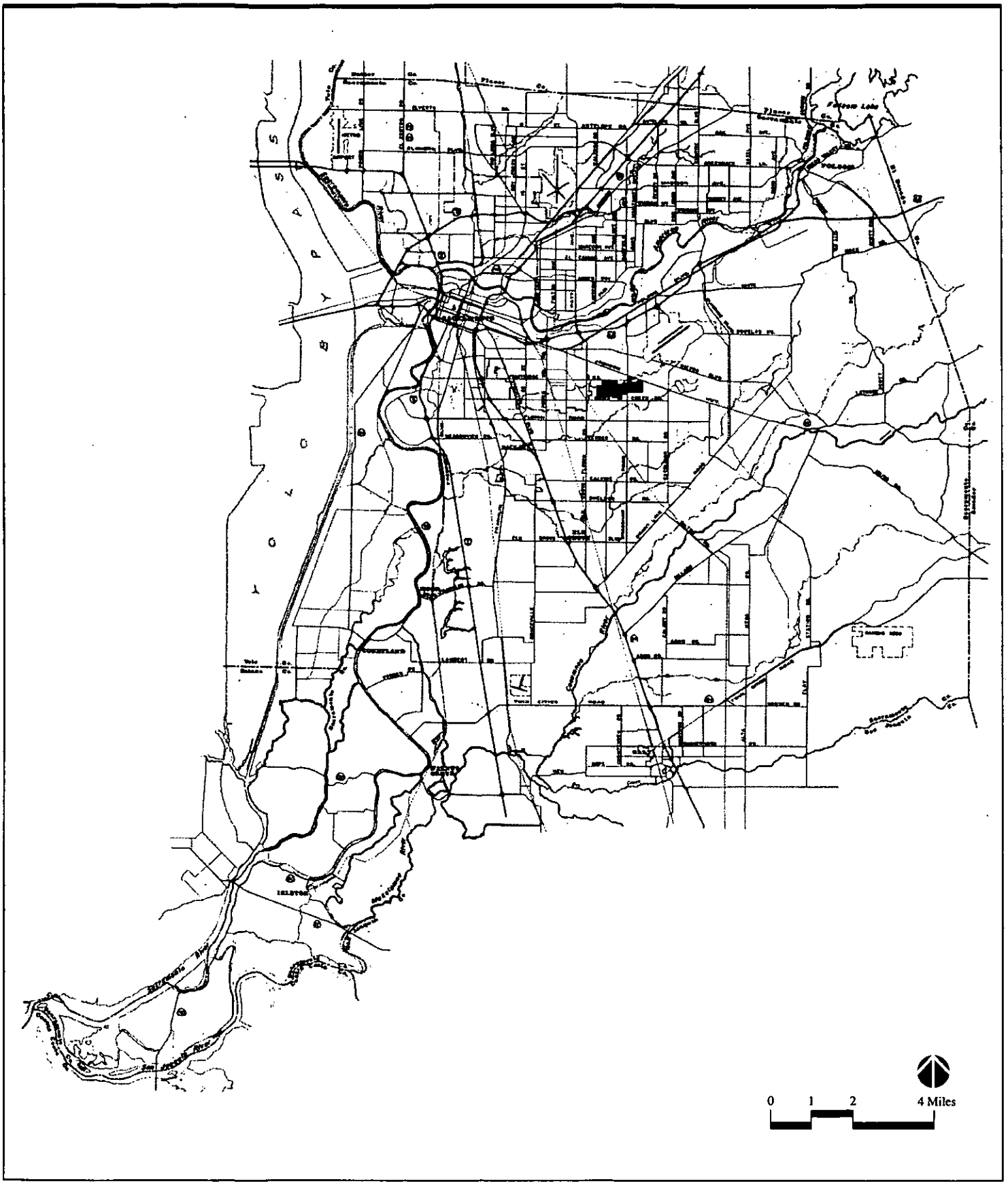
3.2 PROJECT LOCATION

The proposed project is located within the unincorporated area of Sacramento County, California. The project site is included within the Vineyard community planning area. In general, the project site is bounded by Jackson Highway (State Route 16) to the north; Elder Creek Road to the south; Hedge Avenue to the west; and Excelsior Road to the east. The project site can be found on the U.S.G.S. Carmichael 15 Minute Topographic quadrangle map. The regional location and project site location are shown on Figures 3-1 and 3-2.

3.3 OVERVIEW OF PROJECT SITE

The 966.3-acre project site consists of four adjoining properties which are proposed for mining operations. The four properties are commonly referred to as the Aspen III South, Vineyard I, Aspen IV South, and Aspen V South sites. Teichert Aggregates is the project proponent for the Aspen III South, Aspen IV South and Aspen V South sites. Granite Construction Company is the proponent for the Vineyard I site. Each of the four sites can be further distinguished by individual parcel numbers. The Sacramento County Assessor's Parcel Numbers for the project site are:

- Aspen III South: 063-0080-016, 028, 029, 030, 031, 032; and 063-0090-007, 012
- Vineyard I: 063-0080-010, 011, 012, 013; 063-0090-001, 002, 003, 006, 010, 011, 015, 016, 017, 019; and 063-0110-001, 002, 003, 004, 005, 006, 012, 028, 029
- Aspen IV South: 063-0100-011, 014, 015, 016, 019; and 063-0130-001, 002, 009, 010, 011
- Aspen V South: 063-0170-21; 063-0190-014, 015, 018, 021, 025, 027, 028, 029, 040; and 063-0200-006, 007, 008, 009, 010



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Project Site

Figure 3-1
Regional Location

EDAW Inc.

Source: Sacramento County, 1979

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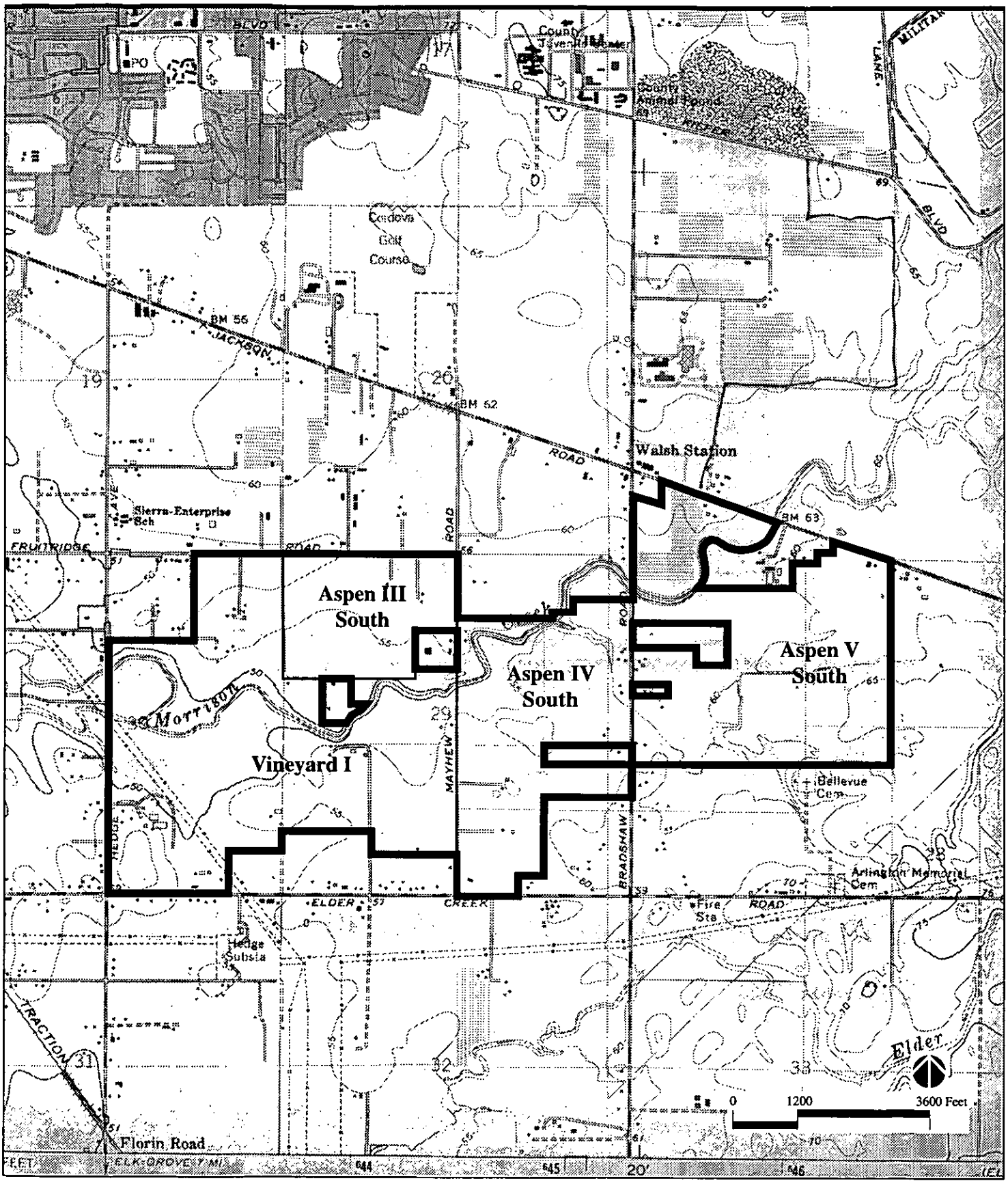

Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Project Boundary

Figure 3-2
Project Site Location

EDAW Inc.

Source: USGS, 1980

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Historically the project site has been used for agricultural practices, including irrigated pasture, dryland farming, and livestock grazing. Today, the project site is used for livestock grazing. There are also several residences located on the project site that would be displaced as a result of the proposed project, and a number of residences located adjacent to, or within close proximity of, the project site.

Approximately 572 acres or 59 percent of the project site fall within the 100-year floodplain. Morrison Creek enters the project site from the northeast and traverses diagonally before exiting at Hedge Avenue in the western portion of the project site. At present, Morrison Creek drains a watershed of approximately 14.5 square miles.

The primary vegetation type on the project site is non-native annual grassland. Seasonal wetlands, riparian and other wetland habitat represent approximately 3 percent of the total project site. The primary location of these resources is along the Morrison Creek, associated drainages, and irrigated farmlands.

Based upon a delineation using the 1987 Corps Manual, and field verified by the Corps on various dates including August 25 and September 27, 1994, the project site contains approximately 19.83 ~~24.56~~ acres of wetlands and other waters of the U.S. which would be impacted by the proposed mining and reclamation plans. As a note, there are additional areas classified as jurisdictional wetlands or other waters of the U.S. located on-site which would not be impacted by the proposed project.

The Vineyard I site has approximately 17.22 ~~21.95~~ acres of wetlands or other waters of the U.S. that would be affected as a result of the proposed project. This 17.22 ~~21.95~~ acres includes 12.56 acres of riparian habitat, 4.14 acres of tributary, and 5.25 acres of seasonal wetlands. A total of 1.78 acres, which includes 1.09 acres of Mirrison Creek, 0.44 acre of drainage channel, and 0.25 acre of seasonal wetland on the Aspen IV south site would be impacted as a result of the proposed project. The Aspen V South site contains 0.83 acre of irrigated seasonal wetland that would be disrupted as a result of the proposed project.

The *Soil Survey Report of Sacramento County* identifies various soil types on the project site, including: Columbia sandy loam; Hedge loam; Kimball silt loam; and San Joaquin silt loam. In all cases, the available water capacity of the soil is low, runoff is slow, and the hazard of water erosion is slight.

3.4 PROJECT BACKGROUND

In 1989, a Draft EIR for proposed mining operations on two properties located outside of the project site but along Morrison Creek was prepared (Aspen VI Rezone and Use Permit and Granite I Rezone and Use Permit DEIR, Control Nos. 89-RZB-UPB-1195 and 89-RZB-UPB-1194). The Draft EIR recommended preparation of a comprehensive drainage mitigation plan for Morrison Creek prior to approval by the County of any mining projects within the Morrison Creek floodplain. The purpose of the recommendation was to prepare a plan that would accurately assess the cumulative effects of those projects, and other mining proposals within the 100-year floodplain. As a result, those mining applications were placed on hold while the County prepared the *Morrison Creek Mining Reach Drainage Mitigation Plan*. The geographic boundary of that plan is the portion of Morrison Creek located between Mather Field and Hedge

Avenue (referred to as the "Morrison Creek Mining Reach"). The project site is located within the Morrison Creek Mining Reach and is therefore considered in the *Drainage Mitigation Plan.*

After the *Drainage Mitigation Plan* was prepared, mining applications which had been previously placed on hold pending its completion were revisited. In most cases, the original applications (including proposed drainage mitigation) were modified in order to be consistent with the *Drainage Mitigation Plan.* Three of the four applications comprising the proposed project evaluated in this EIR/EIS were revised in this manner. A brief description of the history associated with these applications is provided below. As a note, the northern portion of the *Morrison Creek Mining Reach Drainage Mitigation Plan* (i.e., drainage projects located north of Jackson Highway) have been reviewed and were approved by the County as part of the Morrison Creek North project (and EIR/EIS).

Aspen III South

In January 1992, the County approved a use permit to allow mining and reclamation on that portion of the Aspen III South site located outside the 100-year floodplain. Teichert Aggregates resubmitted the previously-approved use permit in July, 1994 and proposed several modifications. The modifications are based on the anticipated relocation and construction of the Morrison Creek bypass channel along the site's eastern and northern boundary, as proposed in the County's *Morrison Creek Mining Reach Drainage Mitigation Plan* (Part A). The primary modification proposed is an expansion of the mining (and reclamation) area into the 100-year floodplain. The revised application now proposes mining on approximately 106.2 acres of the 112.2-acre site. The southeast portion of the site where Morrison Creek is located would be left undisturbed. The actions proposed in this new application are evaluated in this EIR/EIS.

Vineyard I and Aspen IV South

The Vineyard I and Aspen IV South applications were originally submitted by the Granite Construction Company and Teichert Aggregates in February of 1991 and December of 1990, respectively. The applications proposed mining and reclamation plans, as well as drainage and wetland mitigation plans for both sites. The environmental review and processing of both applications were postponed based on the preparation of the County's *Morrison Creek Mining Reach Drainage Mitigation Plan,* which would affect the reclamation and drainage mitigation plans for both sites. As a result, both applications have been revised so that they are consistent with the *Morrison Creek Mining Reach Drainage Mitigation Plan* (Part A), and were subsequently resubmitted in 1994. This EIR/EIS evaluates the revised applications.

Aspen V South

Teichert Aggregate submitted an application for a conditional use permit to mine the Aspen V South site in October of 1994. This was the first application that the County received for this site, and the reclamation and drainage mitigation plans proposed in it are consistent with the County's *Morrison Creek Mining Reach Drainage Mitigation Plan.*

3.5 REQUESTED LAND USE ENTITLEMENTS

The proposed project consists of the four applications for land use entitlements to allow mining and subsequent reclamation on 881.7 acres within the 966.3-acre project site in the Vineyard community. The current applications modify the proponents' previously filed applications for Aspen IV South and Vineyard sites (Control Numbers 90-CZB-UPB-1607 and 91-CZB-UPB-0118, respectively) and previously approved reclamation plans and conditional use permits for Teichert Aggregates' Aspen III South site (Control Number 94-UPB-0484). In addition, the newly filed Aspen V South site application (Control Number 94-CZB-0671) is proposed for consideration.

Specific entitlements being requested by the proponents include the following:

Aspen III South

1. Modification to a previously approved use permit to mine sand and gravel on an additional 31 acres of the 112.2-acre site in the IR(SM), IR(SM)(F), and M-1(SM) zones.

Vineyard I

1. An Amendment to the *Vineyard Community Plan* and corresponding Rezone of 413± acres from IR(F), IR(SM), M-1, and M-1(F) to IR(SM), IR(SM)(F), M-1 (SM), M-1(F)(SM), M-2(SM), and M-2(F)(SM).

2. A use permit to conduct surface mining (sand and gravel) on the entire site, including a materials processing facility on the proposed M-2(SM) and M-2(F)(SM) portion of the site.

3. A Section 404 permit (Corps) to work in waters of the United States, and water quality certification or waiver of certification pursuant to Section 401 of the Clean Water Act (California Regional Water Quality Control Board).

Aspen IV South

1. An Amendment to the *Vineyard Community Plan* and corresponding Rezone of a portion of the 180.1± acre site from AR-1 and IR(F) to IR(SM) and IR(F)(SM).

2. A use permit to conduct sand and gravel mining operations on the entire site.

3. A Section 404 permit (Corps) to work in waters of the United States, and water quality certification or waiver of certification pursuant to Section 401 of the Clean Water Act (California Regional Water Quality Control Board).

Aspen V South

1. An Amendment to the *Vineyard Community Plan* and corresponding Rezone of 261± acres from AG-160, M-1 and M-1(F) to AG-160(SM), M-1(SM), and M-1(F)(SM).

2. A use permit to conduct sand and gravel mining operations on the entire site.

3. A Section 404 permit (Corps) to work in waters of the United States, and water quality certification or waiver of certification pursuant to Section 401 of the Clean Water Act (California Regional Water Quality Control Board).

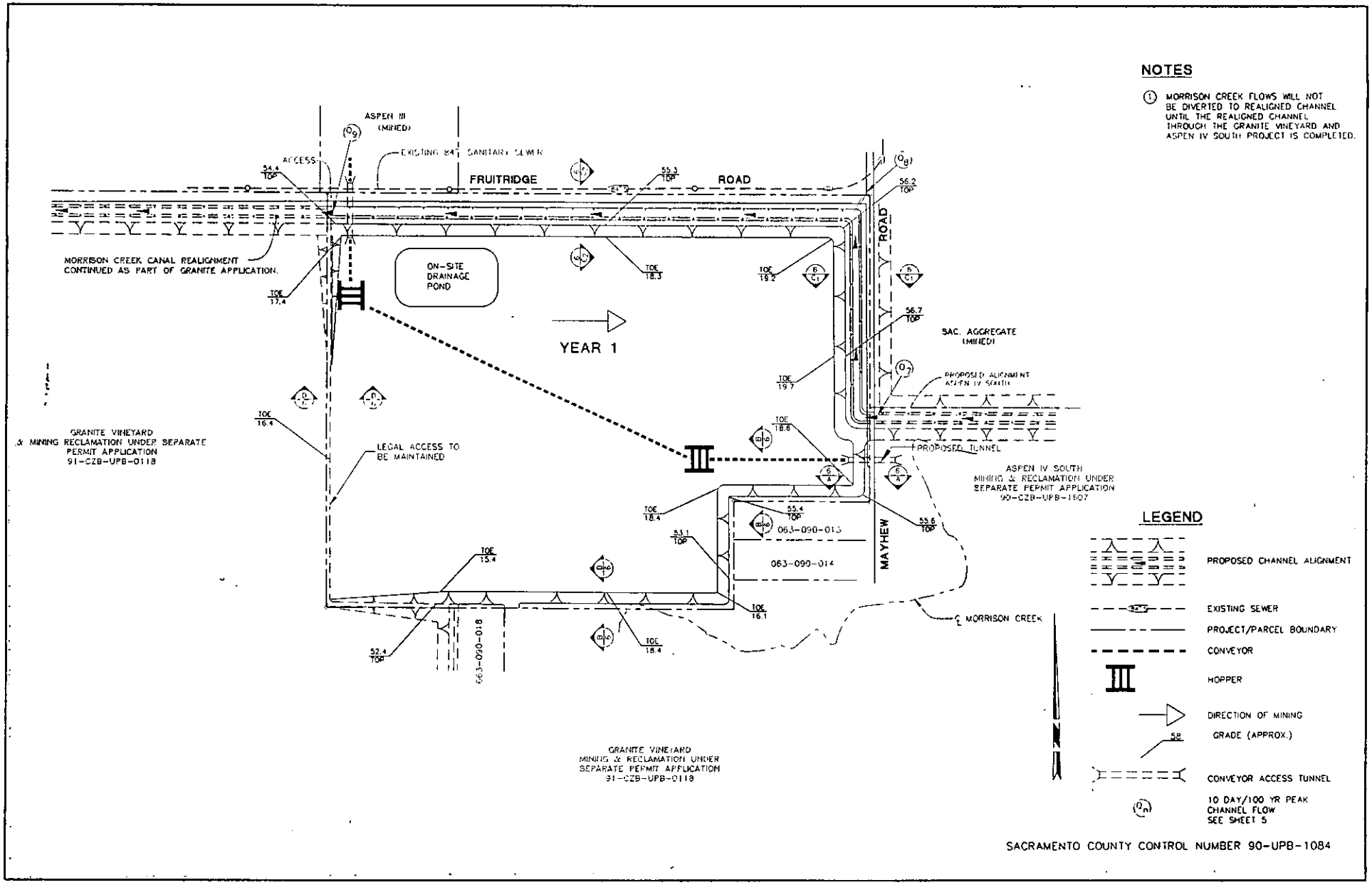
3.6 PROJECT CHARACTERISTICS

3.6.1 Mining Plan

Mining plans showing the progression of mining across the project site are provided for each of the four properties (Aspen III South, Vineyard I, Aspen IV South, and Aspen V South) in Figures 3-3a, 3-3b, 3-3c, and 3-3d. Mining would occur simultaneously (i.e., during the same mining year) at several times during the project on the Aspen III South and Vineyard I, Vineyard I and Aspen IV South, and Vineyard I and Aspen V South sites. It is anticipated that mining could begin upon issuance of the work authorization permit, and would take no less than approximately 12 years to complete.

It is estimated that 36.7 million tons of sand and gravel are available from the project site. Mining would occur in phases of 50 to 75 acres on each mining site. After aggregates have been removed during a phase, the mined area would be reclaimed by placing the overburden from the next phase to be mined. In this manner, approximately 50 to 150 acres of the 966.3-acre site would be disturbed at any one time. The remainder of the site would be either unmined or reclaimed.

The method of mining and reclamation for this project involves removal of 5-10 feet of clay/silt soil overburden overlying the sand and gravel (the aggregate deposit). Extraction of the aggregate resource would begin once overburden has been removed and the sand and gravel are exposed. To initiate the mining, approximately ~~430,000~~ 1,000,000 cubic yards of overburden are proposed to be removed from the project site. The proposed mining program would minimize the need for overburden stockpiles. The removed overburden would be utilized for sidesloping and pit floor renovation behind the mining operation. The overburden removed ahead of aggregate harvesting would be placed on the harvested area behind the operation. Mining would require the removal of all on-site vegetation. Internal drainage would be retained on-site. Water would be obtained from proposed and existing on-site wells and used solely for dust control. No treatment would be required. Rate of water use would depend on dust control needs.



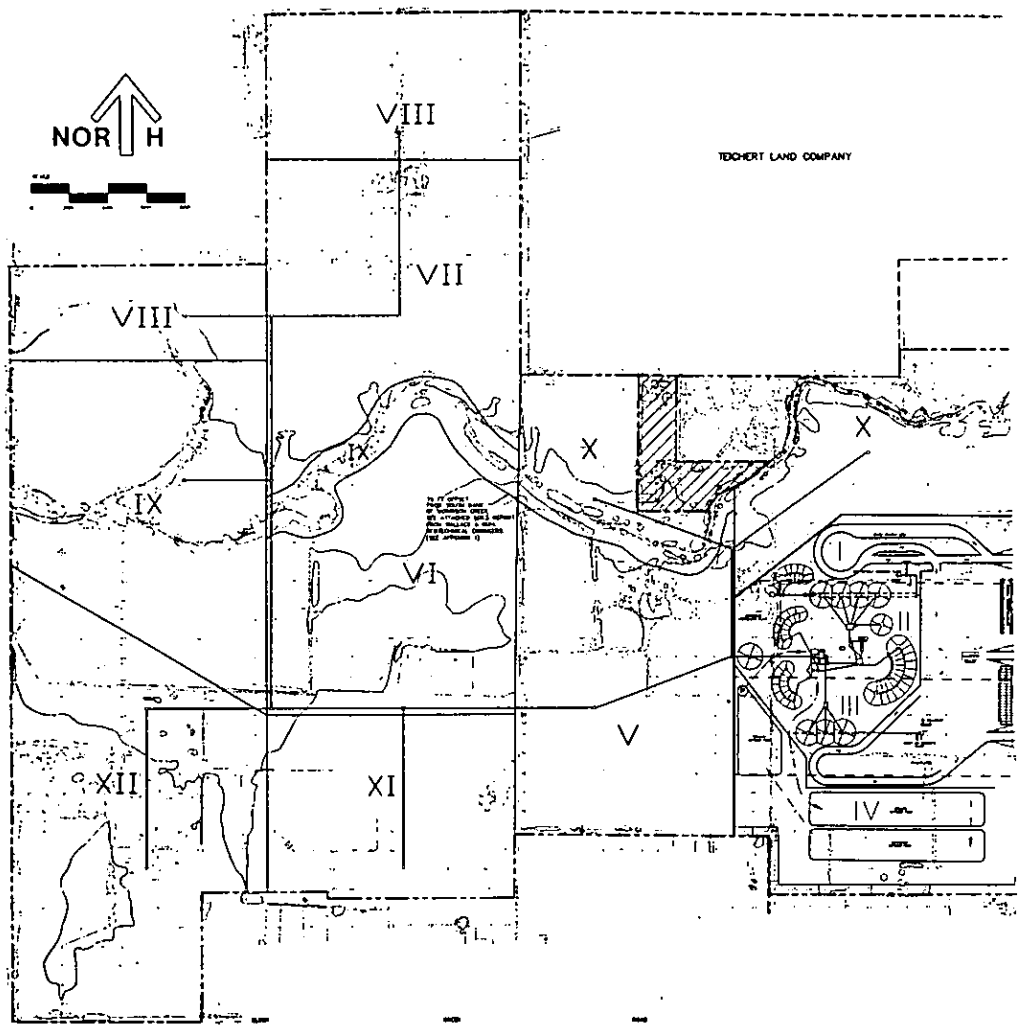
Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

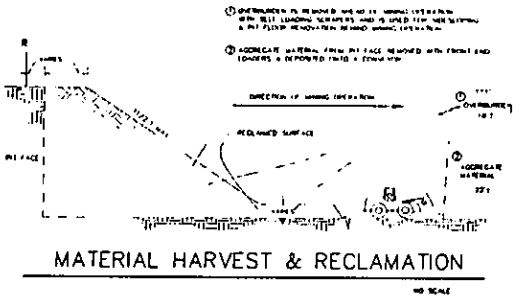
EDAW Inc.

N:5s052:004

Figure 3-3a
Mining and Phasing—Aspen III South
Proposed Project

Source: GW Consulting Engineers





LEGEND

I	TEMPORARY PROCESSING PLANT MINING PHASE NUMBER.
IV	MINING PHASE NUMBER
———	SITE BOUNDARY
- - - -	TEMPORARY PROCESSING PLANT MINING PHASE BOUNDARY
———	PERMANENT PROCESSING PLANT MINING PHASE BOUNDARY
—⊥—	CONVEYOR SYSTEM

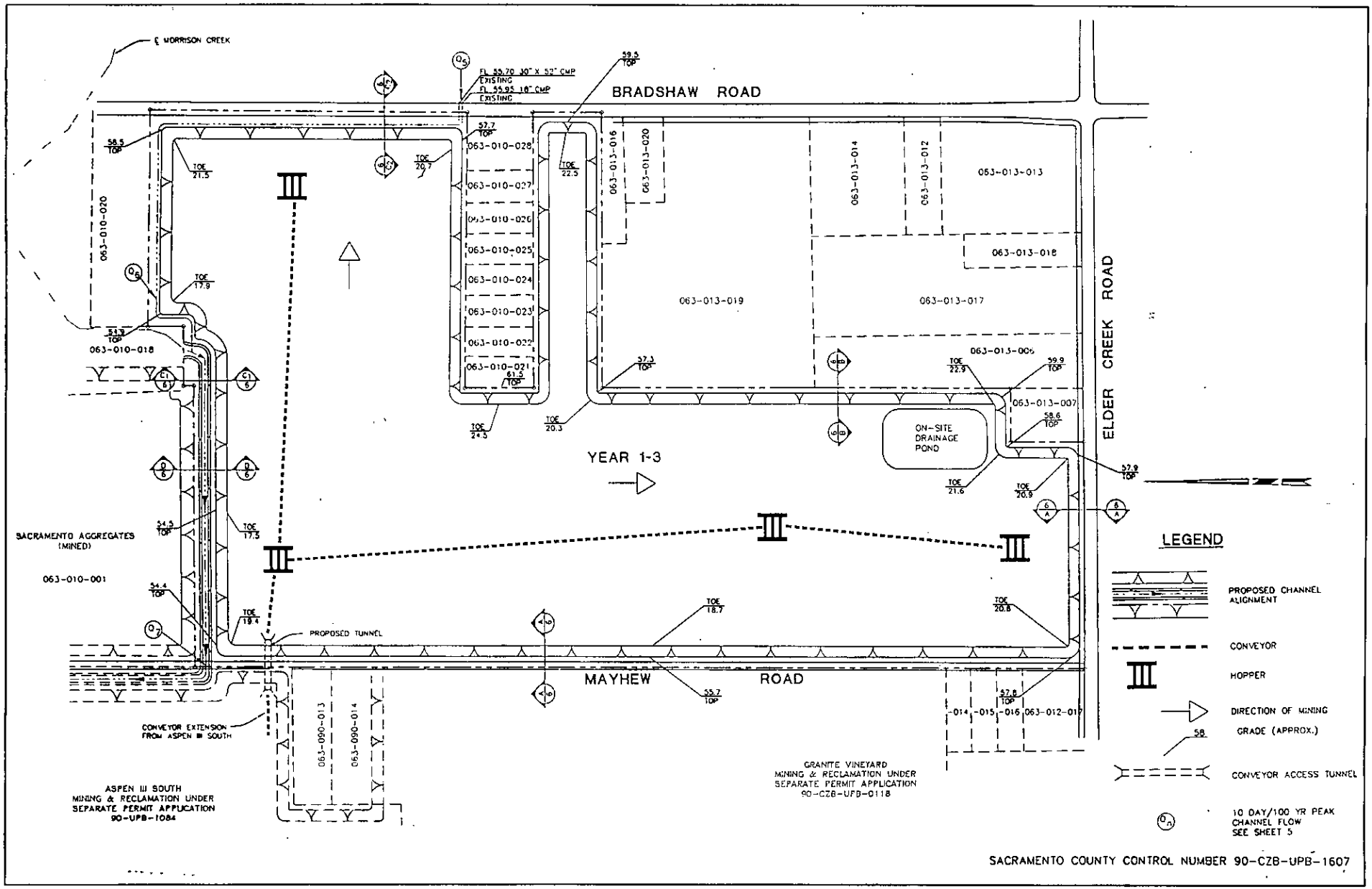
Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 3-3b
Mining and Phasing Plan—Vineyard I
Proposed Project

EDAW Inc.

Source: Robert E. Young Engineers, 1994

N:5s052:005



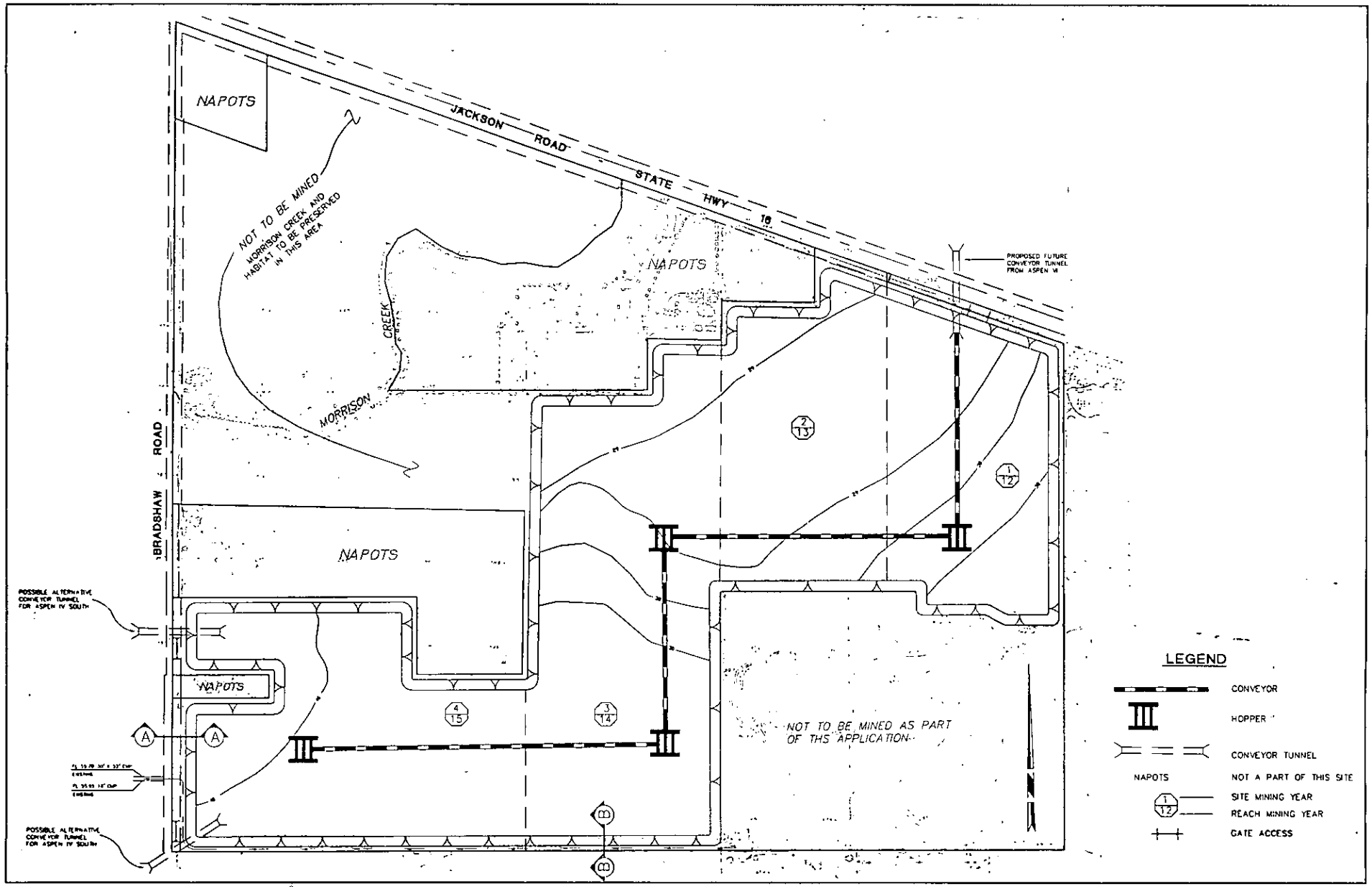
Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 3-3c
Mining and Phasing Plan—Aspen IV South
Proposed Project

EDAW Inc.

Source: GW Consulting Engineers

N:5s052:006



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 3-3d
Mining and Phasing Plan—Aspen V South
Proposed Project

EDAW Inc.

Source: GW Consulting Engineers

N:5s052:007

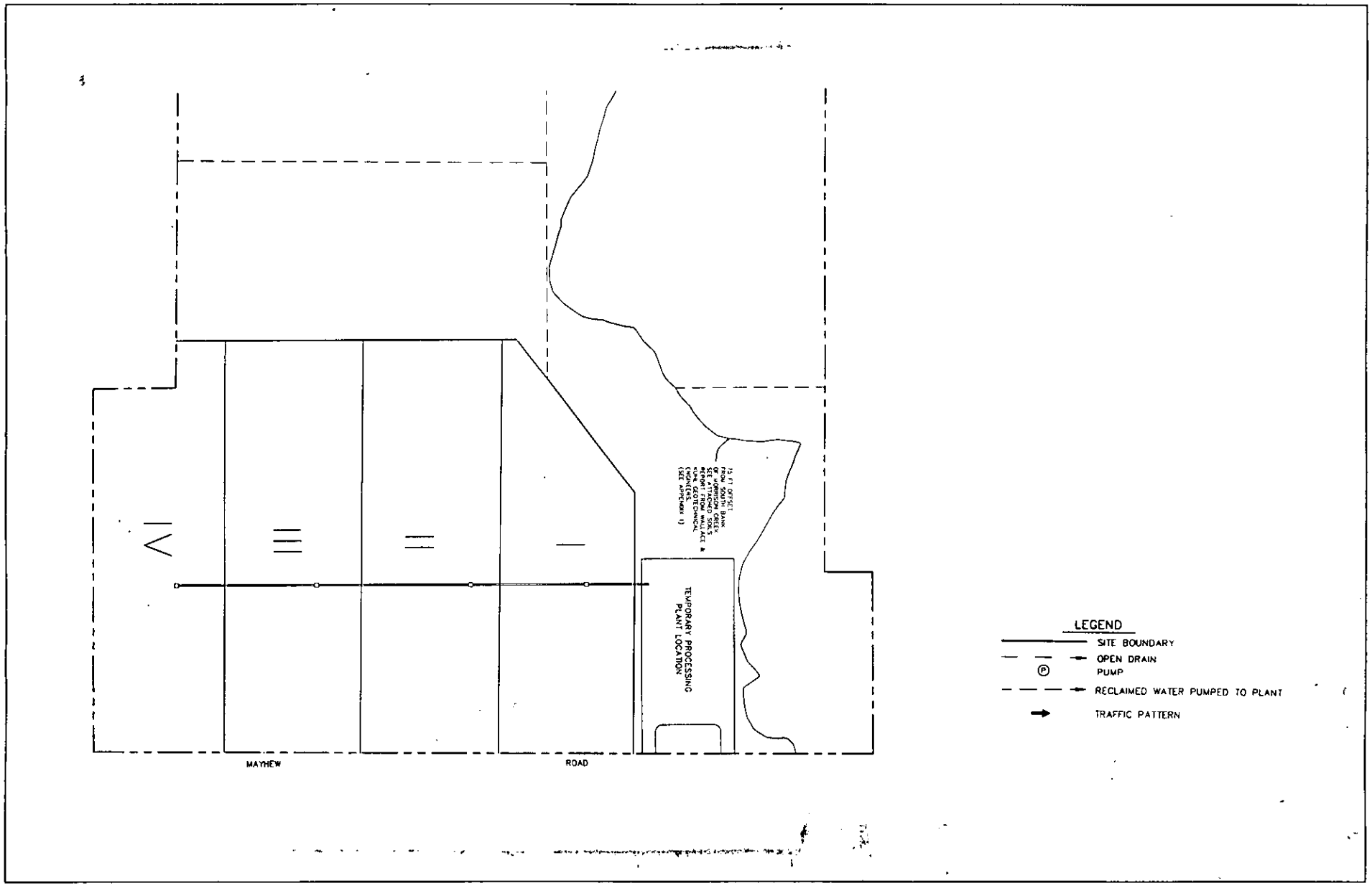
The project site would be excavated with machinery typically used in the surface mining industry (such as bulldozers, self-loading scrapers, front end loaders, large capacity trucks, and motor graders). In addition, a six-foot chain-linked fence with three-strand barbed wire on top would be placed around the project site. Visual screening adjacent to public streets or other public use areas would be accomplished by use of berms, screen fences, and setbacks. Gates would be locked at all street access points. Street access to the project site would be provided for employee parking and the parking of maintenance vehicles. All harvesting equipment would be kept on-site.

Once the overburden is removed, the aggregate deposit, which may vary in thickness from 20 to 35 feet, would be mined with excavation equipment and transported to existing and/or proposed aggregate processing plants via conveyer belt systems. The two existing plants are the Teichert Aggregates processing facility located on the north side of Jackson Highway between Florin-Perkins and Watt Avenue, and the Granite Construction Company facility located on the north side of Kiefer Boulevard, east of Bradshaw Road. The total combined capacity for the two existing plants is estimated to be 2,200 tons per hour, with anticipated annual production of 5.5 million tons.

The proposed project also includes the construction and operation of a new processing plant on the Vineyard I site to replace Granite Construction Company's existing off-site aggregate processing facility. The plant would ultimately contain a full range of on-site processing activities: aggregate production; asphaltic concrete production; and portland cement concrete production. A small "portable" aggregate processing plant would initially be provided on the eastern side of the project site (see Figure 3-4a) until the permanent facilities were completed (shown in Figure 3-4b). The portable facility would have an initial capacity of 400 tons per hour, with anticipated annual production rate of 500,000 tons. Following site development and installation of the three permanent processing facilities, capacity would be increased to 1,000 tons per hour with an anticipated annual production rate of 2 million tons.

Processed material would be transported by truck to the location where the aggregates would be used. No public streets or roads would be used for the transportation of extracted resources to a processing facility. The only anticipated new street truck routes for truck traffic would be associated with the removal of the initial overburden, and occasional movement of equipment to and from the project site.

The recovery of placer gold would likely be a part of the processing operations. The gold would be recovered through a mechanical device, known as a jig system. This process utilizes the minerals' high specific weight, and water, to create a gravimetric/hydraulic separation from the lighter particles. There are no chemicals used throughout this process. The jig system is expected to recover approximately .00036 ounces of gold per ton of raw process material.



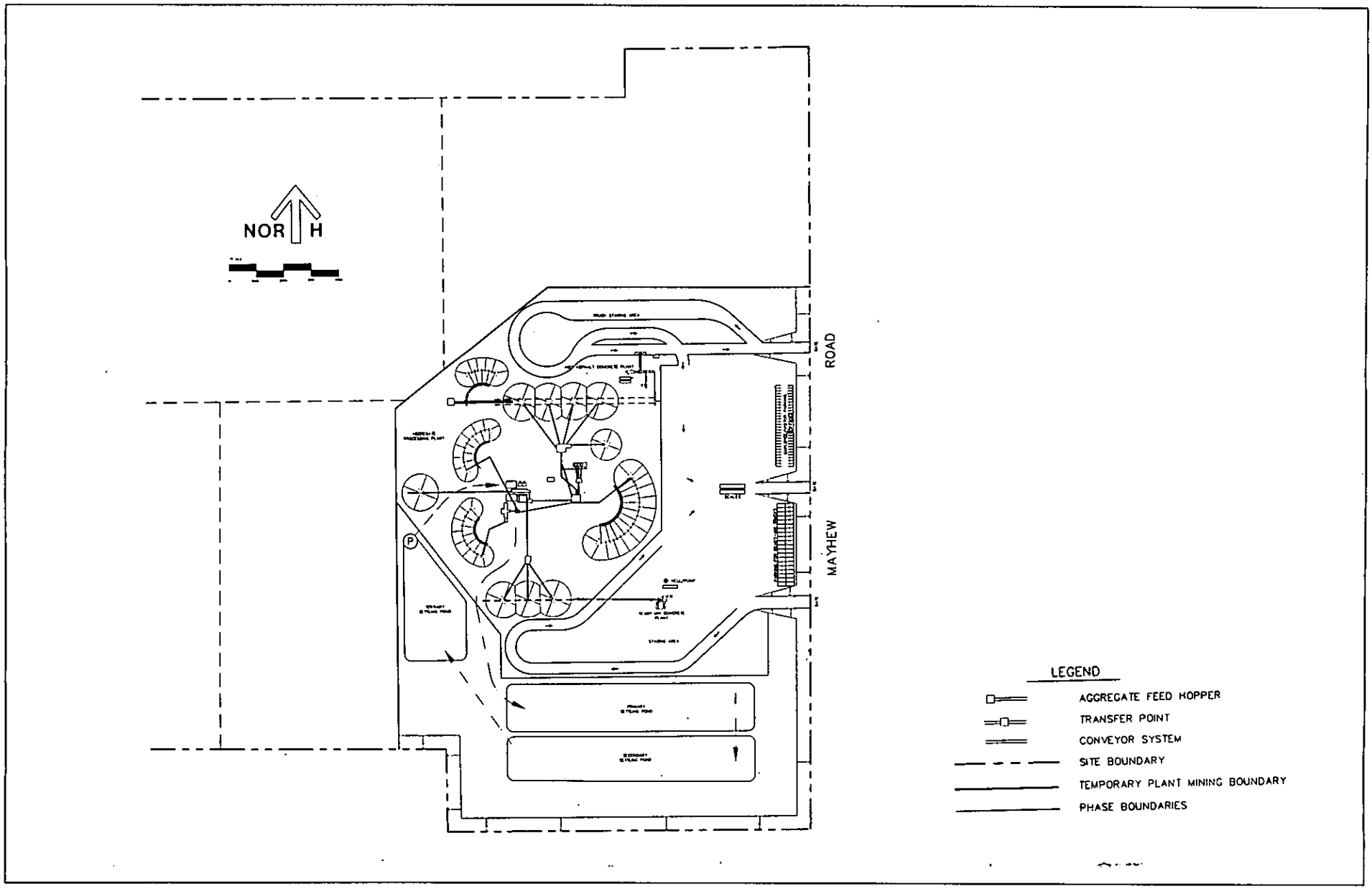
Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 3-4a
Temporary Processing Plant-Vineyard I
Proposed Project

EDAW Inc.

Source: Robert E. Young Engineers, 1994

N:5s052:008



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 3-4b
On-site Processing Plant-Vineyard I
Proposed Project

EDAW Inc.

Source: Robert E. Young Engineers, 1994

N:5s052:009

3.6.2 Reclamation Plan

Reclamation refers to the restoration of a mined site to a usable condition which is readily adaptable for other subsequent land uses. For the proposed project, the project site would be reclaimed to agriculture, flood control, and/or open space. Reclamation of the project site would become a condition of the use permit, should the County Board of Supervisors grant the entitlement to mine. In addition, the County Zoning Code contains the following provision:

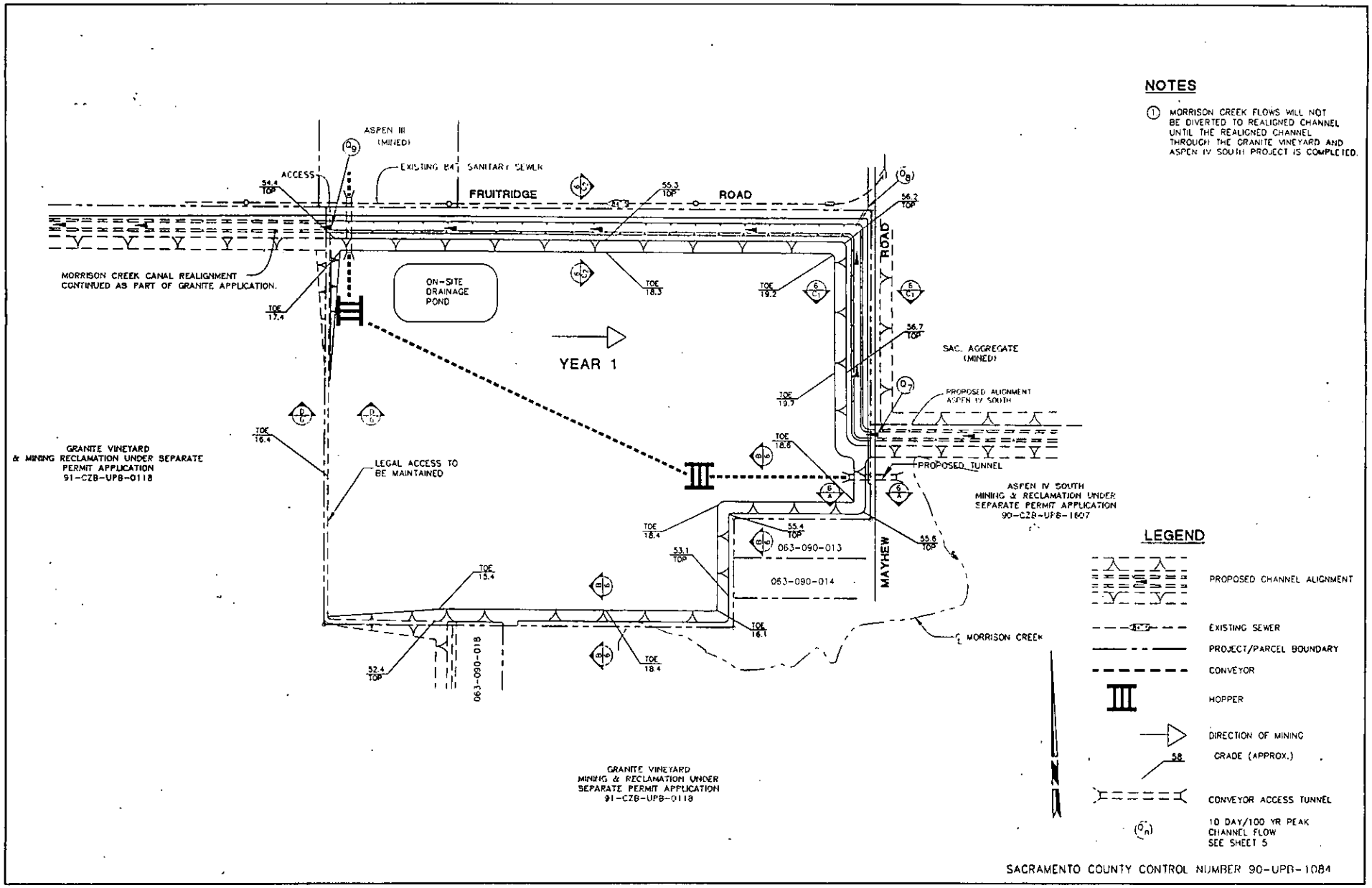
> 235-57: BONDS. *The Board shall require that the applicants* [proponents] *furnish a performance bond or other security to ensure timely and proper reclamation of mined areas. The performance bonds should be coordinated with the inspection intervals of the reclamation plan to avoid excessive penal sums. The bond shall be in a form to be approved by the County Counsel and in an amount to be approved by the Director of Public Works and shall be deposited with the Clerk of the Board of Supervisors.*

Reclamation would be accomplished in conjunction with mining by placing the excavated overburden material in predetermined places according to the Reclamation Plan for the proposed project (refer to Figures 3-5a, 3-5b, 3-5c, and 3-5d for the Aspen III South, Vineyard I, Aspen IV South, and Aspen V South sites, respectively). The overburden material would be placed and graded to provide a suitable growing media for the establishment of protective vegetative cover and/or viable agricultural crops.

All salvageable topsoil suitable for revegetation would be removed as a separate layer from areas which would be disturbed by mining. Topsoil and vegetation removal would not precede surface mining activities by more than one year. The topsoil and other overburden material would be used to phase reclamation as soon as possible based on the mining schedule. Topsoil not immediately used for reclamation would be stockpiled until needed for reclamation. If storage is necessary, stockpiles would be seeded to control erosion and loss of biological components. Topsoil would be redistributed in such a manner that places it on top of the reclaimed surface in a stable and uniform thickness.

Pit floor reclamation would be completed on a yearly basis incrementally following areas mined, as acreage is available for sufficiently sized agricultural plots. Partial reclamation, such as 1.5:1 side sloping, would be concurrent with aggregate harvesting. Since reclamation would proceed simultaneously with mining and only 50 to 150 acres of the project site would be disturbed by active mining at any time, the early phases of the project would have time to establish vegetative cover and habitat before mining is completed.

After the completion of mining, the mining pits would be approximately 35 feet deep. The floor of the pit would be uneven, reflecting undulations in the base of the aggregate deposit. The proposed project would limit the possibility of utilizing the mined areas for development. Ultimate land use would be restricted to agriculture (alfalfa and grain crops) or open space since the mining pits would be designated as within the 100-year floodplain. A 600-foot wide riparian corridor along a re-created low flow channel within the mining pit would be allowed to develop in generally the same location as the existing creek. The corridor would contain the creek,



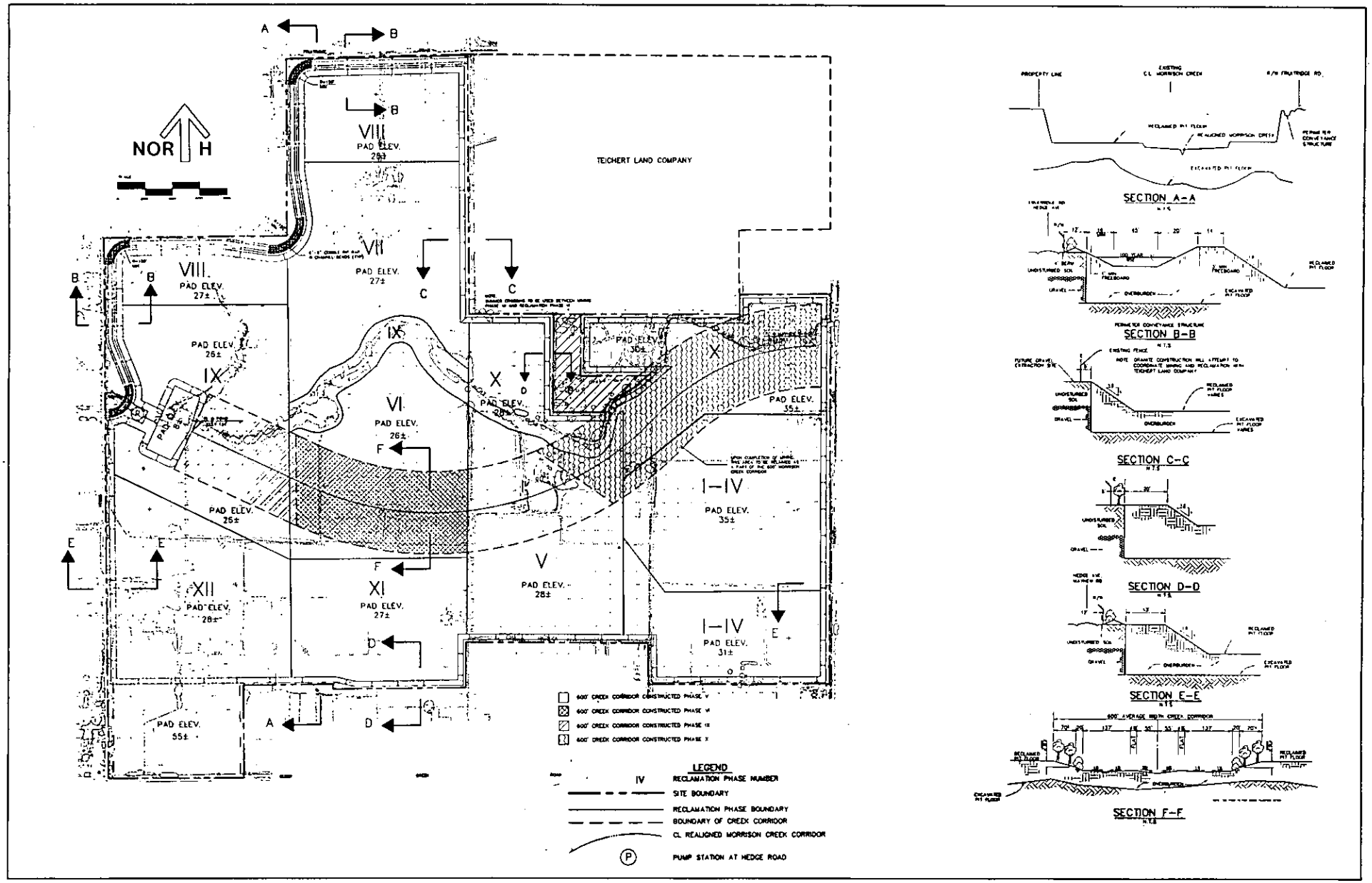
Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 3-5a
Reclamation Plan—Aspen III South
Proposed Project

EDAW Inc.

Source: GW Consulting Engineers

N:5s052:010



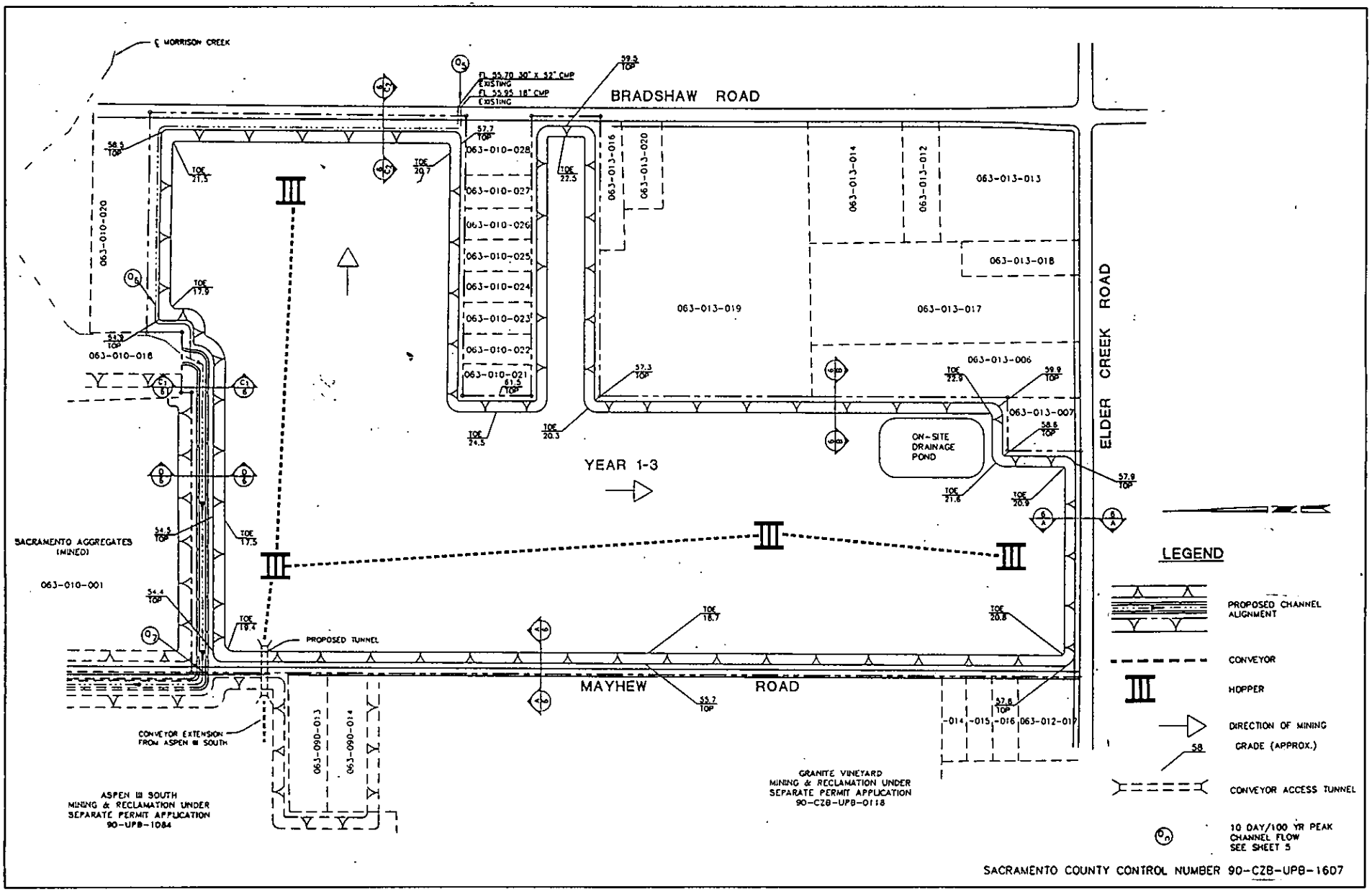
Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 3-5b
Reclamation Plan—Vineyard I
Proposed Project

EDAW Inc.

Source: Robert E. Young Engineers, 1994

N:5s052:011



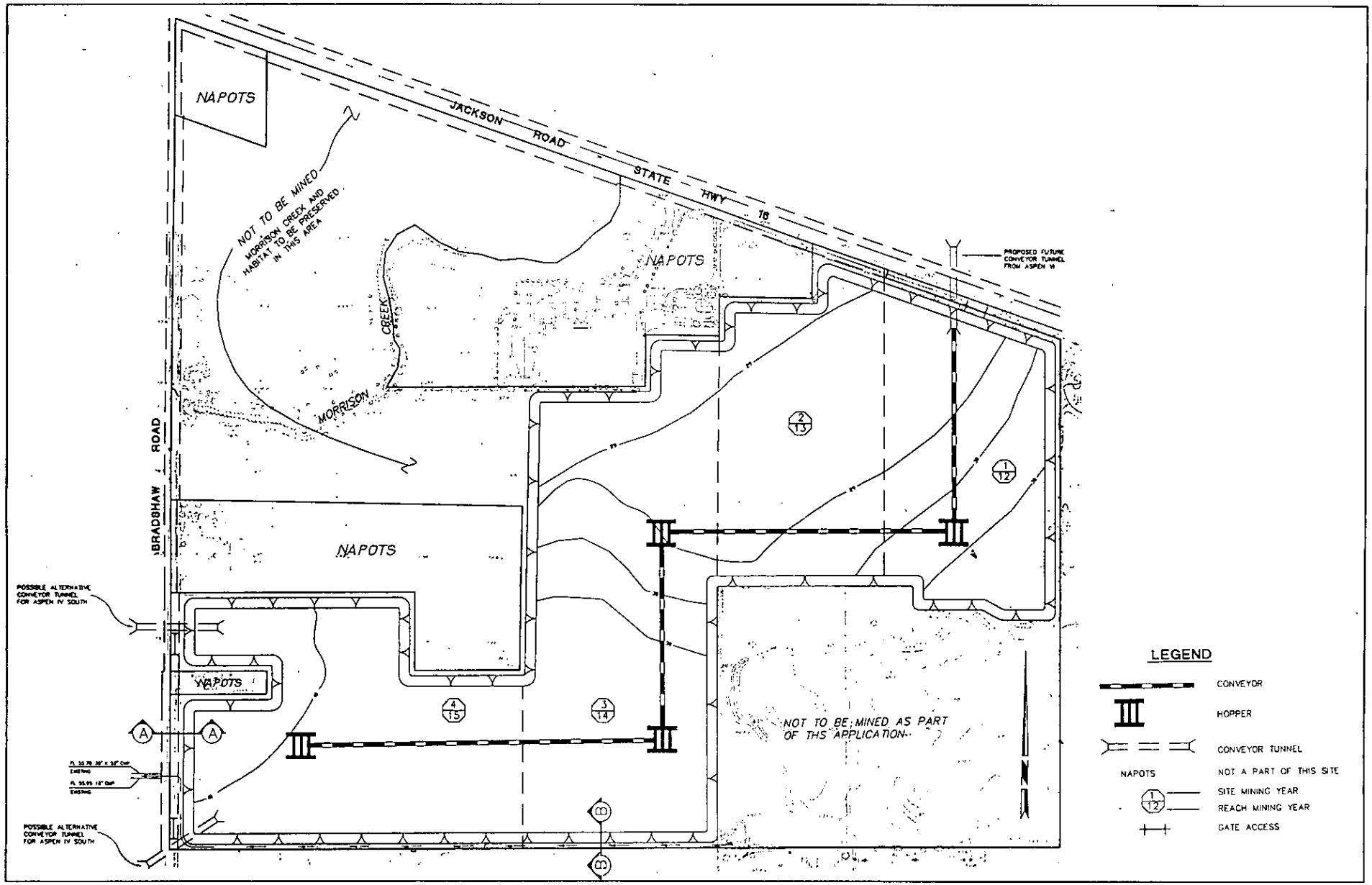
Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 3-5c
Reclamation Plan—Aspen IV South
Proposed Project

EDAW Inc.

Source: GW Consulting Engineers

N:5s052:012



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 3-5d
Reclamation Plan—Aspen V South
Proposed Project

EDAW Inc.

Source: GW Consulting Engineers

N:5s052:013

perennial marsh, riparian woodlands, seasonal marsh and valley oak woodland in a series of terraces (see Figures 3-6a, 3-6b, and 3-6c).

3.6.3 Drainage Mitigation Plan

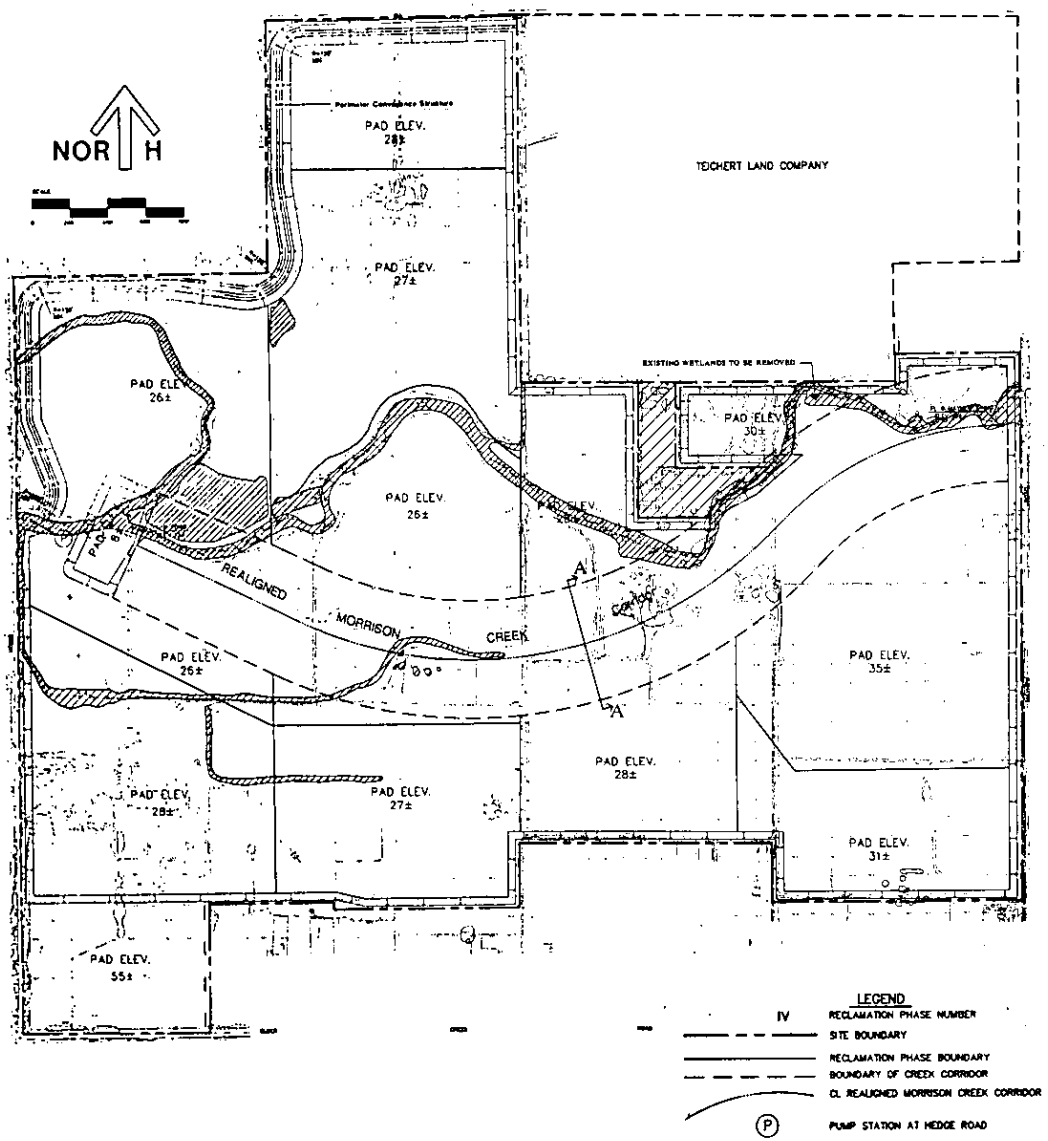
The drainage mitigation plan included as part of the proposed project is part of a larger plan (*Morrison Creek Mining Reach Drainage Mitigation Plan* - Part A), and the overall impacts associated with implementation of this plan are addressed in Morrison Creek Upstream (North) Mining Reach EIR/EIS. Site-specific impacts which may result (within the project site) from the physical improvements associated with the drainage mitigation plan are addressed in this EIR/EIS. The intent of the drainage mitigation plan is to mitigate the drainage impacts of mining on the Morrison Creek 100-year floodplain, as required by the County floodplain management policies. A summary of the drainage improvements which would be constructed within the project site is provided below.

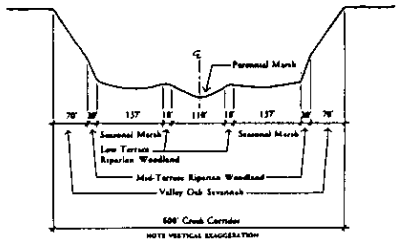
Proposed drainage mitigation would include the construction of an unlined trapezoidal bypass channel. The channel would be constructed at the existing ground surface elevation to convey the bulk of the flows of Morrison Creek through the reclaimed aggregate mining areas and lower pit ~~within and/or along the Vineyard I, Aspen IV South and Aspen III South sites~~. The bypass channel would be at-grade and would begin/meet the natural Morrison Creek drainage on the Aspen IV South site between Mayhew and Bradshaw Road (Figure 3-7).

The bypass channel would be constructed as part of the site reclamation using the excavated overburden resulting from the mining. It would be located along the alignment shown on the *Drainage Mitigation Plan* (Figure 3-7). As a result of project phasing, the construction of the bypass channel on the project site would not occur until years 7 and 8 (years 15 and 16 including the upstream reach). Morrison Creek would not be affected on the project site until year 9 (year 17, including the upstream reach), at which time the flows would be diverted from the creek to the bypass channel (Figure 3-8).

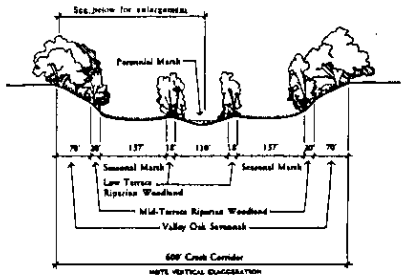
The bypass channel would be sized to pass a portion of the existing 100-year peak flow [1,650 cubic feet per second (cfs)], which would allow the majority of Morrison Creek to continue downstream through the project site with minimal disruption. The bypass channel would have a capacity of 1,617 cfs where it meets Hedge Road. A flow pattern similar to the existing regime would be maintained to attempt to protect the natural values downstream.

When the drainage volume from Morrison Creek exceeds the capacity of the channel, the excess would be diverted into one of the pit floor detention areas via weiring/outfall structures constructed in the bypass channel. The lower pit, which is included within the project site, would provide 306 acre-feet of detention/storage volume. The upper pit, which is included in the project site for the upstream portion of the mining reach, would be substantially larger than the lower pit and would provide 1,469 acre-feet of detention/storage volume. The weirs and necessary drop structures would be designed and constructed to prevent plunge pools and down-cutting, when the water flows from the bypass channel down onto the pit floor.

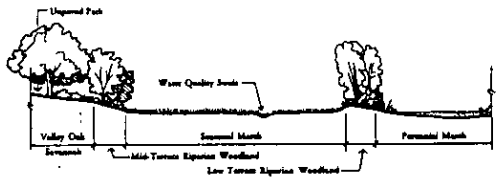




Section A - A



Morrison Creek Corridor Typ. Section



Creek Corridor Riparian Zone

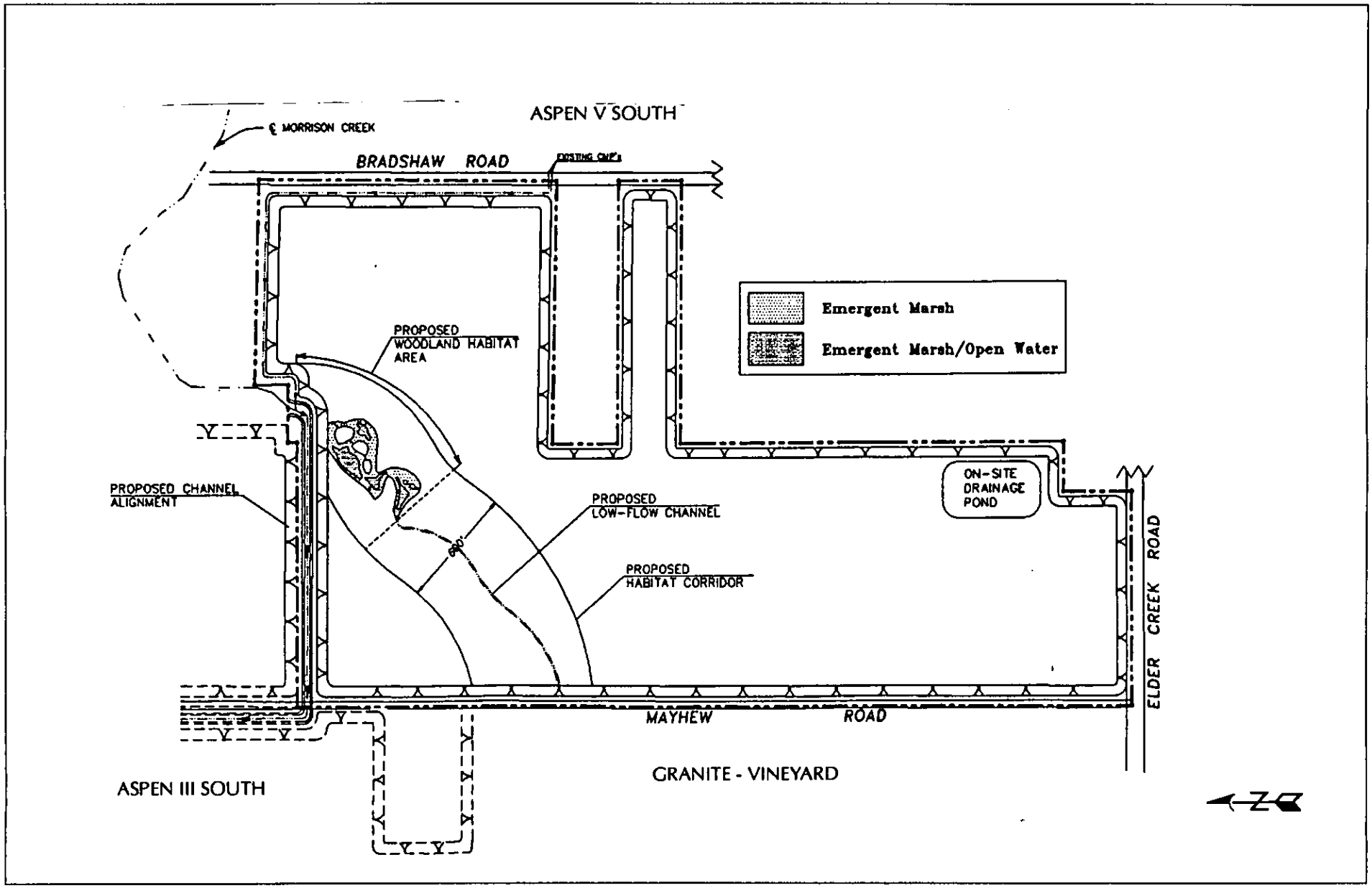
Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 3-6a
Wetland Mitigation Plan-Vineyard I
Proposed Project

EDAW Inc.

Source: Robert E. Young Engineers, 1994

N:5s052:015



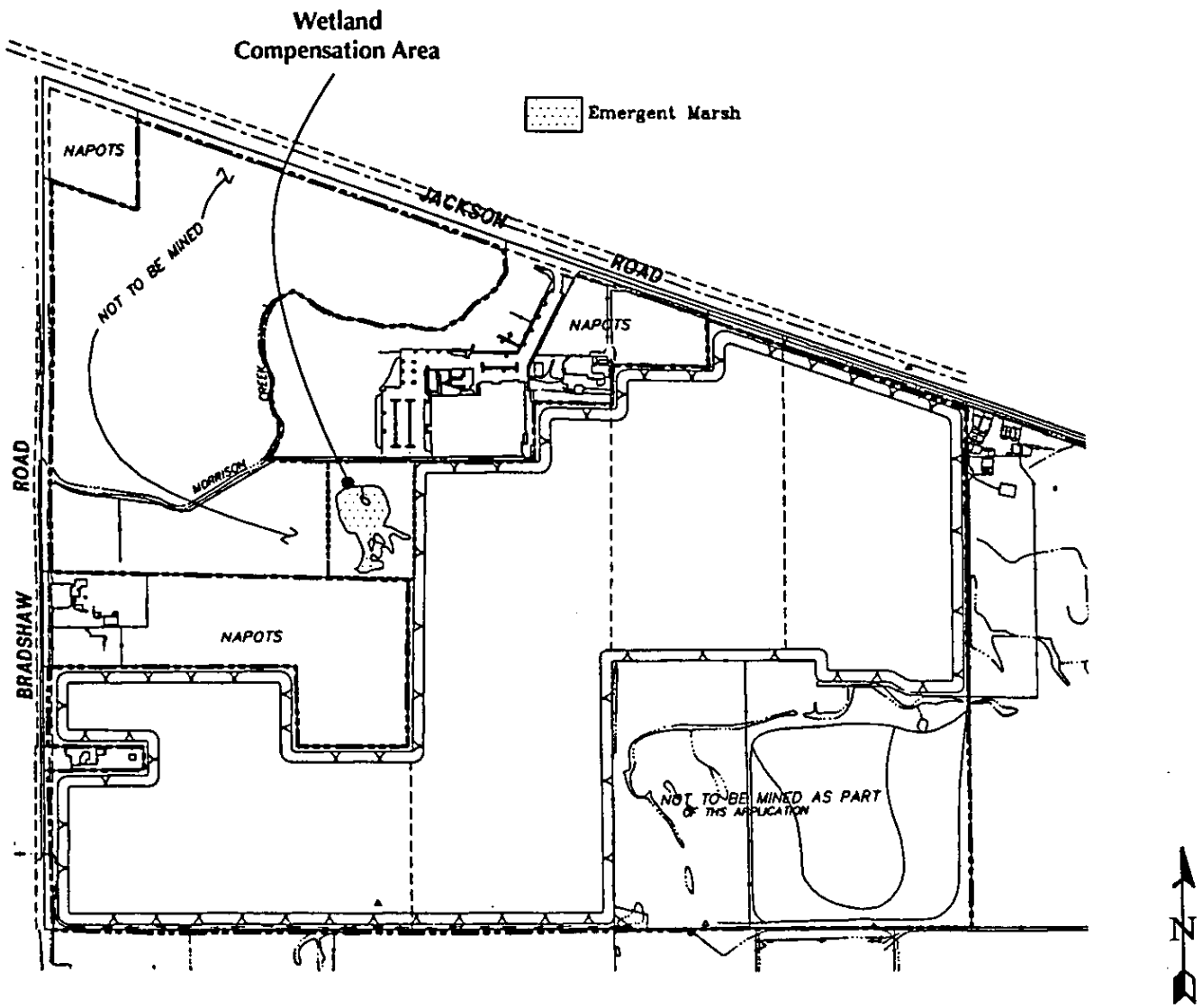
Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 3-6b
Wetland Mitigation Plan-Aspen IV South
Proposed Project

EDAW Inc.

Source: Sugnet & Associates, 1994

N:5s052:016



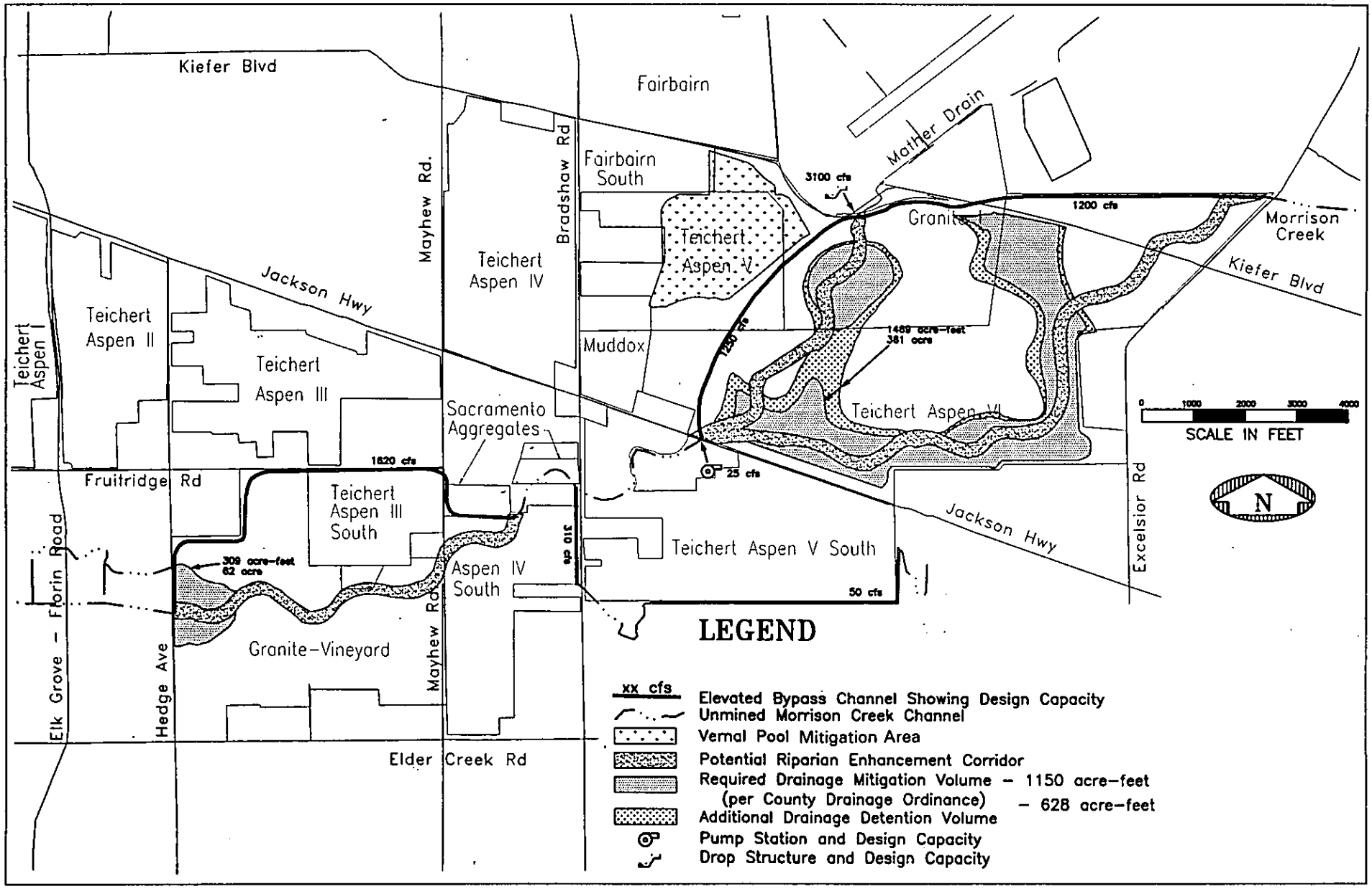
Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 3-6c
Wetland Mitigation Plan-Aspen V South
Proposed Project

EDAW Inc.

Source: Sugnet & Associates, 1994

N:5s052:017



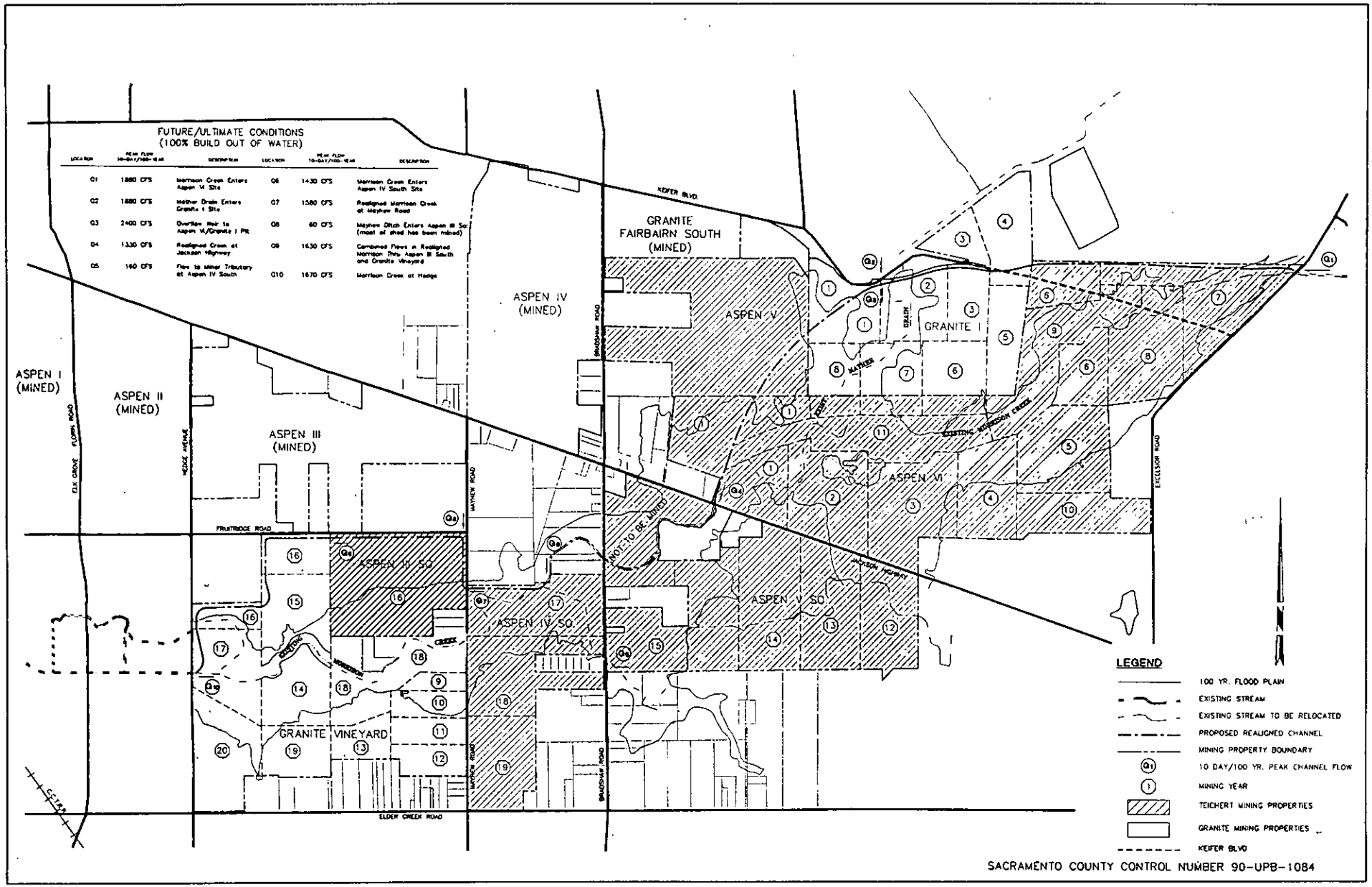
Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 3-7
Drainage Mitigation Plan—Proposed Project (Part A)

EDAW Inc.

Source: County of Sacramento Water Resources Division

N:5s052:021



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 3-8
Mining Reach Phasing and Hydraulics
Proposed Project

EDAW Inc.

Source: GW Consulting Engineers

N:5s052:014

A small variable speed pump station with a maximum capacity of 25 cfs would be located adjacent to the northeast portion of the project site where the bypass channel proposed in the upstream portion of the mining reach terminates, and where the existing drainage channel of Morrison Creek continues to the project site (on the Aspen V South site). This pump station would be used to evacuate water that does not percolate, evaporate, or transpire from the ponding/detention area located north of Jackson Highway (i.e., in the upstream portion of the mining reach).

The proponents would finance and construct these facilities as reclamation measures for the mining operations for which they are requesting permitting. Unless the County supplements that proposed with one of the Part B alternatives (see 4.3 Proposed Project with County Drainage Alternatives), the proposed mitigation would require the mined areas to remain privately owned by the proponents relieving the County of any involvement in the operation and maintenance of the bypass channel.

3.6.4 Wetland Mitigation Plan

Mining of the combined sites would impact approximately 19.83 ~~24.56~~ acres of "Waters of the United States," which are under the jurisdiction of the United States Army Corps of Engineers (Corps). As previously mentioned, this acreage includes seasonal wetlands, portions of Morrison Creek, and irrigated seasonal wetlands. The proposed mining and reclamation activities on the Aspen III South site would not impact any waters of the U.S. The other three mining applications (Vineyard I, Aspen IV South and Aspen V South) include wetland mitigation plans (developed by the proponents' environmental consultants and included in Appendix B) that attempt to compensate for the loss of acreage and function of wetlands impacted by the proposed project. A summary of the proposed wetland mitigation plans is provided below.

Vineyard I

The Vineyard I site has approximately 17.22 ~~21.95~~ acres of wetlands or other waters of the U.S. that would be affected as a result of the proposed project. These 17.22 ~~21.95~~ acres include 12.24 ~~8.20~~ acres of ~~perennial marsh, 4.27 acres of~~ riparian woodland, 3.84 acres of tributaries, and 1.14 ~~9.39~~ acres of seasonal marshes (not associated with the creek). The *Wetland Mitigation Plan* prepared by Zentner and Zentner (January, 1995) proposes to mitigate the loss of this habitat by the creation of: 12.62 acres of perennial marsh, 8.76 acres of riparian woodland, and 11.74 acres of seasonal marsh. Total compensation habitat would be 33.12 acres, which represents an approximate replacement ratio of 1.9:1 ~~1.5:1~~. Figure 3-6a provides an overview of the proposed mitigation.

Aspen IV South

The Aspen IV South site has a total of 1.78 acres of wetlands or other waters of the U.S. that would be disturbed as a result of the proposed project. Of the 1.78 acres on-site, 1.09 are directly associated with Morrison Creek, 0.44 is drainage channel, and 0.25 is seasonal wetland. The *Wetland Mitigation Plan* prepared by Sugnet & Associates (October, 1994) proposes to create .20 acre of low-flow channel, and 2.44 acres of emergent marsh to compensate for the habitat that would be lost as a result of the proposed project. Total compensation habitat would be 2.64

acres, representing a replacement ratio of nearly 1 5 1 Figure 3-6b provides an overview of the proposed mitigation

Aspen V South

Morrison Creek flows across the west corner of the Aspen V South site In addition to the creek, several other wetland habitats, including vernal pools, seasonal wetlands, irrigated seasonal wetlands, and artificial wetlands also occur on-site An oak woodland is associated with Morrison Creek in this location Neither Morrison Creek, the oak woodland, or the vernal pools are proposed to be disturbed within the site Approximately 0 83 acre of irrigated seasonal wetland would be impacted as a result of the proposed project The *Wetland Mitigation Plan* prepared by Sugnet & Associates (October, 1994) proposes to create 1 5 acres of emergent marsh within the proposed unmined portion of the site to compensate for lost wetlands This compensation habitat represents an approximate replacement ratio of 1 8 1 Figure 3-6c provides an overview of the proposed mitigation ~~The preserve area would occur outside of the flood detention area, to the west of the proposed at-grade bypass channel~~

4.0 Alternatives to the Proposed Project

4.1 INTRODUCTION

This chapter provides a detailed description of the four alternatives to the proposed project considered in this EIR/EIS which include: the Proposed Project without the Vineyard I Processing Plant Alternative; the Proposed Project with County Drainage Alternatives (Part B Options); the 100-Year Floodplain Protection Alternative; the Creek Buffer Alternative; and the No Project Alternative. Discussion of the environmental consequences of the proposed project and all the alternatives considered in this EIR/EIS are provided in Chapter 5.0.

As a result of response to comments on the Draft EIR/EIS and based on public input received during the review period and during the Policy Planning Commission's hearings on the project, several revisions to this Chapter have been made. A summary of these changes is provided below, along with the basis for the changes.

Several commentors on the Draft EIR/EIS requested that a modified floodplain protection alternative be considered in the EIR/EIS. This alternative would require a 150-foot buffer area on either side of Morrison Creek similar to the condition of approval placed on the north project by the Corps of Engineers. As a result of these requests, this alternative herein referred to as the "Creek Buffer Alternative" has been incorporated into the EIR/EIS and is described in Section 4.4 and evaluated in Chapter 5.

Also during the review period on the draft, the project proponents were able to successfully negotiate easements necessary to allow conveyor access to an existing processing plant thereby removing the need to construct an on-site processing plant on Vineyard I. As a result, the proponents have indicated that the "Proposed Project Without Vineyard I Processing Plant Alternative" already evaluated in the Draft EIR/EIS (see Section 4.2 below) is now the preferred project.

It should also be noted that following additional consideration and evaluation of the County Drainage Alternatives (Part B), the County of Sacramento determined that the incremental downstream flood control benefits would be minimal. Therefore the County has decided to forgo additional consideration of these alternatives at this time.

4.2 PROPOSED PROJECT WITHOUT THE VINEYARD I PROCESSING PLANT

This alternative is included to allow for flexibility in land use decisions during the application review process and following the potential approval of entitlements. Mining, reclamation, drainage mitigation, and wetland mitigation plans would generally be the same as the proposed project. However, the alternative would not include processing facilities on the Vineyard I site. This alternative assumes on-site excavation only. It is assumed that Granite Construction Company could achieve conveyer access to the Vineyard I site and conduct processing activities at an existing facility. Granite Construction Company currently operates a facility approximately two miles to the northeast, at Kiefer Boulevard and Bradshaw Road. ~~The feasibility of this alternative is dependent on land use patterns over the ensuing years. To date, preclusive land uses have prohibited conveyor access to the Vineyard I site.~~ The easements necessary to allow

conveyor access as described above were granted following the review period on the Draft EIR/EIS. Figure 4-1 presents the proposed conveyor belt alignment.

4.3 PROPOSED PROJECT WITH COUNTY DRAINAGE ALTERNATIVES (PART B OPTIONS)

The County Drainage Alternatives were originally developed in the Sacramento County Water Resources Division's 1994 *Morrison Creek Mining Reach Drainage Mitigation Plan* (MCMR-DMP) to go beyond the minimum requirements for drainage mitigation, in order to provide additional flood control and storm water detention benefits. The Part B alternatives are intended to address deficiencies identified in studies conducted by the Corps and the City of Sacramento which indicated that, downstream of the project site, the Morrison Creek channel and its levees are inadequate to carry a 100-year flood. The studies also indicated that further downstream, because the outlet of Beach/Stone Lakes can be blocked by high Delta flood stages, any increase in the volume of storm water flowing into the lake would aggravate (to some degree) flooding in the surrounding area. If approved, the proposed project (Part A) would be implemented and funded exclusively by the proponents. In the event that one of the County Drainage Alternatives (Part B) is selected, the County would be responsible for implementation of improvements which go beyond those included in the proposed project (Part A). As a note, the County Drainage Alternatives (Part B) are considered post-mining projects; however, all or part of the Part B alternatives may be constructed with the proposed project facilities.

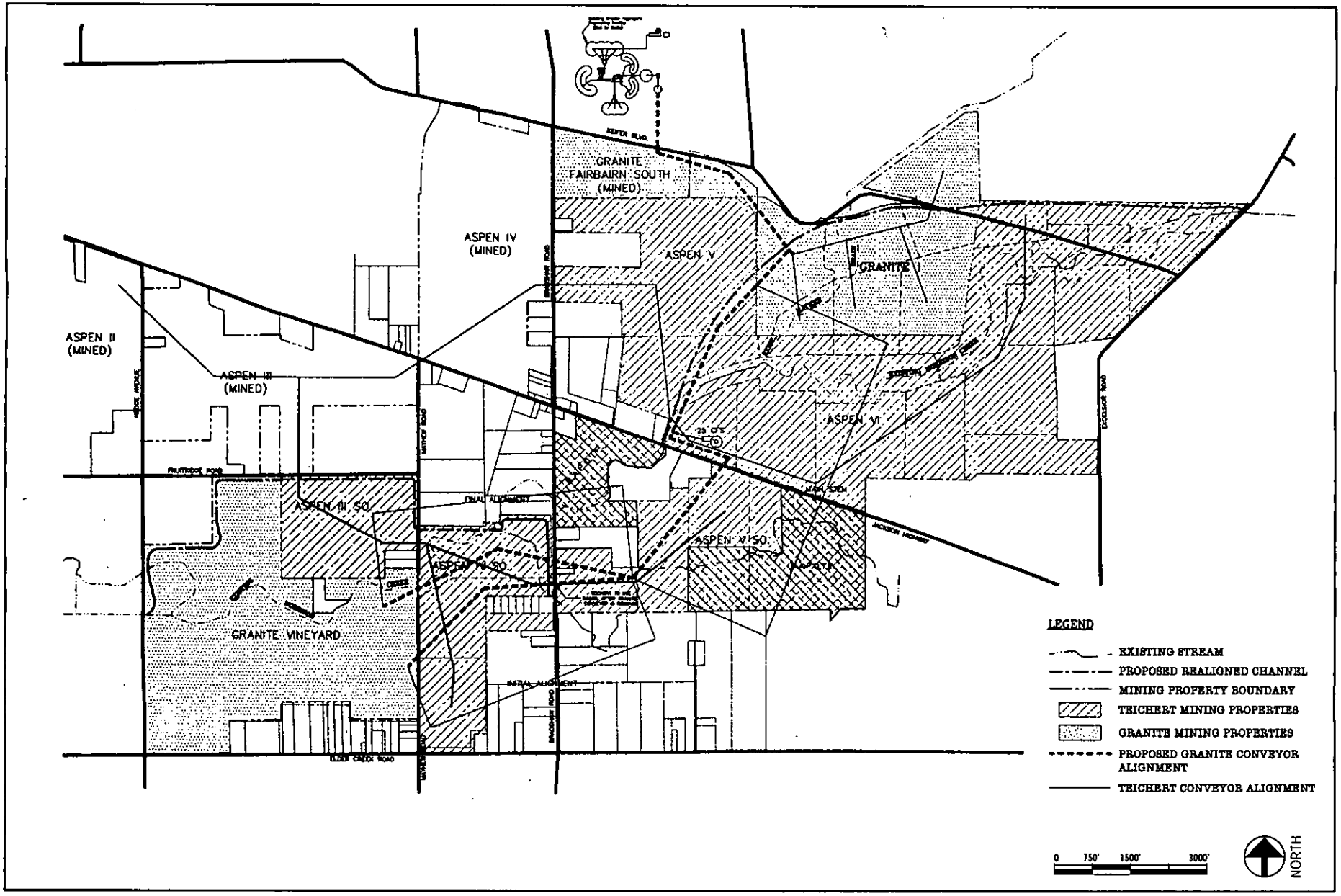
The MCMR-DMP identified a total of seven drainage mitigation plan alternatives, including the proposed project's drainage mitigation plan (Part A). Part B of the MCMR-DMP originally identified six alternatives, three of which (Alternatives 2, 5 and 6) have been determined to be the most feasible and have therefore been carried forward for further examination in this EIR/EIS. The three County Drainage Alternatives are:

1. Pump Everything Small Pump Alternative;

2. Downstream Bypass Channel Alternative; and

3. Volume Detention Bypass Channel Alternative.

The two principal variables that differentiate the three County Drainage Alternatives are the percentage of total floodflow that would be detained in the mining pits, and the rate at which accumulated water in the pits would be pumped out into downstream portions of Morrison Creek. Figures 4-1a through 4-1c represent the general configuration of the three alternatives, and Table 4-1 provides a comparison of these alternatives. Because the County Drainage Alternatives (Part B) are focused on comprehensive flood control measures, the geographic boundaries of the improvements extend beyond the project site, north of Jackson Highway into the upstream portion of the Morrison Creek Mining Reach. This portion of the Mining Reach is analyzed in a separate EIR/EIS which is available for review at the County of Sacramento Department of Environmental Review and Assessment.



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

EDAW, Inc.

N:5s052

Figure 4-1
Proposed Conveyor Alignment
"Proposed Project Without Vineyard I Processing Plant" Alternative

Source: Granite Construction Company, 5/98

Under the Pump Everything Small Pump Alternative, all Morrison Creek streamflow would enter the upper mining pit (located north of Jackson Highway) and would be pumped at the downstream end of the upper pit back up to the natural invert. The pumped outflow would be carried around the lower pit (located on-site) in a perimeter bypass channel. Under the Bypass Channel Alternatives, a bypass channel or pipe would carry a portion of Morrison Creek peak flows around the perimeter of both the upper and lower pits. Excess flows would be diverted into the mining pits. The lower mining pit of the Downstream Bypass Channel Alternative would have roughly double the storage (610 acre-feet or approximately 122 surface acres) of the other County Drainage Alternatives and would require a 5-cfs pump station at Hedge Avenue.

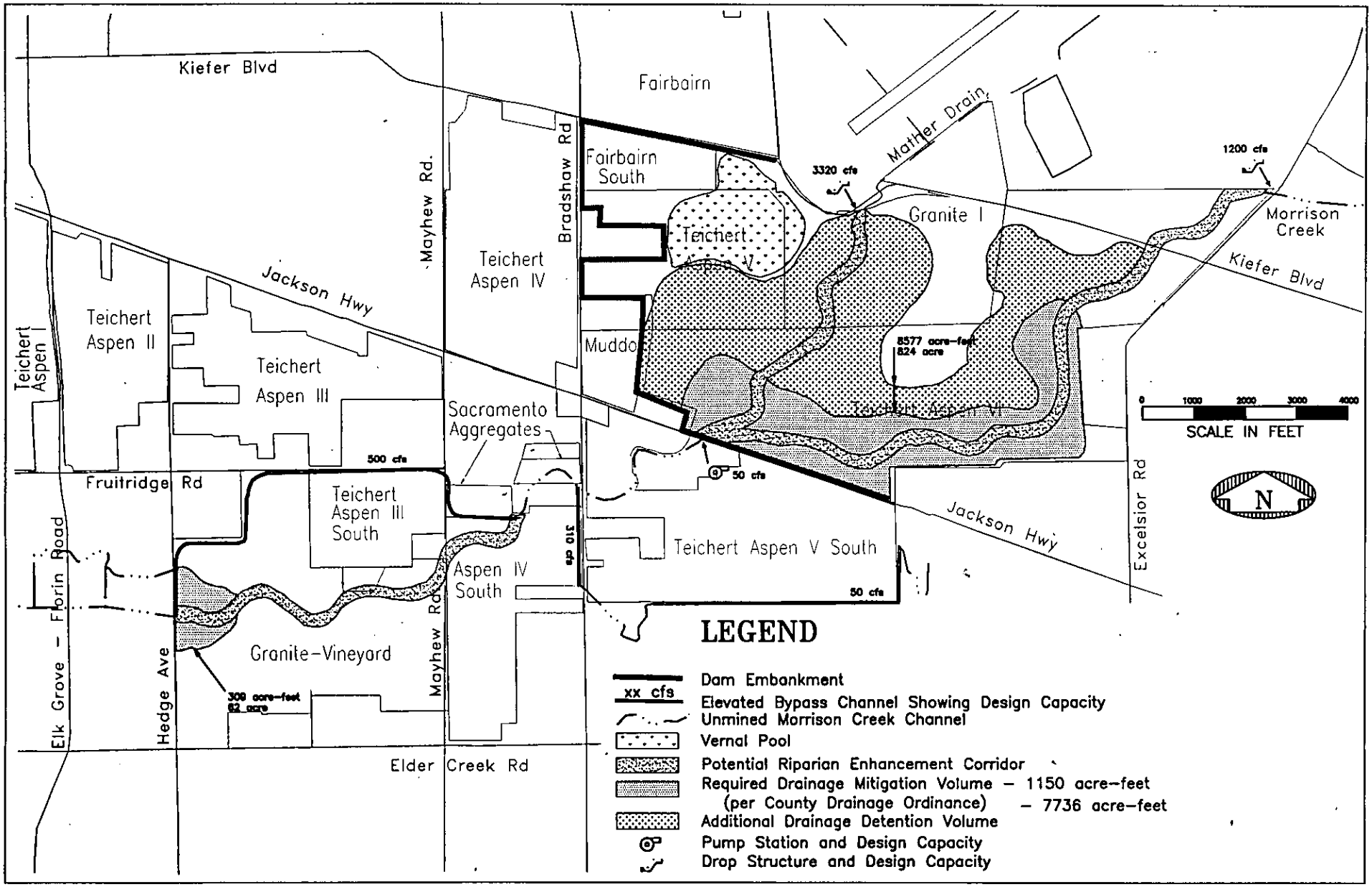
4.4 FLOODPLAIN AND CREEK PROTECTION ALTERNATIVES~~100-YEAR FLOODPLAIN PROTECTION ALTERNATIVE~~

4.4.1 100-Year Floodplain Protection Alternative

This alternative is being considered to minimize the cumulative effects of mining inside the 100-year floodplain. As shown in Figure 3-8, approximately 310 acres (32%) outside of the 100-year floodplain for Morrison Creek would be mined, yielding roughly 8.8 million cubic yards of sand and gravel (based on an assumed 20-foot average thickness of the usable resource). Under the 100-Year Floodplain Protection Alternative, the natural character of the 100-year floodplain for the creek would be maintained by avoiding aggregate extraction within the floodplain. This alternative would carry future 100-year flood flows (taking into consideration buildout conditions in the watershed). It is estimated that ~~137,600~~ 1,000,000 cubic yards (CY) of overburden material would need to be transported off-site, the remaining overburden would be utilized for on-site reclamation activities. The proposed mining activities would be phased, and would generally progress in an east-to-west direction.

Based on an agreement reached between the project proponents, conveyor access would be provided such that an on-site processing plant on Vineyard I would not be needed. Refer to Section 4.2 for additional information.

~~The proposed project assumes that it would not be possible to transport the recovered aggregate from the Vineyard I site to an existing aggregate processing plant via a conveyor belt system. Therefore, this alternative would include the construction and operation of an on-site processing plant. The proposed plant would have an average operating rate of 1,000 tons/hour, and an average annual rate of 2 million tons~~.



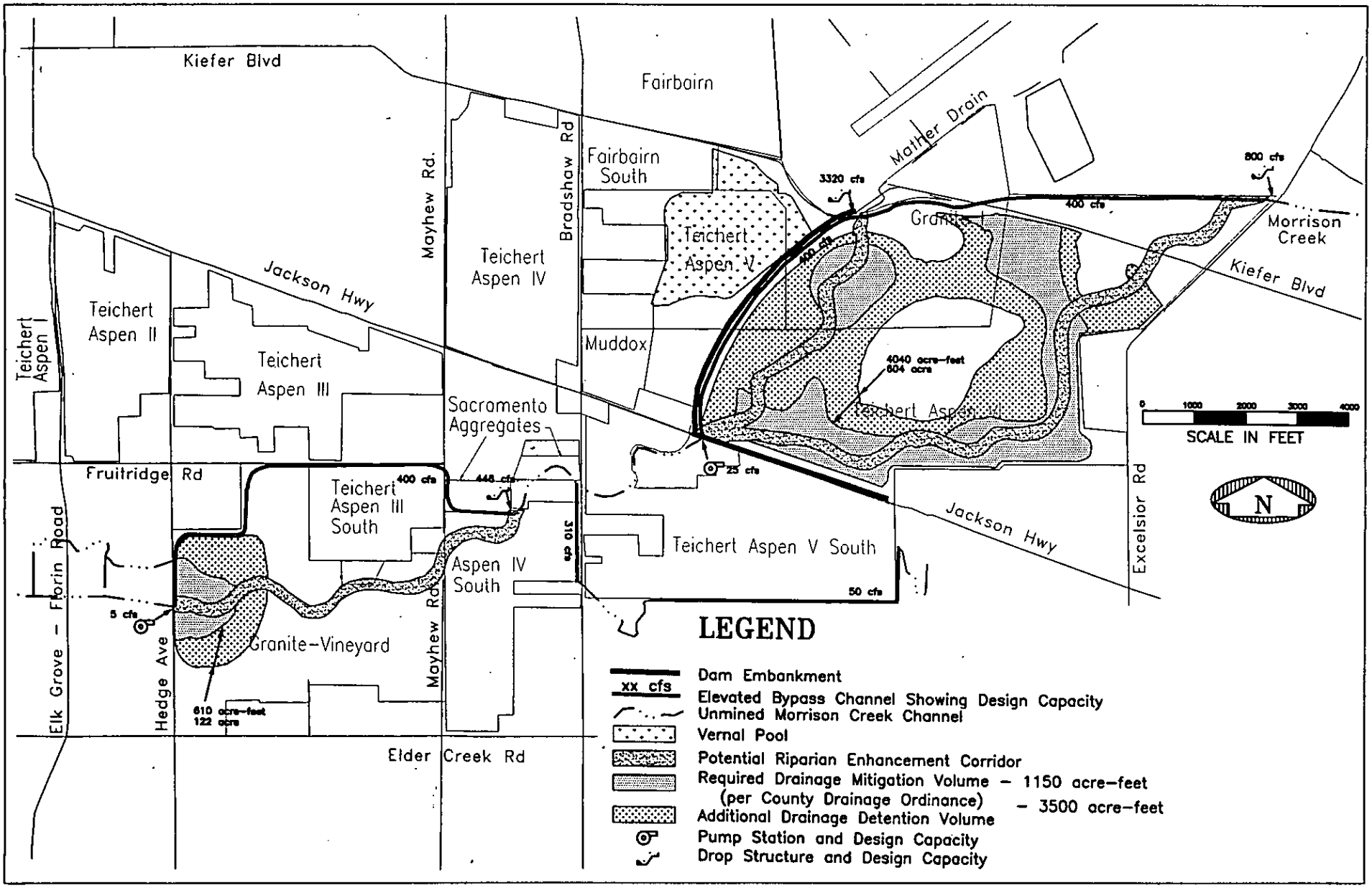
Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 4-1a
Pump Everything Small Pump
County Drainage Alternatives (Part B)

EDAW Inc.

Source: County of Sacramento Water Resources Division

N:5s052:020



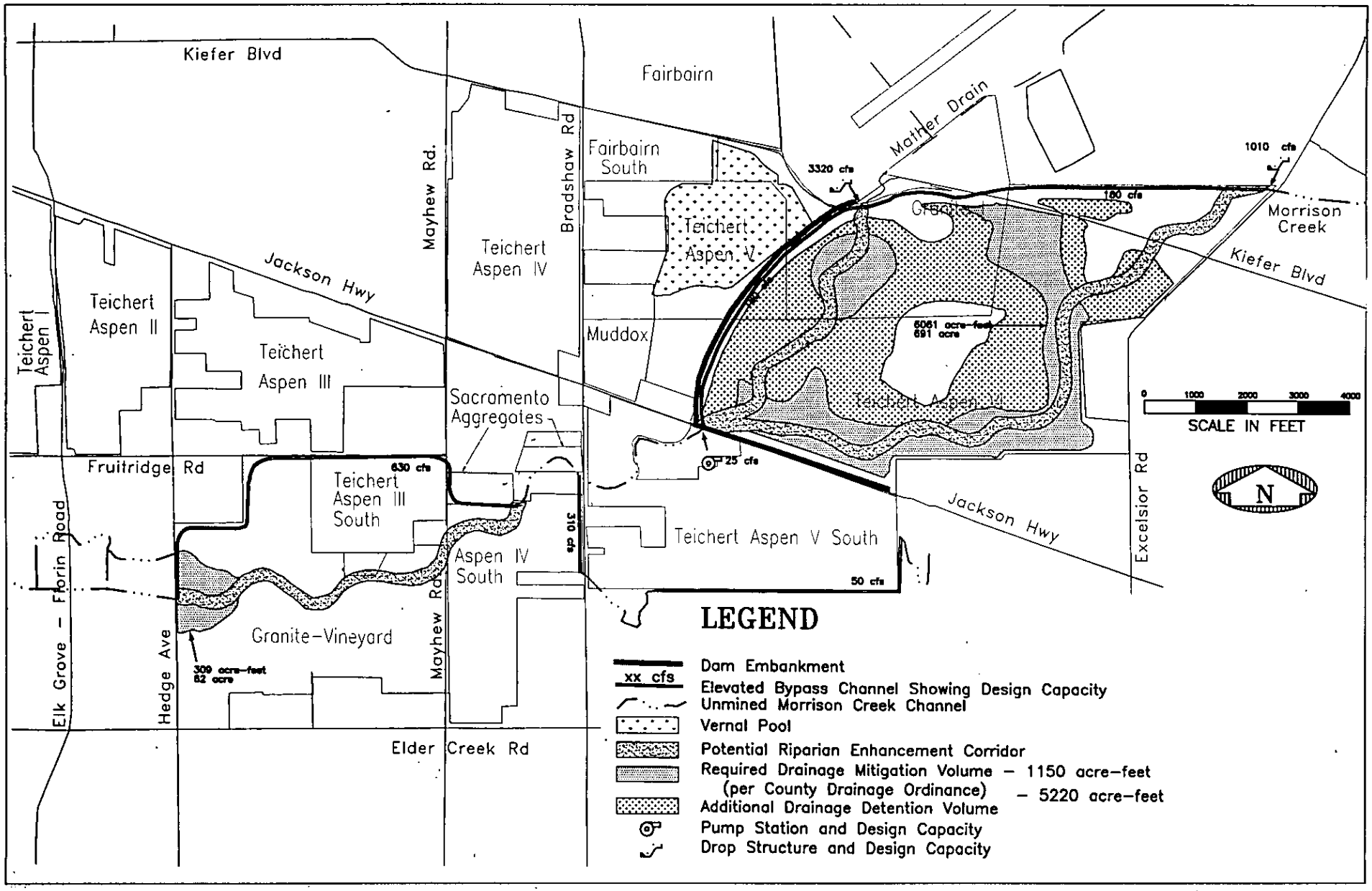
Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 4-1b
Downstream Capacity Bypass Channel
County Drainage Alternatives (Part B)

EDAW Inc.

Source: County of Sacramento Water Resources Division

N:5s052:019



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 4-1c
Volume Detention Bypass Channel
County Drainage Alternatives (Part B)

EDAW Inc.

Source: County of Sacramento Water Resources Division

N:5s052:018

Table 4-1
Comparative Matrix
Proposed Project (Part A) and County Drainage Alternatives (Part B Options)

Characteristics	Proposed Project (Part A)	County Drainage Alternatives (Part B)		
		Pump Everything Small Pump	Downstream Capacity Bypass Channel	Volume Detention Bypass Channel
Major Project Benefits				
Benefits	Peak Flow Reduced Below Existing Privately Funded	Peak Flows Further Reduced County Volume Increase Mitigated	Peak Flows Further Reduced	Peak Flows Further Reduced County Volume Increase Mitigated
Major Project Disadvantages				
Disadvantages	Safety Threat To Both Pit Floors Bypass Channel Has Low Aesthetic Appeal	DSOD Dam Embankment Requirements Pumping Costs Disrupts Natural Flow Hydrograph Mining Difficult	DSOD Dam Embankment Requirements Safety Threat To Upper Pit Floor Capital Cost Disrupts Natural Flow Hydrograph Bypass Channel Has Low Aesthetic Appeal	DSOD Dam Embankment Requirements Safety Threat To Upper Pit Floor Capital Cost Disrupts Natural Flow Hydrograph Bypass Channel Has Low Aesthetic Appeal Mining Difficult
Design Parameters				
Bypass Channel Capacity at Upper Pit (cfs)	1,250	N/A	400	180
Bypass Channel Capacity at Hedge Road (cfs)	1,620	500	400	630
Upper Pit Required Storage Area Volume (ac-ft)	1,469	8,577	4,040	6,061
Lower Pit Required Storage Volume (ac-ft)	309	309	610	309
Capacity of Upper Pit Pump (cfs)	25	50	25	25
Capacity of Lower Pit Pump (cfs)	N/A	N/A	5	N/A

Table 4-1
Comparative Matrix
Proposed Project (Part A) and County Drainage Alternatives (Part B Options)

Characteristics	Proposed Project (Part A)	County Drainage Alternatives (Part B)		
		Pump Everything Small Pump	Downstream Capacity Bypass Channel	Volume Detention Bypass Channel
Operation				
Annual Stormwater Diversion:				
Average % of Total Flow	14	100	36	70
Average Volume (ac-ft)	1,358	10,980	3,492	6,790
Maximum Volume (ac-ft)	4,057	30,733	10,434	20,287
Annual Pumping Days:				
Average	18	97	48	120
Maximum	68	286	161	362
Cost (in million dollars)				
Capital Cost	$7.2	$3.6	$15.7	$14.1
Capital Cost with Land	$9.8	$7.8	$17.2	$16.1
Total Annual Cost (operational)	$0.096	$0.229	$0.275	$0.246
Habitat in Upper Pit[a] (acres)				
Permanent Deep Water	2	15	3	3
Permanent Shallow Water	8	114	9	9
Seasonal Mudflat	76	89	161	161
Riparian Vegetation	88	146	181	186
Upland Vegetation	191	0	10	5
Agriculture	476	476	476	476
Flow in Downstream Channel				
Peak 100-year Flow (cfs)	1,598	446	400	626
Peak flow less than existing peak (3,400 cfs)?	Yes	Yes	Yes	Yes
Peak flow < or = channel capacity?	No	Yes	Yes	Yes
Other Environmental Effects				
Adverse effects on Beach/Stone Lakes habitat?	No	No	No	No
Pump Station Noise (dBA at 200 feet)	55	58	55	55

[a] Area calculation based on area/elevation data from G. W. Consulting Engineers, 1994.

Notes:

- Maximum annual diversions and pumping days are the maximum simulated annual totals during 1960-1987.
- Although the peak flow at Hedge Avenue would be greater under the Volume Detention Bypass Channel (Alternative B) than under the Downstream Capacity Bypass Channel (Alternative B), channel storage would attenuate the peak to 400 cfs before reaching capacity -- limited locations.
- Noise level is for the larger of the two pumping stations.
- Upper Pit is located within Morrison Creek North project (north of Jackson Highway).

Source: County of Sacramento, Water Resources Division, 1994. *Morrison Creek Mining Reach Drainage Mitigation Plan.* (prepared by Montgomery Watson); and County of Sacramento, Water Resources Division, 1994. *Environmental Issues Analysis for Morrison Creek Mining Reach Drainage Mitigation Plan.* (prepared by Jones & Stokes).

Reclamation activities would proceed on an annual basis during the mining activities. Once the overburden is removed, aggregate resources would be extracted and the stockpiled overburden materials would be used as fill to reclaim the harvested area. Annual inspections of reclamation activities would be conducted, per the requirements of the Surface Mining and Reclamation Act of 1975 (SMARA). The vertical perimeter of the pit would have 1.5:1 side slopes and would be approximately 25 feet high.

When compared to the proposed project, this alternative would leave 657 acres (68%) of the site undisturbed and forego extraction of 28 million cubic yards of aggregate.

4.4.2 Creek Buffer Alternative

The purpose of the Creek Buffer Alternative is to protect the existing riparian and wetland habitat along the creek corridor, while providing mining and reclamation opportunities. This alternative was identified by several commentors during the review of the Draft EIR/S as an alternative recommended for further development, consideration and evaluation as part of the proposed project. The 150-foot Creek Buffer Alternative was derived from a condition placed by the U.S. Army Corps of Engineers (Corps) on the Morrison Creek Mining Reach North (Upstream) of Jackson Highway project that was previously approved. In its issuance of the required 404 permits for the North project, the Corps required that the applicants preserve a 150-foot buffer on either side of the Morrison Creek channel for a period of five years to determine if the riparian vegetation could reestablish itself (after the removal of current grazing practices), and to test the viability of having an elevated creek corridor. If the vegetation does not re-establish and the viability of safely maintaining an elevated creek corridor remains questionable, mining may be allowed by the Corps within the 150 buffer area. If however, vegetation is reestablished and the elevated creek corridor is feasible for the north site, mining may be precluded in that area. The Creek Buffer Alternative evaluated in this EIR/S differs from the 404 permit conditions from the north project in that the preservation area would be established without a 5-year waiting period.

Under the Creek Buffer Alternative, the natural creek channel and associated riparian vegetation would be preserved by precluding mining activities within 150 feet of the lateral extent of Corps jurisdiction associated with the main stem of Morrison Creek. This would preclude mining on *approximately 80 acres (or 8.3%)* of the project site. Based on an assumed 20-foot average thickness of useable resources (as was used for development of the100-Year Floodplain Protection Alternative), *approximately 27.5 million cubic yards of aggregate resources* would be excluded from mining under this alternative. It is estimated that approximately *1,000,000 cubic yards of overburden materials* would need to be transported off of the project site.

Mining and reclamation would occur up to the edge of the 150-foot buffer, and the perimeter would be back filled with 2:1 slopes. Based on approval by the Corps, mining could take place during the dry season from April 15th to October 15th of each year. Such mining would only be allowed up to the edge of the riparian vegetation as delineated and monitored by the Corps. Following such mining activities, the proponents would be required to back fill the areas that had been mined within the 150-foot buffer area at a 2:1 slope in the same manner as proposed under the 100-Year Floodplain Protection Alternative. Refer to *Figure 4-2)* for a depiction of the Creek Buffer Alternative. Like the 100-Year Floodplain Protection Alternative, the Morrison

Creek channel would be retained at existing grade throughout the project site. Under the Creek Buffer Alternative, a 350-foot corridor of land, including the creek, would be preserved, and surrounded on both sides by the proposed mining and reclamation areas (which would be approximately 25 feet below grade). Refer to Section 5.1.2 and 5.1.3 for additional information on the potential flooding impacts and associated flood control facilities.

Based on an agreement reached between the project proponents, conveyor access would be provided such that an on-site processing plant on vineyard 1 would not be needed. Refer to Section 4.2 for additional information.

4.5 NO PROJECT ALTERNATIVE

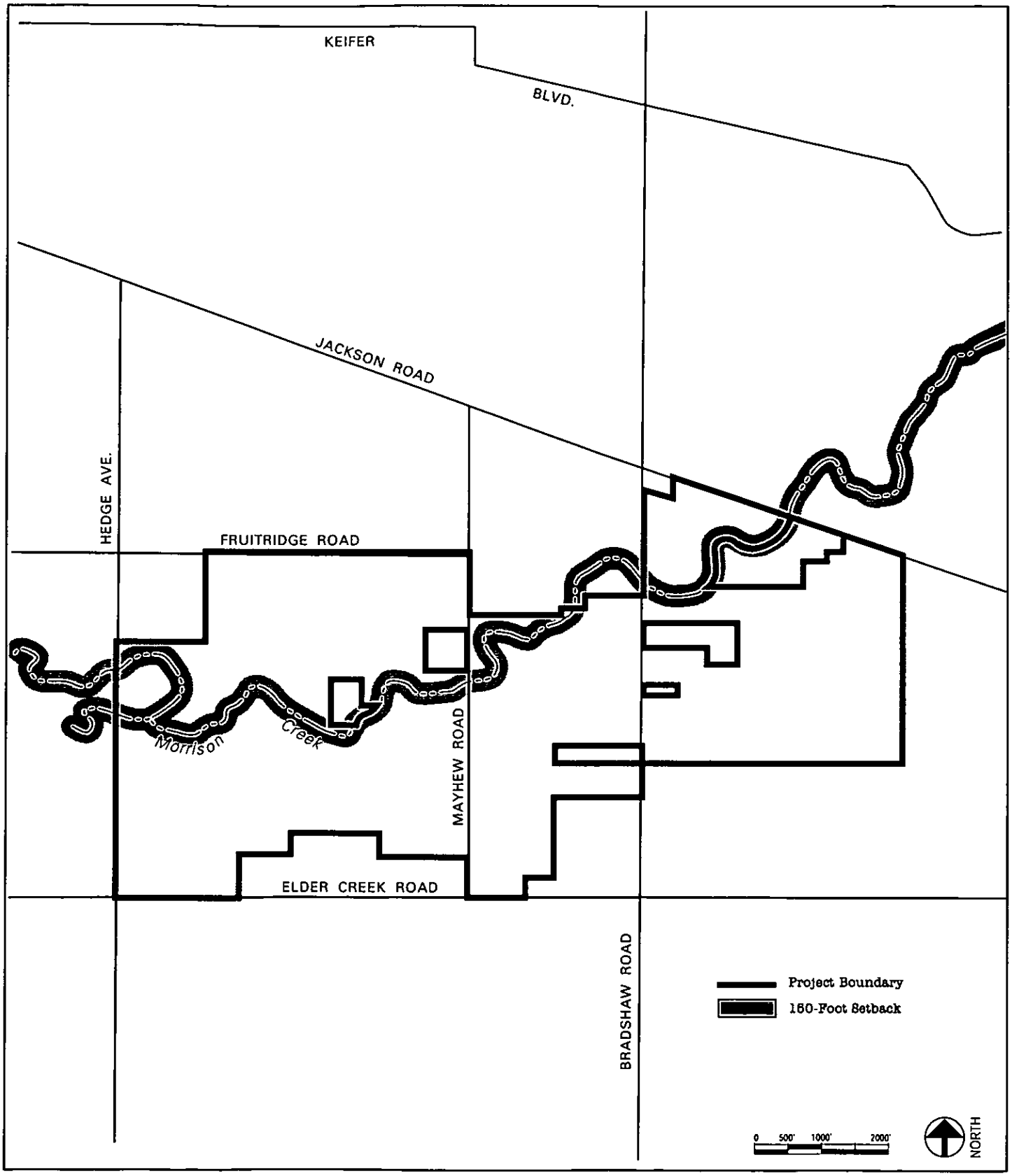
The No-Project Alternative assumes that the project site would not be mined for aggregate and that it would remain in its present condition. The supply of high quality aggregates from the project site would not be made available to the proponents. Site specific impacts would therefore be avoided under the No Project Alternative. The proponents may use the land for agricultural purposes or sell or lease the property to another party interested in pursuing uses allowed under the current zoning. The property is currently zoned for uses which allow general agricultural practices. Among the permitted uses is cattle grazing. Other land uses consistent with the existing Industrial Reserve, Agricultural, and Manufacturing zoning could also be developed.

If implemented, this alternative would not allow new mining operations on the project site (i.e., operations which have not already been granted the required land use entitlements). Initially, the proponents would harvest reserves for which land use permits have already been granted. After these sites are harvested, the proponents would need additional off-site reserves in order to remain in operation. If these alternative resources are located adjacent to existing harvest areas, they could be transported by conveyor to one of the two existing processing plants. Resources that are not contiguous to existing harvest areas would need to be transported to processing plants by truck, or the plants would need to be relocated nearer to the harvest site.

Alternative aggregate sources would be needed to meet the projected consumption needs of the Sacramento region.

4.6 ALTERNATIVES CONSIDERED BUT REJECTED

The following alternatives described below were originally identified, but were withdrawn from further analysis in this EIR/EIS for the reasons described below.



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 4-2
The Creek Buffer Alternative

EDAW, Inc.

Source: EDAW, Inc., 6/99

N:5a052

4.6.1 Recycling Alternative

This alternative would be focused on the use of recycled concrete in County and private road construction as well as other construction applications. The use of recycled aggregate would avoid the potential adverse environmental impacts of mining described in this EIR/EIS. ~~However, this alternative may not be feasible at this time as there are no private companies in Sacramento which recycle concrete and asphalt from demolition debris.~~ The project proponents have indicated that they already practice recycling to the extent feasible. However, limitations include lack of material to be recycled and restrictive specifications that limit the use of recycled materials for particular applications.

This alternative would be consistent with the Conservation Element of the *Sacramento County General Plan* (Sacramento County, 1993) which includes the following Objective:

> *"Ten percent and twenty percent of demand for aggregates met by recycled or substitute materials by 2000 and 2010 respectively. (page 37)"*

This Objective would be pursued in the long-term by the County through several implementation measures. These implementation measures include: modification to existing construction standards (for County roads); the development of appropriate conditions applicable to projects involving private roads; investigation of the use of recycled concrete or substitute materials in other construction applications and concrete recycling operations in other location to determine appropriate mitigation measures. Although opportunities for recycling continue to be implemented within the County, this Alternative was rejected for its inability to materially satisfy current and future projected demand for aggregates, as well as for the restricted opportunities for use of the recycled materials. ~~At present, based on the lack of existing recycling facilities and County enforcement, however, it would not be feasible to implement this alternative.~~

4.6.2 Off-Site Alternative(s)

The "rule of reason" must be emphasized in considering alternative sites for the proposed project that are not owned by the proponents and that are not included within the project site. Considerations of cost, existing technology, and logistics are used together with geological and land use information to define the geographic limits within which the search for alternative sites is conducted. As pointed out in Chapter 2.0, transportation costs are high relative to other costs of producing aggregates. The study area boundaries for off-site alternatives have therefore been limited to Sacramento County. It becomes increasingly impractical to meet Sacramento County's demand for aggregate from out-of-county sources. The nearest out-of-county source for aggregate that has been suggested is the Marysville area, about 40 miles north. Even assuming that the Marysville area can supply the Sacramento region's needs (Marysville is also suggested as an alternative supply for the San Francisco Bay Area, and San Joaquin and Yolo Counties), the presently available methods for importation of aggregate would have a serious environmental cost. The added trucking distance would result in tangible environmental effects, including additional expenditure of energy in the form of petrochemical fuels, increased air pollutants in a non-attainment area, and increased congestion and noise on area highways. Further, to the extent that aggregate resources were secured from an out-of-county source in order to avoid local environmental effects of mining, there is no guarantee that the alternative source would not result in the same or greater site-specific environmental effects.

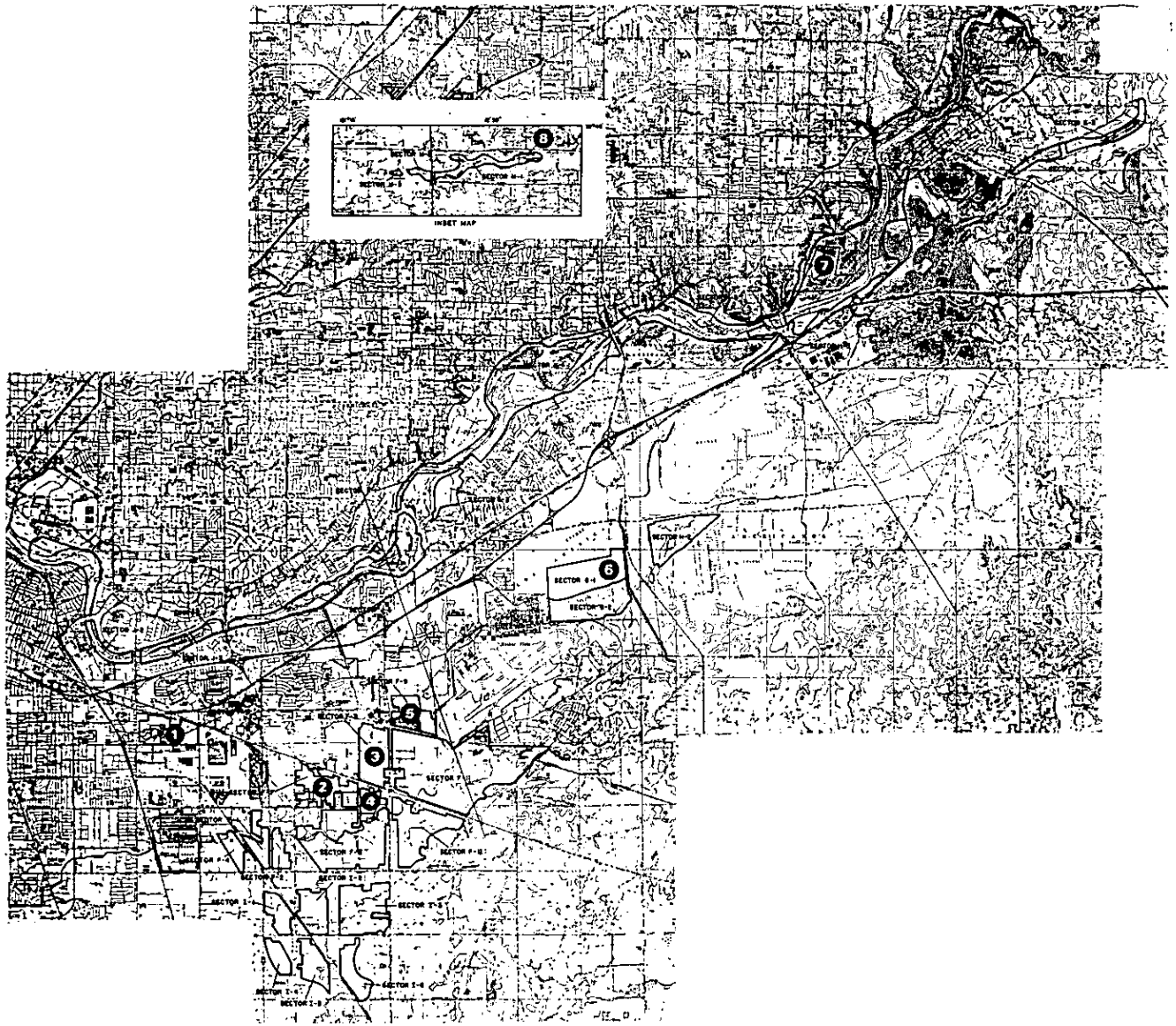
In order to select an off-site location for the proposed project, the necessary geologic conditions for aggregate resources must be present. These geologic conditions are not consistent throughout the Sacramento region, and for the most part, are limited to the northeast to southwest portion of the County (which represents the old and new American River stream channels). In order to obtain an accurate and comprehensive understanding of these potential off-site resources, a report prepared by the California Department of Conservation, Division of Mines and Geology (1988) was utilized as the basis for the search. The report, entitled *Mineral Land Classification: Portland Cement Concrete-Grade Aggregate in the Sacramento-Fairfield Production-Consumption Region (Special Report 156)*, identifies known high-grade aggregate resources (see Figure 4-3).

The majority of the alternative sites underlain by high-quality aggregates have already been committed to urban development, dedicated parklands, or have already been mined and are therefore not considered available resources. Inconsistent zoning, multiple ownership and public uses further limit the ability to mine these alternative sites. In addition, the total tonnages of aggregate that could be recovered from alternative sites are not anticipated to be equal to, or even comparable to, the amount expected from the project site.

The 966.3-acre project site is located within, and comprises most of, Sector F-6 (Figure 4-3). The California Department of Conservation, Division of Mines and Geology identified Sector F-6 as containing the second highest amount of high grade (Portland Cement Concrete-Grade) aggregate resources in the Sacramento-Fairfield Region (1988). It is estimated that Sector F-6 contains 38.9 million tons of high-grade aggregate (this amount does not account for lower grade aggregate). In comparison, the highest (with regard to total tonnage of available resources) and closest sector to the project site is Sector F-11, which is estimated to contain 66.3 million tons. Sector F-11 includes the mining applications collectively referred to as the Morrison Creek Mining Reach - North (Upstream) of Jackson Highway, which has already been approved for mining. Therefore it is not feasible to include Sector F-11 as an alternative location for the proposed project. Sector G-1 contains the third highest amount of high-grade aggregate in the region; however, it is estimated to contain only 17.9 million tons. In addition to the low amount of available resources at this site, it is already owned by another mining company (Lone Star Industries, Inc.'s "Mather Pit") and will soon be mined out, and could therefore not be considered as a reasonable off-site alternative.

Mather Field

Because high quality aggregate resources are know to exist within the boundaries of the former Mather Air Force Base, Mather Field was considered as a potential alternative site. *Special Report 156* intentionally did not include Mather Field lands, because CDMG criteria specifically exclude military bases and reservations on the assumption that they will remain unavailable for mining. Mather was officially closed as a military base in 1993 and Sacramento County has subsequently undertaken a comprehensive planning effort for civilian reuse of the base. Sacramento County has initiated the planning process for the Mather Field Specific Plan, a specific land use plan which will guide civilian reuse of Mather Field once adopted.



NAME AND LOCATION OF AGGREGATE OPERATORS

1. GRANITE CONSTRUCTION CO.
   Perkins Pit
2. TEICHERT AGGREGATES
   Aspen III Pit
3. TEICHERT AGGREGATES
   Aspen IV Pit
4. ERICKSON CONSTRUCTION CO.
   Walsh Station Pit
5. GRANITE CONSTRUCTION CO.
   Bradshaw Pit
6. LONE STAR INDUSTRIES, INC.
   Mather Pit
7. TEICHERT AGGREGATES
   Mississippi Bar Pit
8. PLACER RESOURCES CORPORATION
   Strap Ravine Pit

0 1/2 1 MILE

NORTH

Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 4-3 ~~**Figure 4-2**~~
Known Off-Site Aggregate Resources

EDAW, Inc.

Source: California Division of Mines and Geology

N:5s052:048

According to the Draft Subsequent EIR prepared for the Mather Field Specific Plan project, much of the area within Mather Field would be precluded from surface mining due to existing development such as the main base area and the existing airfield. The remaining area lying south of the airport runways within the proposed South Airport Industrial Subarea of the Specific Plan is estimated to contain 40.0 million tons of aggregate resources, but also contains extensive wetlands and special status species habitat. Land use designations and policies in the proposed Specific Plan would neither require nor preclude surface mining of aggregates in this area. However, the Mather Field EIR notes that future mining activities in this area could result in potentially significant land use compatibility, aesthetic, noise, air quality, and biological resource impacts. Due to the potentially significant environmental impacts associated with mining aggregate resources within Mather Field, especially biological resource impacts, Mather Field is not considered to be an environmentally superior alternative site.

5.0 Affected Environment and Environmental Consequences

5.1 SURFACE WATER HYDROLOGY AND QUALITY

5.1.1 Affected Environment

The project site is located in the upper Morrison Creek watershed in the reach between Jackson Highway and Hedge Road. Morrison Creek flows from the low foothills of eastern Sacramento County to the Sacramento River Delta at Snodgrass Slough. Elevations range between 170 feet above mean sea level (MSL) in the headwaters to below MSL at Snodgrass Slough. The watershed terrain is characterized by low rolling hills with an annual grassland cover, agricultural and urban development, vernal pools and seasonal wetland swales. The Morrison Creek corridor occupies a shallow valley with sparse riparian vegetation. The upper watershed area has been under agricultural use for a substantial time, and most of the original riparian corridor (now about 4.2 acres over about 16,000 linear feet of stream within the project site) along the stream has been removed. The lower watershed is highly urbanized and Morrison Creek has been channelized. A good portion of the site is located within a federally designated floodplain, as shown on FEMA Flood Insurance Rate Map, panel number 060262-0215D, dated November 15, 1989.

The project site experiences a mediterranean climate with periods of precipitation in mild winter months (November through April) and hot, dry summers (May through October). Morrison Creek is presently classified as an intermittent stream where winter rains generate storm runoff and recharge moisture in shallow soils and alluvium. Although flow and soil moisture are unmeasured, visual observations indicate that residual winter runoff or baseflow dissipates in the early summer. Summer conditions are dry except for an unknown but important volume of urban and agricultural-irrigation tailwater flow. Fine-grained soils on the valley floor along Morrison Creek retain moisture into late spring.

An estimated 71 percent of the runoff from the Morrison Creek watershed is generated in the 31 square miles of drainage area above the project site (Morrison Creek Mining Reach Drainage Mitigation Plan [MCMR-DMP] 1994). Most runoff volume occurs during winter rain storms between November and April (Table 5-1). Table 5-1 shows the 10 and 100-year peak flows and peak volumes calculated at Hedge Road (Montgomery Watson, 1994).

Downstream of the project site, Morrison Creek flows westerly through the City of Sacramento before entering the Beach-Stone Lakes area at the Sacramento River. Substantial areas of the Morrison Creek floodplain below the project site are urbanized and subject to flood damage as demonstrated by the January 1995 floods. Flood problems are related to limited channel capacity (less than 400 cfs before overflow in some locations) and the volume concerns at Beach-Stone Lakes.

Table 5-1
10- and 100-Year Peak Flows and Peak Volumes
Morrison Creek at Hedge Road

Parameter	10-year		100-year	
Storm Duration	12-hour	10-day	12-hour	10-day
Peak Flow (cfs)	1677	1787	2689	2848
Peak Volumes (acre feet)	1474	7507	2300	11376

Seasonal flows in Morrison Creek support wetlands, aquatic habitat, and riparian vegetation and habitat. These resources are not well represented in the project site but are found downstream in natural preserves in the Beach-Stone Lakes area.

Within the project site, Morrison Creek lies within a FEMA-designated 100-year floodplain that is between 2,500 and 5,000 feet wide. Elevations at the project site range between 50 and 70 feet MSL. The valley floor is underlain by a thin layer of fine alluvial sediments associated with the modern geomorphic processes of Morrison Creek. The aggregate resources within the project site are found 15 feet below the land surface, within the fluvial deposits of the Pleistocene Riverbank Formation and older underlying Pliocene Laguna Formation. The upper 35 to 45 feet of the younger Riverbank Formation is the primary source of aggregate consisting of interbedded gravels, sands and silts laid down by the ancestral American River which has since migrated northward. The upper units of the Riverbank Formation are fine grained sediments capped by hardpan soils (overburden) that underlay Morrison Creek and much of the eastern Sacramento County region.

Surface flow in Morrison Creek enters the proposed mining reach at Jackson Highway (State Highway 16) bridge at the northeast end of the Aspen V South parcel and flows east to the downstream, western project boundary at Hedge Road. Caltrans maintains the Highway 16 bridge, while Sacramento County maintains the Hedge Road bridge.

Land uses immediately surrounding the project site are predominately rural residential with some gravel pits. Domestic sewage for some residences is treated by septic leach systems.

Future hydrologic conditions in the project site could be significantly affected by the mining project approved immediately upstream (North) of Jackson Highway. In general, winter peak flows would be reduced by detention storage in gravel pits and through control by overflow weirs, an engineered bypass channel, and pumps. Post-rain-event flows below Jackson Highway would be augmented by pumping out detention ponds; the proposed project calls for a 5 cfs capacity variable speed pump.

Water Quality

No measurements of surface water quality or suspended sediment loads have been taken within the project site. Jones & Stokes (1994) reports four water quality samples taken at Mack Road in 1983-84, revealing concentrations of cadmium, copper, mercury, and lead that were high enough to potentially cause acute toxicity in freshwater organisms. Bioassay samples taken from

largemouth bass and carp at the mouth of Morrison Creek found elevated levels of mercury, copper and chlorinated organic compounds including chlordane and DDT. These toxic elements and compounds are typical of non-point source urban and agricultural pollutants. Notwithstanding the presence of potentially acute levels of toxicity, Morrison Creek and the Beach-Stone Lakes area support rich populations of aquatic wildlife. Bioassay data and episodes of mass fish die-offs has led some to suggest that high levels of acute toxicity may be related to periodic surges in concentration due to illegal dumping. Future development in the Morrison Creek watershed would likely increase such problems.

5.1.2 Environmental Consequences

Proposed Project (Part A)

1. Unchanneled flow from the Jackson Highway bridge to the bypass channel inlet at Aspen IV South could spill into the gravel pits proposed within the Aspen III, IV and V South and Vineyard parcels. Capture of all or part of the flow would significantly disrupt flow downstream of the site (*Significant Impact*).

   Substantial flows could occur in a 2- to 100-year event (1,200 cfs to 1,670 cfs with the upstream of Jackson Highway Part A and approximately 2,800 cfs without). The severity of the impact would depend upon: hydraulic conditions during the gravel extraction operations onsite; the ultimate onsite drainage mitigation features (Part A and Part B); and drainage mitigation features that would be carried out upstream (north) of Jackson Highway.

   Flows would enter the project site from the outlet of the Jackson Highway bridge and into a preserved reach of natural channel situated on the north side of the Aspen V South parcel. During mining years 12, 13, 14 and 15, deep pits would be created to the south of the natural channel and floodplain. In addition, deep pits would be excavated in the 100-year floodplain on Aspen III South in year 16 and Vineyard parcels in years 9, 10, 11, and 12. The bypass channel would not be completed and operational until mining year 17. Thus, there would be some risk of flow overtopping the Morrison Creek channel and spilling over the gravel pit walls that would be 20 to 30 feet high. If mining, reclamation and drainage mitigation are completed above Jackson Highway prior to mining Aspen V South, the inflows to the project site would range between 1,200 cfs and 50 cfs depending upon whether the Part B Drainage Plan is carried out. It is unknown how often Morrison Creek flows would spill into the Aspen V and the Aspen IV South pits (which would be 20 to 30 feet lower than the surrounding land surface when completed) or how flows would enter and leave the Vineyard parcel during the operational period. Possible impacts would include diversion of a significant portion of flow from Morrison Creek into the pits, disruption of flows downstream and erosion of the channel (see impact statement below).

2. Flow captured from present Morrison Creek and/or the proposed bypass channel into finished or operationally active gravel pits could cause extensive erosion, and affect water quality and channel stability. It does not appear that this would immediately threaten the finished or operationally active gravel pits~~could cause extensive erosion, and affect water quality and channel stability~~. It does not appear that this would immediately threaten the

Jackson Highway Bridge because there is at least a 1,000-foot setback. However, concentration of flow and erosion along the roadway to the Aspen V South pit could potentially damage the roadway (*Significant Impact*).

3. Machinery and equipment used in the gravel mining operations could be flooded during winter months exposing surface water to contamination. Contaminated surface water may percolate through the pit floor and enter and contaminate groundwater (*Significant Impact*).

4. Post-mining reclamation plans would create agricultural lands on the gravel pit floors in addition to wildlife habitat areas and open space. Agricultural practices could involve use of pesticides, herbicides and machinery that may introduce toxic contamination to surface water while rates of infiltration to groundwater may increase (*Significant Impact*).

Proposed Project Without the Vineyard I Processing Plant Alternative

The surface water hydrology and quality impacts associated with this alternative would be the same as discussed above for the proposed project.

County Drainage Alternatives (Part B)

Downstream Bypass Channel Alternative:

The objective of this alternative is to reduce peak flows to the minimum channel capacity downstream thereby eliminating the flood risk up to a 100-year event.

1. Implementation of this alternative would further decrease peak flows below Hedge Avenue. This would add to the disruption of the natural flow pattern that would occur upstream of Jackson Highway (*Significant Impact*).

   Peak flow decrease upstream would be beneficial for flood control (as noted below) but there would be a decline in a range of flows that may affect downstream channel maintenance and habitat.

2. Flow from Morrison Creek into the lower pit on the Vineyard parcel could erode a new channel and erode Morrison Creek. This would further disrupt the natural flow pattern and could increase sediment discharge downstream (*Significant Impact*).

3. Implementation of this alternative would result in a beneficial impact to flood control downstream by reducing discharge from the project site to flood prone areas (*Beneficial Impact*).

Pump Everything Small Pump Alternative and the Volume Detention Bypass Channel Alternatives:

No additional impacts were identified for the Pump Everything Small Pump Alternative and the Volume Detention Bypass Channel Alternative.

~~100-Year~~ Floodplain Protection Alternatives

100-Year Floodplain Protection Alternative

1. Machinery and equipment used in the gravel mining operations could be flooded during winter months exposing surface water to contamination. Contaminated surface water may percolate through the pit floor and enter and contaminate groundwater (*Significant Impact*).

2. Post-mining reclamation plans would create agricultural lands on the gravel pit floors in addition to wildlife habitat areas and open space. Agricultural practices could involve use of pesticides, herbicides and machinery that may introduce toxic contamination to surface water while rates of infiltration to groundwater may increase (*Significant Impact*).

Creek Buffer Alternative

1. Under the Creek Buffer Alternative, mining and reclamation would occur within the 100-Year Floodplain up to a 150-foot buffer area on either side of Morrison Creek (as measured from the lateral extent of Corps jurisdiction). Post-reclamation uses would be the same under all alternatives. As a result, the potential impacts would be the same as described under the 100-Year Floodplain Protection Alternative (*Significant Impact*).

2. Implementation of the Creek Buffer Alternative could result in flooding and pit capture (*Significant Impact*).

Implementation of the Creek Buffer Alternative would result in a mining approach that preserves a creek corridor elevated approximately 25 feet above the proposed pit floor. The corridor would be approximately 350 feet wide and extend throughout the project site. As shown in Figure 4-2 (The Creek Buffer Alternative), the elevated creek corridor would not encompass the entire 100-year floodplain and thus overflow into the pit areas would likely occur during precipitation events of less than the 100-year magnitude. This would be a significant adverse impact, and would require additional flood control measures (refer to mitigation discussion below).

No Project Alternative

The No Project Alternative would maintain the existing level of storage in the floodplain of Morrison Creek. This alternative would be consistent with existing land use and zoning designations and with the County's historical approach of not allowing mining in the 100-year floodplain of creeks. Flood control benefits associated with the proposed project's mitigation plan would not occur and no additional flood detention downstream of Sunrise Boulevard would be provided (as the mining pits would not be created). The County and City of Sacramento would most likely provide detention and flood control facilities elsewhere. Potential future flooding downstream may result even without future expansion in the watershed.

5.1.3 Mitigation

Recommendations/Requirements of Public Agencies (All Mining Alternatives)

State Water Resources Control Board/Regional Water Quality Control Board:

1. Prior to construction, the proponent shall file a Notice of Intent (NOI) to obtain coverage under the State's General Construction Stormwater Permit as well as Waste Discharge Requirements as administered by the RWQCB. As a condition of the General Permit, the proponent shall also prepare and implement a Stormwater Pollution Prevention Plan. Consistency with the adopted Water Quality Control Plan will be required and administered by the SWRCB and/or RWQCB during their review of the proposed project.

Public Works Agency, Water Resources Division:

2. The proposed mining operations shall be consistent with the Drainage Mitigation Plan for the Morrison Creek Mining Reach. An analysis shall be submitted to WRD showing the reclamation plan and ultimate land use for the site. This analysis shall be consistent with WRD studies and the Drainage Mitigation Plan for the Morrison Creek Mining Reach. The analysis shall also consider the possibility that mining (and detention) may not occur upstream of Jackson Highway (as currently proposed), and detention may be required downstream of Jackson Highway.

3. The project shall continue acceptance of any off-site runoff during all phases of mining operations. Furthermore, all drainage facilities must be reviewed and approved by WRD prior to commencement of mining operations.

~~4. Drainage easements shall be provided and facilities installed pursuant to the Sacramento County Floodplain Management Ordinance, Sacramento County Land Grading and Erosion Control Ordinance, Sacramento County Water Agency Code, and Sacramento County Improvement Standards, including any fee required by Ordinance No. 1 of the County Water Agency.~~

4~~5~~. All applicable State Fish & Game and U.S. Army Corps of Engineers permits shall be obtained prior to grading or building permit issuance.

~~6. Prior to the improvement plan approval or recordation of the final map, whichever occurs first, a fair-share contribution to the costs of the following shall be paid: delineating wetlands; preparing a drainage master plan; acquiring right-of-way for and constructing flood control detention and water quality facilities; and providing environmental mitigation for drainage improvements, as determined in the drainage master plan for that watershed. The fair-share contribution shall not exceed $6,000 per acre. The Administrator of the Public Works Agency shall reduce the amount if it is determined prior to payment that the actual costs of the above studies, improvements, and mitigation is less than is projected. Subsequent adoption and payment of a revised drainage fee for this purpose shall satisfy this condition. If the amount of the obligation under the revised drainage fee is less than that of the fair share contribution paid, the County shall enter into an agreement with the payer of the fair share contribution, providing for reimbursement of the difference. (Note: this project shall be exempt from payment of this fair-share contribution until such time as the area is used for purposes that would otherwise be subject to the prescribed fee, consistent with Chapter 3, Article II, Section B of the Drainage Ordinance.)~~

~~7~~5. In order to mitigate erosion and sediment control impacts within the project site, all mining plans shall be required to comply with the County's Land Grading and Erosion Control Ordinance.

Zoning Code:

6~~9~~. The proponent is required to submit a Drainage Plan to the Public Works Agency, Water Resources Division, for review and approval, before a work authorization permit can be issued (Section 235-51).

Mitigation Measures

Proposed Project (Part A) and Proposed Project Without the Vineyard I Processing Plant Alternative:

1. The risk of flow capture from Morrison Creek into gravel extraction pits and disruption of downstream flows shall be minimized by construction of hydraulic structures (berms, weirs and inlet works) that would direct flows up to the 100-year peak flow (as calculated by WRD for ultimate watershed development conditions, with or without the North of Jackson Highway Drainage mitigation features in place) from the Jackson Highway crossing to the bypass channel system on Aspen IV South parcel and away from gravel pits. Engineered grading plans for the improvements, representing yearly mined conditions, as well as ultimate conditions, shall be submitted by the proponent and approved by WRD prior to commencement of mining operations South of Jackson Highway. WRD shall coordinate approval of such plans with Caltrans with regard to the stability of the Jackson Highway bridge and roadway. These plans shall include the following: 1) A berm extending from Jackson Highway across the northern boundary of the Aspen V South parcel to the proposed bypass channel inlet at the Aspen IV South adequate to safely convey the peak 100-year flood; 2) armored weirs at the inlets to the proposed ~~pit floor~~ wetland mitigation sites on Aspen V South, Aspen IV South and the flood detention basin/wetlands Vineyard I to safely carry as proposed by the project; 3) plans for erosion control at the bypass channel inlet and along the proposed berm as necessary to prevent their failure; and 4) an erosion control and repair plan to restore flow and stability to Morrison Creek and to control offsite discharge of sediment.

2. Application shall be made to the California State Water Resources Control Board (SWRCB) for any surface water diversion of low flows from Morrison Creek into the wetlands mitigation sites on the Aspen V South, Aspen IV South, and Vineyard I parcels. This measure shall not be necessary if other proven long term water supplies (e.g. groundwater and reliable urban or agricultural flows) for perennial marsh, open water, emergent marsh and riparian vegetation are demonstrated and utilized.

3. Mining equipment and any toxic substance associated with mining or reclamation operations shall be protected from flooding and from contact with surface waters.

4. Given the risks involved to groundwater and surface water contamination, measures shall be implemented to minimize risk of toxic contamination of surface and/or groundwater during mining, reclamation, and post-reclamation activities. These measures shall

include an aggressive policy to restrict use of toxic contaminants within the project site to those absolutely necessary to conduct operations. Any form of pollutant spilled shall be immediately contained and removed from the project site and safely disposed. Storage of toxic materials shall not be allowed in the gravel pits. Storage of toxic materials will only be allowed in restricted upland areas where the opportunity for containment over less permeable ground exists.

5. An agricultural management plan shall be developed to ensure that post-mining agricultural practices do not result in groundwater or surface water contamination. The plan shall be submitted for review by the Agricultural Commissioner and approval by the Environmental Management Department (EMD). The plan shall provide information on crops, crop rotation, pesticides, fertilizers, irrigation and drainage. EMD shall be notified of any changes in the plan.

6. County Drainage Alternatives (Part B)

Downstream Bypass Channel Alternative:

1. To avoid uncontrolled flow into the Lower Pit, an engineered armored weir and armored drop structure shall be installed at the inlet on the Vineyard parcel. It shall be designed to withstand the 100-year peak flow anticipated under this alternative.

Floodplain Protection Alternatives

1. Mitigation measures 3, 4 and 5 would be applicable to both the 100-Year Floodplain Protection Alternative and the Creek Buffer Alternative.

2. In addition to the mitigation cited above, The Creek Buffer Alternative would be subject to one of the flood control measures below, or another equivalently effective measure. Each measure is designed to accommodate the 100-year flood event and mitigate the potential for flooding and pit capture to a less-than-significant level. Detention may be required along with performance criteria that state there will be no increase in the magnitude or duration of flood flows downstream. The options presented below are conceptual and may be subject to revision. Also, other options may be available. Final design and implementation of any of the following flood control options shall be subject to the review and approval of the Sacramento County Public Works Agency, Water Resources Division.

   Option 1: Install a weir structure to divert flood flows to the proposed pit floor. The weir structure would be designed to divert high water flows (i.e., those in excess of 400 cfs – the estimated capacity of the elevated creek corridor/buffer area). The weir structure would be located on the Aspen IV South site, near Bradshaw Road. Approximately 2,700 acre-feet of storage would be required assuming that the mining and reclamation occurs on the north project site as proposed. (If mining is permanently precluded within the 150-foot buffer area on the north site, additional detention will be necessary on the south site.) Under this flood control option, a 50 cfs pump facility would be constructed on the southern side of Morrison Creek at Hedge Avenue on the Vineyard I site. This pump facility would be used to return diverted flows to the stream system. This option

represents a variation of the Alternative 5 presented in the Drainage Mitigation Plan (Montgomery Watson, August 1995) for the mining reach.

Option 2: Install a perimeter bypass channel in the same basic alignment proposed for the "Part A Drainage Alternative" (refer to Figure 3-7). The channel would be sized to accommodate flows of 400 cfs. Flows in excess of the capacity of the elevated creek corridor (400 cfs) would be diverted to the bypass channel. In-flow and out-flow structures where the creek and bypass channel connect would be needed. A large variable speed pump station (400 cfs) would be located on the Vineyard I site near Hedge Avenue (at the downstream end of Morrison Creek within the project site). If mining is permanently precluded within the 150-foot buffer area on the north property, then additional capacity within the perimeter channel will be needed.

Option 3: Construct and maintain a containment levee at the edge of the 150-foot buffer area. The levee shall be designed to safely convey the 100-year flood flows through the project site without resulting in pit capture and/or other flooding impacts. Levee strength and maintenance would be subject to review and monitoring by the Sacramento County Public Works Agency Water Resources Division.

5.2 GROUNDWATER HYDROLOGY AND QUALITY

5.2.1 Affected Environment

The project site is underlain by a portion of the Sacramento Valley Ground Water Basin (SVGWB) aquifer, a regionally important groundwater supply covering about 6,000 square miles. The aquifer is contained within Quaternary Central Valley sediments and provides domestic and agricultural water supply to a great portion of southern Sacramento County. Groundwater flow is from east to west. Overdrafting over the past 11 years has lowered the groundwater table approximately ten feet.

As of Spring 1995, the groundwater table was measured 80 to over 100 feet below the present land surface within the project site. The proposed maximum depth of aggregate extraction is 45 feet, therefore the post-mining groundwater depth would be 35 to 55 feet below the pit floor. The groundwater appears semi-confined by fine grained layers in the project site area with less confinement to the east and greater confinement to the west as finer basin deposits occur. The presence of impermeable surface hardpan soils and relatively fine grained soils in the 15-foot surface overburden precludes percolation and recharge from the project site to the aquifer. Groundwater flow in the aggregate-producing zone is generally unsaturated flow. However, there may be seasonally perched pockets of shallower groundwater during the winter rainy season. Subsurface investigations by the project proponent indicate that the floor of the finished extraction pits is less permeable than the aggregate production zone but greater than the infiltration rates found in the hardpan soils and overburden. Precise infiltration rates are not known.

Groundwater contamination has occurred at Mather Field, formerly Mather Air Force Base (located one mile east of the project site) as the result of past dumping of waste chemicals associated with past Air Force operations (William T. Hughes, Registered Geologist Operational Technologies Corporation, c/o Air Force Base Conversion Agency, personal communication, 1995). Air Force operations ceased at Mather Field in 1993. Groundwater contamination studies began in 1982 and the site was placed on the National Priorities List (or Superfund Program) in 1989. A cleanup plan is presently under final review as part of the Federal Facility Agreement which was developed as part of base closure. A 10 to 15 year clean up plan has been developed for implementation within the next five years. The proposed clean up would involve pumping/extraction and infiltration well installation and operation.

The Mather Field groundwater contamination plume consists of TCE, 1,2 DCE and PCE. It has moved in a southwesterly direction and is presently 1,500 feet east of Jackson Highway and the project site. It is believed that residual contamination is found in fine deposits at or below the water table where ground water movement is relatively slow (William T. Hughes, Registered Geologist Operational Technologies Corporation, c/o Air Force Base Conversion Agency, personal communication, 1995); these areas are located adjacent to coarser and more permeable channel deposits which move groundwater at a higher rate. Advection of contaminants from finer grained zones into the coarser old channel deposits of the aquifer results in dilution and dissipation. Thus, wells which penetrate layers of higher groundwater flow apparently show little or no contamination (William T. Hughes, Registered Geologist Operational Technologies Corporation, c/o Air Force Base Conversion Agency, personal communication, 1995).

Wells south of Jackson Highway in the project site were also tested to ensure that the plume had not migrated further than the monitoring wells north of Jackson Highway had indicated (William T. Hughes, Registered Geologist Operational Technologies Corporation, c/o Air Force Base Conversion Agency, personal communication, 199~~5~~).

5.2.2 Environmental Consequences

Proposed Project (Part A)

1. Gravel extraction may alter drainage and groundwater flow and quality on adjacent surrounding properties. This could also affect domestic, septic leachfield systems in surrounding areas and could introduce sewage effluent into surface water (*Significant Impact*).

   Operation of machinery in the gravel pits introduces potential pollutants (e.g., hydraulic fluid, oil, and grease) to the pit floor, which is considered an enhanced ground water recharge area. Creation of the gravel pits could also draw the flow of effluent from septic leach systems adjacent to the pit. Effluent could then percolate into the regional aquifer and potentially introduce nitrate pollution. Improperly abandoned and unsealed water wells could provide a direct path for contaminants to the SVGWB aquifer.

2. Continued monitoring of the Mather Field contamination plume will occur in the future. The proposed gravel mining operations could affect ~~or destroy some~~ future monitoring efforts ~~wells~~ (*Significant Impact*).

Proposed Project Without the Vineyard I Processing Plant Alternative, County Drainage Alternatives (Part B),~~and~~ 100-Year Floodplain Protection Alternative, and the Creek Buffer Alternative

The impacts associated with these alternatives would be the same as discussed above for the proposed project.

No Project Alternative

No impacts to groundwater resources would occur under this alternative.

5.2.3 Mitigation

Recommendations/Requirements of Public Agencies (All Mining Alternatives)

Zoning Code:

1. The proponent shall show all individual sewage disposal systems within three hundred feet of the proposed mining area. In the event there are individual sewage disposal systems near or within the mining site, the mining setbacks shall conform to the provisions of the Sacramento County Code, Chapter 6.32 - SANITARY SEWAGE SYSTEM and the rules and regulations adopted pursuant thereto, and shall be subject to approval of the Sacramento County Health Agency and the Regional Water Quality

Control Board. Approval of these agencies shall be obtained on the minimum mining setback before a work authorization permit can be obtained.

Air Force Base Conversion Agency:

2. The proponents shall coordinate mining in the vicinity of groundwater contamination with the Air Force's planned groundwater extraction and reinjection system, and shall explore options for well removal, replacement, and/or abandonment.

Mitigation Measures (All Mining Alternatives)

1. The proponents shall store contaminants in the gravel operation area in a manner that will contain any spills (i.e. containment berms). Any spills occurring in operational areas should be cleaned up immediately.

2. The proponents shall obtain all necessary permits for the construction or removal/abandonment of any water wells and septic systems from the Sacramento County Environmental Management Department, Environmental Health Division.

3. The proponents shall revise the proposed Mining Plan to specifically identify all sewage disposal systems within 300 feet of the proposed mining area. Prior to issuance of the work authorization permit, approval of the Sacramento County Environmental Management Department, Environmental Health Division and the California Regional Water Quality Control Board on the minimum mining setback from these sewage disposal systems shall be required.

4. The proponents shall coordinate mining activities with the Air Force to avoid potential disruption of any future ~~the removal of groundwater wells with the~~ Mather Field groundwater cleanup program to ensure that vital data collection is not disrupted. ~~This may require the proponents to avoid some wells or to re-construct wells destroyed by extraction.~~

5.3 CULTURAL RESOURCES

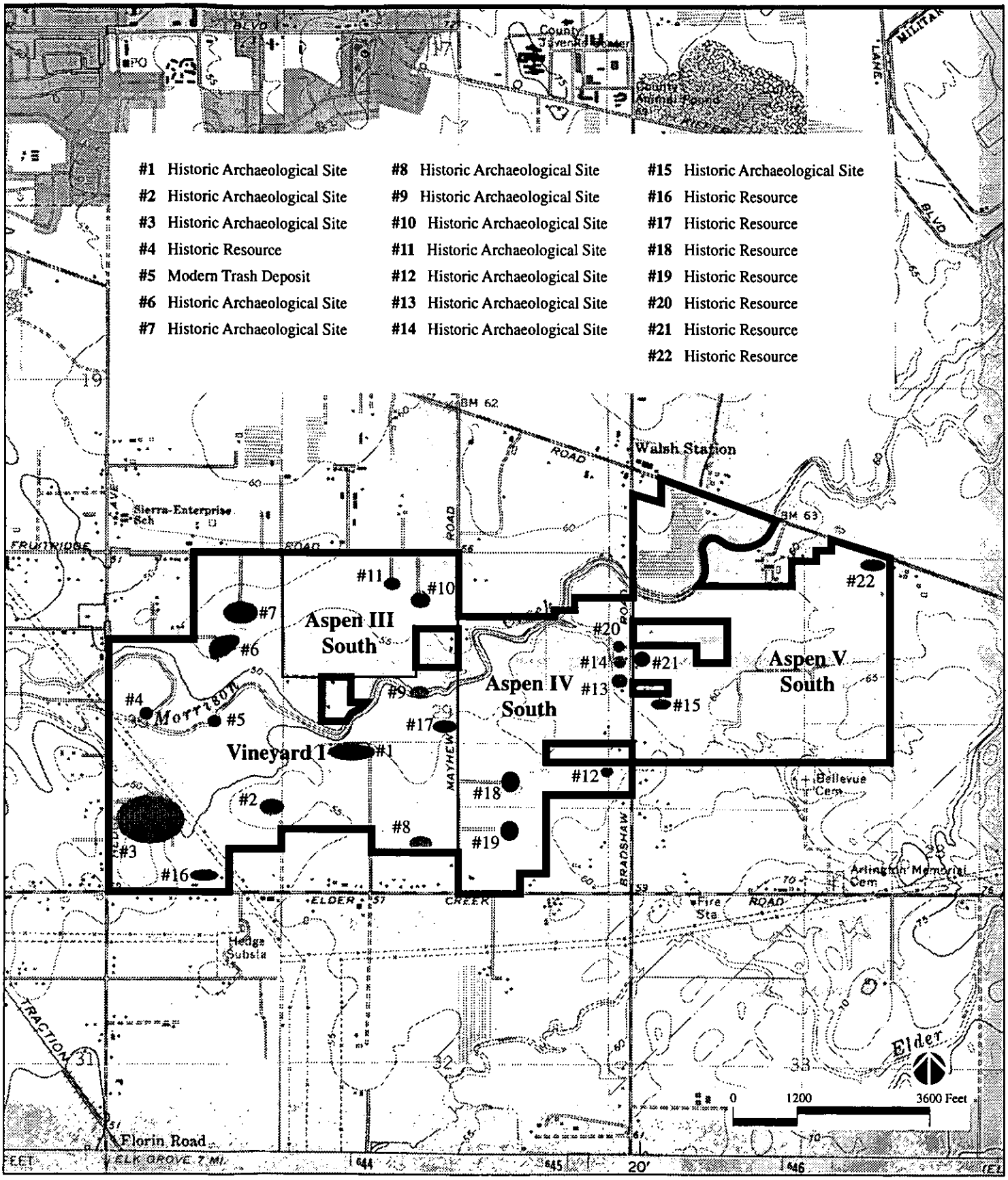
5.3.1 Affected Environment

A cultural resources survey of the project site was conducted by Garcia and Associates (1996) and a historical study was performed for Garcia and Associates by JRP Historical Consulting Services (1996). The surveys were conducted to identify any prehistoric, ethnographic, or historic cultural resources present, to recommend any further historical or cultural surveys needed, and to provide recommendations for protection of cultural resources within the project site. The surveys were conducted in accordance with the California Environmental Quality Act Statutes and Guidelines (1970, Rev. 1992: Section 21083.2, Appendix K, Supplementary Document J), Section 106 of the National Historic Preservation Act of 1966 as amended, and procedures of the Advisory Council on Historic Preservation (36 CFR 800). Copies of the reports have been submitted to the North Central Information Center and are on file as part of the California Historical Resources Information System.

The current survey, involving a records and literature review and an intensive pedestrian survey of the study area, resulted in: 1) identification and recording of eight historic resources, consisting of eight complexes of standing structures; 2) identification and recording of thirteen historic archaeological sites, consisting of one deposit of historic domestic debris and the remains of twelve destroyed farmsteads; and 3) identification of a modern trash deposit. The locations of these twenty two resources are shown as resources #1-22 on Figure 5-1 and listed on Table 5-2. As yet unidentified subsurface archaeological remains may be present within the project site. Prehistoric archaeological materials include, but are not limited to, chert and obsidian flakes or artifacts; milling equipment, such as mortars or pestles; locally darkened soils (midden), often containing shell and bone dietary debris; and human burials.

The historic resources, historic archaeological sites, and modern trash deposit do not appear to be important as defined by CEQA, nor do they qualify for listing in the California Register of Historical Resources. They do not appear to be significant or eligible for listing on the National Register of Historic Places under Section 106 of the National Historic Preservation Act. Historic land holding and use patterns based on small farms has predominated within the project site since the land was first settled in the 1850s. The local farms ranged in size from about 160 to 500 acres and most of the land within the project site continued to be held in over 100 acre parcels well into the nineteenth century. Local agriculture was based around individual farm units that utilized most of their acreage to produce grains, hay, forage crops, some vineyard and orchard crops, and to graze livestock.

The historic resources are standing structures that consist of complexes of rural homesteads and farm buildings of various ages. Three of these resources are less than 50 years old. The remaining historic resources were built more than 50 years ago but none are associated with events or persons important to our history. They show various levels of structural modification, impairing their historic integrity, and they do not appear to represent distinguished examples of their type, period, or method of construction. The historic archaeological sites represented by the twelve destroyed farmsteads are the remains of former homesteads and farm buildings. Prior to their destruction, these twelve sites generally appear to have been of a similar period and type as the historic resources within the project site.



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 5-1
Cultural Resources

EDAW Inc.

Source: Garcia and Associates, January, 1996

N:5s052:039

Table 5-2
Locations and Types of Historic Resources Within the Project Site

Resource #	Resource Type	Parcel
1	Historic Archaeological Site	Granite Vineyard
2	Historic Archaeological Site	Granite Vineyard
3	Historic Archaeological Site	Granite Vineyard
4	Historic Resource	Granite Vineyard
5	Modern Trash Deposit	Granite Vineyard
6	Historic Archaeological Site	Granite Vineyard
7	Historic Archaeological Site	Granite Vineyard
8	Historic Archaeological Site	Granite Vineyard
9	Historic Archaeological Site	Granite Vineyard
10	Historic Archaeological Site	Aspen III South
11	Historic Archaeological Site	Aspen III South
12	Historic Archaeological Site	Aspen IV South
13	Historic Archaeological Site	Aspen IV South
14	Historic Archaeological Site	Aspen IV South
15	Historic Archaeological Site	Aspen V South
16	Historic Resource	Granite Vineyard
17	Historic Resource	Granite Vineyard
18	Historic Resource	Aspen IV South
19	Historic Resource	Aspen IV South
20	Historic Resource	Aspen IV South
21	Historic Resource	Aspen V South
22	Historic Resource	Aspen V South

Note: The historic archaeological sites consist of a domestic debris deposit and twelve destroyed farmsteads; the historic resources are standing structures (complexes of homesteads and farm buildings).

5.3.2 Environmental Consequences

Proposed Project (Part A)

1. The proposed project would remove eight historic resources, consisting of six complexes of standing structures over fifty years old (resources #4, #16, #18-20, and #22) and three complexes of standing structures less than fifty years old (resources #17 and #21); thirteen historic archaeological sites, consisting of one deposit of historic domestic debris (resource #9) and the remains of twelve destroyed farmsteads (resources #1-3, #6-8, and #10-15) ; and a modern trash deposit (resource #5) (*Less-Than-Significant Impact*).

   These twenty two resources do not appear to be "important" or "significant" per CEQA Guidelines-Appendix K and the regulations of Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation (36 CFR Part 60.4: Criteria for Evaluation).

2. Buried cultural resources may also be affected by the project (*Significant Impact*).

Proposed Project Without the Vineyard I Processing Plant Alternative

All of the same impacts to cultural resources would occur from this alternative as from the proposed project.

County Drainage Alternatives (Part B)

The impacts associated with all Part B alternatives would be the same as discussed above for the proposed project.

~~100-Year~~ Floodplain Protection Alternatives

100-Year Floodplain Protection Alternative

1. This alternative would remove 14 of the 22 identified historic resources, including nine destroyed farmsteads (resources #1-3, #6-8, and #10-12) and six standing structures (resources #16-19, and #22)s (*Less-Than-Significant Impact*).

Eight resources would be left intact and not altered by the 100-year floodplain protection alternative. However, the impacts to cultural resources that would be avoided by this alternative may be temporary since this alternative does not ensure that the 100-year floodplain will be protected in perpetuity.

Creek Buffer Alternative

1. This alternative would remove 19 of the 22 identified historic resources, including twelve destroyed farmsteads (resources #1-3, #6-8, and #10-15), five complexes of standing structures over fifty years old (resources #16, #18-20, and #22), and two complexes of standing structures less than fifty years old (resources #17 and #21) (*Less-Than-Significant Impact*).

Three resources would be left intact and not altered by the creek buffer alternative (resources #4, #5, and #9).

No Project Alternative

This alternative would maintain any cultural resources within the project site. The eight historic resources and thirteen historic archaeological sites presumably would not be removed and any buried cultural resources would not be disturbed. The deposits in Morrison Creek (resources #5 and #9) may redistribute to other locations within the creek during high flows.

5.3.3 Mitigation (All Mining Alternatives)

Recommendations/Requirement of Various Agencies

National Historic Preservation Act:

1. As a condition for issuance of a Department of the Army/U.S. Army Corps of Engineers permit under section 404 of the Clean Water Act, the Corps shall satisfy the consultation requirement of Section 106 of the Historic Preservation Act of 1966. Section 106 requires the Corps to consult with the State Historic Preservation Office (SHPO) and the Advisory Council on Historic Preservation (ACHP) regarding project impacts to cultural resources. The consultation process is described in 36 CFR 800.

State of California Public Resources Codes

1. If, during ground-disturbing activities, human remains are encountered, the County Coroner shall be contacted.

2. Disinterring, disturbing, or removing human remains shall be prohibited (California Health and Safety Code Section 7050.5 or 7051).

3. Obtaining or possessing Native American artifacts or human remains taken from a Native American grave or cairn shall be prohibited (Public Resources Code Chapter 1.75 - Native American Historical, Cultural, and Sacred Sites--Section 5097.9 to 5097.99).

California Environmental Quality Act (CEQA)

1. In the event of discovery or recognition of any human remains, procedures sets forth in Appendix K and Supplementary Document J of the CEQA Statutes and Guidelines shall be carried out . If the remains are of Native American in origin, the Native American Heritage Commission shall have a role in the treatment and disposition of human remains and any associated grave goods.

Mitigation Measures

1. Should any cultural resources, such as structural features, unusual amounts of bone or shell, artifacts, human remains, or architectural remains be encountered during any development activities, work shall be suspended and the Department of Environmental Review and Assessment (440-7914) and Army Corps of Engineers (557-5263) shall be immediately notified. At that time the Department of Environmental Review and

Assessment and Army Corps of Engineers will coordinate any necessary investigation of the find with appropriate specialists as needed. The project proponent shall be required to implement any mitigation deemed necessary for the protection of the cultural resources. In addition, pursuant to Section 5097.97 of the State Public Resources Code and Section 7050.5 of the State Health and Safety Code, in the event of the discovery of human remains, all work is to stop and the County Coroner shall be immediately notified. If the remains are determined to be Native American, guidelines of the Native American Heritage Commission shall be adhered to in the treatment and disposition of the remains.

5.4 AIR QUALITY

5.4.1 Affected Environment

The project site lies in the southern portions of the Sacramento Valley, a broad, flat valley bounded by the coastal ranges to the west and the Sierra Nevada to the east. A sea level gap in the Coast Range (the Carquinez Strait) is located about 50 miles southwest and the intervening terrain is very flat. The prevailing wind direction is southwesterly, which is the wind direction when marine breezes flow through the Carquinez Strait. Marine breezes dominate during the spring and summer months, and show a strong daily variation. Highest average windspeeds occur in the afternoon and evening hours; lightest winds occur in the night and morning hours. During fall and winter, when the sea breeze diminishes, northerly winds occur more frequently, but southwesterly winds still predominate.

The project site is within the Sacramento Metropolitan Air Quality Management District, which is part of the Sacramento Valley Air Basin. The San Francisco Bay Area Air Basin lies to the west, and the San Joaquin Valley Air Basin is located to the south. Considerable transport of pollutants occurs between these air basins, so that air quality in Sacramento County is partially determined by the release of pollutants elsewhere. In turn, pollutants generated in Sacramento County affect air quality in areas to the north and east.

Both the U. S. Environmental Protection Agency and the California Air Resources Board have established ambient air quality standards for common pollutants. These ambient air quality standards levels of contaminants which represent safe levels that avoid specific adverse health effects associated with each pollutant. The ambient air quality standards cover what are called "criteria" pollutants because the health and other effects of each pollutant are described in criteria documents. Table 5-3 identifies the major criteria pollutants, characteristics, health effects and typical sources.

The federal and California state ambient air quality standards are summarized in Table 5-4 for important pollutants. The federal and state ambient standards were developed independently with differing purposes and methods, although both processes attempted to avoid health-related effects. As a result, the federal and state standards differ in some cases. In general, the California state standards are more stringent. This is particularly true for ozone and PM-10.

The Sacramento Metropolitan Air Quality Management District (SMAQMD) and the California Air Resources Board (CARB) maintain several air quality monitoring sites in the Sacramento area. Monitoring sites measuring multiple pollutants near the project site are the T Street and Del Paso Manor sites. Criteria pollutants monitored at these sites are ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide and particulate matter.

Most of the standards shown in Table 5-4 are met in Sacramento County. Exceedances have been recorded for both state and national ozone standards, carbon monoxide (national and state 8-hour) and PM-10 (state 24-hour and annual).

Ozone and PM-10 are regional problems affecting the entire Sacramento Valley Air Basin. Carbon monoxide is a very localized pollutant, and the area exceeding the state and federal

ambient air quality standards has been centered near the El Camino/Watt Avenue area east of downtown Sacramento.

Both the federal and state governments have enacted laws mandating identification of areas not meeting the ambient air quality standards and development of regional air quality plans to eventually attain the standards. Under the federal Clean Air Act, Sacramento County is nonattainment (standards have not been attained) for ozone, and the Sacramento Urbanized Area is nonattainment for carbon monoxide. However, in April of 1996, the CARB requested the EPA to redesignate the Sacramento area to attainment for CO, as there had been no violations of the federal CO standards for 3 years. The EPA will have 18 months from receipt of the request to make its final determination. The County is either attainment or unclassified for other federal standards. Under the California Clean Air Act, Sacramento County is a nonattainment area for ozone, PM-10 and carbon monoxide.

Table 5-3
Major Criteria Pollutants

Pollutant	Characteristics	Health Effects	Major Sources
Ozone	A highly reactive photochemical pollutant created by the action of sunshine on ozone precursors (primarily reactive hydrocarbons and oxides of nitrogen. Often called photochemical smog.	• Eye Irritation • Respiratory function impairment.	Combustion sources such as factories and automobiles, and evaporation of solvents and fuels.
Carbon Monoxide	An odorless, colorless gas that is highly toxic. It is formed by the incomplete combustion of fuels.	• Impairment of oxygen transport in the bloodstream. • Aggravation of cardiovascular disease. • Fatigue, headache, confusion, dizziness. • Can be fatal in the case of very high concentrations.	Automobile exhaust, combustion of fuels, combustion of wood in woodstoves and fireplaces.
Nitrogen Dioxide	Reddish-brown gas that discolors the air; formed during combustion.	• Increased risk of acute and chronic respiratory disease.	Automobile and diesel truck exhaust, industrial processes, fossil-fueled power plants.
Sulfur Dioxide	A colorless gas with a pungent, irritating odor.	• Aggravation of chronic obstruction lung disease. • Increased risk of acute and chronic respiratory disease.	Diesel vehicle exhaust, oil-powered power plants, industrial processes.

Table 5-3
Major Criteria Pollutants

Pollutant	Characteristics	Health Effects	Major Sources
PM-10	Solid and liquid particles of dust, soot, aerosols and other matter which are small enough to remain suspended in the air for a long period of time.	• Aggravation of chronic disease and heart/lung disease symptoms.	Combustion, automobiles, field burning, factories and unpaved roads. Also a result of photochemical processes.

Table 5-4
Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	Federal Primary Standard	State Standard
Ozone	1-Hour	0.12 PPM	0.09 PPM
Carbon Monoxide	8-Hour	9.0 PPM	9.0 PPM
	1-Hour	35.0 PPM	20.0 PPM
Nitrogen Dioxide	Annual Average	0.05 PPM	--
	1-Hour	--	0.25 PPM
Sulfur Dioxide	Annual Average	0.03 PPM	--
	24-Hour	0.14 PPM	0.04 PPM
	1-Hour	--	0.25 PPM
PM-10	Annual Average	50 g/m^3	30 g/m^3
	24-Hour	150 g/m^3	50 g/m^3
Lead	30-Day Avg.	--	1.5 g/m^3
	Month Avg.	1.5 g/m^3	--

PPM = Parts per Million
g/m^3 = Micrograms per Cubic Meter

5.4.2 Environmental Consequences

Proposed Project

1. The project would affect emissions of pollutants along roadways providing access to the site during initial removal of overburden (*Significant Impact*).

The project would not generate additional auto or truck trips during operation, but would generate new truck trips during initial removal of 430,000 cubic yards of overburden. Removal of overburden from the site and operation of the onsite processing plant would generate a maximum of 148 truck trips per hour.

Outside of overburden removal, the proposed project would not generate new truck trips. The construction of a new processing plant on the Vineyard I site would, however, redistribute existing truck trips on the roadway system.

Air quality along roads providing access to the site would be affected by increased dust loading caused by dirt either dropped by trucks or tracked onto surface streets by truck wheels. This material can be pulverized by traffic and then entrained behind passing vehicles. This impact is considered significant but is mitigatible.

These additional trips would also add to levels of pollutants such as carbon monoxide along roads providing access to the project site. Considering this low level of trip generation, the relatively low traffic volumes along streets accessing the siteand the project's location on the outskirts of metropolitan Sacramento, the additional vehicle traffic would not be expected to have a substantial effect on carbon monoxide concentrations nor cause violations of the carbon monoxide ambient air quality standards. Project impacts on carbon monoxide concentrations would be less-than-significant.

2. The proposed mining operations would introduce new air pollutant emission sources to the site. However, no net increase in regional pollutant emissions would occur (*Less-Than-Significant Impact*).

The proposed mining operations would create new sources of air pollutants. The harvesting operation would place the following potential emission sources within the area:

- exhaust from diesel-powered equipment and vehicles;
- fugitive particulate emissions material loading and unloading;
- fugitive particulate emissions from scraper travel over unpaved roads; and
- fugitive particulate emissions from conveying of raw materials to the processing plant

Due to a high moisture content for both overburden (typically 4.8%) and excavated sand and gravel (typically 6.2%), fugitive emissions from material handling, loading and conveying would be negligible (U.S. EPA, January 1995). Scraper travel, however, would be a potential source of fugitive emissions since the unpaved roadways that the scrapers travel on could dry out.

Exhaust emissions from equipment and vehicles that would be in use at the site have been estimated based on the proponents' estimates of maximum daily hours of use for several classes of equipment and vehicles. Predicted maximum daily and annual exhaust emissions were estimated based upon maximum activity levels when overburden removal and resource harvesting occur simultaneously. Annual estimates of worst-case emissions were also calculated assuming simultaneous operation of harvesting operations by both proponents. Fugitive emissions from scraper travel over unpaved roads were also estimated on a worst-case daily and annual basis.

Worst-case on-site emissions from equipment, vehicles and unpaved road travel are shown in Table 5-5. The total of emissions from the project site exceed the Sacramento Metropolitan Air Quality Management District's thresholds of significance of 85 pounds per day for ozone precursors (ROG and NOx) and 275 pounds per day for PM-10 (Sacramento Metropolitan Air Quality Management District, 1994).

The project would place first a temporary portable aggregate processing plant and then a permanent aggregate processing plant on the site. The portable equipment would have a capacity of 400 tons per hour with an anticipated annual production rate of 500,000 tons. The permanent processing facilities produce aggregate as well as asphaltic concrete and portland cement concrete. The development of the permanent Granite Construction Company would be a redeployment of equipment and facilities from the existing Granite Construction Facility located on the north side of Kiefer Boulevard east of Bradshaw Road when mineral deposits north of Jackson Highway are depleted.

Aggregate processing equipment and portland cement concrete batch plant equipment is primarily a source of PM-10. Asphaltic concrete batch plants are a source of PM-10, hydrocarbons, oxides of nitrogen and carbon monoxide.

Existing Granite Construction and Teichert Aggregates processing facilities operate under permits issued by the Sacramento Metropolitan Air Quality Management District (SMAQMD). Both a portable processing plant and the proposed permanent processing plant/batch plant would also be subject to the regulations and permit procedures of the SMAQMD. Required controls for a future aggregate plant on site would be at least as stringent as controls on existing facilities. SMAQMD regulations require the application of Best Available Control Technology (BACT) for control of emissions. The definition of BACT for a given industrial process is continually evolving as new control equipment and strategies are developed. The emission controls placed on a future processing plant would be no less stringent than current controls and conceivably more stringent if new control equipment or methods become available in the future. The requirements placed on the future plant will be determined by SMAQMD regulations and definition of BACT at the time that Granite Construction applies for their permit for the plant.

The proposed project would not result in an increase in process emissions related to the sand and gravel industry in Sacramento County. Material harvested on the site would be transported to an existing processing plant or a newly constructed on-site processing plant operating under permits issued by the Sacramento Metropolitan Air Quality Management District. Any conveyor access across land not owned by the applicant will require necessary rights-of-way. The overall capacity and annual throughput of aggregate, asphaltic concrete or portland cement concrete would not be changed by the proposed project.

Table 5-5
Project Site Emission Sources
(in pounds)

Source		ROG	NOx	PM-10
Exhaust Emissions	Daily	32	404	36
	Annual	8,000	101,000	9,000
Fugitive Emissions	Daily	neg.	neg.	426
	Annual	neg.	neg.	106,500
Grand Total	Daily	32	404	462
	Annual	8,000	101,000	115,600

neg. = negligible
ROG = Reactive Organic Gases
NOx = Nitrogen Oxides
PM-10 = Particulate matter, 10 microns or less

According to the proponents, equipment used on the site would be transferred from active mining areas when these areas are depleted. Therefore, the emissions from activities within the project site, though substantial, would be replacing emissions currently occurring in other mining areas. No net change in regional emissions would occur, so project impacts on regional air quality would be less-than-significant.

Proposed Project Without the Vineyard I Processing Plant

Impacts during initial overburden removal would be identical to those described under the proposed project.

1. The proposed mining operations would introduce new air pollutant emission sources to the site. However, no net increase in regional pollutant emissions would occur (*Less-Than-Significant Impact*).

Emissions from this alternative would be essentially identical to those described for the proposed project. This alternative would avoid placing aggregate processing plant on the Vineyard I site, but the total amount of emissions associated with aggregate processing would be unchanged.

County Drainage Alternatives (Part B)

Impacts during initial overburden removal and mining operations would be similar to those for the proposed project

~~100-Year~~ Floodplain Protection Alternatives

Impacts during initial overburden removal under the 100-Year Floodplain Protection Alternative and the Creek Buffer Alternative would be similar to those for the proposed project.

1. The proposed mining operations would introduce new air pollutant emission sources within the project site area. However, no net increase in regional pollutant emissions would occur (*Less-Than-Significant Impact*).

Emissions from both ~~this~~ alternatives would be essentially identical to those described under the proposed project, but since only up to 8.8 million ~~11 million~~ tons of material would be extracted (compared to 32 millions tons for the proposed project), the active period of mining would be shorter.

No Project Alternative

1. This alternative would result in substantial new truck traffic and resulting exhaust emissions within the air basin (*Significant Impact*).

This alternative would create the need to obtain raw material from a more remote site or relocate the existing aggregate processing facilities. Either of these options is likely to increase truck travel within the region and resulting exhaust emissions. Relocating the processing plant would increase travel distances for trucks carrying finished product. Obtaining raw materials from more remote sites could not be accomplished using conveyors, so trucks would need to be used. In either case the truck travel represents new vehicle use in the air basin. Depending on the distances involved, the resulting emission increases could have a significant impact on regional air quality.

5.4.3 Mitigation

Recommendations/Requirements of Various Agencies

Sacramento Metropolitan Air Quality Management District Rules and Regulations:

The following are general rules regarding avoidance of nuisance and control of fugitive dust which would apply to mining operations:

1. Rule 402: A person shall not discharge from any source whatsoever such quantities of air contaminants or other materials which cause injury, detriment, nuisance or annoyance to any considerable number of persons or the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause or have natural tendency to cause injury or damage to Business or property. (California Health & Safety Code, Section 41700)

2. Rule 403: A person shall take every reasonable precaution not to cause or allow the emissions of fugitive dust from being airborne beyond the property line from which the emission originates, from any construction, handling or storage activity, or any wrecking, excavation, grading, clearing of land or solid waste disposal operation. Reasonable precautions shall include, but are not limited to:

    a. Use, where possible, of water or chemicals for control of dust in the demolition of existing buildings or structures, construction operations, the construction of roadways or the clearing of land.

    b. Application of asphalt, oil, water, or suitable chemicals on dirt roads, materials stockpiles, and other surfaces which can give rise to airborne dusts;

    c. Other means approved by the Air Pollution Control Officer.

The following rules and regulations would govern the permitting of the processing facilities on the Vineyard I site:

1. Regulation 2: Provides for permitting of stationary sources of pollutants, New Source Review, Prevention of Significant Deterioration and Title V Federal Operating Permit Program.

2 Rule 801: Subpart F establishes standards of performance for Portland Cement Plants, Subpart I established standards of performance for asphaltic concrete plants, subpart OOO establishes standards of performance for nonmetallic mineral processing plants.

Zoning Code:

1. The proponents shall submit to the Sacramento Metropolitan Air Quality Management District an Air Pollution Control Plan for review and approval prior to commencement of grading operations.

Mitigation Measures (All Mining Alternatives)

The following mitigation measures should be adopted as conditions of approval to reduce all air quality impacts to an insignificant level:

1. Carry-out of mud or dirt onto public roads shall be controlled by creating either a gravel apron or a mud trap (series of metal bars or grating with space underneath to accumulate material) to remove the mud or dust from truck tires. This would be applicable to all phases of the project, including overburden removal and/or operation of a processing plant. Public roads near site access points will be regularly swept to avoid accumulation of dust on the road surface.

2. Unpaved haul roads shall be regularly sprayed with water or treated with non-toxic chemical dust suppressants either mixed into the road surface or added to the water being applied to the road surface. The frequency of application can vary according to the weather and moisture level of the soils on the site, but shall be frequent enough to avoid visible dust plumes.

3. Overburden stockpiles shall be treated with an appropriate dust suppressant, regularly watered or otherwise treated to minimize wind erosion.

4. Every effort shall be made to remove overburden during the period of the year when surface soils are moist. If overburden is removed when surface soils are dry, water spraying equipment shall be used to reduce dust emission. Water spraying equipment shall likewise be used, as needed, when removing aggregate.

5. The moisture content of material being conveyed (on- and off-site) shall be maintained at a level sufficient to avoid visible dust from the conveyor loading and transfer points.

5.5 GEOLOGY AND SLOPE STABILITY

5.5.1 Affected Environment

Site Geology

The California Department of Conservation, Division of Mines and Geology (CDMG) and the United States Geological Survey (USGS) have mapped the project site as being underlain by Quaternary-aged alluvium (Figure 5-2) (Wagner et al., 1981; Helley and Harwood, 1985). Recent alluvium deposits are likely underlain by the mid-Pleistocene alluvial plain, known as the Victor Plain. The project site is located within two sections of the Victor Plain: the Riverbank Formation (lower member) and the Laguna formation.

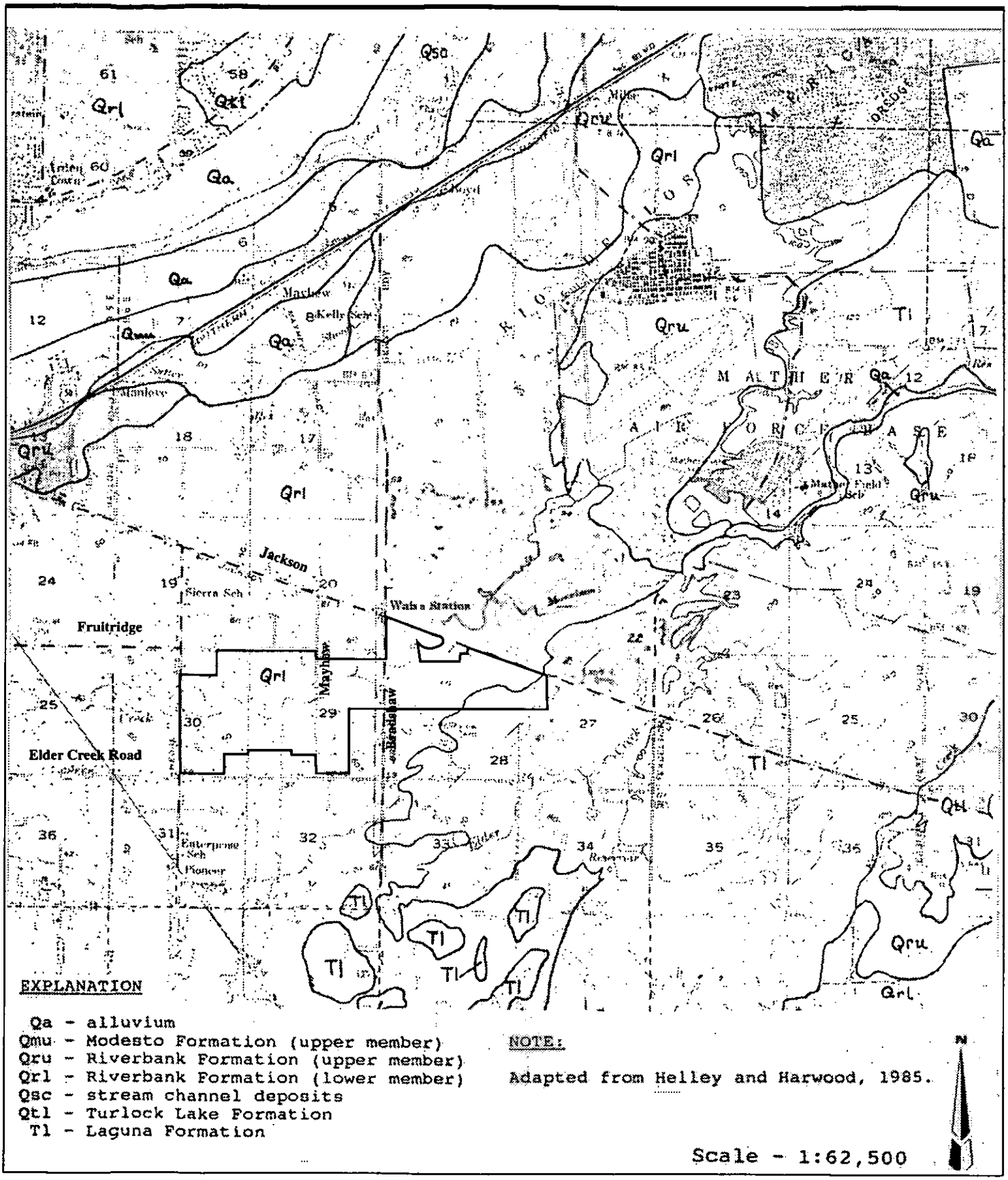
In general, the Victor Plain is a broad plain of low relief that occupies the central portion of Sacramento County from Elk Grove north to the Sacramento-Placer County line. Throughout the Pleistocene period, the ancestral American River cut across the Victor Plain and produced a maze of truncated buried channels that are laterally and vertically discontinuous. As the ancestral American River migrated north, it left progressively older, stranded alluvial terraces to the south of the present American River channel. Subsequent erosion has reworked and smoothed these slightly elevated terraces of low relief (California Division of Mines and Geology, 1988).

Faults and Seismicity

According to the *Preliminary Fault Activity Map of California* (Jennings, 1992), the nearest faults to the project site with historic displacement (activity within the last 200 years) are the Concord, Cleveland Hill and Hayward faults, located approximately 47 miles southwest, 64 miles north and 60 miles southwest of the project site, respectively. Although most of the Calaveras and Greenville fault zones are indicated to be of Holocene activity (activity within the last 10,000 years), portions of these faults also have been rated as being active within the last 200 years, and are located approximately 51 miles and 45 miles southwest of the project site, respectively.

The Foothills Fault System, bounded by the Bear Mountains fault zone on the west and the Melones fault zone on the east, is located approximately 17 miles northeast of the project site. Jennings (1992) has mapped faults within this system as Mesozoic (older than 70 million years), with several small portions having late-Quaternary displacement (movement within the past 700,000 years). The closest section of the Foothills Fault System to the project site with late-Quaternary displacement is located approximately 25 miles to the northeast, along the Bear Mountains fault zone.

The project site is not indicated to be located across a mapped trace of any fault. The closest fault to the project site shown on the *Preliminary Fault Map* is the pre-Quaternary (older than 1.6 million years) Willows fault, a queried trace of which has been located approximately three miles southwest of the project site (Figure 5-3).



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Project Boundary

Figure 5-2
Site Geology

EDAW Inc.

Source: Wallace • Kuhl & Associates

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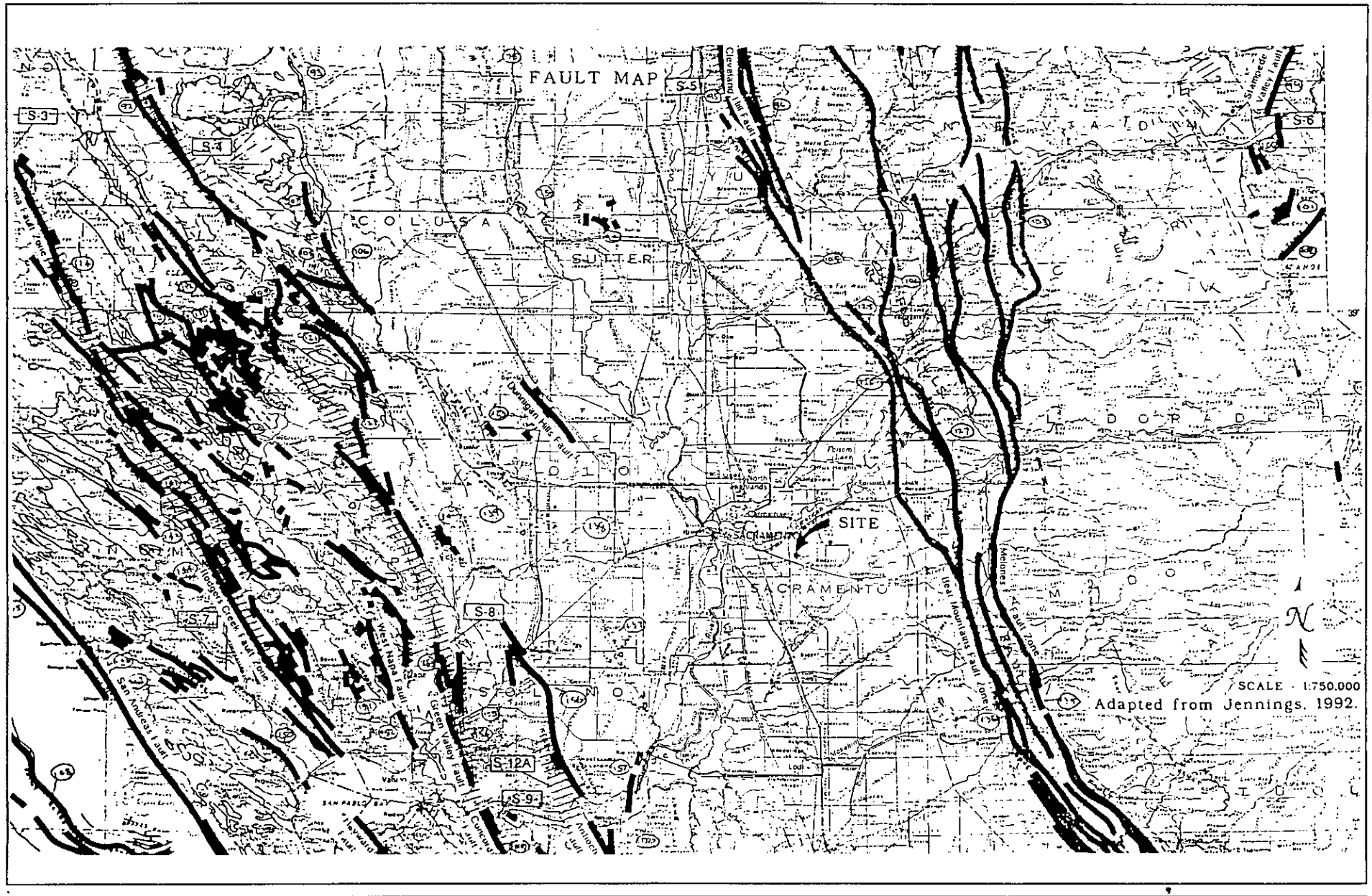

Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 5-3
Fault Map

EDAW Inc.

Source: Wallace • Kuhl & Associates

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The project site has experienced ground shaking equivalent to Modified Mercalli Intensity VIII (damage slight in specially designed structures; considerable in ordinary substantial buildings with partial collapse; great in poorly built structures; panel walls thrown out of frame structures; fall of chimneys, factory stacks, columns, monuments, walls; heavy furniture overturned; sand and mud ejected in small amounts; changes in well water; persons driving motorcars disturbed). This intense ground shaking resulted from a 4.3 Richter magnitude (M_R) earthquake in 1850, with an epicenter located approximately six miles southwest of the project site. Energy released from this event is estimated to have produced an attenuated site acceleration of approximately 0.16g. Historic earthquake epicenter locations within 100 miles of the project site are plotted on Figure 5-4 (Wallace-Kuhl & Associates, 1994).

5.5.2 Environmental Consequences

Proposed Project (Part A)

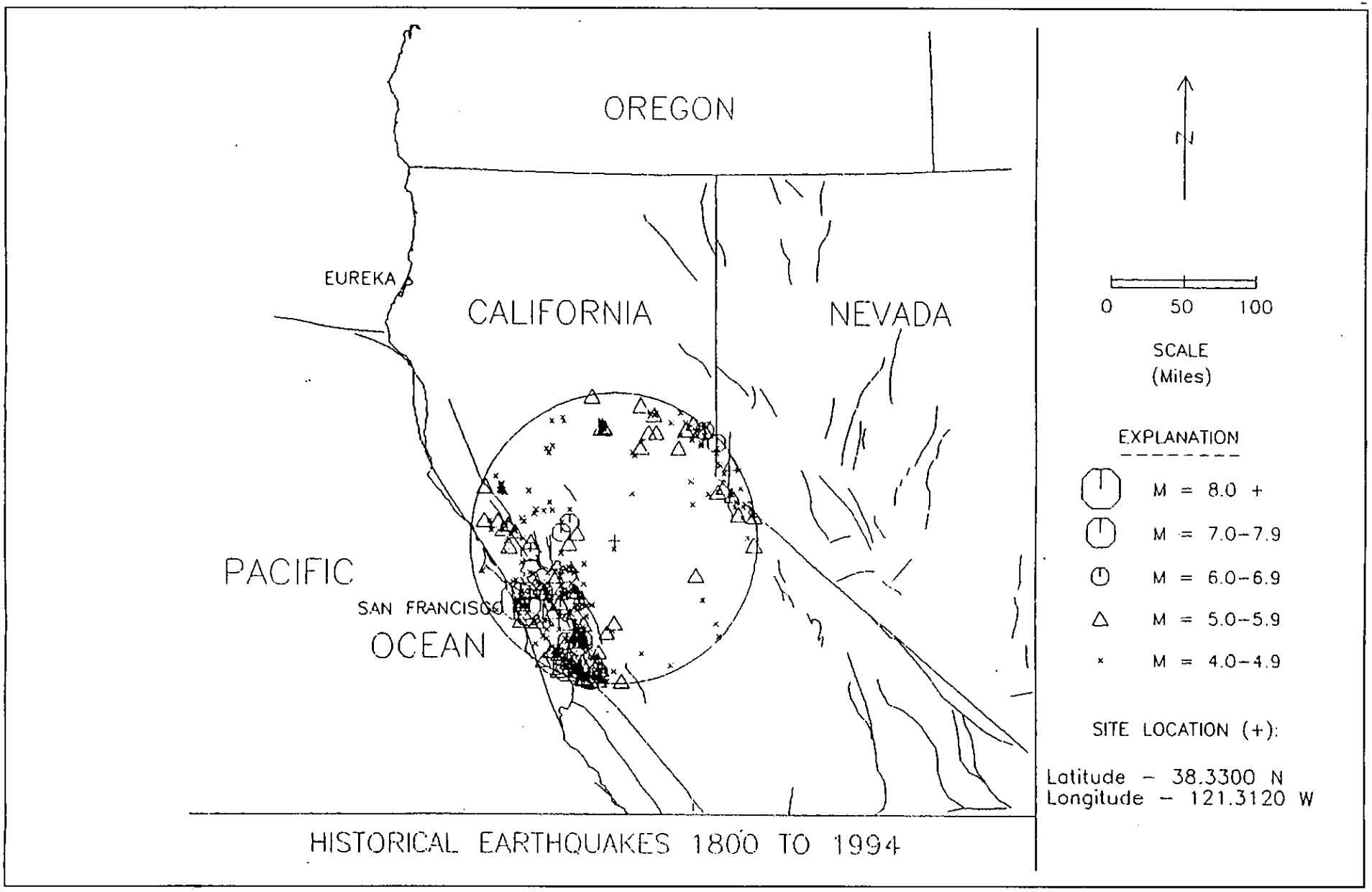
1. The proposed project would result in the permanent alteration of the project site's landform (*Significant and Unavoidable Impact*).

2. The proposed project's reclaimed slopes (which range from 1.5:1 to 2:1 within the project site) would potentially be subject to slope instability, including potential instability induced by earthquakes and/or ground shaking (*Significant Impact*).

3. The proposed project's reclaimed slopes may be subject to erosion if not adequately constructed and vegetated (*Significant Impact*).

The project site is currently crossed by Morrison Creek, which flows across the area from the northeast to the southwest. The proposed project's mining operations involve the bypassing of flows around the mined lower pit in an unlined trapezoidal channel at the existing (unmined) elevation. The channel would be constructed on top of a 35- to 40-foot-high engineered fill embankment using the overburden materials. The slopes of the proposed embankment are indicated as 2:1 (horizontal:vertical).

The proponents intend to strip and stockpile overburden floodplain deposits, composed of clay/silt soil, and then mine the underlying sand and gravel. The gravels would be mined down to the underneath fine-grained deposits, which would form the bottom of the mined area. Following the removal of the gravel deposits, the foundation soils would be in an over-consolidated state. The anticipated loads of the embankment on the foundation materials would be less than the loads under which the soils had been consolidated; this is because the gravels have a higher unit weight than do the compacted overburden materials. The foundation soils would experience a net unloading after construction of the embankments. Therefore, settlement would be minimal from the standpoint of consolidation or compression of the foundation soils.



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 5-4
Historic Earthquake Epicenter Locations within 100 Miles of the Project Area

EDAW Inc.

Source: Wallace • Kuhl & Associates

N:5s052:024

Even a properly constructed embankment would experience some settlement of the engineered fill. Uniform and adequate compaction of the embankment soils would mitigate, but not eliminate, future differential settlement. These settlements are generally minor, and are not expected to affect the overall stability of the embankment. Settlement of the fills typically are greatest immediately after construction and rapidly diminish shortly thereafter. Periodic inspection and maintenance of the channel, including repair of any minor cracks resulting from shifting of the embankment would be sufficient to allow the continued performance of the embankment.

Proposed Project Without the Vineyard I Processing Plant Alternative / County Drainage Alternatives (Part B)

1. Impacts from the proposed project without the Vineyard I processing plant and the proposed project with the County Drainage Alternatives (Part B) upon geology and soils would be comparable to impacts from the proposed project (Part A) (*Significant Impact*).

Mining, reclamation, drainage mitigation, and wetland mitigation plans would be similar to plans under the proposed project (Part A). The topography of the mined area following reclamation would be the same for all of the alternatives resulting in large pits averaging 35 feet deep essentially reflecting the base of the aggregate deposit .

~~100-Year~~ Floodplain Protection Alternatives

1. Similar to the proposed project, both the 100-Year Floodplain Protection and Creek Buffer Alternatives would substantially and irreversibly change the project site's landform. After mining and reclamation, the project site would consist of a pit approximately ~~2~~35 feet deep, with perimeter slopes ranging from 2:1 (along the north and west boundaries of the northern area) to 1.5:1 (for the remaining portions of the project site). These reclaimed slopes would potentially be subject to instability and erosion (*Significant Impact*).

However, under th~~ics~~ 100-Year Flooplain A~~a~~lternative, the natural character of the 100-year floodplain for Morrison Creek would be maintained by avoiding aggregate extraction within the floodplain. This alternative would result in the surface mining and processing of significantly less aggregate resources, thus decreasing potential geologic and soils impacts of mining due to seismic hazards, embankment stability, and erosion but not to a level of insignificance.

No Project Alternative

1. Under the No Project Alternative, the potential geologic and soils impacts of mining due to seismic hazards, embankment stability, and erosion would not occur within the project site.

5.5.3 Mitigation (All Mining Alternatives)

1. The proponents shall limit the planned slopes of the Morrison Creek bypass channel to 2:1 (horizontal:vertical). The overburden soils shall be placed and compacted in six-inch lifts to at least 90 percent of the maximum dry density, at or near optimum moisture

conditions. Since local stability of the slope is critically dependent upon proper compaction of the overburden soils, a qualified soils engineer shall be regularly present throughout grading operations to determine compliance with job specifications.

2. The proponents shall limit finished side slopes to 1.5:1 (horizontal:vertical) to ensure stability for existing soil conditions. Soils shall be placed and compacted to 90 percent of the maximum dry density, at or near optimum moisture conditions, in all finished slopes. Since local stability of the slope is critically dependent upon proper compaction of the overburden soils, a qualified soils engineer shall be regularly present throughout grading operations to determine compliance with job specifications.

3. The proponents shall ensure that the side slopes of the pit are vegetated following final slope placement to prevent excessive erosion and enhance slope stability. The side slopes shall be revegetated with an erosion control mix for which species, seeding rates and methodology are specified in an Erosion Control Plan, which the proponents shall prepare and submit to the County prior to issuance of the work authorization. The species chosen for the erosion control mix shall not be invasive in the wetland creation areas. This reclamation revegetation shall occur on an annual basis prior to the wet season (i.e., before October 1). The Erosion Control Plan shall include performance standards that can be used to determine the success of erosion control measures and the revegetation effort, and shall discuss monitoring requirements. The plan shall include remedial measures to be implemented if revegetation is not successful.

5.6 PALEONTOLOGICAL RESOURCES

5.6.1 Affected Environment

The Victor Formation underlies the project site. Fossil remains of vertebrates which existed during the late Pleistocene (approximately 105,000 years ago) have been discovered in the overburden of the Victor Formation west of Elk Grove-Florin Road. Various operators within Sacramento County (including one of the proponents, Teichert Aggregates) have already entered into cooperative agreements with the University of California at Davis to mitigate potential impacts to paleontologic resources.

5.6.2 Environmental Consequences

Proposed Project (Part A)

1. Because the proposed mining would involve the Victor Formation, and is within proximity of previous discoveries, the proposed project would have the potential for further fossil discoveries and impact (*Significant Impact*).

Proposed Project Without the Vineyard I Processing Plant Alternative, County Drainage Alternatives (Part B), ~~and~~ 100-Year Floodplain Protection Alternative, and Creek Buffer Alternative

These alternatives would have the same impacts as discussed above for the proposed project Part A.

No Project Alternative

1. The No Project Alternative would not impact paleontologic resources and would not result in the potential for further fossil discoveries within the project site.

5.6.3 Mitigation (All Mining Alternatives)

1. Should fossils be discovered within the project site, the proponents shall terminate work in the immediate area of the discovery and contact the Sacramento County Department of Environmental Review and Assessment and the University of California at Davis or California State University Sacramento to jointly develop an action plan to assess and/or preserve fossil resources.

5.7 BIOLOGICAL RESOURCES

The following section provides an overview of the biological resources located within the project site, the potential impacts which may occur as a result of the proposed project and the various alternatives evaluated by this EIR/EIS, and identifies mitigation where appropriate. The information provided in this section is based on: 1) wetland delineations, special status species assessments, and the wetland mitigation plan completed by the proponent for the Vineyard I parcel (Zentner and Zentner, 1994); and 2) biotic assessments, wetland delineations, special-status species surveys, and the wetland mitigation plans completed by the proponents for the Aspen IV South and Aspen V South parcels (Sugnet &Associates, 1991a, 1994a, 1994b, 1994c, 1995a, 1995b). This section has also been prepared following 3) reconnaissance site inspections of the project site conducted by Garcia and Associates for this EIR/EIS; and 4) vegetative field surveys of wetlands completed by Gibson & Skordal for this EIR/EIS. In addition, biological resource surveys that were conducted for the Morrison Creek upstream mining reach (Granite I and Aspen VI parcels), on the north side of Jackson Highway, also provide useful information about biological resources in the project vicinity. Refer to Appendix B for additional detail on biological resources, including a list of wildlife species observed on the project site.

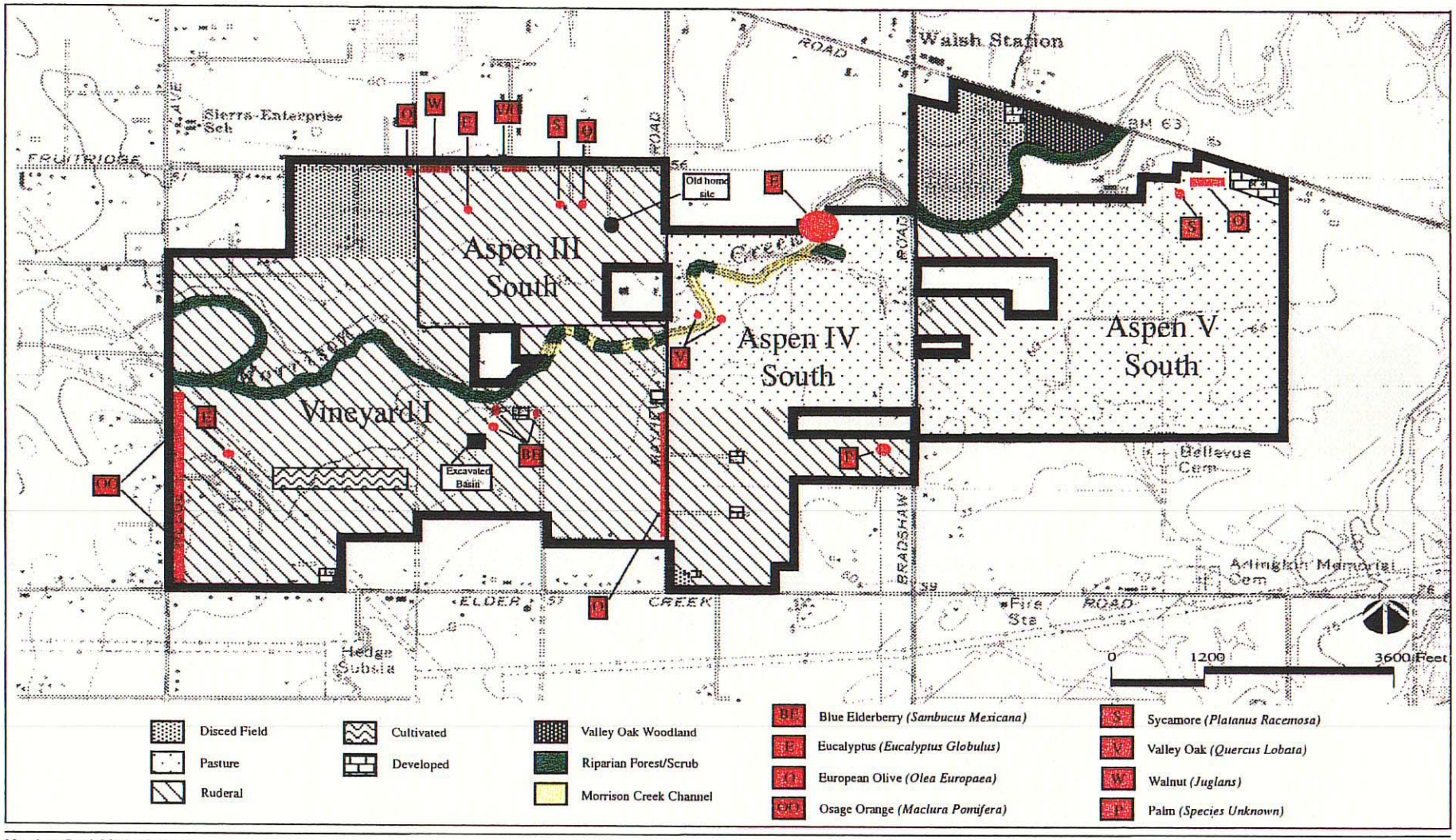
5.7.1 Affected Environment

Vegetation

The habitat types identified within the project site include: 1) riparian forest/riparian scrub, 2) valley oak woodland, 3) ruderal habitat, 4) pasture, 5) cultivated areas, 6) diskeed areas, and 7) developed areas; with wetland habitats consisting: of 8) drainages and streams, 9) seasonal wetlands, 10) irrigated seasonal wetlands, and 11) vernal pools. The distribution of these habitats within the project site are shown in Figures 5-5, 5-6, 5-7 and 5-8, and each habitat is characterized below. As can be seen from Figure 5-5, the dominant habitat types on the site are the riparian forest/riparian scrub, pasture, and ruderal areas. The distribution and characteristics of the wetland habitats are discussed in greatest detail below in the wetland section of this document and are shown separately in Figures 5-6, 5-7 and 5-8. A list of plant species observed within the project site is presented in Appendix B.

Riparian Forest/Riparian Scrub:

Riparian forest occurs along Morrison Creek on the Vineyard I and Aspen V South parcels and along the oxbow channel on Vineyard I. The riparian corridor generally extends 10'-20' from the upper bank of the creek and is up to 100 feet wide along some sections. Dominant tree species include valley oak (*Quercus lobata*), Fremont's cottonwood (*Populus fremontii*), California black walnut (*Juglans californica* var. *hindsii*), and willow (*Salix* spp.). The understory, which is generally sparse, is dominated by Himalayan blackberry (*Rubus discolor*). There are also several blue elderberry (*Sambucus mexicana*) bushes growing along the Morrison Creek corridor. Riparian scrub occurs sporadically along Morrison Creek, on the eastern half of Vineyard I and at two locations through Aspen IV South. It is dominated by willow and blackberry and is generally confined to the immediate creek banks. Willows and blackberry are fast-growing,



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

EDAW Inc.

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Figure 5-5
Project Site Vegetation

Source: Garcia and Associates

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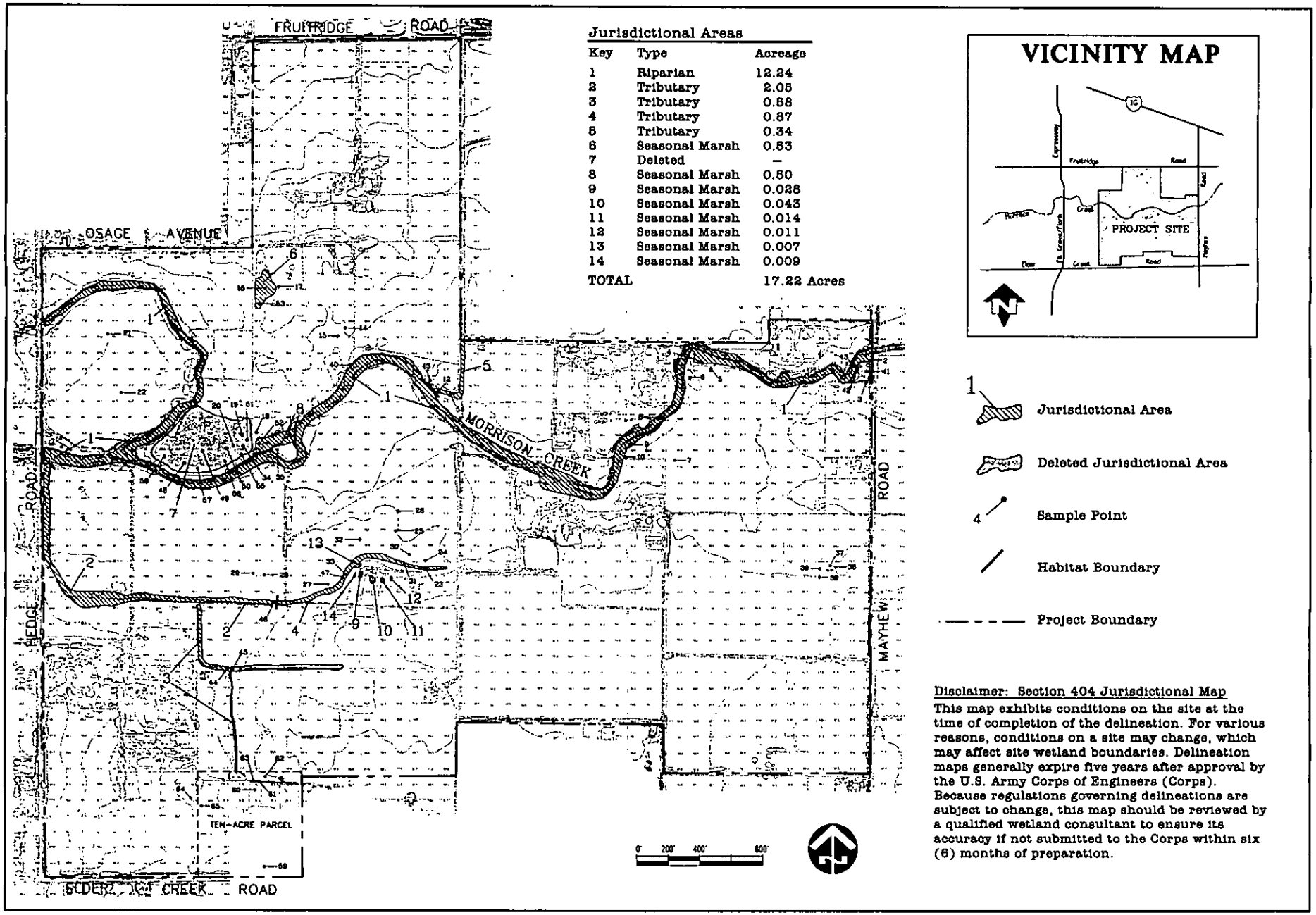

Jurisdictional Areas

Key	Type	Acreage
1	Riparian	12.24
2	Tributary	2.05
3	Tributary	0.58
4	Tributary	0.87
5	Tributary	0.34
6	Seasonal Marsh	0.53
7	Deleted	–
8	Seasonal Marsh	0.50
9	Seasonal Marsh	0.028
10	Seasonal Marsh	0.043
11	Seasonal Marsh	0.014
12	Seasonal Marsh	0.011
13	Seasonal Marsh	0.007
14	Seasonal Marsh	0.009
TOTAL		17.22 Acres

Disclaimer: Section 404 Jurisdictional Map

This map exhibits conditions on the site at the time of completion of the delineation. For various reasons, conditions on a site may change, which may affect site wetland boundaries. Delineation maps generally expire five years after approval by the U.S. Army Corps of Engineers (Corps). Because regulations governing delineations are subject to change, this map should be reviewed by a qualified wetland consultant to ensure its accuracy if not submitted to the Corps within six (6) months of preparation.

Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

EDAW, Inc.

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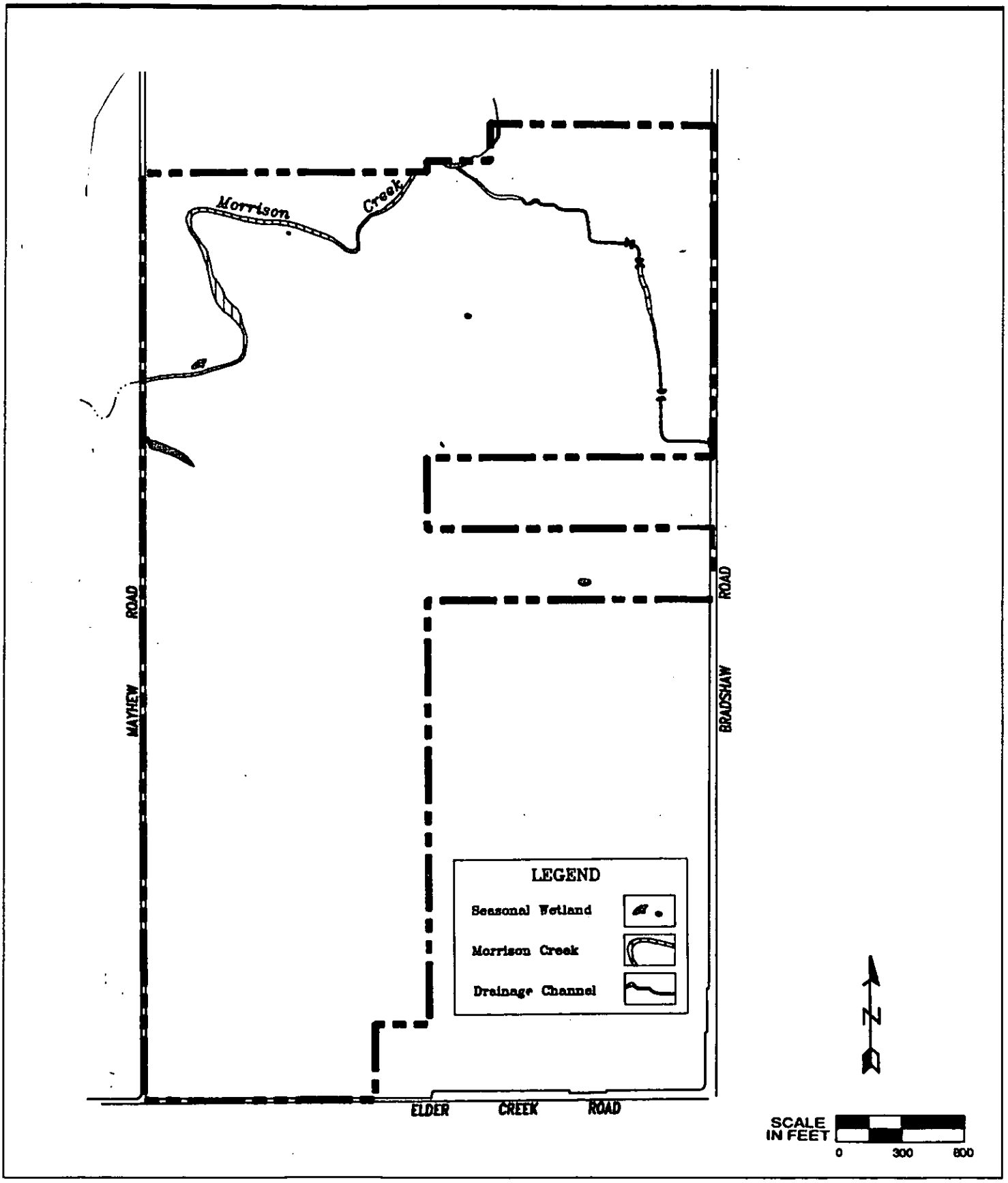
Figure 5-6
Wetland Delineation - Vineyard I Proposed Project

Source: Zentner & Zentner, 1994



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 5-7
Wetland Delineation-Aspen IV South
Proposed Project

EDAW Inc.

Source: Sugnet & Associates, 1994

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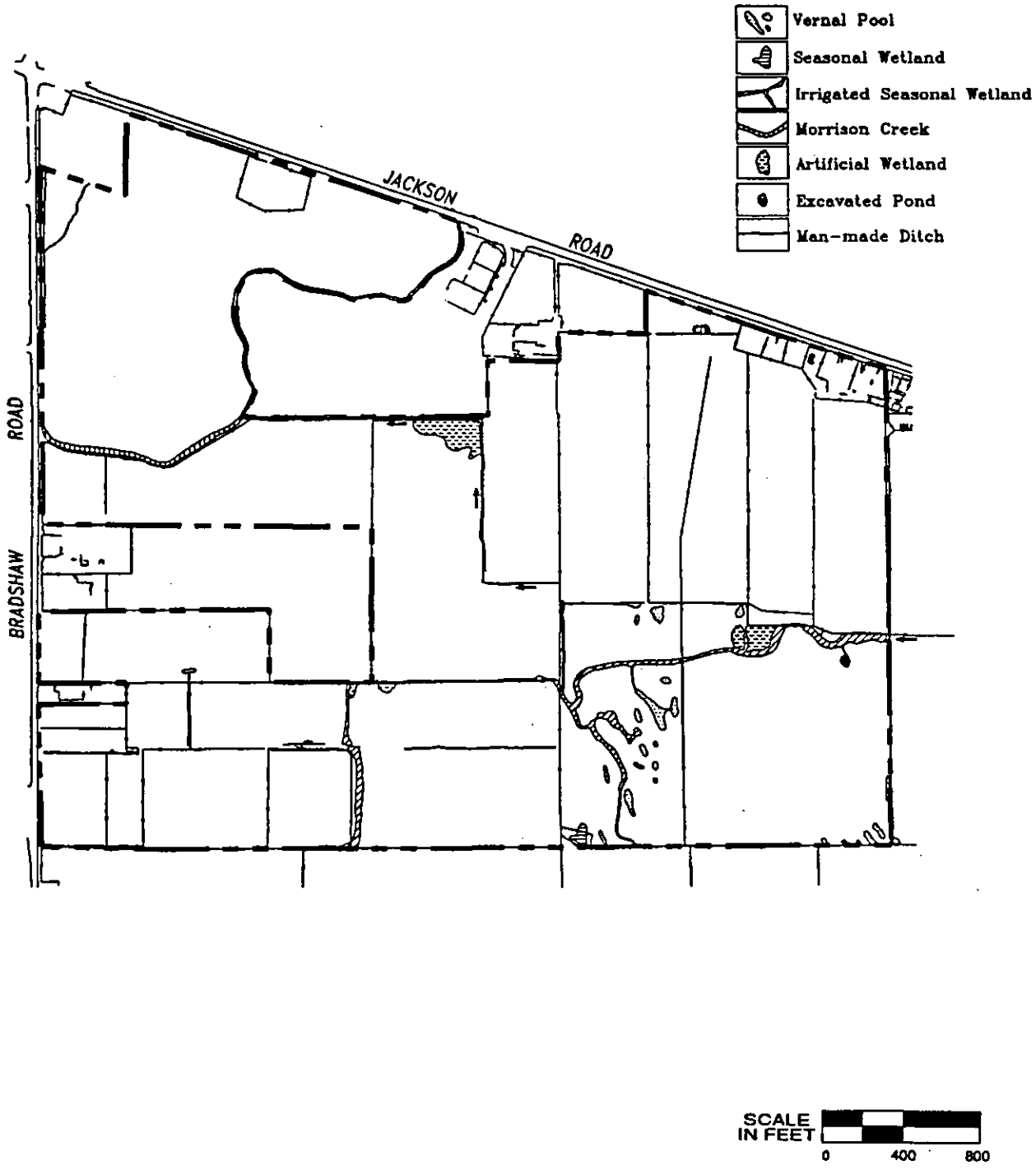

Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 5-8
Wetland Delineation-Aspen V South
Proposed Project

EDAW Inc.

Source: Sugnet & Associates, 1994

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pioneering species and it is likely that the riparian scrub occurs where riparian forest previously existed but was cleared. There is also a single grove of blue gum eucalyptus (*Eucalyptus globulus*) that straddles Morrison Creek on the north boundary of Aspen IV South.

Valley Oak Woodland:

A small area of valley oak woodland occurs in the northwest portion of the Aspen V South parcel, on the north side of Morrison Creek. This habitat supports small, scattered valley oak (*Quercus lobata*) trees with an understory of non-native, annual grassland dominated by wild oats (*Avena fatua*), perennial rye-grass (*Lolium perenne*) and curly dock (*Rumex crispus*).

Ruderal Habitat:

Ruderal habitat occurs throughout much of the western half of the project site and in a few pockets in the eastern half. Virtually all of the Aspen III South parcel is ruderal habitat while most of the Vineyard I parcel and about half of the Aspen IV South parcel is ruderal. Ruderal habitat has developed in areas that have been heavily impacted through cultivation, overgrazing, discing or land clearing. In the southeast of Vineyard I (in the vicinity of the proposed processing plant), previous sod farming practices stripped the top soil. The resulting vegetation is dominated by a variety of weedy herbaceous species, most of which are non-native. Species characteristic of ruderal areas in the project site include yellow star thistle (*Centaurea solstitialis*), bindweed (*Convolvulus arvensis*), prickly lettuce (*Lactuca serriola*), virgate tarweed (*Holocarpha virgata*), wild radish (*Raphanus sativus*), Fitch's tarweed (*Hemizonia fitchii*), blue sailors (*Chicorum intybus*), wild oats (*Avena fatua*), hairy-flowered bent grass (*Agrostis avenacea*) and soft chess (*Bromus hordeaceus*). Some of the ruderal habitats occur in topographically low areas and are characterized by more moisture tolerant species such as Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), rabbitfoot grass (*Polypogon monspeliensis*), broad-leaved pepper-grass (*Lepidium latifolium*), horseweed (*Conyza canadense*), curly dock and perennial rye-grass. A few individual sycamore (*Platanus racemosa*) and blue gum eucalyptus trees are scattered around the ruderal habitats. In addition, a row of olive (*Olea europeaca*) trees has been planted along Mayhew Road and osage orange (*Maclura pomifera*) lines Hedge Road.

Pasture:

Pasture occurs throughout much of eastern half of the project site. The pasture on the Aspen V South parcel is irrigated throughout the year. Pasture within the project site is characterized by a dense vegetative cover dominated by perennial rye-grass. Virgate tarweed and curly dock are also common in the pasture habitat of the project site. As with the ruderal areas, a few individual trees are scattered around the pasture habitat and a small olive orchard has been planted in the northeast corner of Aspen V South.

Cultivated Areas:

One portion of the Vineyard I parcel was recently cultivated for oats (*Avena sativa*). It is unclear if this area is still being cultivated or if the remaining oats are remnants of past cultivation.

Disced Areas:

Three areas within the project site were recently disced and support little or no vegetation. These areas are located in the north-central portion of the Vineyard I parcel, the southwestern corner of the Aspen IV South parcel, and the northwest corner of the Aspen V South parcel. Over time, if left unattended, these areas would be expected to develop plant communities characteristic of the ruderal habitats.

Developed Areas:

A small area in the northeast corner of the Aspen V South parcel is developed with a cluster of homes and farm buildings. Several individual buildings (residences and abandoned structures) are scattered in other areas on the project and each occupies only a relatively small area. Some other structures, on Vineyard I and Aspen III South in particular, have been demolished fairly recently but the foundations or other debris remain in the vicinity of the structure.

Wetlands:

A detailed wetland delineation for the Vineyard I project site was completed by Zentner and Zentner (November 1992). The delineation, which was verified by the Corps of Engineers in December 1992, identified 17.22 ~~21.95~~ acres of jurisdictional waters on the property that would be disturbed by the proposed project. Detailed wetland delineations for the Aspen IV and V South project sites were completed by Sugnet and Associates (September 1994), and verified by the Corps in November 1994. A total of 1.78 acres of jurisdictional waters were identified on the Aspen IV South property and 0.83 acres on the Aspen V South property which would be impacted by the proposed project. No jurisdictional waters are located in the Aspen III South property.

The wetland delineations previously verified by the Corps were reviewed in the summer and fall of 1995 by Gibson & Skordal to consider if conditions had changed and to obtain additional vegetative data for identified wetlands. With the exception of two delineated seasonal wetlands on the Vineyard I site, it was concluded that the delineations were reasonably accurate and consistent with current federal standards for delineating wetlands (Corps of Engineers 1987). However, the Corps must concur with any modifications to the delineation. In their letter dated July 2, 1997, the Corps verified the revised delineation and the total amount of jurisdictional waters located on the Vineyard I parcel was reduced from 21.95 acres to 17.2~~2~~ acres.

The following describes the various types of wetlands identified on the properties, including a discussion of possible changes in acreage of seasonal wetlands. In total, 19.83 ~~24.56~~ acres of jurisdictional waters on all four properties are identified as habitat which would be disturbed as a result of the proposed project. ~~Should the Corps concur with the delineation modification, this number would be reduced to 20.11 acres of jurisdictional waters.~~

Drainages and Streams. Drainages and streams are distinguished from other types of jurisdictional waters by the presence of a channel with well-defined bed and banks. Small channels with ephemeral flows contain relatively sparse vegetative cover. In Morrison Creek, the flows are intermittent, and as a result, seasonal and riparian wetlands are supported on low terraces adjacent to the channel. The dominant vegetation within the adjacent seasonal wetlands

is creeping spikerush (*Eleocharis macrostachya*), tall flatsedge (*Cyperus eragrostis*), and smartweed (*Polygonum sp.*). Associated species include perennial rye grass (*Lolium perenne*), loosestrife (*Lythrum hyssopifolia*), spiney-fruited buttercup (*Ranunculus muricatus*), penny-royal (*Mentha pulegium*), yellow monkey-flower (*Mimulus guttatus*), cattail (*Typha latifolia*), water speedwell (*Veronica anagallis-aquatica*), broad-leaf water plantain (*Alisma plantago-aquatica*), dallis grass (*Paspalum dilatatum*), dock (*Rumex spp.*) and rushes (*Juncus spp.* and *Scirpus sp.*). Where riparian wetlands abut the channel, willows (*Salix spp.*) and cottonwoods (*Populus fremontii*) dominate in certain areas while willows, blackberry (*Rubus procerus*) and valley oak (*Quercus lobata*) dominate in other areas.

Seasonal Wetlands. The seasonal wetlands within the project site occur within isolated depressions and topographic swales. Swales with shorter duration of flow are typically dominated by Mediterranean barley (*Hordeum hystrix*), perennial rye grass and dock, while swales with longer duration of flow are typically dominated by creeping spikerush with associates including popcorn flower (*Plagiobothrys stipitatus*), coyote thistle (*Eryngium vaseyii*), loosestrife, spiney-fruited buttercup, Mediterranean barley, perennial rye grass, and dock. Seasonal wetlands in isolated depressions are typically dominated by penny-royal (*Mentha pulegium*), tall flatsedge, loosestrife, and Mediterranean barley. Common associates include perennial rye grass, dock, bermuda grass (*Cynodon dactylon*), speedwell (*Veronica peregrina*) and soft chess (*Bromus mollis*).

The Vineyard I delineation identified two seasonal wetland areas (Wetland Numbers 6 and 7) which have evidently changed since the time of survey or were surveyed in an inappropriate season (summer or fall) or were incorrectly mapped. The changed condition may also have resulted from termination of irrigation in these areas. Wetland No. 6 is currently dominated by tarweed (*Holocarpha virgata*), yellow-star thistle (*Centaurea solstitialis*), and six-weeks fescue (*Vulpia bromoides*). Wetland No. 7 is currently dominated by yellow-star thistle and soft chess. Three smaller seasonal wetland areas totaling 0.19 acre in and adjacent to the mapped wetland were also located. To make the wetland delineation for the site consistent with the above discussion, Wetland No. 6 (0.53 acre) would be deleted and Wetland No 7 would be reduced by 3.92 acres. These modifications were ~~are~~ subject to verification by the Corps of Engineers. In July 1997, ~~If~~ the Corps concurred with this revised delineation thus making the ~~concurs, this would reduce the~~ jurisdictional waters within the Vineyard I site ~~to~~ 17.2~~2~~ ~~17.5~~ acres.

Irrigated Seasonal Wetlands. An irrigated seasonal wetland was delineated on the Aspen V South property. This seasonal drainage/swale receives water during the rainy season and is pooled by a berm which appears to have been used for historic farming practices. Irrigated wetlands are typically dominated by species found in areas which are wet for most of the year. Cattail and smartweed dominate the irrigated wetlands while rabbit-foot grass (*Polypogon monspeliensis*), cocklebur (*Zanthium strumanium*), tall flatsedge, broad-leaf water plantain, dallis grass and rushes are included as associates.

Vernal Pools. The only vernal pools delineated within the project site are on the Aspen V South property. The vernal pools are typically up to one-foot in depth and dominated by creeping spikerush, coyote thistle, popcorn flower, and rabbit-foot grass in the deeper areas of the vernal pools, and Mediterranean barley and perennial rye grass along the borders of the pools.

Wildlife

The project site contains a variety of habitats for wildlife. As described above, the dominant habitat types are riparian forest/riparian scrub, pasture, ruderal habitats (including disced areas) and various wetland habitats (see Figures 5-5, 5-6, 5-7 and 5-8). Morrison Creek (including the oxbow channel on the Vineyard I parcel) provides aquatic and wetland habitat for waterfowl, amphibians, and aquatic invertebrates during winter and spring. During the summer and fall months, when flows become reduced, persistent or even perennial pools may form in the creek channel and become small pockets of habitat. The creek bed and banks are ~~is~~ also important to wildlife when dry as they ~~it~~ offer~~s~~ loose, sandy loam ~~soils~~ for burrowing animals and movement corridors for mammalian predators and other species. The various tributary streams, drainage ditches, and other wetlands within the project site also provide seasonal aquatic habitats. The riparian forest and scrub habitats long Morrison Creek, as well as the oak woodlands and scattered trees, provide nesting habitat for raptors and other birds. The grassland and ruderal areas offer foraging habitat for raptors, mammals, and reptiles. Currently, much of the Aspen III South, IV South and V South parcels are used for cattle and horse grazing. A list of wildlife species observed at the project site is provided in Appendix B. The field surveys conducted for most animal species were limited to brief reconnaissance surveys with slightly more intensive surveys conducted for special status reptiles and amphibians.

Mammals:

Mammal species observed within the project site include coyote (*Canis latrans*),black-tailed hare (*Lepus californicus*), desert cottontail (*Sylvilagus audubonii*), and striped skunk (*Mephitis mephitis*). Hares and cottontails are abundant within the project site, providing forage for mammal and bird predators. Rodents which may also be present, and which would provide a prey base for predators, include deer mice (*Peromyscus maniculatus*), California ground squirrel (*Spermophilus beecheyi*), western gray squirrel (*Scirius griseus*), California vole (*Microtus californicus*), and Botta's pocket gopher (*Thomomys bottae*). Other mammals which may utilize the riparian habitat along Morrison Creek include Virginia opossum (*Didelphis marsupialis*) and racoon (*Procyon lotor*).

Birds:

The project site provides habitat for waterfowl and shorebirds during winter and spring when the Morrison Creek channel and other wetland habitats contain water. Waterfowl such as mallards *(Anas platyrynchos*) may breed and raise brood in the creek while other birds such as great egrets (*Casmerodius albus*), great blue heron *(Ardea herodias)*, and belted kingfisher *(Ceryle alcyon)* may feed within the channel. Raptors may nest in the riparian forest along Morrison Creek, as well as in the oak woodlands and individual trees scattered around the project site. The grassland and ruderal areas provide foraging habitat for raptors such as red-tailed hawks *(Buteo jamaicensis)*, red-shouldered hawks *(Buteo lineatus)*, great horned owls *(Bubo virginianus)*, and American kestrels *(Falco sparverius)*. Passerine birds such as red-winged blackbird (*Agelaius phoeniceus),* scrub jay (*Aphelocoma coerulescens),* house finch (*Carpodacus mexicanus),* yellow-rumped warbler (*Dendroica coronata*), and European starling (*Sturnus vulgaris*) use a variety of habitats on the site for nesting and feeding. A total of thirty four bird species have been observed within the project site (see Appendix B). Sugnet & Associates (1991a) identified

an additional seventy six bird species that occur in the project vicinity and potentially occur within the project site.

Reptiles and Amphibians:

The wetland habitats within the project site (particularly the vernal pools and seasonal wetlands) provide breeding habitat for amphibians such as Pacific treefrogs (*Hyla regilla*) and bullfrogs (*Rana catesbeiana*). Reptiles such as garter snakes (*Thamnophis elegans*), common kingsnakes (*Lampropeltis getulus*), and western fence lizards (*Sceloporus occidentalis*) are found in the pastures, riparian habitat and ruderal areas on the site. Morrison Creek and the tributaries and drainage ditches provide suitable habitat for turtles and salamanders, including the western pond turtle (*Clemmys maramorata*) which was observed in Morrison Creek upstream (north) of Jackson Highway (BioSystems, 1991).

Invertebrates:

Searches for elderberry (*Sambucus spp.*) shrubs, the host plant for the valley elderberry longhorn beetle (*Desmocerus californicus dimorphous*), have been conducted by the proponents (Zentner and Zentner, 1994; Sugnet & Associates, 1991a, 1994a). These are the only invertebrate surveys conducted within the project site. The following characterization is based upon invertebrate assessments prepared for the mining parcels (Granite I and Aspen VI) along the Morrison Creek Mining Reach upstream (north) of Jackson Highway (BioSystems, 1991).

Numerous invertebrates associated with the riparian, oak woodland, wetland and grassland habitats within the project site form an important part of these communities. Invertebrates are an important food source for birds and amphibians. Invertebrates such as host-specific bees are important pollinators of vernal pool flowers (Thorp, 1990) and other plants. Common upland invertebrates around the edges of wetlands include beetles (Order *Coleoptera*), flies (Order *Diptera*), spiders (Order *Araneae*), and springtails (Order *Collembola*). Vernal pools and seasonal wetlands may contain fairy shrimp (Order *Anostraca*), tadpole shrimp (Order *Notostraca*), clam shrimp (Order *Conchostraca*), seed shrimp (Subclass *Ostracoda*), copepods (Subclass *Copepoda*), snails (Order *Gastropoda*), water fleas (Order *Cladocera*), and many other types of invertebrates. Fields (1989) reported 130 taxa of aquatic invertebrates in the vernal pools on the Morrison Creek upstream mining reach project site. Sugnet & Associates (1991b, 1992, 1993, 1994d) identified some 25 invertebrate taxa during vernal pool monitoring surveys conducted along the Morrison Creek Mining Reach upstream (north) of Jackson Highway. Many of the same invertebrates may also occur within the project site.

Fish:

There have not been any fisheries surveys conducted within the project site. The habitat can be characterized as an intermittent stream that has historically and exclusively supported a warmwater fishery (Villa, personal communication, 1995). While there is some instream cover and shade provided by herbaceous vegetation and riparian trees, only scattered pools persist through the dry season. Fish populations which utilize this reach of Morrison Creek are probably dominated by non-native species, however, the native Sacramento blackfish (*Orthodon microlepidotus*) may be present. The range for Sacramento blackfish historically extended up Morrison Creek and Laguna Creek but Villa (personal communication, 1995) indicated that the

California Department of Fish and Game (CDFG) does not have any records on how far upstream. The blackfish probably exists further downstream and possibly moves up into the project site reach during wet years (Villa, personal communication, 1995).

Special Status Species

Special status species are those that have experienced population declines and are categorized by resource agencies according to their likelihood of extirpation. Threatened and endangered species include those species actually listed as threatened or endangered by the U.S. Fish and Wildlife Service (USFWS) under the federal Endangered Species Act or by the California Department of Fish and Game (CDFG) under the California Endangered Species Act. Other special status species include species which are proposed for federal listing, candidates for federal listing, or California species of special concern. In addition, special status plant species are identified by the California Native Plant Society (CNPS).

A list of special status plant species that may occur within the project site is presented in Table 5-6 and special status wildlife species observed or potentially occurring is provided in Table 5-7. These lists are complied from information provided by the proponents (Zentner and Zentner, 1994, 1995a, 1995b; Sugnet &Associates, 1991a, 1994a, 1995a, 1995b) and from assessments prepared for the Morrison Creek Mining Reach Upstream (North) of Jackson Highway mining applications (Granite I and Aspen VI parcels).

Table 5-6
Special Status Plant Species
with Potential to Occur within the Project Site

Common Name *Scientific Name*[1]	**USFWS Listing**[2]	**State Status**[3]	**CNPS Status**[4]	**Habitat Type**[5]	**Flowering Phenology**
San Joaquin spearscale *Atriplex joaquiniana*	SC	none	2-2-3 list 1B	alkaline grassland depressions	April-September
Dwarf downingia *Downingia pusilla*	none	none	1-2-1 list 2	mesic grasslands, vernal pools	March-May
Boggs Lake hedge-hyssop *Gratiola heterosepala*	none	CE	1-2-2 list 1B	vernal pools	April-June
Rose-mallow *Hibiscus lasiocarpus*	none	none	2-2-1 list 2	freshwater marsh	August-September
Ahart's dwarf rush *Juncus leiospermus* var. *ahartii*	SC	none	3-1-3 list 1B	vernal pools	March-May
Legenere *Legenere limosa*	SC	none	2-3-3 list 1B	vernal pools	May-June
Hoary navarretia *Navarretia eriocephala*	none	none	1-1-3 list 4	Woodlands, grasslands	May-June
Pincushion navarretia *Navarretia myersii*	PT	CE	3-3-3 list 1B	vernal pools	May
Slender Orcutt grass *Orcuttia tenuis*	~~PT~~ FT	CE	2-3-3 list 1B	vernal pools	May-July
Sacramento Orcutt grass *Orcuttia viscida*	~~PE~~ FE	CE	3-3-3 list 1B	vernal pools	May-June
Sanford's arrowhead *Sagittaria sandfordii*	SC	none	2-2-3 list 1B	freshwater marsh, other shallow, still waters	May-August

Notes:
1. Botanical nomenclature corresponds to Hickman (1993).
2. U.S. Fish and Wildlife Service
   FE = Federal Endangered
   FT = Federal Threatened
   ~~PE = Proposed for listing as endangered.~~
   PT = Proposed for listing as threatened.
   C = Candidate, candidate to become proposed.
   SC = Species of concern, insufficient information to justify listing.
   none = no listing status by USFWS.
3. California Department of Fish and Game
   CE = listed as endangered by CDFG.
   none = a taxon that is not listed by CDFG.
4. California Native Plant Society, Skinner and Pavlik (1994).

List 1B = Plants rare, threatened, or endangered in California and elsewhere.
List 2 = Plants rare, threatened, or endangered in California, but more common elsewhere.
List 3 = Plants about which we need more information.
List 4 = Plants of limited distribution - a watch list.

The R-E-D numbers are encoded as follows:
Rarity: 1 - Rare, but found in sufficient numbers and distributed widely enough that the potential for extinction or extirpation is low at this time; 2 - occurrence confined to several populations or to one extended population; 3 - occurrence limited to one or a few highly restricted populations, or present in such small numbers that it is seldom reported.
Endangerment: 1 - not endangered; 2 - endangered in a portion of its range; 3 - endangered throughout its range.
Distribution: 1 - more or less widespread outside California; 2 - rare outside California; 3 - endemic to California.

5. Habitat type from Skinner and Pavlik (1994).

Table 5-7
Special Status Animal Species
Observed or having Potential to Occur within the Project site

COMMON NAME	SPECIES NAME	STATUS
Invertebrates		
Conservancy fairy shrimp	*Branchinecta conservatio*	FE
Vernal pool fairy shrimp	*Branchinecta lynchi*	FT
Valley elderberry Longhorn beetle[1]	*Democeru s californicus dimorphus*	FT
Delta green ground beetle	*Elaphrus viridis*	FT
Vernal pool tadpole shrimp	*Lepidurus packardi*	FE
Amphibians		
California tiger salamander	*Ambystoma tigrinum californiense*	FC, CSC
Western spadefoot toad	*Scaphiopus hammondi*	FSC, CSC
Reptiles		
Northwestern pond turtle	*Clemmys marmorata marmorata*	FSC, CSC
Giant garter snake	*Thamnophis couchi gigas*	FT, ST
Birds		
Cooper's hawk	*Accipitercooperi*	CSC
Sharp-shinned hawk	*Accipiter striatus*	CSC
Tricolored blackbird	*Agelaius tricolor*	FSC, CSC
Golden eagle	*Aquila chrysaetos*	CSC
Short-eared owl	*Asio flammeus*	CSC
Ferruginous hawk	*Buteo regalis*	FSC, CSC
Swainson's hawk	*Buteo swainsoni*	ST
Mountain plover	*Charadrius montanus*	~~FSC~~,FC CSC
Northern harrier	*Circus cyaneus*	CSC
Black-shouldered kite	*Elanus caeruleus*	*
White-tailed kite	*Elanus leucurus*	CFP
Prairie falcon	*Falco mexicanus*	CSC
Merlin	*Falco columbarius*	FSC, CSC
Loggerhead shrike	*Lanius ludovicianus*	FSC,CSC
Burrowing owl	~~*Speotyto*~~ *Athene cunicularia*	CSC
Yellow warbler	*Dendroica petichia*	CSC
Great blue heron (rookery sites)[2]	*Ardea herodias*	*
Great egret (rookery sites)[2]	*Casmerodius albus*	*
Snowy egret (rookery sites)	*Egretta thula*	*
Black-crowned night-heron (rookery sites)	*Nycticorax nycticorax*	*
Mammals		
Pallid bat	*Antrozous pallidus*	CSC
San Joaquin pocket mouse	*Perognathus inornatus inornatus*	FSC~~, CSC*~~
Townsend's western Big-eared bat	~~*Plecotus*~~ *Corynorhinus townsendii townsendii*	FSC, CSC
American badger	*Taxidea taxus*	*

Federal Status

FE Federally Endangered: taxa in danger of extinction throughout all or a significant portion of its range.

FT Federally Threatened: taxa likely to become endangered within the foreseeable future throughout all or a significant portion of its range.
FPE/T Federal Proposed Endangered/Threatened: taxa proposed for listing as endangered or threatened.
FC Federal Candidate Species: taxa under review. Sufficient biological information exists to support a proposal listing as an endangered or threatened species.
FSC Federal Species of Concern: taxa which may warrant listing, but for which substantial biological information to support a proposal is not currently available.

State Status
SE California Endangered: a native species or subspecies of animal in serious danger of extinction throughout all or a significant portion of its range.
ST California Threatened: a native species or subspecies likely to become an endangered species in the foreseeable future, although not presently threatened with extinction.
SR California Rare: State-listed rare.
CFP California Fully Protected.
CSC California Species of Special Concern: species not officially state listed, but vulnerable to extirpation given population declines or restricted geographic ranges.

1 Elderberry shrubs, the host plant for the valley elderberry longhorn beetle, have been observed on the project site, including several with valley elderberry longhorn beetle exit holes (Zentner and Zentner, 1994).
2 Great blue heron and great egrets have been observed within the project site, but no rookeries.
* Falls into one or more of the following categories:
- Taxa considered endangered or rare under Section 15380(d) of CEQA guidelines.
- Taxa that are biologically rare, very restricted in distribution, declining throughout their range, or at a critical stage in their life cycle when residing in California.
- Population(s) in California that may be peripheral to the major portion of a taxon's range, but which are threatened with extirpation within California.
- Taxa closely associated with a habitat that is declining in California (e.g., wetlands, riparian, old growth forests, desert aquatic systems, native grasslands).

Special Status Plants:

Eleven special status plant species have the potential to occur within the project site (see Table 5-6) but none have been observed during surveys conducted by the project proponents. Vernal pools in the general vicinity are known to support special status plant species. Vernal pools within the project site provide suitable habitat for several of these species. Those most likely to occur are dwarf downingia (*Downingia pusilla*), Boggs Lake hedge-hyssop (*Gratiola heterosepala*), Ahart's dwarf rush (*Juncus leiospermus var. ahartii*), legenere (*Legenere limosa*), pincushion navarretia (*Navarretia myersii*), and Sacramento orcutt grass (*Orcutta visida*). Dwarf downingia was documented in vernal pools on the Morrison Creek Mining Reach Upsteam (North) of Jackson Highway project site (Stromberg, 1988; LSA, 1989; Sugnet & Associates, 1991b, 1992, 1993, 1994d). Some of the seasonal wetlands within the project site may also support suitable habitat for these species. Slender orcutt grass (*Orcuttia tenuis*) is found in counties to the south and north, typically associated with Redding series soils which do not occur within the project site, and is therefore considered less likely to occur in vernal pools in this region. Rose-mallow (*Hibiscus lasiocarpus*) and Sanford's arrowhead (*Sagittaria sandfordii*) potentially occur in the wetland habitats along Morrison Creek, tributaries and drainages. Sanford's arrowhead was reported in a few locations on the Vineyard I parcel (Zentner and Zentner, 1994) but the plants identified as *S. sandfordii* were later found to be an *Alisma* species

and not *S. sandfordii* (Zentner and Zentner, 1995b). San Joaquin spearscale (*Atriplex joaquiniana*) and hoary navarretia (*Navarretia eriocephala*) are typically found in alkaline grassland and grassland/woodland habitats, respectively. Some locations within the project site may support suitable habitat for these two species.

Special Status Wildlife:

Twenty four special status wildlife species consisting of four mammals, sixteen birds, two amphibians, and two reptiles have the potential to occur within the project site (see Table 5-7). None of these species have been documented within the project site. Two listed species which have potential to occur are the state threatened Swainson's hawk (*Buteo swainsoni*) and the federal threatened/state threatened giant garter snake (*Thamnophis couchi gigas*). The remaining species fall into other categories of special status.

Onsite surveys for special status wildlife species have been fairly limited and assessments of special status wildlife have focused on habitat suitability. Zentner and Zentner (1994 and 1995a) have performed surveys on the Vineyard I parcel between March and July, 1993 but do not provide any information on the methods ~~or results~~ of those surveys. The results are presented in Appendix A of the Wetland Mitigation Plan for Vineyard I which is provided in Appendix B of the EIR/EIS. Sugnet & Associates (1995a) walked the banks of Morrison Creek through the Aspen IV South parcel on May 17, 1995 to search for the special status giant garter snake and western pond turtle (*Clemmys marmorata*). Prior to that, Sugnet & Associates (1991a) walked and dipnetted Morrison Creek and the drainage ditch on the Aspen IV South parcel on April 18, 1991 to search for western spadefoot toad (*Scaphiopus hammondi*) and California tiger salamander (*Ambystoma tigrinum californiense*), however, seining is the preferred method for determining the presence of amphibian larvae and California tiger salamanders are rarely caught using a dip net (BioSystems, 1991). No surveys for special status wildlife species have been performed on the Aspen III South or Aspen V South parcels.

Special status mammals may occur in a variety of habitats within the project site. American badger (*Taxidea taxus*) prefer open grassland habitats and friable soils and a badger carcass was found within the Morrison Creek Mining Reach upstream (north) of Jackson Highway (BioSystems, 1991). The San Joaquin pocket mouse (*Perognathus inornatus inornatus*) utilizes similar habitat but are not expected to occur in the project vicinity (BioSystems, 1991). The pallid bat (*Antrozous pallidus*) and Townsend's western big-eared bat (*Plecotus townsendii townsendii*) may use the riparian forest and abandoned structures within the project site for roosting and may forage over the open pasture/ruderal habitats. Special status raptors may nest in the riparian forest and individual trees within the project site and may forage over the pasture/ruderal areas. The project site is potential foraging habitat for the state threatened Swainson's hawk (*Buteo swainsoni*) because it is within ten miles of active Swainson's hawk nesting territories. The ten mile radius criteria is used by the California Department of Fish and Game and this criteria was used in making the determination of foraging habitat on the project site. Several of the other potentially occurring special status raptors, including burrowing owl (*Speotyto cunicularia*), were observed on or over the Morrison Creek upstream mining reach project site (BioSystems, 1991). Yellow warbler (*Dendroica petichia*) prefers riparian scrub and riparian woodland habitats. The riparian corridor within the project site is suitable habitat for the yellow warbler but other than occasional migrants, their present range is the low foothills and not

the low lands of the Central Valley (Comrack, pers. comm., 1995). Tricol~~f~~ored blackbirds (*Agelaius tricolor*) may nest or rest along Morrison Creek and were observed on the Mining Reach upstream (north) of Jackson Highway (BioSystems 1991). The creek and other wetland habitats provide suitable feeding and breeding habitat for special status amphibians and reptiles. A western pond turtle (*Clemmys marmorata*) was observed in Morrison Creek on the Morrison Creek upstream mining reach project site (BioSystems, 1991). Giant garter snake (*Thamnophis couchi gigas*) is not expected to use Morrison Creek in this area (Brode, pers. comm., 1995; Morey, pers. comm., 1995).

Special Status Invertebrates:

~~Four~~ Three special status invertebrate species potentially occur within the project site: valley elderberry longhorn beetle (*Democerus californicus dimorphus*), vernal pool fairy shrimp (*Branchinecta Lynchi*)~~,~~ and tadpole shrimp (*Lepidurus packardi*). ~~and Delta green ground beetle (*Elaphrus viridis*).~~ Only the valley elderberry longhorn beetle has been documented on the site. Elderberry bushes are the host plant for the valley elderberry longhorn beetle which use stems that are greater than one inch in diameter for larval development. Several blue elderberry bushes have been documented within the project site (Zentner and Zentner, 1994; Sugnet & Associates, 1991a, 1994a). The elderberry bushes occur along Morrison Creek and at a few locations within three hundred feet of the creek. Zentner and Zentner (1994) recorded observations of several stems with exit holes typical of the valley elderberry longhorn beetle. During the reconnaissance site visit by Garcia and Associates, a cluster of elderberry bushes that had previously been recorded by Zentner and Zentner (1994) was notably absent and determined to have recently been removed. The cluster had been located near a structure, approximately 300 feet from Morrison Creek, and it was reported as being eight feet tall with 120 stems greater than 1 inch diameter. A few young sprouts/saplings were observed by Garcia and Associates but the original cluster had apparently been cleared during some recent demolition work around the nearby structure.

The vernal pools within the project site are potential habitat for the federal threatened and endangered fairy shrimp, the federal endangered tadpole shrimp, and the federal threatened Delta green ground beetle. Some of the seasonal wetlands and other aquatic habitats on the site may also support suitable habitat for these special status invertebrates.

5.7.2 Environmental Consequences

Proposed Project (Part A)

Vegetation:

1. The proposed project would result in the systematic loss of all existing natural vegetation communities on 881.7 acres (or 91%) of the 966.3-acre project site. Plant communities adversely affected by the proposed project would include: most of the riparian forest/riparian scrub habitat (approximately 14 acres); wetland habitat and waters of the U.S. (19.83 ~~24.56~~ acres); ruderal habitats; pastures; and cultivated areas (*Significant Impact*).

This loss of existing plant communities would occur as a result of the 12-year gravel mining operations. Impacts to the riparian community would begin in year six of the project. The 84.6 acres of Aspen V South that would not be mined would retain the riparian forest/scrub, valley oak woodland, vernal pool, and some of the irrigated seasonal wetland habitats on that parcel.

Wetlands:

2. The vernal pools on the Aspen V South site could be affected by potential changes in hydrology resulting from the mining of the upland drainage area, particularly the three vernal pools nearest to the edge of the site. Such hydrological changes could affect the plant communities of the vernal pools which could result in the loss of the ecological values and biological information associated with these vernal pools (*Significant Impact*).

3. The proposed project would result in the phased destruction of all waters/wetlands on the Vineyard I and Aspen IV South sites and 0.83 acre of waters/wetlands on the Aspen V South site (*Significant Impact*).

Table 5-8 provides a summary of impacts on waters/wetlands associated with this alternative. A total of 19.83 ~~24.56~~ acres of jurisdictional waters/wetlands would be impacted.

Table 5-8
Impact on Waters of the U.S.

Type	Vineyard I	Aspen IV South	Aspen V South
Riparian (Morrison Cr.)	~~12.56~~12.24	1.09	
Tributary	~~4.14~~3.84	0.44	
Seasonal Wetlands	~~5.25~~1.14	0.25	
Irrigated Seasonal Wetlands			0.83
Total	~~21.95~~17.22	1.78	0.83

A mitigation plan for the Vineyard I project site was prepared by Zentner & Zentner (1994) and for the Aspen IV South and Aspen V South sites by Sugnet & Associates (1994). The mitigation plans for the Vineyard I and Aspen IV South sites utilize the 600-foot reconstructed Morrison Creek corridor for the mitigation effort. Mitigation for the Aspen V South site would occur on-site in an unmined area. Proposed wetland mitigation within the corridor is summarized in Table 5-9. In addition, the Vineyard I mitigation plan proposes 16.12 acres of oak savanna within the corridor.

Table 5-9
Wetland Mitigation

Type	Vineyard I	Aspen IV South	Aspen V South
Perennial Marsh	12.62	2.44	1.50
Riparian Woodland	8.76	6.25	0
Seasonal Marsh	11.74	0	0
Total	33.02	8.69	1.50

For detailed descriptions of the mitigation plans, refer directly to the plans prepared by Zentner & Zentner and Sugnet & Associates which are included in Appendix B.

~~The acreage of wetland compensation as proposed appears adequate based on other plans which have been approved by the Corps of Engineers in the last several years.~~

Wildlife:

4. The proposed project would result in the loss of most existing wildlife habitat and some individual animals within the project site (*Significant Impact*).

This habitat loss and wildlife displacement would be a result of the 12-year proposed gravel mining operations. Habitat destruction and disturbance would displace mobile species into adjacent areas, which may result in increased mortality due to competition for limited resources. During the twelve years of mining activities, disturbance to wildlife would be greatest in the vicinity of the processing plant on the Vineyard I parcel due to the increased levels of noise and human activity in that area.

5. The loss of approximately two miles of the existing natural stream channel of Morrison Creek would disrupt a wildlife movement corridor across the project site (*Less-Than-Significant Impact*).

6. Post-mining/post-reclamation activities such as agricultural practices and operation of the processing plant would likely increase human presence within the project site which may disrupt wildlife feeding and breeding (*Less-Than-Significant Impact*).

Invertebrates:

No significant impacts to general invertebrate populations (i.e., non-special status species populations) have been identified.

Fisheries:

7. The proposed project would result in the loss of existing warmwater fisheries habitat within approximately two miles of Morrison Creek, including the oxbow channel, and some individual fish within the project site (*Significant Impact*).

This habitat loss would occur on the Vineyard and Aspen IV South parcels, resulting from the 12-year proposed gravel mining operations. It would include the loss of potential habitat for the native Sacramento blackfish and for a variety of non-native species. Habitat destruction and disturbance would displace fish species into upstream and downstream areas, which may result in increased mortality due to competition for limited resources. Fish may become established in the wetland mitigation/restored creek corridor and some of these fish may also be lost if they are entrained in the pump that will be located at the sump pond in the downstream end of the corridor on the Vineyard I project. The one half to one mile portion of Morrison Creek through the Aspen V South parcel would be retained. That reach would receive water conveyed from the Morrison Creek Upstream Mining Reach and at-grade streamflows would continue through that reach, along the bypass channel, and on downstream.

8. Loss of approximately two miles of the existing stream channel of Morrison Creek would disrupt fish migration (*Significant Impact*).

Special Status Species:

The project would not significantly impact any special status plants since none are known to occur within the project site. The oak woodland community within the area would be unaffected. The project would not represent a significant impact to the San Joaquin pocket mouse, yellow warbler, or giant garter snake given the low probability of their occurrence within the area.

Mammals:

9. The proposed project would result in the loss of approximately 880 acres of existing suitable American badger habitat and may result in the loss of existing potential badger den sites (*Less-Than-Significant Impact*).

Badgers which may utilize the site would be forced to emigrate to adjacent areas during the mining activities, which may result in increased mortality due to competition, but it is unlikely that individuals would be killed during mining.

10. The proposed project would result in the temporary loss of potential roosting habitat for pallid bat and Townsend's western big-eared bat due to impacts to riparian habitat within the project site. The project would also result in the loss of other potential bat roosting sites, with the demolition of abandoned structures within the project site (*Less-Than-Significant Impact*).

Swainson's Hawk and Other Special Status Birds:

11. The proposed project would result in the temporary loss of approximately 880 acres of potential foraging habitat with potential nest sites for Swainson's hawk, a State threatened species in those areas that would be reclaimed to agriculture and wetlands (assuming that crops suitable for Swainson's hawk foraging are planted). The proposed project would also result in the loss of suitable foraging and nesting habitat for other special status birds, including burrowing owls and tricolored blackbirds (*Significant Impact*).

The loss of this habitat is considered temporary as the post-reclamation uses of the project site would include a 93-acre wetland/habitat mitigation corridor with areas of riparian, marsh, and oak savannah restoration, and agriculture. In addition, because mining would be phased, only 75 to 150 acres of the 966-acre project site would be disturbed at any one time (and reclamation would proceed with mining). It is anticipated that the post-reclamation mining areas would provide potential foraging and nesting habitat for the Swainson's hawk and other raptors, assuming that the agricultural areas would be planted with crops that are suitable for Swainson's hawk foraging (such as alfalfa, dry-land irrigated pasture, cereal grains, beet, tomato, or other low-growing row or field crops). It is assumed that a rodent or small mammal control program would not be implemented in the post-reclamation mining sites which would eliminate the prey base for Swainson's hawks and other raptors.

Burrowing owls may also nest within the post-reclamation project site, in the mitigation corridor, the banks of the bypass channel, and the side slopes of the individual mined sites, assuming that rodents and small mammals remain to create potential den sites. It is also assumed that a rodent or small mammal control program would not be implemented in the post-reclamation site operations which would eliminate the den sites for burrowing owls.

All raptors that currently use the project site for foraging would most likely be forced to find alternative forage areas (potentially on undisturbed areas within the project site), which may result in increased mortality due to competition. The area of permanent open water in the stormwater detention basin and the area occupied by the processing plant would not be suitable for foraging. The potential for disruption of raptor nesting exists, particularly in the area of the processing plant due to the increased noise and activity.

The proposed project would result in the temporary loss of potential nesting habitat for tricolored blackbird, along the Morrison Creek corridor. Tricolored blackbirds which utilize the site or adjacent properties would probably be forced to emigrate to adjacent areas during the mining activities, which may result in increased mortality due to competition, but it is unlikely that individuals would be killed during mining. The post-reclamation mitigation corridor is expected to provide suitable tricolored blackbird nesting habitat, in the proposed perennial marsh and lower riparian habitats.

Reptiles and Amphibians:

12. The proposed project would result in the temporary loss of existing potential breeding habitat for California tiger salamander and western spadefoot toad and may result in the loss of individuals of these species. The project would also result in the loss of suitable habitat for the western pond turtle (*Significant Impact*).

Valley Elderberry Longhorn Beetle and Other Invertebrates:

13. The proposed project would result in the loss of nine elderberry bushes, the host plant of the federally listed valley elderberry longhorn beetle, including at least three bushes which were observed to be used by the beetle, and may therefore result in the loss of individuals of the beetle species (*Significant Unavoidable Impact*).

The seven elderberry bushes observed on the Vineyard I parcel would be removed. Three of these bushes were observed to contain beetle emergence holes typical of the valley elderberry longhorn beetle. These seven elderberry bushes were counted to contain 448 stems with diameters of one inch or greater, the size stem used by the valley elderberry longhorn beetles. The two elderberry bushes observed on the Aspen IV South parcel would also be removed. The several existing elderberry bushes along Morrison Creek through the Aspen V South parcel would not be removed.

14. The gravel mining operation of the proposed project would eliminate some of the existing potential habitat within the project site for the federally listed threatened and endangered fairy shrimp, and tadpole shrimp, ~~and Delta green ground beetle,~~ and could also result in the loss of individuals of these species (*Significant Impact*).

The invertebrate species habitat loss would result from the excavation of areas of seasonal wetlands within the project site. The vernal pools and some other seasonal wetlands on the Aspen V South parcel would ~~be~~ not be mined and are located approximately 400 feet east of mining activity. However, these wetlands could be affected by potential changes in hydrology resulting from the mining of the upland drainage area, particularly the three vernal pools nearest to the edge of the mining area. Such hydrological changes could affect the invertebrate populations in these wetlands which could result in the loss of their ecological values and biological information.

Proposed Project Without the Vineyard I Processing Plant Alternative

Impacts to biological resources resulting from this alternative would be similar to those associated with the proposed project. However, without the processing plant, the levels of noise and human activity on the site would be less and so the increased disturbance to general and special status wildlife from the processing plant would not occur.

County Drainage Alternatives (Part B)

All of the Part B alternatives assume that aggregate mining would occur within the project site and in the same 12 year sequence as would occur under the proposed project. Thus, impacts to biological resources resulting from Part B alternatives would be similar to the proposed project.

Additional impacts unique to the Part B alternatives include the following:

1. All Part B alternatives may result in additional (beyond the proposed project) disruption to future wildlife feeding and breeding areas due to increased human presence (*Significant Impact*).

In addition to increased human activity on the site from agricultural practices which would occur under the proposed project and these alternatives, the potential for recreational features within the project site would further increase human use which may further disrupt wildlife feeding and breeding on-site. This would affect special status wildlife as well as other general wildlife.

2. All Part B alternatives may result in greater permanent loss of plant and animal habitat than would be realized under the proposed project (*Significant Impact*).

The County drainage alternatives would provide additional drainage detention volumes and control flows into the pit floor that would make it possible to develop portions of the pit floor for recreational use, as opposed to reclamation for agriculture under the proposed project. In addition to further increasing human presence on the site, this post-mining land use would result in a greater permanent loss of plant and animal habitat, including special status species habitat.

3. All Part B alternatives would entail lining the bypass channel or using a pipe to carry Morrison Creek flows, which would reduce the general fish and wildlife habitat potential of the bypass channel and may reduce populations of fish and wildlife that might otherwise utilize or migrate through an unlined channel (*Significant and Unavoidable Impact*).

Downstream Capacity Bypass Channel:

4. The Downstream Capacity Bypass Channel alternative would represent a greater loss of suitable foraging habitat for Swainson's hawk and a greater loss of suitable foraging and nesting habitat for burrowing owls than the proposed project (*Significant and Unavoidable Impact*).

This alternative would divert more water into the pit floor for detention. Since the detention area would be roughly twice as large under this alternative as under the proposed project or the other Part B alternatives, more of the site would be permanent open water which is not suitable for Swainson's hawk foraging or for burrowing owl foraging or nesting. These conditions would favor fish, reptiles, amphibians, waterfowl and aquatic invertebrates in the detention area, however, the area would receive urban and agricultural runoff and may have poor water quality.

~~100-Year~~ Floodplain Protection Alternatives

100-Year Floodplain Protection Alternative

1. This alternative would result in the loss of portions of the ruderal, disced, and cultivated habitats, and their associated wildlife habitat values, outside of the 100-year floodplain. ~~However, t~~The stream's natural features and vegetation (including riparian and wetland habitats) which would otherwise be removed by the project would be substantially avoided with the exception of 0.11 acre of seasonal wetland ~~unaffected~~ and the wildlife values associated with the habitats left intact would be retained (*Significant Impact*).

Mitigations for plant and animal resources similar to those identified for the project would be required. No additional significant adverse effect to the valley elderberry longhorn beetle is anticipated.

Creek Buffer Alternative

Vegetation:

1. A total of 8.0 acres of ~~J~~jurisdictional waters would be adversely affected by this alternative including approximately 1.14 acres of riparian woodland/drainage channel (0.7 acre on Vineyard I and 0.44 acre on Aspen V South), 1.3 acre of perennial marsh (on Vineyard I), and 5.56 acres of seasonal marsh (4.48 acres on Vineyard I, 0.83 acre on Aspen IV South, and 0.25 acre on Aspen V South). In addition, other plant communities including ruderal habitats, pastures, and cultivated areas located outside of the 150-foot buffer area would be displaced. It is possible that the vernal pool preserve area on the Aspen V South parcel may still be affected as described for the proposed project (*Significant Impact*).

Special Status Species:

2. This alternative would result in the temporary loss of nearly 800 acres of potential foraging habitat for Swainson's hawk (*Significant Impact*).

3. At least four elderberry bushes, the host plant of the federally listed Valley elderberry longhorn beetle, which occur outside of the 150-foot buffer of the Vineyard I parcel would be lost and may therefore result in the loss of individuals of the beetle species. In addition, one other elderberry bush (located within 200 feet of Morrison Creek) would also likely be removed to allow for proposed side slopes leading up from the proposed pit area to the 150-foot buffer zone (*Significant Impact*).

4. Some of the existing potential breeding habitat for California tiger salamander and western spadefoot toad~~, and Delta green ground beetle~~ would still be temporarily lost and could result in the loss of these species. Vernal pools or other seasonal wetlands that may provide habitat for fairy shrimp will not be eliminated as they are located greater than 400 feet from active mining. However, these wetlands could be affected by potential changes in hydrology resulting from the mining of the upland drainage area, particularly the three vernal pools nearest to the edge of the mining area. Such hydrological changes could affect the invertebrate populations in these wetlands which could result in the loss of their ecological values and biological information. (*Significant Impact*).

Mitigation for plant and animal resources similar to those identified for the proposed project would be required.

No Project Alternative

1. The No Project Alternative would maintain all of the existing project site biological resources, existing wetlands and other jurisdictional waters in the short term and result in the continuation of farming and ranching within the project site. However, there would be no guaranteed long term protection of these resources (*Less-Than-Significant Impact*).

5.7.3 Mitigation

Recommendations/Requirements of Various Agencies (All Mining Alternatives)

California Department of Fish and Game:

1. The proponents shall secure a Streambed Alteration Agreement (CDFG 1601-1607) with CDFG before re-routing existing stream channels. The Streambed Alteration Agreement shall include a program and appropriate plans to protect upstream and downstream habitats. Best Management Practices shall be employed to minimize alterations of natural water flows and reduce downstream sediment.

2. The proponents shall develop and implement a water quality and erosion control plan for all construction-related project activities; the plan shall include the following:

    a. Control disposal of runoff within the construction and staging as well as any water encountered during construction. There must not be any discharge to State waters unless authorized under permit by the CDFG and the Central Valley Regional Water Quality Control Board;

b. Methods to control surface discharge away from disturbed areas and along roadways;

c. Methods to be used for slope stabilization and to limit erosion on disturbed areas or any other area subject to erosion;

d. Methods to be implemented that assure proper operation, maintenance, and use of erosion control devices;

e. Seasonal variation in use of erosion control measures must be addressed, including winterizing all areas from October 15 through May 15 of each year; and

f. A detailed revegetation and slope stabilization plan.

3. In order to comply with Public Resources Code Section 21081.6, a detailed monitoring program shall be developed for all mitigation conditions. The monitoring program shall include, but may not be limited to, the following:

a. Specific criteria to measure the effectiveness of the mitigation;

b. Annual monitoring reports for a minimum of five years; annual reports must be submitted to Sacramento County, the Corps and CDFG; and

c. The annual monitoring reports must include corrective recommendations that shall be implemented in order to ensure that mitigation efforts are successful.

4. Pursuant to Public Resource Code 21092 and 21092.2, the CDFG shall be notified in writing of any proposed actions and/or pending decisions regarding this project; the written notification(s) shall be sent to the CDFG Region 2 office, Rancho Cordova.

United States Fish and Wildlife Service:

5. The proposed project (through the Corps) shall comply with the consultation requirements set forth in Section 7 of the federal Endangered Species Act (per 16 USC Sec. 1531 *et seq.*), and the Fish and Wildlife Coordination Act (16 USC Sec. 661 *et seq.*).

Federal Clean Water Act:

6. The proponent shall obtain a Section 404 permit prior to construction of the conveyor system should there be any work in wetlands and other waters of the U.S. under Section 404 of the federal Clean Water Act (Clean Water Act).

Mitigation Measures

Proposed Project (Part A):

1. Except as modified below for the proposed wetland mitigation, the proponents shall implement the proposed reclamation plans as presented in the surface mining application

documents, including the wetland mitigation plans (Zentner and Zentner, 1994; Sugnet & Associates, 1994b, and 1994c) to mitigate for impacts to the riparian forest/riparian scrub communities, wetlands, and wildlife habitats within the project site, including habitat for special status wildlife species. The following modifications to the wetland mitigation plans shall be made:

a. The flows to be regulated and maintained in the mitigation corridor (to be located on the Aspen IV South and Vineyard I parcels), by releases from the bypass channel, shall be determined in consultation with the USFWS, CDFG, Corps, and County and shall be sufficient to support the mosaic of habitats proposed for the corridor. This consultation shall establish the minimum low flow and optimal high flow conditions to be maintained within the mitigation corridor to achieve the hydrological goals of the mitigation and support the various habitats as expected.

b. To ensure mitigation for Valley elderberry longhorn beetle, elderberry planting shall be conducted within the mitigation corridor on the Aspen IV South parcel following the USFWS's ~~*General Compensation*~~ *Mitigation Guidelines for the Valley Elderberry Longhorn Beetle* (September 19, 1996~~May 31, 1994~~).

c. The monitoring effort for the riparian woodland, riparian scrub, and Valley oak savanna habitats shall be performed for a period of ten years to ensure success of the plantings and development of the habitats anticipated.

d. Monitoring efforts on the Aspen V South parcel shall include hydrological and botanical monitoring of the vernal pools on the parcel to document consistency or any changes in these communities. Hydrological monitoring shall entail recording the period and duration of inundation; botanical monitoring shall be conducted as in the emergent marsh mitigation to be constructed. This additional monitoring would be incorporated into the five year monitoring program. Should the monitoring reveal that the vernal pools have been significantly impacted, additional mitigation for the vernal pools shall be developed in consultation with the USFWS, CDFG, Corps, and the County.

2. After the five year monitoring period for mitigation of wetlands and other habitats, a written determination shall be made as to the success or failure of the wetland and habitat mitigation. The determination of success shall be made by a qualified biologist in consultation with and concurrence by the USFWS, CDFG, Corps and the County. If the determination concludes that the wetland, riparian, and/or oak woodland habitats have not met the success criteria, the proponents shall develop additional habitats and/or implement other remediation that is approved by the above mentioned agencies.

3. To mitigate for impacts to fish and aquatic wildlife movement/migration in Morrison Creek, the bypass channel shall be designed to incorporate suitable habitat features. The features shall be developed in consultation with the USFWS, CDFG, Corps, and the County, and shall provide opportunities for the native Sacramento blackfish as well as other species of aquatic wildlife, including special status amphibians and reptiles.

4. The following mitigation is recommended to minimize the potential impacts to Swainson's hawk, burrowing owl and other bird species. The measures listed below are related to the aforementioned species only.

   a. Prior to issuance of any grading permits, the proponents shall submit, to the Department of Environmental Review and Assessment, a current survey conducted by a qualified wildlife biologist indicating the location and status of any active nest within the project site.

   b. Prior to the disturbance or removal of any raptor nest, the proponents shall secure the required permits for the USFWS for such removal, pursuant to the Migratory Bird Treaty Act.

   c. No construction shall be allowed within 150 feet of any active raptor or tricolored blackbird nest site until all of the young have fledged, or a permit has been secured from the appropriate resource agency to allow disturbance or removal of the active nests. The 150-foot "no construction" buffer zone must be adequately fenced and signed.

   d. The post-reclamation agricultural areas shall be planted only with crops that are suitable for Swainson's hawk foraging; these crops shall be approved by the CDFG.

   e. The post-reclamation project site shall not be operated with any rodent or small mammal control program that would indiscriminately eradicate all rodents and small mammals from the project site. The proponents shall ensure that any rodent or small mammal control program is approved by the CDFG, Corps, and the County prior to its implementation.

5. The proponents shall comply with the implementing measures included in the County's standard tree preservation ordinance for all oak trees on the project site to be preserved and protected from mining operations. Any native oak trees greater than 4 inches dbh proposed for removal shall be compensated for by planting native oak trees (valley oak/*Quercus lobata*, blue oak/*Q. douglasii*, and/or interior live oak/*Q. wislizenii*) based on the compensation ratio provided below. The trees shall be planted on the project site or off-site, preferably at a nearby community park. Prior to issuance of the work authorization, a replacement Oak Tree Planting Plan shall be prepared by a certified arborist or a licensed landscape architect and shall be submitted to the Environmental Coordinator for review. The plan shall identify the planting location, the number and species of trees to be planted, the funding source for planting and maintenance, and maintenance agreements identifying the entity which shall provide care for the trees during a 3-year establishment period. In addition to oak tree replacement, the plan shall provide for the replacement of all landmark size (19 dbh or greater) native trees (except cottonwoods and willows) removed as a result of the project on an in-kind and inch-for-inch basis. The following compensation ratio for oak tree replacement is required:

- One 15-gallon oak tree equals 1-inch dbh
- One 24-inch box oak tree equals 2-inches dbh
- One 36-inch box oak tree equals 3-inches dbh

No replacement oak tree shall be planted within 15 feet of the driplines of oak trees which are retained on-site, or within 15 feet of a building foundation.

Proposed Project Without the Vineyard 1 Processing Plant Alternative:

Mitigation for this alternative would be the same as for the proposed project since the impacts would be similar.

County Drainage Alternatives (Part B):

1. All of the mitigation measures described above for the proposed project shall be implemented for all Part B alternatives.

2. To mitigate for increased human use of the project site that may result from the development of recreational features under the Part B alternatives, the proponents shall incorporate public signs into the recreational design to inform the users about the history of the project site, its wildlife value, and sensitivity of wildlife species which may be feeding or breeding onsite.

~~100-Year~~ Floodplain Protection Alternatives:

100-Year Floodplain Alternative

1. Mitigation measures 4 and 5 for the proposed project shall apply to this alternative, as appropriate. In addition, the 0.11 acre of seasonal wetland impacted by this alternative shall be mitigated on a 1.5:1 ratio (0.17 acre) within the 100-year floodplain at the Vineyard I and Aspen IV South sites, or other mitigation approved by the County, Corps, USFWS and CDFG. The same monitoring requirements and success criteria described in the mitigation plans shall apply to this alternative.

Creek Buffer Alternative

1. Mitigation measures 1, 2, 4, and 5 for the proposed project shall apply to this alternative, as appropriate. In addition, the 1.14 acres of riparian woodland/drainage channel, 1.3 acres of perennial marsh, and 5.56 acres of seasonal marsh impacted by this alternative shall be mitigated within the creek buffer area. The same replacement ratios, monitoring requirements and success criteria described in the mitigation plans shall apply to this alternative. Habitat shall be provided within the creek buffer area on the mining sites where the habitat would be lost.

5.8 TRAFFIC AND CIRCULATION

This section describes the roadway network currently serving the project site, and discusses the potential impacts associated with implementation of the proposed project and alternatives. Appendix C contains background information used during the preparation of this section, including tables, and should be used in conjunction with the information provided below.

Following review of the Draft EIR/EIS, the project proponents were able to reach agreement on the easements necessary to allow the conveyor access proposed under the "Proposed Project Without Vineyard Processing Plant" already evaluated in the EIR/EIS. This agreement removed the need to have a new processing plant on the project site, and the project proponents have indicated that this is now the "preferred project." In addition, there were several new conditions of approval/mitigation that were recommended by the public during the Policy Planning Commission hearings. The proponents have agreed to these conditions and thus have been included as required mitigation in this document (Section 5.8.3). As a result of these new conditions, the traffic model used in assessing the project's impacts was re-run for the preferred project ("Proposed Project Without Vineyard I Processing Plant") assuming these new conditions were in place. The results of this analysis have been incorporated into the Final EIR/EIS and are presented below as "scenario 4a". In summary, the new conditions would remove significant LOS impacts at the Elder Creek at Bradshaw intersection, under project conditions and would create and remove significant LOS impacts at two intersectons under cumulative conditions before mitigation.

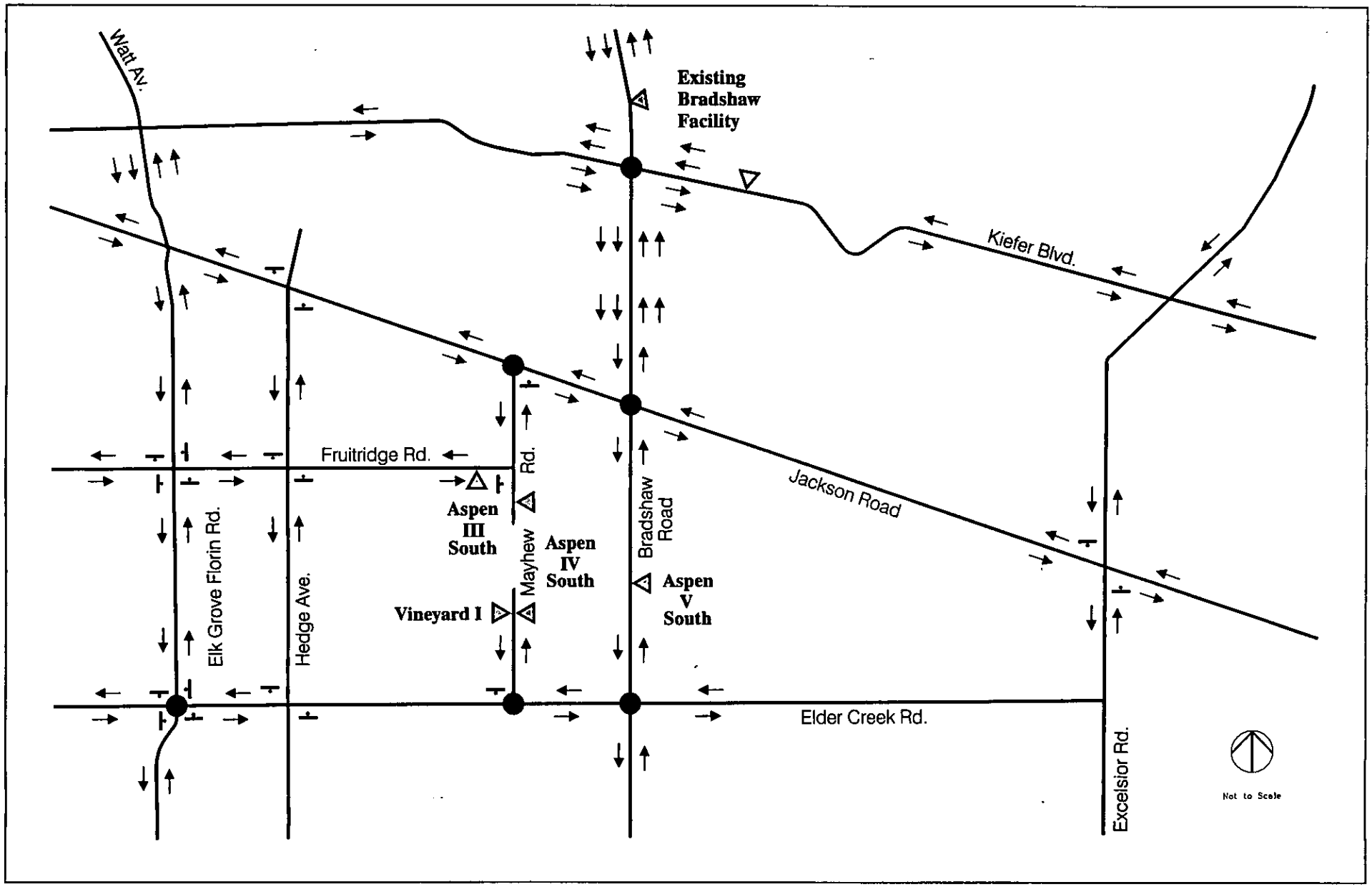
5.8.1 Affected Environment

The existing major roadways in the vicinity of the project and their intersections are summarized on Figure 5-9, which shows the existing lanes, intersection controls, and access locations. Generally, Jackson Road and the roadways south of it are two-lane rural facilities, with added turn lanes at major intersections. Watt Avenue and Bradshaw Road are four-lane facilities north of Jackson Road. Kiefer Boulevard is four-lanes at its intersection with Bradshaw, but is two-lanes east and west of Bradshaw. Figure 5-10 presents diagrams of the existing lanes and controls at the major intersections.

Levels of Service

Roadway operating conditions are described in terms of levels of service (LOS). Level of service definitions, per the Transportation Research Board's *Highway Capacity Manual, Special Report 209, Third Edition* 1994 are as follows:

- LOS A: Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Stopped delay at signalized intersections is minimal.
- LOS B: The ability to maneuver within the traffic stream is only slightly restricted and stopped delays are not bothersome. Drivers are not generally subjected to appreciable tension.



Morrison Creek Mining Reach, Downstream (South) of Jackson Highway EIR/EIS

LEGEND

- Primary Access Location
- Secondary Access Location
- Through Traffic Lanes (Turn Lanes Not Shown)
- Key Study Intersection
- Stop Sign

Figure 5-9
Existing Lanes, Intersection Controls and Access Locations

Source: Dowling Associates, 1995

EDAW Inc.

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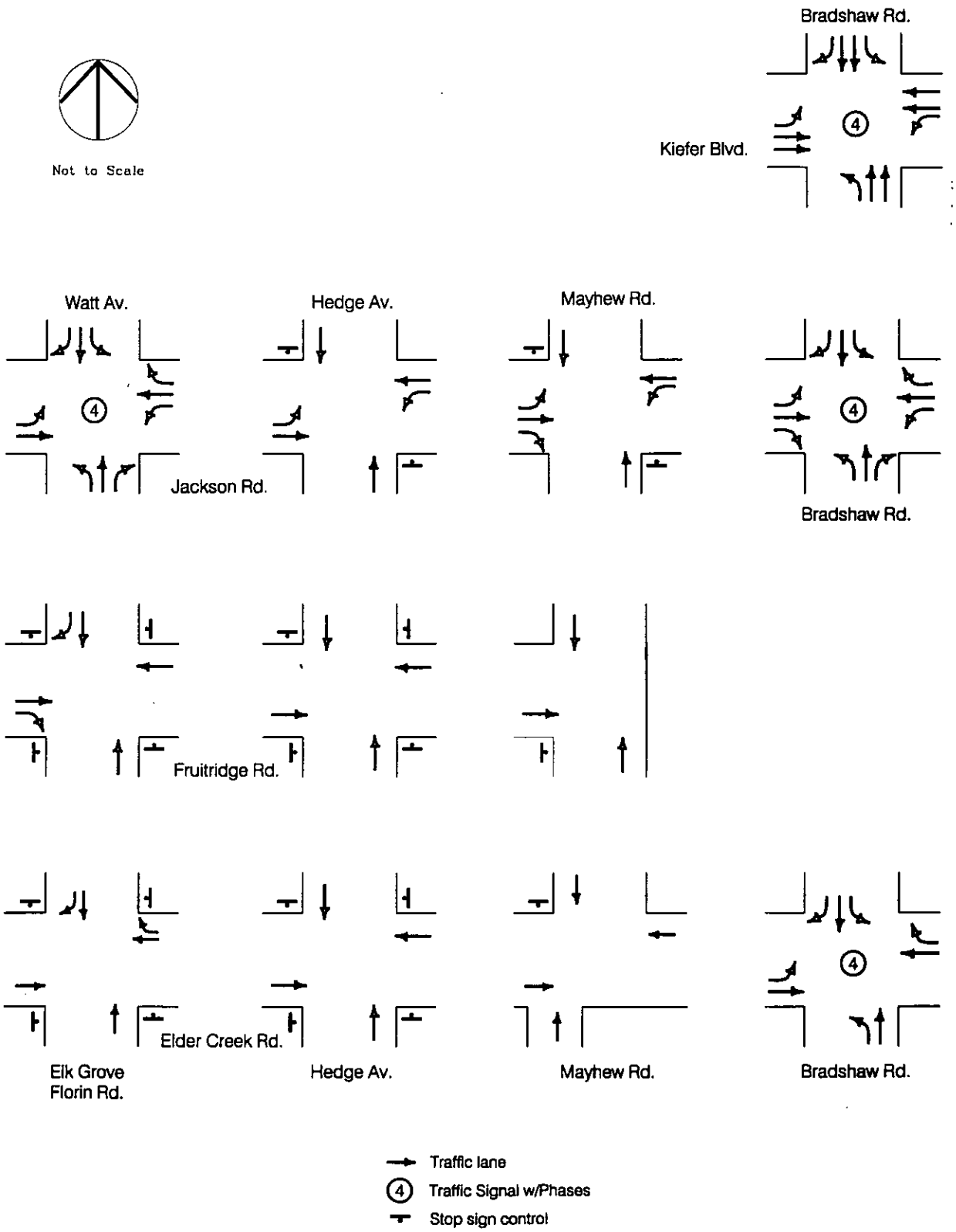

Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 5-10
Existing Lane Configurations and Intersection Controls
Source: Dowling Associates, 1995

EDAW Inc.

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- LOS C: Operations are stable; however, ability to maneuver and change lanes in midblock locations may be more restricted than at LOS B. Motorists would experience appreciable tension while driving.
- LOS D: Operations border on a range in which small increases in flow may cause substantial increases in delay and hence decreases in arterial speed.
- LOS E: Operations are characterized by significant delays and average travel speeds of one-third the free-flow speed or less.
- LOS F: Operations are characterized by arterial flow at extremely low speeds below one-third to one-fourth of the free-flow speed. Intersection congestion is likely at critical signalized locations, with high delays and extensive queuing.

Existing AM and PM turning movement traffic volumes were counted for the morning and evening peak commute hours. Capacity analysis was performed for the key intersections and roadway segments (links) in the project site. The capacity analysis at key intersections was performed using the Transportation Research Board *Circular 212* Planning method for signalized intersections, the 1994 *Highway Capacity Manual* method for all-way stop sign controlled intersections, and 1985 *Highway Capacity Manual* method for one or two-way stop sign controlled intersections.

The analysis showed that the signalized intersection of Bradshaw Road and Jackson Road currently operates at LOS F during both the AM and PM peak hours. The stop sign controlled intersection of Elder Creek Road and South Watt Avenue currently operates at LOS F during the PM peak hour. The roadway segment for Watt Avenue between Fruitridge Road and Elder Creek Road currently operates at LOS C.

Levels of service for the link analysis was based on the Sacramento County CMP methodology, which compares daily traffic volume against generalized segment capacities. The generalized segment capacities were converted to peak hour capacities by applying factors computed from a comparison of peak hour and daily traffic volumes.

All of the roadways under the existing conditions are classified as Principal Arterial Undivided. This road type has a 24-hour capacity of 15,000 and a peak hour capacity of 1,350. There are two roadway segments which currently operate at LOS F during both the AM and PM peak periods. These segments are Watt Avenue between Jackson Road and Fruitridge Road, and Bradshaw Road between Jackson Road and Florin Road.

Pending Roadway Improvements

Based on information provided by the Sacramento County Transportation Division, improvements to the Jackson/ Bradshaw intersection are expected to be constructed by September 1997. These improvements include modifications to the Bradshaw approaches and traffic signal to provide a second through lane on the southbound approach, and on the northbound approach to convert the existing right-turn-only lane to a combined through and right-turn lane. The northbound departure would be widened to accept the dual through lane movement. South of the intersection, Bradshaw would be widened to 4-lanes plus a center turn

lane from Jackson Road to just north of the Morrison Creek Bridge. These improvements would improve the LOS at the Bradshaw Road / Jackson Road intersection to LOS D or better during the AM and PM peak periods.

Traffic Model Scenario 4a

As described in the introduction to Section 5.8, the traffic model used during the impact analysis was re-run for the Final EIR/EIS to evaluate the "Proposed Project Without Vineyard I Processing Plant" Alternative assuming that additional conditions of approval were implemented. (The model output has been added to Appendix C.) The additional conditions of approval were requested by members of the public during a series of Policy Planning Commission hearings held for the Draft EIR/EIS and the project. During the hearings the proponents agreed to implement the proposed conditions and thus the Final EIR/EIS includes an evaluation of the traffic and circulation conditions that could result from implementation. Also during the review of the Draft EIR/EIS, the project proponents were able to successfully negotiate the easements necessary to implement the "Without Vineyard I Processing Plant" alternative (refer to Section 4.1 for additional discussion). As a result, the project proponents' have indicated that the new preferred alternative is the "Without Vineyard I Processing Plant" option and the revised model run was therefore based on this alternative. The results of the revised model run are presented in this section of the Final EIR/EIS as "Scenario 4a." (The Draft EIR/EIS included a "Scenario 4" which represented the Proposed Project Without Vineyard I Processing Plant Alternative.) Impacts and mitigation discussion for Scenarios 4 and 4a are presented separately in this section.

The following are the assumptions used in preparation of the revised model run:

- There would be no processing plant located on the Vineyard I site.
- There would be no change in the haul rate (aggregate material) from the existing Bradshaw plant.
- The maximum haul rate from the Vineyard I site for overburden material would be limited to 30 truck loads per hour during the peak traffic periods (7:00-9:00 AM and 4:00-6:00 PM).
- There are no limitations (in the Planning Commission's recommended conditions of approval) on the haul rate from the Aspen III-V sites, but we are assuming the maximum rate would be 24 loads per hour during the peak traffic periods (as the applicant stated). ~~*[COUNTY: The County may want to add a condition of approval to the Aspen III-V sites that the maximum haul rate for overburden material would be limited to 24 truck loads per hour during the peak traffic periods (7:00-9:00 AM and 4:00-6:00 PM). Rob Wainwright, Teichert Aggregates, stated in the June 10, 1998, public hearing that all of the overburden in Aspen III has already been removed.]*~~
- All removal of overburden traffic from the Vineyard I, Aspen III and Aspen IV sites would be north along Mayhew Road to Jackson Road. [It was previously assumed the haul route for the Vineyard I site would be south along Mayhew Road to Elder Creek Road].
- The previously assumed total limit on overburden material (430,000 CY) would be increased to a total of 100,000 cubic yards (CY) for the Vineyard I site and a total of 900,000 CY for

the Aspen III-V sites. [Based on restrictions on removal rates, the total maximum rate of truck trips to and from the project site during peak hours would remain the same as previously evaluated for Scenario 4 or 108 total trips per hour (refer to Table 5-10)].

- It is assumed the overburden removal would occur primarily from 6:00 AM to 3:30 PM, five days per week. [At the haul rates listed above, all of the overburden from all the sites could be removed in about one year.]
- The assumptions listed above would apply to the analysis of project conditions.
- For cumulative conditions (2010) the same maximum haul rates would be analyzed.

5.8.2 Environmental Consequences

The County of Sacramento uses a LOS "E" standard for urban roadway operating conditions and a LOS "D" standard for rural roadways. Therefore, if the proposed project causes the LOS to drop below LOS D (i.e., LOS E or F) on a rural roadway, this would constitute a significant impact (See Appendix C). In addition to LOS, there are several other potential traffic impacts which may occur as a result of the proposed project and/or alternatives. The following is a summary of these potential impacts.

Proposed Project (Part A)

1. The proposed project would result in deterioration of existing LOS due to trips generated by removal of overburden material, hauling of aggregate materials from the proposed processing plant at the Vineyard I site, and by employees and maintenance vehicle activity (*Significant Impact*).

Overburden material would be removed at a maximum rate of 30 truck loads per hour for Vineyard I and 24 truck loads per hour for Aspen III, IV and V South. A maximum of 54 truck loads of overburden would be removed during the AM and PM peak hours. ~~Approximately 430,000 cubic yards of overburden are proposed to be removed from the project site.~~

Aggregate materials would be hauled from the Vineyard I site at a maximum rate of 50 truck loads during the AM and PM peak hours. Traffic generated by commercial sales at the new Vineyard I processing facility would replace an equivalent amount of traffic generated by the existing Bradshaw facility.

Some employees would be transferred from the existing Bradshaw facility to the new Vineyard I processing facility. The work shifts at the processing plant are from 6:00 AM to 2:30 PM, 2:30 to 10:30 PM, and 10:30 PM to 6:00 AM. Employees are not expected to travel during the peak commute periods, which occur between 7:00 - 9:00 AM and 4:00 - 6:00 PM.

A total of about 50 daily trips would be generated by employees and maintenance vehicle activity. These same trips are now being generated elsewhere in the general area in connection with the present mining operations, and would not represent an increase in traffic on roadways in the vicinity. As a result, no significant impacts are expected from employee traffic.

Mining at Vineyard I would occur simultaneously with mining at Aspen III, IV, and V South. As a result, four traffic scenarios were analyzed to determine traffic impacts. The first three scenarios include traffic generated by aggregate hauling from Vineyard I (with on-site plant) combined with overburden hauling from each of the Aspen III, IV, and V South sites. The fourth scenario includes traffic generated by overburden hauling from Vineyard I (Proposed Project Without the Vineyard I Processing Plant Alternative as discussed below). The trip generation rates for the four traffic scenarios are shown in Table 5-10.

Truck traffic for overburden removal and hauling to outside customers is expected to be distributed as follows:

- North on Bradshaw Road 50%
- West on Jackson Road 20%
- East on Jackson Road 15%
- South on Bradshaw Road 12%
- South on Watt Avenue 3%

Half of the commercial truck trips distributed to points west on Jackson Road are assumed to travel along South Watt Avenue; the other half along Bradshaw Road. Although Bradshaw Road is a better route, it is somewhat longer (Table 5-11).

Mining operations would result in increased traffic at the intersection of Elder Creek Road and South Watt Avenue. In the PM peak hour, this intersection currently operates at LOS F, which is in excess of the County's level of service standard. Mining operations would also reduce the PM peak hour LOS from D to E at the rural intersection of Elder Creek Road at Bradshaw Road. Addition of traffic at these two intersections is considered to be a significant impact.

On the roadway segment of Jackson Road between Mayhew Road and Bradshaw Road, the LOS would drop from LOS E to LOS F during the PM peak hour, when overburden is being hauled from Aspen III South. The intersections along this roadway would operate in compliance with County standards. Because the intersections are considered to be the critical points on arterial roadways, this is not considered a significant impact.

Mining operations would perpetuate the existing LOS F conditions at the roadway segment on Watt Avenue between Jackson Road and Fruitridge Road, and on Bradshaw Road between Jackson Road and Florin Road. Mitigation of impacts to congested intersections along these roadways is expected to reduce these impacts to less-than-significant.

2. Introduction of truck traffic on roads not designed to accommodate truck traffic or at access points to heavily traveled roads would have a significant adverse impact on traffic safety (*Significant Impact*).

Table 5-10
Trip Generation Estimates[a]
AM and PM Peak Hours

Scenario	1		2		3		4		4a	
Granite - Vineyard I	Option I: On-Site Processing Plant						Option 2: No Processing Plant			
Teichert Site	Aspen III South		Aspen IV South		Aspen V South		Aspen V South		Aspen V South	
	In	Out	In	Out	In	Out	In	Ou	In	Out
Granite - Vineyard I										
Overburden Removal	60[b]	60[b]	60[b]	60[b]	60[b]	60[b]	60	60	60	60
Aggregate Hauling	100	100	100	100	100	100				
Teichert										
Overburden Removal	48	48	48	48	48	48	48	48	48	48
Total (during maximum hauling conditions)	148	148	148	148	148	148	108	108	108	108

[a] Shown in passenger car equivalents: 2 passenger cars = 1 truck.
[b] Trips that would not occur during the period when the highest number of trips will be generated.

Table 5-11
Intersection Levels of Service
For Project Alternatives (Existing Conditions)
AM Peak Hour (PM Peak Hour)

	No Project		Scenario 1		Scenario 2		Scenario 3		Scenario 4		Scenario 4a	
Intersection	V/C	Level of Service	V/C	Level of Service	V/C	Level of Service	V/C	Level of Service	V/C	Level of Service	V/C	Level of Service
Elder Creek Rd at S. Watt Ave (urban)	0.84 (1.26)	C (F)	0.86 (1.28[c])	C (F)	0.86 (1.28[c])	C (F)	0.86 (1.28[c])	C (F)	0.85 (1.27[c])	C (F)	0.84 (1.26)	C (F)
Elder Creek Rd at Mayhew Rd (rural)	574[a] (606[a])	A (A)	441[a] (453[a])	A (A)	432[a] (444[a])	A (A)	441[a] (453[a])	A (A)	504[a] (520[a])	A (A)	574[a] (606)[a]	A (A)
Elder Creek Rd at Bradshaw Rd (rural)	0.77 (0.87)	C (D)	0.82 (0.93)	D (E[c])	0.82 (0.93)	D (E[c])	0.82 (0.93)	D (E[c])	0.80 (0.91)	D (E)[c]	0.78 (0.87)	C (D)
Bradshaw Rd at Jackson Rd[b] (urban)	0.82 (0.75)	D (C)	0.86 (0.79)	D (C)	0.86 (0.79)	D (C)	0.84 (0.80)	D (D)	0.85 (0.79)	D (C)	0.88 (0.77)	D (C)
Bradshaw Rd at Kiefer Blvd (urban)	0.52 (0.73)	A (C)	0.54 (0.75)	A (C)	0.54 (0.75)	A (C)	0.54 (0.75)	A (C)	0.54 (0.75)	A (C)	0.54 (0.75)	A (C)
Jackson Rd at Mayhew Rd (urban)	243[a] (171[a])	C (D)	210[a] (145[a])	C (D)	215[a] (151[a])	C (D)	235[a] (167[a])	C (D)	231[a] (163[a])	C (D)	177[a] (97)[a]	D (E)

[a] Unused capacity is shown for 2-way stop controlled intersections.
[b] Improvements planned for FY-95/96 are assumed to be in place.
[c] Potentially significant adverse impact.
Note: County LOS standards are LOS D for "Rural" roadways and LOS E for "Urban" roadways. Therefore, any reduction in LOS beyond the County Standards would be considered a potentially significant adverse impact.

The poorer operating capabilities of trucks and their significantly larger size and mass have the potential to reduce traffic safety. This is somewhat mitigated by the training and experience of professional truck drivers. On the other hand, other motorists do not always recognize the inherent limitations of truck vehicles, and may unwittingly contribute to potentially hazardous traffic situations. The design of existing major intersections in the general area of the project adequately provides for the geometric and operational parameters of truck traffic.

Mayhew Road is narrower than normal for a two-lane roadway: approximately 20 feet wide, and is insufficient to safely accommodate two-way truck traffic. The intersection of Mayhew Road with Elder Creek Road is insufficient for truck turning movements without encroachment into opposing traffic lanes. This is considered to be a significant impact.

Introduction of truck traffic at a new access to the Aspen V South site would have a significant adverse impact on traffic safety on Bradshaw Road. Because of the high traffic volumes on Bradshaw Road, trucks waiting to turn from Bradshaw Road into Aspen V South entrance could create a potentially significant safety impact. Egress from the Aspen V South site would be controlled by a stop sign; exercise of adequate care by professional truck drivers should result in reasonable levels of safety for site egress.

3. The increased truck traffic due to the project may contribute to additional deterioration of the pavement on roadways near the project site entrances, and have the potential to damage the roadway structural section (*Significant Impact*).

A major area of traffic impact related to truck traffic is the structural wear and tear caused by the heavy axle loadings which characterize truck vehicles. The larger the trucks, the heavier these loadings. Over time, truck traffic eventually breaks down the roadway surface and base material, necessitating maintenance or reconstruction. The structural deterioration of roadways is directly proportional to the number of truck trips using them. Thus, increased truck trips means more rapid deterioration, resulting in the need for additional pavement maintenance.

The greatest potential for pavement damage is where the concentrations of truck traffic are highest (i.e., near the site entrance points). The County maintains a computerized pavement management system which provides a rating of pavement conditions. A field inspection of roadway conditions was also performed. Along the primary haul routes, the following conditions were identified:

- Elder Creek Road: Good Condition;
- Mayhew Road: Good Condition;
- Bradshaw Road: Good Condition;
- Jackson Road: Fair Condition;
- Watt Avenue: Fair to Good Condition; and
- Hedge Avenue: Poor Condition (few truck trips are anticipated).

Cumulative Conditions:

4. The proposed project would result in deterioration of the LOS for cumulative conditions (*Significant and Unavoidable Impact*).

Cumulative traffic volumes were taken from the Mather Field DEIR (EIP Associates, 1994), and are based on the regional SACMET 2010 travel model. The traffic generated for full buildout of the County-Operated Aviation Facility, under Cumulative Scenario 1: Mather Field General Plan Amendment, was added to the SACMET model traffic, and was used as the base cumulative traffic for the Morrison Creek Mining Reach (South) project. Base traffic for roadways not contained in the Mather Field DEIR were developed by applying a factor (2.88) to existing traffic volumes. This factor, developed by comparing cumulative and existing traffic for area roadways which were contained in the Mather Field DEIR, is consistent with traffic growth for other roadways in the project area.

The transportation network used in the cumulative analysis is consistent with full development of roadways and transit systems included in the General Plan, plus changes to the General Plan network associated with the General Plan Amendment for Mather Field. The following roadway segments in the project study area are designated in the General Plan to be widened to 6-lane divided arterials under cumulative conditions:

- Jackson Road from South Watt Avenue to Bradshaw Road
- South Watt Avenue from Kiefer Boulevard to Florin Road
- Bradshaw Road from Kiefer Boulevard to Florin Road

Intersection improvements (including signalization) consistent with these roadway segment improvements are also assumed to be included.

Because the differences in impacts of the various project scenarios were shown to be minimal under existing conditions, Scenario 2 was analyzed for cumulative conditions. Scenario 2 considered the case of commercial aggregate hauling from Vineyard I and simultaneous overburden removal from Aspen IV South. This scenario resulted in maximum traffic for all project scenarios.

As shown in Table 5-12, under cumulative conditions, three intersections would operate in excess of the County's level of service policies:

- Elder Creek Road at Mayhew Road
- Elder Creek Road at Bradshaw Road
- Bradshaw Road at Kiefer Boulevard

Traffic operations at the Elder Creek Road / Mayhew Road intersection would be substantially affected by the mining project. The project would *not* have a substantial effect on traffic operations at the latter two intersections.

The following roadway segments are expected to operate in excess of the LOS standard of significance:

- Elder Creek Road - South Watt Avenue to Bradshaw Road
- Bradshaw Road - Kiefer Boulevard to Florin Road

Table 5-12
Intersection Levels of Service
For Project Alternatives (Cumulative Conditions)
AM Peak Hour (PM Peak Hour)

Intersection	No Project		Project (Scenario 2)		Project (Scenario 4a)	
	V/C	Level of Service	V/C	Level of Service	V/C	Level of Service
Elder Creek Rd at S. Watt Ave (urban)	0.86 (0.91)	D (E)	0.87 (0.91)	D (E)	0.86 (0.91)	D (E)
Elder Creek Rd at Mayhew Rd (rural)	204 [a] (209 [a])	C (C)	79 [a] (87 [a])	E [B] (E [B])	204 [a] (209) [a]	C (C)
Elder Creek Rd at Bradshaw Rd (rural)	0.91 (1.04)	E (F)	0.94 [b] (1.06 [b])	E (F)	0.92 (1.04)	E (F)
Bradshaw Rd at Jackson Rd (urban)	0.95 (0.95)	E (E)	0.96 (0.98)	E (E)	0.98 (0.96)	E (E)
Bradshaw Rd at Kiefer Blvd (urban)	1.06 (0.98)	F (E)	1.07 [b] (0.99)	F (E)	1.07 [b] (0.99)	F (E)
Jackson Rd at Mayhew Rd (urban)	84 [a] (88 [a])	E (E)	64 [a] (79 [a])	E (E)	0 [ab] (0) [ab]	F (F)

[a] Unused capacity is shown for 2-way stop controlled intersections.
[b] Potentially significant adverse impact.
Note: County LOS standards are LOS D for "Rural" roadways and LOS E for "Urban" roadways. Therefore, any reduction in LOS beyond the County Standards would be considered a potentially significant adverse impact.

Only the segment on Elder Creek Road from Mayhew Road to Bradshaw Road would be substantially affected by the project. The significant project impact at the Elder Creek Road / Mayhew Road intersection would not be mitigated by improving the transportation system. Widening the roadway and/or adding lanes would not substantially improve operations for this stop-sign controlled intersection. A traffic signal is not likely to be warranted, and should not be installed unless one or more warrants are satisfied.

Proposed Project Without the Vineyard I Processing Plant Alternative

1. Impacts to traffic and circulation would be similar to those listed for the proposed project (*Significant Impact*)

Mining operations would result in increased traffic at the intersection of Elder Creek Road and South Watt Avenue, which currently operates at LOS F during the PM peak hour. Mining operations would also reduce the PM peak hour LOS from D to E at the rural intersection of Elder Creek Road at Bradshaw Road. Addition of traffic at these two intersections is considered to be a significant impact.

In contrast to the proposed project, the project without the Vineyard I processing plant would maintain the roadway segment of Jackson Road between Mayhew Road and Bradshaw Road at LOS E.

Proposed Project Without Vineyard I Processing Plant (Scenario 4a)

1. Impacts to traffic and circulation would be similar to those listed for the proposed project and the traffic Scenario 4 described above (*Significant Impact*).

As described in Section 5.8.3, Scenario 4a represents the Proposed Project Without Vineyard I Processing Plant assuming that the new project conditions that eliminate access to Elder Creek Road for aggregate removal are implemented. As a result of these conditions, the significant LOS impact (during PM peak) at the Elder Creek at Bradshaw intersection would be avoided. The volume to capacity ratio at the Jackson at Mayhew Road intersection would increase; however, the significance threshold would not be exceeded as shown in Table 5-11. Therefore, the "with project" traffic conditions would be improved under Scenario 4a.

Under the "with project cumulative" conditions, there would be a new significant LOS impact at the Jackson at Mayhew intersection. Existing LOS would be reduced from E under both peak hours to LOS F under both peak hours. At the same time, the significant impact expected under Scenario 4 at the Elder Creek at Mayhew intersection (significant for both peak hours) would be avoided. Scenario 4a shows that a LOS C (same as existing) would occur during both peak hours. Refer to Table 5-12 for additional information. Implementation of the mitigation measure 8a (required for Scenario 4a only as described below) would reduce the only significant impact anticipated under Scenario 4a to a less-than-significant level.

County Drainage Alternatives (Part B)~~, 100-Year~~ and Floodplain Protection Alternatives

1. Impacts to traffic and circulation under these alternatives would be similar to those under the proposed project.

No Project Alternative

1. Under the No Project Alternative, the limited agricultural activity on the project site would generate very few vehicle trips on the existing major roadways. Therefore, the alternative would not directly degrade LOS on any roadways. However, increased highway maintenance costs may result from the need to import aggregate by trucks resources from outside locations (i.e., out of County).

5.8.3 Mitigation Measures (All Mining Alternatives)

Recommendations/Requirements of Various Agencies

Public Works Agency, Transportation Division:

1. No truck access for overburden removal or aggregate shall be allowed onto Fruitridge Road between South Watt Avenue and the previously approved Aspen III South access point.

2. Grant the County right-of-way for Fruitridge Road based on an 84-foot standard and install public street improvements pursuant to the Sacramento County Improvement Standards.

3. Grant the County right-of-way for Mayhew Road based on an 84' standard and widen/upgrade it to accommodate two-way truck traffic to the satisfaction of the Transportation Division.

4. Grant the County right-of-way for Bradshaw Road and Jackson Road based on 108' standard and install public street improvements pursuant to the Sacramento County Improvement Standards.

   Grant the County right-of-way for Hedge Avenue based on 60' standard and install public street improvements pursuant to the Sacramento County Improvement Standards.

   Grant the County additional right-of-way on Fruitridge Road/Mayhew Road, Elder Creek Road/Mayhew Road, Elder Creek Road/Hedge Avenue, and Bradshaw Road/Jackson Road for intersection widening per standard drawings H-24 and H-25 of the Sacramento County Improvement Standards.

   The proposed conveyor tunnels under various roadways shall be designed to accommodate the ultimate roadway cross-section to the satisfaction of the Transportation Division of the Public Works Agency/Caltrans.

   Fruitridge Road between the Aspen III South driveway and Mayhew Road shall be overlaid to the satisfaction of the Transportation Division of the Public Works Agency. This overlay shall be done within three months of the completion of the initial overburden removal for the Aspen III South project.

   No truck access for overburden removal or aggregate shall be allowed onto Fruitridge Road between South Watt Avenue and the previously approved Aspen III South access point.

~~4. Pave Mayhew Road from Elder Creek Road to 200 feet north Elder Creek Road.~~

5. The location, number and design of project access driveways for various project sites ~~on Mayhew Road~~ shall be to the satisfaction ~~requirements~~ of the Transportation Division of the Public Works Agency.

Mitigation Measures – With and Without Vineyard I Processing Plant Options (without new project conditions)

The following measures were identified during preparation of the Draft EIR/EIS. These conditions were applicable to both options under the "proposed project." A separate list of the mitigation measures that would be required for the new preferred alternative (Scenario 4a) follows this list.

1. The proponents shall limit total material to be removed from the site by truck to the initial ~~430,000~~ 1,000,000 cubic yards of overburden, 100,000 CY from the Vineyard I site and a

total of 900,000 from the Aspen III-V sites,-and the truck traffic associated with operation of the Vineyard I processing plant. No direct access to Jackson Road shall be permitted.

2. The proponents shall transport mined aggregate material to the processing plants only by conveyor and not by trucks.

3. The proponents shall contribute fair-share funding for construction of a traffic signal at the intersection of Elder Creek Road at South Watt Avenue. Fair-share funding shall be determined by the Director of the Transportation Division of the Public Works Agency.

   After installation of the traffic signal, the intersection would operate at LOS E during the PM peak period, in compliance with the County standard for urban roadways.

4. The proponent shall contribute fair share funding for construction of a second left turn lane on the eastbound Elder Creek Road approach to the Elder Creek Road/Bradshaw Road intersection. The complete improvements shall feature two left turn lanes and a combination right-through lane on the eastbound intersection approach. The installation of this improvement would require roadway widening on the west leg of the intersection to accommodate the new lane and on the east leg to accommodate the taper for the new lane. Bradshaw Road is scheduled to be improved to from two-lanes to four-lanes in the 2000-2002 time period. The above-described condition should be included in the Bradshaw Road project. Thus, the payment of countywide roadway and transit fees will cover the proponents fair share funding. ~~A new left turn lane shall be constructed for the eastbound Elder Creek Road approach at the Bradshaw Road intersection. The completed improvements shall feature two left turn lanes and a combination right-through lane for the eastbound approach. This improvement would require roadway widening on the west leg of the intersection for the new lane, and on the east leg of the intersection to provide a smooth travel path for through traffic on Elder Creek Road. Design of the improvements shall be in accordance with County Improvement Standards and approved by the Transportation Division. (After improvements are completed, the intersection would operate at LOS D.)~~

5. The intersection of Mayhew Road and Elder Creek Road shall be improved to provide a westbound right turn lane with sufficient improvements to roadway turning radii to prevent turning trucks from encroaching on the travel path of opposing traffic lanes. Design of the improvements shall be in accordance with County Improvement Standards and approved by the Transportation Division.

6. Mayhew Road shall be widened in accordance with County Improvement Standards. The design shall be approved by the Transportation Division before improvements are made.

   The intent of this mitigation measure is to improve Mayhew Road to a two-lane standard that would allow trucks to move simultaneously in both directions without having to leave the roadway surface.

7. Turn lanes shall be added on Bradshaw Road adjacent to the proposed access driveway to Aspen V South prior to overburden removal from the site. Design and location of the

turn lanes shall be in accordance with County Improvement Standards and approved by the Transportation Division.

8. The proponents shall agree to repair any damages to structural paving material along sections of project site roadway segments upon which loaded trucks are routed, to the extent such damage is caused by traffic which occurs during the period of hauling operations. Such agreement with the County Transportation Division of the Public Works Agency shall be formalized prior to issuance of the work authorization.

9. No mining shall take place within 25 feet of the ultimate right-of-way of Fruitridge Road and Mayhew Road, except that the Public Works Director may authorize mining to proceed up to 12 feet from the ultimate right-of-way, with appropriate backfill and compaction to preexisting grade to the required 25 foot setback line (with a slope no steeper than 1 1/2:1). The mining and backfilling proposal shall be supported by a soils report prepared by a qualified soils engineer, certifying that the overburden and underlying aggregate can support the proposed activity and anticipated traffic levels of Fruitridge Road and Mayhew Road without adversely affecting the County right-of-way. The 25 foot setback area adjacent to the right-of-way of Fruitridge Road and Mayhew Road shall be backfilled and compacted prior to the onset of the rainy season, and the compaction shall be certified to at least 90% by a soils engineer.

10. Beginning in the year 2005, hauling of materials from the project site shall not occur during the peak traffic periods for cumulative conditions: 7:00-9:00 AM and 4:00-6:00 PM. The year of mitigation has been determined by straight line interpolation of volume/capacity ratios between 1995 and 2010 for the roadway segment on Elder Creek Road between Mayhew Road and Bradshaw Road. The requirement for mitigation by 2005 may be reconsidered by the County at a later time if a competent traffic study shows future traffic operations on Elder Creek Road is expected to comply with County level of service policies.

Mitigation Measures – Without Vineyard I Processing Plant (with new conditions) – Scenario 4a

Mitigation Measures # 2, 6, 7, 8, and 9 above shall apply to Scenario 4a. In addition, the following measures shall also be required to mitigate traffic impacts to a less-than-significant level.

1. The proponent shall limit material to be removed from the site by truck to the initial 300,000 cubic yards of overburden from each of the Aspen III South, Aspen IV South, and Aspen V South sites and 100,000 cubic yards from the Vineyard 1 site.

~~1.~~2. All overburden removed from the site by trucks shall be routed onto Mayhew Road north to Jackson Road via an on site crossing of Morrison Creek. If required, the creek crossing shall be consistent with all Corps of Engineers, USFWS and CDFG permits required for the project. Overburden hauling (truck trips) at the Vineyard I site shall not exceed 30 per hour during peak the traffic periods. Overburden hauling at the Aspen III, Aspen IV and Aspen V sites shall not exceed 24 per hour during peak traffic periods.

~~2.~~3 The proponent shall contribute fair share funding for construction of a right-turn lane on the northbound Mayhew Road approach to the Jackson Road intersection. (This modification would mitigate cumulative impacts at the intersection by improving the level of service from LOS F to LOS E).

5.9 LAND USE

5.9.1 Affected Environment

Existing Land Use

The project site can be characterized as a rolling annual grassland surrounded by rural residential, industrial, and commercial urban areas. Seasonal wetlands, riparian and other wetland habitat represent approximately 3 percent of the total site. The primary location of these resources is along the Morrison Creek, associated drainages, and irrigated farmlands. Approximately 572 acres or 59 percent of the project site fall within the 100-year floodplain. Historically, the site has been used for agricultural practices, including irrigation and farming, and livestock grazing. Recent land use has been limited to cattle grazing, with supplemental cattle feed provided by on-site harvesting of oat and clover hay, and scattered rural residential properties.

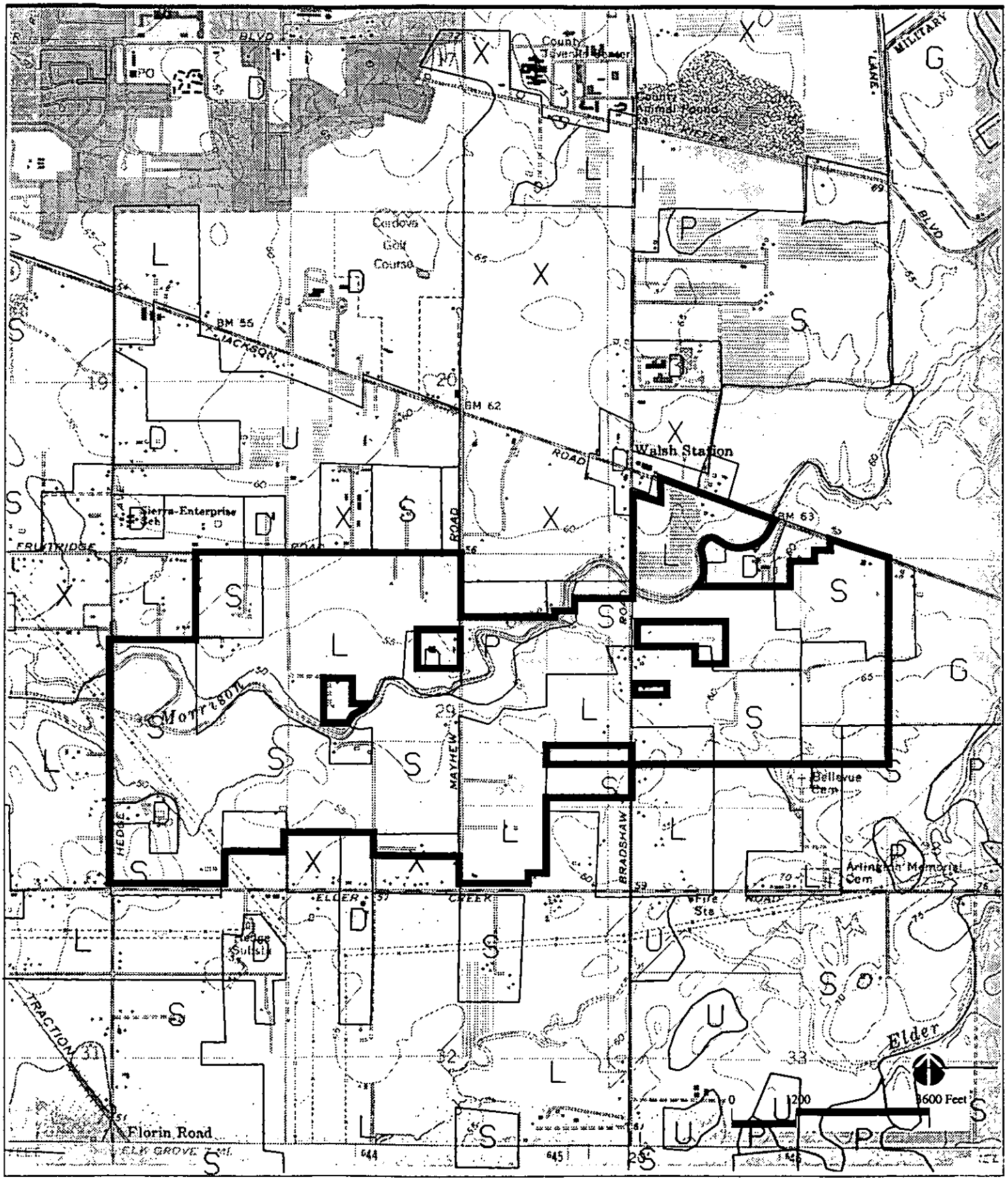
Eight residences on agricultural parcels are currently located within the project site and would be displaced as a result of the proposed project. Sixty-five residences, a religious temple, and a health club are located within 500 feet of the project site boundary. Most of the adjacent residences are single family homes located along Elder Creek Road, Hedge Avenue, Fruitridge Road, and Bradshaw Road.

Mather Field is located approximately one mile northeast of the project site. The former Air Force base has been closed since September 1993, and has remained in caretaker status with limited activity occurring on the base, including occasional use of the airfield. The County has adopted a General Plan Amendment to change the land use designations at Mather Field consistent with the Mather Field Reuse Plan. An amendment to the General Plan - Transportation Plan has also been adopted. Mather airfield is now designated as a civilian airport.

Important Farmland

The Natural Resources Conservation Service (NRCS, formerly the U.S. Soil Conservation Service) *Soil Survey Report of Sacramento County* indicates a variety of soil types within the project site, including the following: Columbia sandy loam, Hedge loam, Kimball silt loam, and San Joaquin silt loam. The available water capacity of these soil types is generally low (with the exception of Columbia sandy loam which is moderate), runoff is slow, and the hazard of water erosion is slight. Columbia sandy loam soil, which follows the creekbed throughout the project site, is classified by the NRCS as "prime farmland" where irrigated and with 0 to 2 percent slopes.

The California Department of Conservation, Office of Land Conservation, Farmland Mapping and Monitoring Program (FMMP) has mapped Important Farmland and other farmland categories within the project site (Figure 5-11). The FMMP was implemented in 1982 to map, monitor and report on important farmland, grazing land, and urban built-up areas in the state.



Morrison Creek Mining Reach, Downstream (South) of Jackson Highway EIR/EIS

Project Boundary

P Prime Farmland

S Farmland of Statewide Importance

L Farmland of Local Importance

G Grazing Land

D Urban and Built-up Land

Figure 5-11
Important Farmland Map Categories

EDAW Inc.

Source: California Department of Conservation, OLC 1992

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The Important Farmland Series Maps cover areas for which there are existing NRCS modern soil surveys. Prime Farmlands and Farmlands of Statewide Importance are based upon qualifying soil types, as determined by the NRCS, *and* current land use. The FMMP has identified 31 acres of Prime Farmland, 435 acres of Farmland of Statewide Importance, and 419 acres of Farmland of Local Importance within the project site. Definitions for the potentially affected farmland map categories are provided below:

- *Prime Farmland:* Lands with the best combination of physical and chemical features able to sustain long term production of agricultural crops. The land must be cropped and be supported by a developed irrigation water supply that is dependable and of adequate quality during the growing season. Land must have been used for production of irrigated crops at some time during the two update cycles prior to the mapping date.

- *Farmland of Statewide Importance:* Land other than Prime Farmland which has a good combination of physical and chemical characteristics for the production of crops which have been used for the production of irrigated crops at some time during the two update cycles prior to the mapping date.

- *Farmland of Local Importance:* Land which does not qualify as Prime Farmland, Farmland of Statewide Importance, or Unique Farmland but is currently irrigated crops of pasture or nonirrigated crops; land that would be Prime or Statewide designation and have been improved for irrigation but are now idle; and land which currently supports confined livestock, poultry operations, and aquaculture.

It should be noted that the source of the farmland classifications presented in Figure 5-11 is dated 1992, and that land within the project site has not been used for the production of irrigated crops for some time and is now idle.

Farmland resource protection is addressed by the County Zoning Code and policies, programs, and objectives in the Agricultural Element of the General Plan. Mining operations, for example, are permitted on agricultural properties within the County's surface mining overlay zone, subject to a conditional use permit. Outside the surface mining overlay zone, mining operations on agricultural lands require a rezone of the property and a conditional use permit.

State and County Policies

To date, the County has consistently designated and protected the project site and surrounding areas for future mining, aided greatly by the lack of urban infrastructure and land use restrictions associated with aircraft noise from Mather Field. The *Sacramento County General Plan* recognizes the conflict and tries to accommodate both resource protection and urban growth. Policies address the need to carefully coordinate urban development and mining to minimize the inherent conflicts.

The need to conduct surface mining so as to minimize adverse environmental effects and ensure reclamation for future use is recognized by both State and County regulations. The Surface Mining and Reclamation Act of 1975 (SMARA) (Public Resources Code Section 2710 et seq.) and the State Mining and Geology Board regulations for surface mining and reclamation practice (California Code of Regulations (CCR) Title 14, Chapter 8, Article 1, Section 3500 et seq.,

Article 9 Section 3700 et seq.) require that specific measures for grading, backfilling, resoiling, revegetation, soil compaction, and other reclamation requirements, and for soil erosion control, water quality and watershed control, waste disposal, and flood control be addressed or included in reclamation plans. The County Zoning Code requires surface mining combining zoning; a conditional use permit addressing potential noise, dust, water quality, traffic and aesthetic problems; and a reclamation plan for future use of mined areas prior to initiating any mining. The *Sacramento County General Plan* (1993) provides support and direction for administering these regulations.

The Sacramento County General Plan Land Use Diagram (Figure 5-12) designates the project site for Extensive Industrial and Agricultural-Urban Reserve use. Specifically, the Aspen III South, Vineyard I and Aspen IV South sites are designated as Agricultural-Urban Reserve and most of the Aspen V South site is designated as Extensive Industrial. A portion of the Aspen V South site is indicated for General Agriculture (20 acres). Known mineral resources are protected under the General Plan from land uses which would preclude or inhibit timely mineral extraction to meet market demand. The General Plan Land Use Diagram identifies primary aggregate resources within the project site with an aggregate resources combining land use category. The following policy formalizes existing practice with respect to applying the combining land use category and Surface Mining Combining (SM) zone:

CO-41 *Apply the aggregate resources combining land use category to additional areas as subsequent studies determine them to contain mineral resources which are feasible and appropriate for mining. The aggregate resources combining land use category shall not be a prerequisite to (SM) surface mining combining zoning in conjunction with proposed surface mining.*

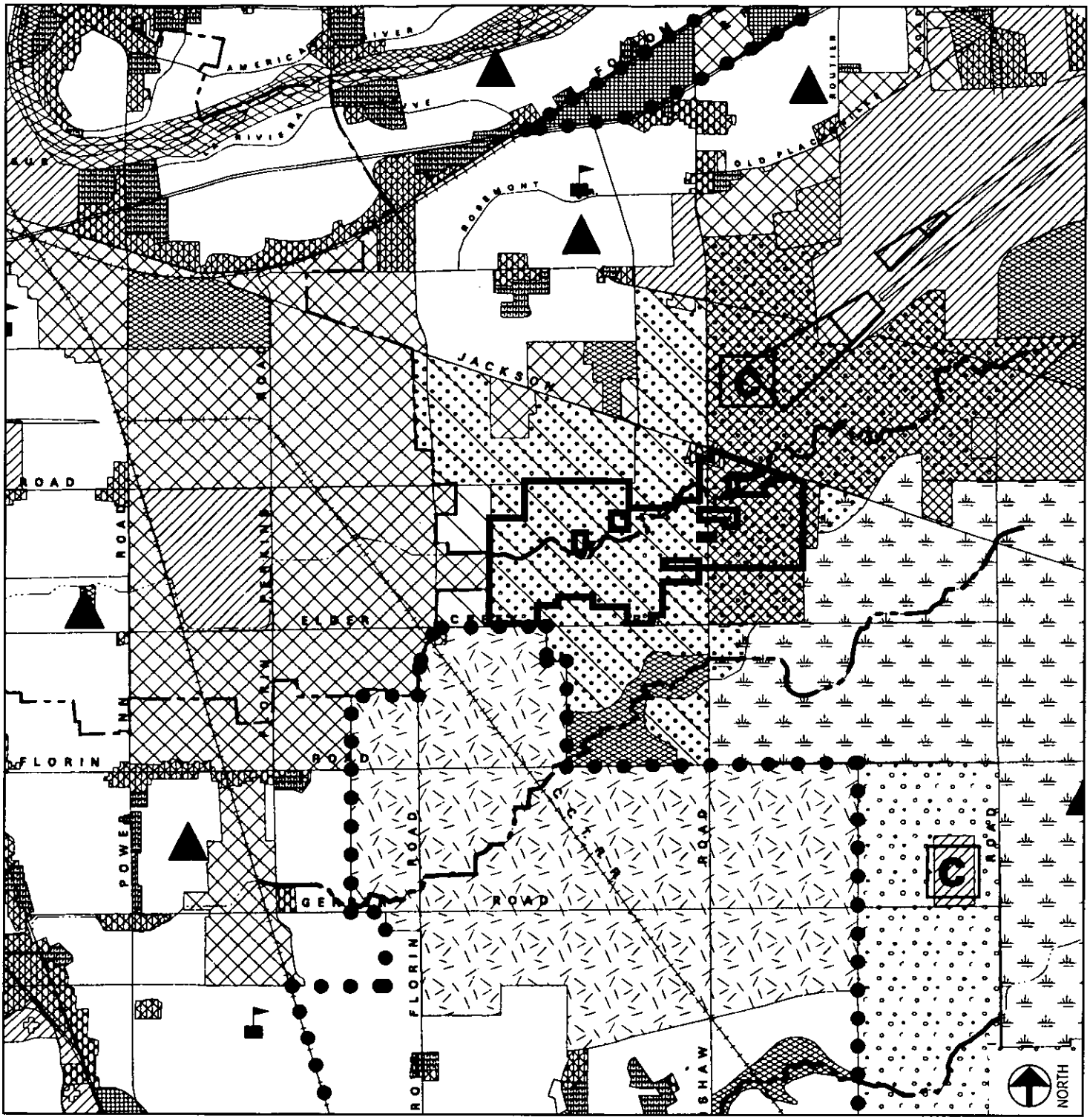
The General Plan provides for the orderly extraction of minerals and subsequent reclamation of mined areas with minimal adverse impacts on aquifers, streams, scenic values, and surrounding land uses. This objective is largely implemented through existing County Zoning Code provisions and CEQA. The policies below provide additional support:

CO-43 *Surface mining operations shall not, after mitigation measures are accounted for, create any significant nuisances, hazards, or adverse environmental impacts.*

CO-44 *Surface mining shall maintain substantial minimum setbacks from adjoining rural residential land uses.*

CO-45 *Surface mining shall not be allowed without adequate plans for reclamation of mined areas.*

CO-47 Gold extraction utilizing cyanide leaching systems shall not be permitted.



Project Boundary
Agricultural-Residential (1-10 ac/du)
Low Density Residential (1-12 du/ac)
Medium Density Residential (13-30 du/ac)
Urban Transit-Oriented Development
Core Area
Commercial and Office
Intensive Industrial
Extensive Industrial
Recreation
Agricultural-Urban Reserve
Natural Preserve
General Agriculture (20 ac)
Urban Development Area
High School
Park Site
Closed Landfill

Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

EDAW, Inc.

N:5s052:026

Figure 5-12
General Plan
Land Use Designations

Source: Sacramento County General Plan, 1993

Sacramento County considers aggregate mining as an interim use of land. Mined and reclaimed sites are generally reused for agriculture or open space, either permanently or as additional interim uses until such time as final reuse plans are adopted.

Zoning

Existing zoning of the project site and surrounding properties is shown in Figure 5-13. The project site is zoned as Industrial Reserve (Flood Combining) and Industrial Reserve (Surface Mining Combining) [IR(F) and IR(SM)], Light Industrial and Light Industrial (Flood Combining) [M-1 and M-1(F)], and Agricultural Residential 1 and Permanent Agriculture 160 (AR-1 and AG-160). This zoning is chiefly a result of the need to protect future aggregate mining areas from urban encroachment and the need for compatible uses within the approach and departure zone for Mather Field. Although surface mining is not precluded in the (F) Flood Combining Zone, past actions by the County have avoided it. The proposed project includes a request to rezone the entire project site to include the Surface Mining Combining (SM) Zone.

The Zoning Code requires that the following conditions be adhered to, prior to initiating any mining: surface mining combining zoning, a conditional use permit addressing potential noise, dust, water quality, traffic and aesthetic problems, and a reclamation plan for future use of mined areas.

Community Plans

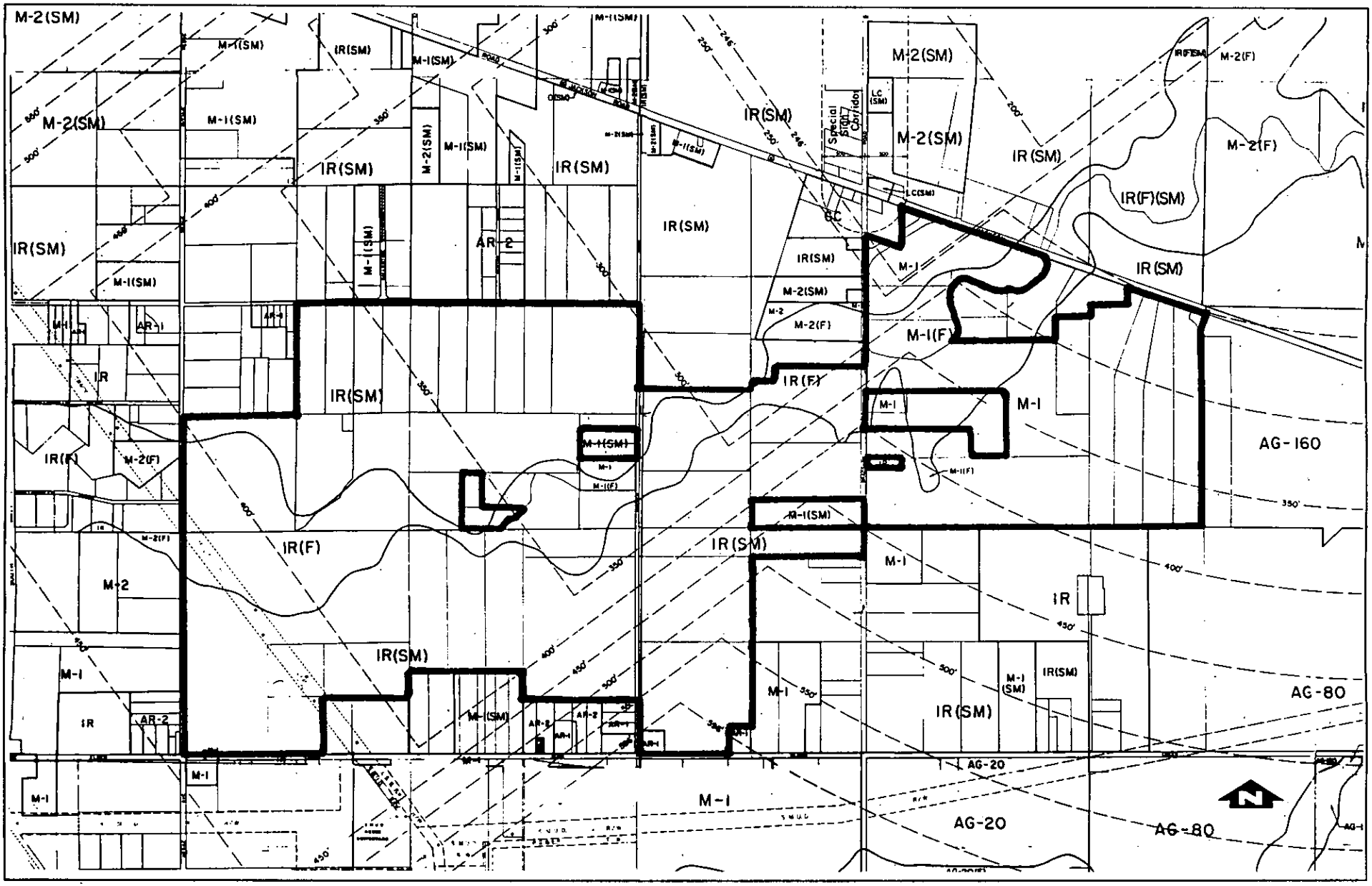
The project site is encompassed by the *Vineyard Community Plan* (Sacramento County, 1985). Zoning designations for the project site, as set forth in this plan, are consistent with County zoning designations illustrated in Figure 5-13 and are also consistent with the General Plan. The Vineyard Community Plan Land Use Map designates the site for Industrial Reserve (Surface Mining Combining), Industrial Reserve (Flood Combining), Industrial Reserve (Flood and Surface Mining Combining), Light Industrial, Light Industrial (Flood Combining), Light Industrial (Surface Mining Combining), Permanent Agriculture 160, and Agricultural Residential 1.

5.9.2 Environmental Consequences

Proposed Project (Part A)

1. Proposed mining operations would potentially conflict with on-site and nearby land uses, especially residences located on agricultural parcels surrounded by the project site, and the adjacent residences, religious temple, and health club (*Significant and Unavoidable Impact*).

Adjacent uses would be directly exposed to several nuisances throughout the life of the project including: increased noise associated with aggregate mining and processing; increased heavy truck traffic and traffic noise during initial overburden removal and throughout the life of the project (primarily associated with trips to and from the processing plant); windblown dust from mining operations and access roads; and adverse visual or aesthetic impacts resulting from changes in the adjacent landform.



Morrison Creek Mining Reach, Downstream (South) of Jackson Highway EIR/EIS

M-1	Light Industrial	IR(F)	Industrial Reserve (Flood Combining)
M-1 (F)	Light Industrial (Flood Combining)	IR(SM)	Industrial Reserve (Surface Mining Combining)
AR-1	Agricultural Residential 1	AG-160	Permanent Agriculture 160

Project Boundary

Figure 5-13
Existing Zoning

EDAW Inc.

Source: Sacramento County, 1978, 1985

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Upon completion of the project, residences surrounded by the Vineyard I site would be located on an elevated island surrounded by the mined area above the floodplain of Morrison Creek. Such property would no longer be adjacent to the realigned creek, but would be adjacent to the 600-foot wide creek corridor riparian zone to be created by the project.

These potential impacts are discussed more fully elsewhere in this document and mitigation measures are proposed, where possible, to reduce the impacts, but not to less-than-significant levels.

2. The proposed project would disturb 31 acres of Prime Farmland, 435 acres of Farmland of Statewide Importance, and 419 acres of Farmland of Local Importance (*Significant Impact*).

All of the farmland located within the project site would be temporarily disturbed during mining operations. Proposed post-reclamation land use for the project site at this time is primarily agriculture. Relatively elevated lands (e.g., above the 100-year flood level) would be used for growing alfalfa and grain crops. Low points on the pit floor would be used for stormwater detention ponds, wetlands, and other natural habitats, including upland vegetation.

Per the requirements of the Surface Mining and Reclamation Act of 1975, the proponent must prepare and implement an Agricultural Management Plan as part of the required work authorization. This plan will describe the methods used to accomplish successful post-reclamation agricultural use of the project site. In addition, the State Mining and Geology Board Regulations require that the proponent comply with specific performance standards for the salvage, maintenance, and redistribution of topsoil resources.

3. The mining activities proposed by the project would restrict the possibility of utilizing the project site for future (post-project) development including recreational open space (*Significant Impact*).

Post-reclamation use of the project site would be restricted to agriculture, flood control, and/or open space, because the mining pits would be designated as within the 100-year floodplain. As previously discussed, it is anticipated that the project site would be primarily used for agricultural practices, with limited areas along the bottom of the pit used for stormwater detention ponds, wetlands, and other natural habitats, including upland vegetation. No park facilities would be provided, and access to open space areas along the realigned Morrison Creek channel would not occur.

4. The proposed project's mining operations would alter the extent of the 100-year floodplain of Morrison Creek, requiring a modification to the existing Flood Combining Zone (F) boundary (*Less-Than-Significant Impact*).

Proposed Project Without the Vineyard I Processing Plant Alternative

1. Land use impacts under this alternative would be similar to the proposed project. However, nuisance impacts associated with processing facilities on surrounding uses would not occur (*Significant Impact*).

County Drainage Alternatives (Part B)

1. Land use impacts under the Part B Alternatives would be similar to the proposed project. However, under these alternatives, the ultimate land use potential could be different than the proposed project. These alternatives would provide the opportunity for a recreational corridor in the mining pit and/or in the inundation area, and the potential for a future land use application changing the agricultural land use to an urban (residential or industrial) use resulting from the more stringent construction standards required for a public facility (*Significant Impact*).

~~100-Year~~ Floodplain Protection Alternatives

1. Land use impacts identified for the ~~project (specifically Impacts 1 and 2)~~ Proposed Project Without Vineyard I Processing Plant would apply to ~~this~~ both floodplain protection alternatives (*Significant Impact*).

   Under the ~~However,~~ the 100-~~y~~Year ~~f~~Floodplain Protection Alternative, ~~would not be~~ a larger area (the entire 100 year floodplain) would not be mined for aggregates and would remain in its present condition. Under the Creek Buffer Alternative, mining and reclamation activities would extend into the 100-year floodplain, but not into a 150-foot buffer area on either side of Morrison Creek. Other uses consistent with the Industrial Reserve and Manufacturing land use designations and compatible with resource protection and flood control measures could be developed or agriculture could continue to be practiced within the floodplain. The County would regulate, through its flood combining zoning and other ordinances, land use and development within the floodplain and prohibit urban uses on unprotected flood land.

No Project Alternative

1. Impacts of the project would not apply to this alternative. The No Project Alternative would maintain the County policy of no mining in the 100-year floodplain of creeks. Rural open space and creek corridor would be maintained within the floodplain area in the short term. Areas zoned Surface Mining Combining would be preserved, which would leave open the possibilities that aggregate mining could eventually occur. Thus, there would be no guaranteed open space reserved for the future and no provisions for recreational amenities. Future aggregate mining activities would be required to receive approval from Sacramento County, and any environmental effects of the mining would be identified and mitigated at that time (*Less-Than-Significant Impact*).

Finally, flood control benefits associated with the proposed mitigation plan would not occur.

5.9.3 Mitigation

Recommendations/Requirements of Various Agencies (All Mining Alternatives)

Surface Mining and Reclamation Act of 1975 (SMARA):

1. An Agricultural Management Plan shall be submitted to the County as part of the required work authorization. The Agricultural Management Plan shall describe how the agricultural end use will be accomplished (SMARA Section 2772(h)).

State Mining and Geology Board Regulations:

2. Non-prime agricultural lands reclaimed to agricultural uses shall be reclaimed so as to be capable of sustaining economically viable production of crops commonly grown in the surrounding areas (Section 3708).

3. When an approved reclamation plan calls for revegetation or cultivation of disturbed lands, specific performance standards shall apply to topsoil salvage, maintenance, and redistribution activities (Section 3711).

Sacramento County General Plan:

4. Pertinent applications, plans and environmental documents shall be provided to all agencies that may be involved with future reclamation uses, including service providers, parks agencies, and resource management agencies (Conservation Element Implementation Measure "C," p. 36).

Zoning Code:

5. The County shall not allow surface mining until the Board of Supervisors has approved an adequate plan for reclamation of mined areas. The project site shall be reclaimed after completion of mining operations consistent with the approved reclamation plan. The site shall be free of derelict machinery, scrap, and nonnatural waste materials (Sections 235-45 and 235-61).

6. The proponents shall maintain 25-foot minimum setbacks from adjoining rural residential land uses, the first 5 feet of which shall consist of undisturbed land, and 25-foot minimum setbacks from all public streets consisting entirely of unmined land. The setback area consisting of mined land shall be reclaimed to original grade within one year or less of completion of mining. The County may require additional setbacks from the mined areas to reduce potential nuisances, hazards or land use impacts. The County may also waive this requirement if evidence is provided by the proponent that the setback can be reduced by engineering design, or that the neighboring property owners consent to the request (Section 235-59).

7. Unless otherwise provided as a condition of use permit, the proponent shall limit proposed operating hours (for both processing and extraction activities) to Monday through Friday: 6:00 a.m. to 10:00 p.m., and Saturday: 6:00 a.m. to 3:00 p.m. No work shall be conducted on Sundays and labor union holidays. The Zoning Administrator may

permit different operating hours on an interim basis from the specified operating hours if it is determined that the public benefit outweighs the community hardship and/or the work requires a continuous pour of concrete (Section 235-53).

Mitigation Measures (All Mining Alternatives)

1. In order to mitigate potential impacts to surrounding land uses, the proponents shall be required to comply fully with mitigation measures identified in the Noise, Traffic and Circulation; Air Quality; and Visual Resources sections of this EIR/EIS. These mitigation measures employ appropriate state-of-the-art techniques for erosion control, reclamation, nuisance prevention, and environmental impact mitigation relative to surface mining and processing operations.

2. In order to mitigate potential impacts to agricultural uses, prior to issuance of the work authorization, the proponents shall prepare a plan for the preservation and salvage of topsoil resources suitable for sustaining economically viable agricultural uses, consistent with the performance standards set forth in Sections 3708 and 3711 of the State Mining and Geology Board Reclamation Regulations.

3. Within six months of completing all mining and reclamation, the proponents shall identify, record, and grant to the County of Sacramento 600-foot wide open space easements as needed to delineate riparian corridors associated with the constructed seasonal drainages south of the reconstructed Morrison Creek bypass channel. Those easements shall identify the limits of agricultural activity so as to guarantee sufficient area to allow for regeneration of the riparian corridor, and shall also allow for the subsequent establishment of a public trail system when deemed appropriate by the County as part of an areawide trail network involving urban stream corridors.

5.10 NOISE

5.10.1 Affected Environment

The project site is located approximately 11,000 feet southwest of the southwest end of Mather Field's primary runway, a primary source of noise in the project area. The land use compatibility for land surrounding public use airports is presented in (Figure 5-14). Average ambient noise levels within the project site resulting from aircraft overflight have historically ranged from 70 - 80+ CNEL (daily average), with single event noise levels when aircraft fly over the project site much higher than this average. However, with the recent closure of the Air Force base, noise levels have been substantially reduced.

Another source of noise within the project site is adjacent roadways. These roadways include Jackson Highway and Bradshaw Road. Existing 24-hour traffic volumes on area roadways are approximately 12,200 vehicles on Jackson Highway, 15,400 vehicles on Bradshaw Road, and 3,400 vehicles on Elder Creek Road. Jackson Highway traffic volumes typically yield noise levels of up to 65 dB within 100 feet of the roadway.

Based on sound level readings taken by Teichert Aggregates, ambient noise levels on and near the project site were reported to range from 42 to 60 dB, with single event noise readings up to 75 dB for moderate traffic along Jackson Highway and 90 dB for jet aircraft.

Sections 235-60 and 235-53 of the Zoning Code set forth noise standards and operating hours for sand and gravel mining operations as follows:

235-60. Noise Standards. *Unless otherwise provided by ordinance, the sound level created by the mining use at the boundary line of the authorized mining area shall not exceed 70 dBA except along a boundary contiguous to another area authorized to mine for sand or aggregates. A violation of the noise standard would occur if the noise level at the property line exceeds:*

a. the noise limit for a cumulative period of more than thirty minutes in any hour, or

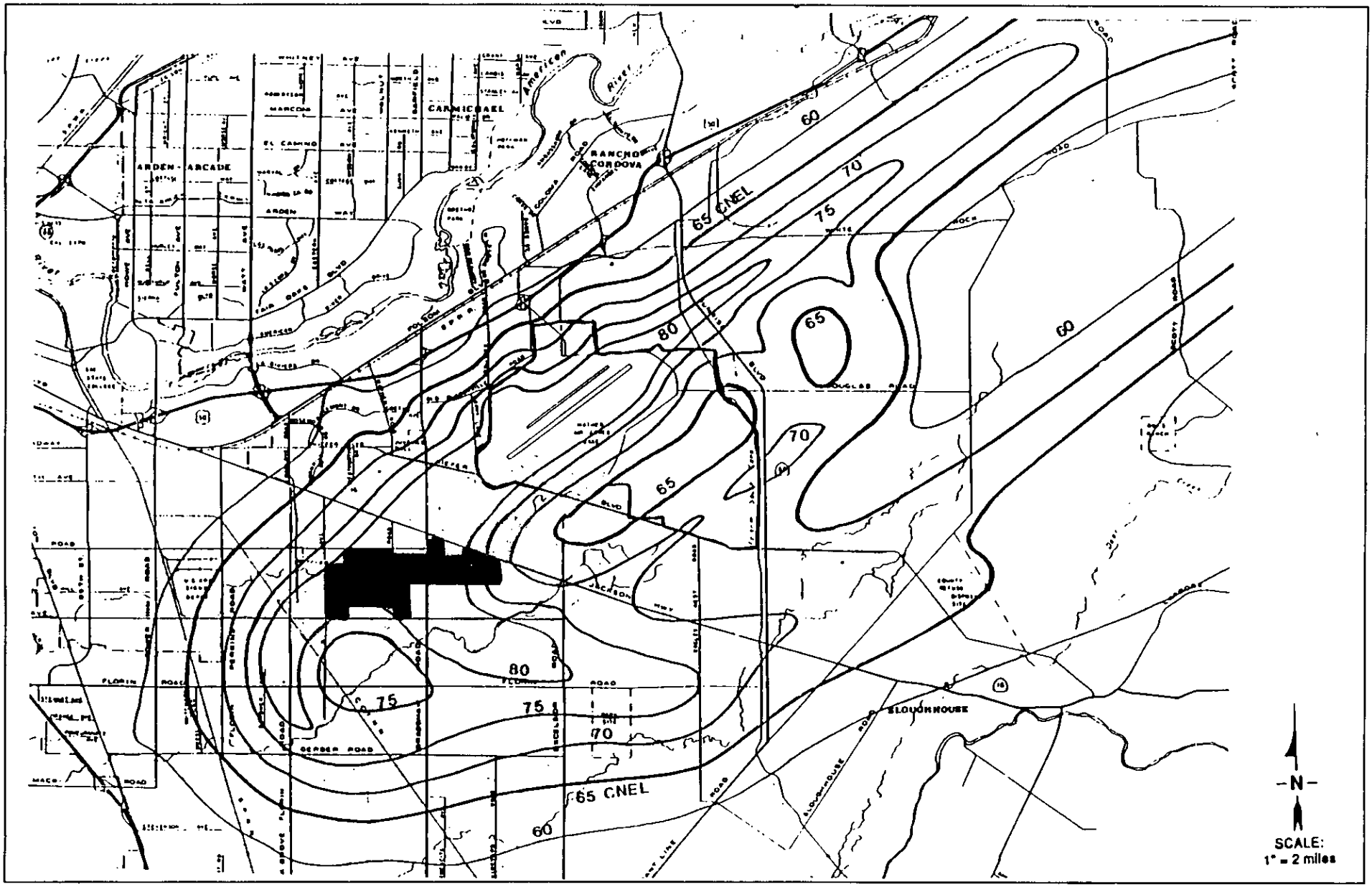
b. the noise limit plus 5 dBA for a cumulative period of more than one minute in any hour, or the noise limit plus 20 dBA for any period of time.

235-53. Operating Hours. *Unless otherwise provided as a condition of use permit, the hours of operation of mining, processing, and related activities shall be:*

a. Monday through Friday: 6 a.m. until 10 p.m.

b. Saturday: 6 a.m. through 3 p.m.

c. Sunday and labor union holidays: no mining or processing.



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Project Site

Figure 5-14
Land Use Compatibility for Community Noise Environments

EDAW Inc.

Source: SACOG, Mather Air Force Base Comprehensive Land Use Plan, January 1987; EIP Associates, 1994

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The Exterior Noise Standard of the Sacramento County Noise Ordinance (SCC 6.68.070) is more stringent than the Zoning Code mining noise standards and are intended to limit noise within residentially zoned property. Allowable noise levels are limited to 55 dBA (7 a.m.-10 p.m.) and 50 dBA (10 p.m.-7 a.m.), with violations occurring if this standard is exceeded in any one hour by the following:

Duration of Noise	*7 a.m.-10 p.m.*	*10 p.m.-7 a.m.*
≤ 30 min/hr	55 dBA	50 dBA
≤ 15 min/hr	60 dBA	55 dBA
≤ 5 min/hr	65 dBA	60 dBA
≤ 1 min/hr	70 dBA	65 dBA

Many properties contiguous to the project site are developed with residential uses. Some of these properties are zoned for residential use (AR-1 and AR-2), while others are zoned for industrial use [M-1 (SM) and IR (SM)]. The County Noise Ordinance regulates noise levels affecting residentially zoned properties. However, the Noise Ordinance noise levels may be considered a recommended maximum for all residential property, including adjacent residences in non-residentially zoned areas.

In addition, the following policies for new non-transportation noise sources are contained in the County General Plan Noise Element, and should therefore be considered within the context of the proposed project:

NO-2. *Noise created by new non-transportation noise sources shall be mitigated so as not to exceed any of the noise level standards of Table II-1 [as shown on Table 5-13], as measured immediately within the property line of any affected residentially designated lands or residential land use situated in the unincorporated areas.*

NO-3. *Where proposed non-transportation noise sources are likely to produce noise levels exceeding the performance standards of Table II-1 at existing or planned residential uses, an acoustical analysis shall be required as part of the environmental review process so that noise mitigation may be included in the project design.*

Table 5-13
Noise Level Performance Standards[1]
For Residential Areas Affected by Nontransportation Noise[2]

Statistical Noise Level Descriptor	**Table II-I Exterior Noise Level Standards (dBA)**	
	Daytime 7 a.m. to 10 p.m.	Nighttime 10 p.m. to 7 a.m.
L50	50	45
Lmax	70	65

1. These standards are for planning purposes and may vary from the standards of the County Noise Ordinance which are for enforcement purposes.
2. These standards apply to new or existing residential areas affected by new or existing nontransportation sources.

5.10.2 Environmental Consequences

Proposed Project (Part A)

1. Noise levels in excess of 75 dBA may occur at nearby residences and other sensitive off-site receivers due to scrapers and other mobile mining equipment, which would represent a violation of the Zoning Code and Noise Element. Noise standards could be exceeded when mining equipment is operating close to the mining site boundary (*Significant Impact*).

Noise from mobile mining equipment would be greatest when the mining equipment was operating near the property boundaries. During much of the mining phase, the mining equipment would be operating on the interior of the project site and the noise levels at the property lines would be lower. Noise-generating equipment that would be used during mining operations include one bulldozer, two scrapers, one motor grader, two dump trucks, one water truck, one mechanic's truck, and two front end loaders.

Previous environmental documents for surface mining operations in the area have cited noise levels from operating surface mining equipment as follows:

Equipment (dBA)	*Distance (feet)*	*Noise Level*
Front End Loader	225	70
Self-Loading Scraper	225	70
Dump Truck (at Hopper)	200	70

The following table presents the results of a 30 minute noise measurement test when self-loading scrapers were operating 15 feet from a mining site boundary. These test results have been extrapolated to estimate the number of minutes per hour that specified noise levels would be exceeded, thereby enabling a comparison with the Zoning Code Noise Standards cited above.

Noise Level	*Minutes per Hour*
at 15 Feet	Noise Level Exceeded
70 dBA	10 Minutes 52 Seconds
75 dBA	1 Minute 28 Seconds
80 dBA	28 Seconds

The table indicates the potential for violation of the Zoning Code noise standard when mining equipment is operating close to the project site's boundary (the 75 dBA level was projected to occur for longer than 1 minute per hour, thus violating the standard). Also the Zoning Code noise standard indicates that the 90 dBA limit at the property line is not to be exceeded for any length of time. Using the formula of a 6 dB change for every doubling or halving of distance for a point source of noise, mining equipment which generated 70 dBA at a 225 foot distance would generate about 93 dBA at a 15 foot distance. Thus, the 90 dBA level could be exceeded by mining equipment operating close to the property line and the Zoning Code noise standard could therefore be violated.

Mining equipment operating near the project site's boundary would likewise violate the more stringent Noise Ordinance and General Plan Noise Element noise standards. According to a

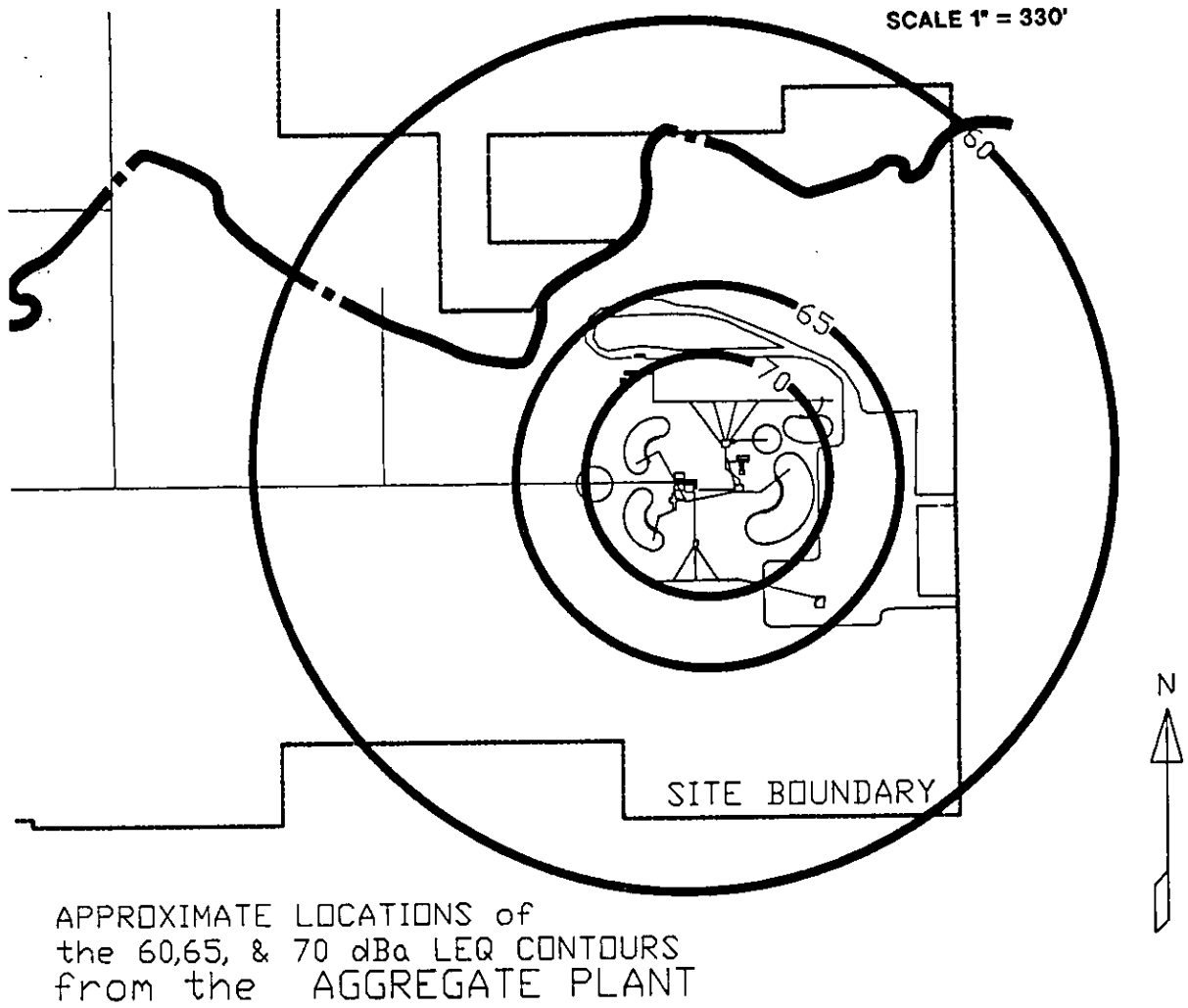
noise investigation prepared for Granite Construction Company (Shiningtree, 1991), noise from scrapers operating at the property lines could be reduced to within the 50 dBA standard provided that a berm sufficient to break the line of sight is installed. This noise level reduction would achieve the Zoning Code, Noise Ordinance and Noise Element standards, with the exception of the 45 dBA Leq nighttime Noise Element standard (which is applicable to mining operations between 6 and 7 AM). Therefore, installation of a perimeter berm around the mining site sufficient to block the line of sight from adjacent properties is expected to reduce mining equipment noise impacts to a less-than-significant level. A less expensive alternative to the permanent installation of berms would be to use portable noise barriers would be to use which break the line of sight between mining activities and adjacent sensitive receptors. Such portable barriers could be installed and moved along the mining site boundary as the mining equipment progresses from one part of the project site to another. As noted previously, these worst case mining equipment noise levels would be short-term in nature occurring when equipment operates nearest the project site boundary and before substantial pit excavation lowers (and blocks) the noise source.

2. The aggregate processing plant would increase noise levels at the project site boundary line (*Significant Impact*).

Noise modeling for the aggregate processing facilities was derived from previous studies of noise generated by five crushing screening plants and five asphalt concrete plants in California, including the Granite Construction Sacramento Plant and the Teichert Perkins Main Plant, both of which are located near the Vineyard I site. All of the readings were made on level terrain in clear view of the operations. Figure 5-15 shows the approximate location of the 60, 65 and 70 dBA Leq contours from the aggregate plant.

For noise sources operating continuously throughout a given hour such as would be expected with a processing plant, the measured Leq and L_{50} would be expected to be quite similar thus allowing comparison of project-related noise levels in terms of Leq to the County General Plan, Noise Ordinance and Zoning Code standards specified in terms of L_{50}.

As shown in Figure 5-15, the 70 dBA Leq noise contours from the proposed at-grade processing plant would not extend beyond the project site's boundary. Thus, the processing plant would not violate the Zoning Code noise standards for mining uses. However, noise levels on adjacent residential properties resulting from the unshielded processing plant would range as high as about 65 dBA Leq, which would exceed the 45-55 dBA L_{50} noise limits for residential properties set forth in the County Noise Ordinance and General Plan Noise Element. The primary sources of noise emanating form the processing plant are expected to be the crushers and the screens. The project proponent indicates the crushers would be 5-6 feet high, while the screens will be 50-60 feet high. The processing plant area would be partially surrounded by aggregate stockpiles which will be at least 25 feet in height. Where they break the line of sight between the processing plant noise sources and adjacent uses, these stockpiles would



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 5-15
Vineyard I Processing Plant Noise Predictions

EDAW Inc.

Source: Deem Shiningtree

N:5s052:047

substantially reduce noise levels from the plant. However, the stockpiles would not break the line of sight between the plant and all adjacent sensitive receptors, and would not be tall enough to shield noise emanating from the screens. Therefore, mitigating measures would be needed to reduce unshielded plant noise impacts on adjacent residential uses.

3. The conveyor system has the potential to violate the Zoning Code Noise Standard if operated close to the project site boundary (*Less-Than-Significant Impact*).

Conveyor generated noise levels (at grade) are reported to be the following:

Distance	**Empty**	**Loaded**
20 feet	68 dB	76 dB
40 feet	65 dB	72 dB
60 feet	60 dB	69 dB

Thus, a loaded conveyor operating for more than 30 minutes in any hour at a distance of 40 feet from the project site boundary, or a loaded conveyor operating for more than 1 minute in any hour at a distance of 20 feet from the project site boundary, would constitute a violation of the Zoning Code.

Conveyor systems have been planned such that they would be set back at least 250 feet from the nearest residential property line and over 500 feet from the nearest residence. Worst case conveyor system noise levels at the nearest adjacent residential uses were calculated on the Vineyard I site based on the formula: $R=20 \log_{10} (d_1/d_2)$, where R= the reduction or attenuation in noise level at a distance (d_2), given a known noise level at a known distance (d_1) from a point source of noise. The worst case conveyor noise level at the nearest residential property line was determined to be about 57 dB, while the worst case noise level at the nearest residence was determined to be less than 51 dB. The temporal nature of this aspect of the proposed project's operation, coupled with the comparatively low amounts of anticipated noise, make this a less-than-significant impact.

4. Heavy truck traffic during the initial overburden removal phase and during operation of the processing plant may constitute a noise source (*Less-than-Significant Impact*).

Approximately 28,600 truckloads of overburden would be removed from the project site over a period of six months to one year; this represents approximately 148 trip ends per hour. Following overburden removal, during operation of the processing plant, material could be hauled from the processing plant at an average rate of 600 trips per day and at a peak rate of 800 trips per day. These trips would generally occur from 6:00 a.m. to 3:30 p.m. This operation would generate a maximum of 50 truckloads or 100 trip ends per hour. Industrial, commercial, and residential uses on surrounding roads may be affected by noise from project-generated truck traffic. However, based on noise investigations within previous environmental documents for surface mining operations in the area, the short-term increase in noise levels on Jackson Highway is estimated to be less than 2 dB during the peak hour. Typically, a 3-5 dB change in Ldn is needed before the change in noise level becomes noticeable. Furthermore, the General Plan Noise Element indicates that residential uses in agricultural areas such as the project vicinity are

considered compatible with noise levels of up to 65 dB Ldn. Thus, the project's increased truck traffic along area roadways is not expected to result in significant noise impacts.

Proposed Project Without the Vineyard I Processing Plant Alternative

1. Under this alternative, the processing plant would not contribute to noise levels created by mining use at the boundary line of the project site. Use of conveyors for transport from the mining operations to the off-site processing plant would have negligible effect on off-site noise. Most of the noise is generated by loaders, scrapers, and dozers working at or near the final excavation line before loading into the conveyor feeder. Therefore, noise impacts due to other noise-generating equipment that would be used during mining operations would be similar to the proposed project, and could violate noise standards established in the Zoning Code, Noise Ordinance, and Noise Element (*Significant Impact*).

County Drainage Alternatives (Part B) and ~~100-Year~~ Floodplain Protection Alternatives

1. Noise-generating equipment to be used in the mining operation would be generally the same for all Part B alternatives and the floodplain protection alternatives, and therefore the expected noise levels resulting from these alternatives would be similar to the noise levels produced by the proposed project (*Significant Impact*).

The Downstream Bypass Channel Alternative would require a small electric pump (5 cfs/50 bhp) near Hedge Avenue to operate the drainage facilities. A pump of this size is not expected to produce noise levels higher than background noise at distances of 100 feet or more.

The duration of the mining activities (and hence noise) for 100-Year Floodplain Protection Alternative would be shorter. This would not necessarily reduce the primary noise impacts to adjacent residences, considering that the mining activities would still take place near the perimeter of the site boundary close to sensitive off-site receivers. The Creek Buffer Alternative would similarly include mining and reclamation activities within a smaller area than being proposed under the project. Under the Creek Buffer Alternative, more aggregate from a greater area would be mined as compared to the 100-Year Floodplain Protection Alternative. The duration of these activities would be longer than the 100-Year Floodplain Alternative, but less than the proposed project.

No Project Alternative

1. The No Project Alternative would not result in any changes to existing conditions at the project site. This alternative would not create any additional noise sources or bring new sensitive noise receptors into the project site. Therefore, this alternative would not be considered to have any new noise impacts, and noise mitigation measures would not be required.

5.10.3 Mitigation (All Mining Alternatives)

Recommendations/Requirements of Various Agencies

Zoning Code:

1. Unless otherwise provided as a condition of use permit, the proponents shall limit hours of excavation to be consistent to those required by Section 235-53 of the Zoning Code.

Mitigation Measures (All Mining Alternatives)

1. ~~The proponent of Vineyard I shall e~~Construct an earthen berm, sound wall, or combination berm/sound wall no less than 15 feet high early in the stripping phase along all common residential/project property lines within 1,200 feet of the Vineyard I processing plant to break the line of sight of loaders and crushers at the processing plant from any sensitive off-site receptor. (Note: This mitigation measure does not apply to the Proposed Project Without the Vineyard I Processing Plant Alternative or the Flood Plain Protection Alternatives.)

2. For all other common residential/project property lines, the proponents shall provide noise barriers consisting of 8-foot high earthen berms or temporary portable barriers installed and moved along property boundaries as mining progresses. The noise barriers shall be maintained at least until sufficient pit excavation has occurred to block the line of sight between nearby residences and mining activities. If temporary portable barriers are used, they shall either be constructed with 4 x 8 sheets of ¾-inch plywood, placed side by side with an overlap of 1-2 inches to prevent gapping, or shall be constructed with other materials which achieve equivalent or greater sound attenuation as verified by a qualified acoustical consultant. (Note: While the above cited ¾-inch plywood can provide acceptable temporary noise attenuation, this method as currently practiced is subject to weather damage, and lack of maintenance severely limits its effectiveness and aesthetic appeal. Alternatives which provide durability and improved aesthetics for nearby residents and passersby should be explored.)

3. The proponents shall provide for continuous movement of the excavation along the mining face of all common residential/project property lines to prevent noise from concentrating on any one receptor.

4. The proponent of Vineyard I shall lower the processing plant elevation to no less than 15 feet below existing grade and maintain stockpiles at least 25 feet in height between the plant and residential receptors. (Note: This mitigation measure does not apply to the Proposed Project Without the Vineyard I Processing Plant Alternative, the 100-Year Floodplain Protection Alternative, or the Creek Buffer Alternative.)

5. After processing plant start-up, the proponent of Vineyard I shall conduct a noise investigation of the plant to determine what adjustments if any must be made to comply with Sacramento County Code Section 6.68.070 (b-1,2,3,4,5 & d) (Noise Ordinance). If noise readings taken during initial start-up indicate that noise standards are exceeded by processing plant activities, additional noise measures potentially including but not limited

to rubber top deck screens, covers over the top deck screens, and rubber or spread metal liners on the bottom surfaces of rock chutes shall be utilized as necessary to ensure noise standards are met. (Note: This mitigation measure does not apply to the Proposed Project Without the Vineyard I Processing Plant Alternative, the 100-Year Floodplain Protection Alternative, or the Creek Buffer Alternative.)

5.11 PUBLIC SAFETY

5.11.1 Affected Environment

To foster public safety, sand and aggregate mines are subject to the following requirements set forth in Section 235-54 and Section 235-55 of the Zoning Code:

235-54. Fences. *Unless otherwise provided by condition of the use permit, the following fence requirements shall apply:*

(a) Fences shall be chain-link.

(b) The fence shall be not less than six feet in height above the grade of the property outside the fenced area.

(c) Gates shall be installed to fence height at all entrances.

(d) Fences shall be kept in good repair.

(e) Fences shall conform to the ground to preclude opening of more than four (4) inches between the ground and the fence.

235-55. Warning Signs. *The proponent shall provide warning and trespass signs advising of the mining operation on the fences at intervals of not less than 500 feet. Signs shall be kept legible and in good repair.*

In addition, any embankment greater than 25 feet in height (pit floor to top of channel) with a reservoir capacity of more than 15 acre-feet, or dams with more than 6 feet in height with a reservoir capacity of 50 acre-feet or more qualifies as a dam that falls under State jurisdiction for safety under Part 1 of Division 3 of the California Water Code. For any new dam that falls under the State jurisdiction, an application for construction must be filed with the California Division of Safety of Dams (DSD) and approved prior to start of construction. Embankment compaction must be consistent with DSD *Guidelines for the Design and Construction of Small Embankment Dams* (Sacramento County Public Works Agency, Water Resources Division, 1994). The guidelines require a spillway capable of safely conveying the 3-day probable maximum flood.

~~5.1.2~~5.11.2 Environmental Consequences

Proposed Project (Part A)

1. The proposed project would involve the use of heavy equipment such as bulldozers, scrapers, and front-end loaders, and without adequate fencing and warning signs, this equipment as well as the water channel reconstruction, stormwater detention, and pit slope reclamation activities could create potentially hazardous conditions should members of the general public inadvertently enter the project site (*Significant Impact*).

The proposed project would involve the use of heavy equipment such as bulldozers, scrapers, and front-end loaders, and would result in the creation of a 25± foot deep, steep-sided pit. In addition, the proposed project would result in the construction and operation of an aggregate

processing plant. Compliance with Zoning Code fencing and signing requirements for mining uses, with retention of the perimeter fencing until post-reclamation development/future use of the site occurs, would reduce potential impacts to public safety to a less-than-significant level.

Public access to the mining areas would not be anticipated. However, a driveway within the project site along the northwest boundary and through Aspen III South has historically provided two parcels within the Vineyard I site with their only access to a public street (Fruitridge Road). In order to protect public safety, the project's perimeter fencing would need to be installed between the driveway and the mining area to prevent public access to the mining area. Additionally, provisions would be required to protect pedestrians using the driveway and to prohibit heavy truck traffic from using the road to haul initial overburden. For example, a protected pedestrian walkway could be formed by providing additional chain link fencing along the entire length of the haul route, between the truck travel-way on the driveway and the project site boundary.

The proposed project (Part A) would require the mined areas to remain privately owned by the proponents (mining companies), relieving the County of any involvement in the operation and maintenance of the bypass channels. The elevated bypass channel and other drainage facilities would be constructed, operated, and maintained by the proponents, who would accept all costs and risks of failure and flooding. In the event that one of the channels failed, only the mining pit areas (reclaimed for agricultural uses) would be affected. To protect the public from any potential failure of the elevated channel, the Sacramento County Public Works Agency, Water Resources Division proposes to map the mining pits within the 100-year floodplain, with the appropriate restrictions on land use.

Proposed project (Part A) water detention features do not fall under the jurisdiction of California Division of Safety of Dams (DSOD) since the water surface within the bypass channel would not exceed a height of six feet and there are no proposed embankments greater than 25 feet in height (pit floor to top of channel). No increase in peak flows at Hedge Avenue would result from mining activities. The potential impact of increased flows resulting from future development located upstream of the project site (which may potentially affect onsite flows) would be analyzed and mitigated on a case-by-case basis.

Proposed Project Without the Vineyard I Processing Plant Alternative

1. Under this alternative, potentially hazardous conditions created by the onsite processing plant would not occur. However, impacts due to mining operations would be similar to the proposed project (*Significant Impact*).

County Drainage Alternatives (Part B)

1. Under the Part B Alternatives, a different ultimate land use potential could be considered, including park areas. Public facilities within the mining pits after the completion of mining would require more stringent construction standards to protect public health, safety, or general welfare (*Less-Than-Significant Impact*).

Bypass channels, drop structures, pumps and mining pit lands within the 100-year floodplain would be publicly owned, operated and maintained. Construction and inspection would be to a

standard consistent with safety requirements for public facilities. In addition, if one of the Part B alternatives is implemented, the increased detention would likely bring the project under DSOD jurisdiction. This would also require a higher standard of embankment construction.

The Part B Alternatives further reduce flood volume impacts to the Beach/Stone Lakes area for all future development of the entire Morrison Creek Stream Group watershed, but would not relieve the greater existing flooding risks from the Cosumnes and Mokelumne Rivers.

~~100-Year~~ Floodplain Protection Alternatives

1. Under th~~is~~e 100-Year Floodplain Protection and Creek Buffer A~~a~~lternatives, impacts due to mining operations would be similar to the proposed project with the exception of those directly associated with mining in the floodplain and the creek corridor (i.e., channel reconstruction and stormwater detention) (*Significant Impact*).

No Project Alternative

1. Under the No Project Alternative, there would be no impacts to public safety within the project site, and the existing level of storage in the floodplain of the creek would be maintained (*Less-Than-Significant Impact*).

However, the potential for future flooding downstream would exist even without future urban expansion.

5.11.3 Mitigation (All Mining Alternatives)

Recommendations/Requirements of Various Agencies

California Division of Safety of Dams:

1. An application for construction shall be filed with the California Division of Safety of Dams (DSD) and approved prior to start of construction for any new dam that falls under the State jurisdiction for safety.

Zoning Code:

2. The proponents shall install fences and provide warning/trespass signs to comply with Sections 235-54 and 235-55 of the Zoning Code.

Water Resources Division Design and Construction Standards and Objectives:

3. Existing public infrastructure (roads, water and sewer, electrical, etc.) shall be protected from undermining and collapse. To protect the roadway and other public infrastructure, the proponents shall be required to construct adjacent pit sides to standards approved by Water Resources Division (WRD). The proponents shall submit to WRD for approval: a) studies and design for appropriate embankment protection or other needs; and b) the plan, an ongoing construction inspection program, and the results of a program of soils testing during construction.

4. In anticipation that the elevated channel would be ultimately accepted as a public facility, the proponents should be conditioned to submit to WRD studies and designs for channel-lining, and the plan and results of a program for soils testing during construction.

Mitigation Measures (All Mining Alternatives)

1. All perimeter fencing shall be retained until post-reclamation development/future use of the project site occurs.

~~2. As required as a condition of the existing permit, the proponent of Aspen III South shall install perimeter fencing between the existing driveway (exiting on Fruitridge Road) and the site to prevent public access to the mining area.~~

~~3. As required as a condition of the existing permit, the proponent of Aspen III South shall provide protection from truck traffic for pedestrians who use the existing driveway along the site's northwest boundary for access to Fruitridge Road. Such protection could consist of a protected pedestrian walkway, formed by providing additional chain link fencing along the entire length of the haul route, between the truck travel-way on the driveway and the site boundary. Such fencing should be at least six feet high, and the pedestrian walkway should be at least three feet wide, provided on level ground and signed to indicate that it is for pedestrian/bicycle use. This fencing used to form the pedestrian walkway could be removed after all mining and reclamation activities are completed. Alternative methods of providing for pedestrian protection/safety may be considered, and could be implemented if found to be acceptable by the County Public Works Department. Such alternative methods might include restricting truck traffic on the driveway to the northernmost portion of the roadway.~~

5.12 AESTHETICS AND VISUAL RESOURCES

5.12.1 Affected Environment

Landscape characteristics of the project area consist of gently sloping rangeland in a rural setting. Single family residences, a religious temple, and commercial properties, including a health club, are located on properties adjacent to the project site, and would be subjected to views of the mining operations, and eventually the reclaimed pit areas, unless screening occurs. Travelers along Jackson Highway, Bradshaw Road, Elder Creek Road, Hedge Avenue, and Fruitridge Road would also have a view of the operations. Less sensitive receptors, including adjacent surface mining operations and industrial uses also surround the property.

The following policies in the Conservation Element of the *Sacramento County General Plan* provide for orderly extraction of minerals and subsequent reclamation of mined areas with minimal adverse impacts on surrounding residential uses and scenic values:

CO-44. *Surface mining shall maintain substantial minimum setbacks from adjoining rural residential land uses.*

CO-45. *Surface mining shall not be allowed without adequate plans for reclamation of mined areas.*

These policies are largely implemented through existing Zoning Code provisions and CEQA. The Zoning Code outlines standards for sand and gravel mines that provide minimal buffering for adjacent properties. Unless otherwise provided by condition of the use permit, the Zoning Code requires standard chain link fencing (Section 235-54), a 25-foot minimum setback from unmined land adjacent to public roadways, and a 25-foot setback (Section 235-59) along all other property lines around the mining site (the first five feet to consist of unmined land and the remainder to be reclaimed to original grade within one year of mining). The Board of Supervisors is also allowed to require, as a condition of the use permit, visual screening through the use of berms, screen fences, landscaping, setbacks, or combinations thereof (Section 235-56).

5.12.2 Environmental Consequences

Proposed Project (Part A)

1. Unless visual screening is adequate, nearby residents and travelers along adjacent roadways would be subjected to views of the mining operations, the bypass channel, the processing plant, and eventually the reclaimed pit area (*Significant Impact*).

The aesthetic value assigned to changed landforms resulting from mining activities is very subjective. To some viewers from the perimeter rim roads, the reclaimed pits would be seen as an interesting mosaic of cropland, uplands, wetlands, ponds, and riparian canopy. The visual contrast of water with irregular shoreline, undulating topography, and corresponding variable patterns of natural and agricultural vegetation would create an aesthetically pleasing viewshed from all sides of the pit perimeter. Inclusion of forest canopy throughout the basin would screen and soften the artificially steep sides of the pit. To others, especially those few properties that

would remain within the noncontiguous site area, the changed landforms resulting from the proposed project's mining activities, pits, and bypass channel may be visually objectionable

Interpretation of past actions taken by planning agencies and decision-making bodies suggests that these mining activities and resulting pits are visually undesirable, and measures have usually been taken to mitigate the visual effects Visual screening measures proposed by the proponents are shown in Figures 5-16a through 5-16d, and would include a 25-foot landscaped buffer between the perimeter boundary and the mined pits, and a 25-foot landscaped and bermed buffer between the perimeter boundary and the bypass channel

Perimeter landscaping would require time to establish and grow to sufficient "screening" height For this reason, it is often recommended that landscaping be used in combination with other screening techniques in order to provide immediate screening, or that landscaping be initiated several years prior to commencement of the mining operation

Placing berms or solid fencing along the project site perimeter would provide immediate screening from mining operations (and is being recommended in the Noise section to mitigate noise impacts) While berms and fencing would reduce visual effects from the mining activities, these features could appear monotonous and create an industrial appearance, at least until landscape vegetation had grown sufficiently to provide interest A negative aspect of visual screening is that the open space character offered by the existing landscape and the future mined landscape would be reduced

2 The nighttime landscape in the vicinity of the project will be changed Urban type lighting will exist on the project site which has not existed in the past and will be visible to existing residents and passersby (*Significant Impact*)

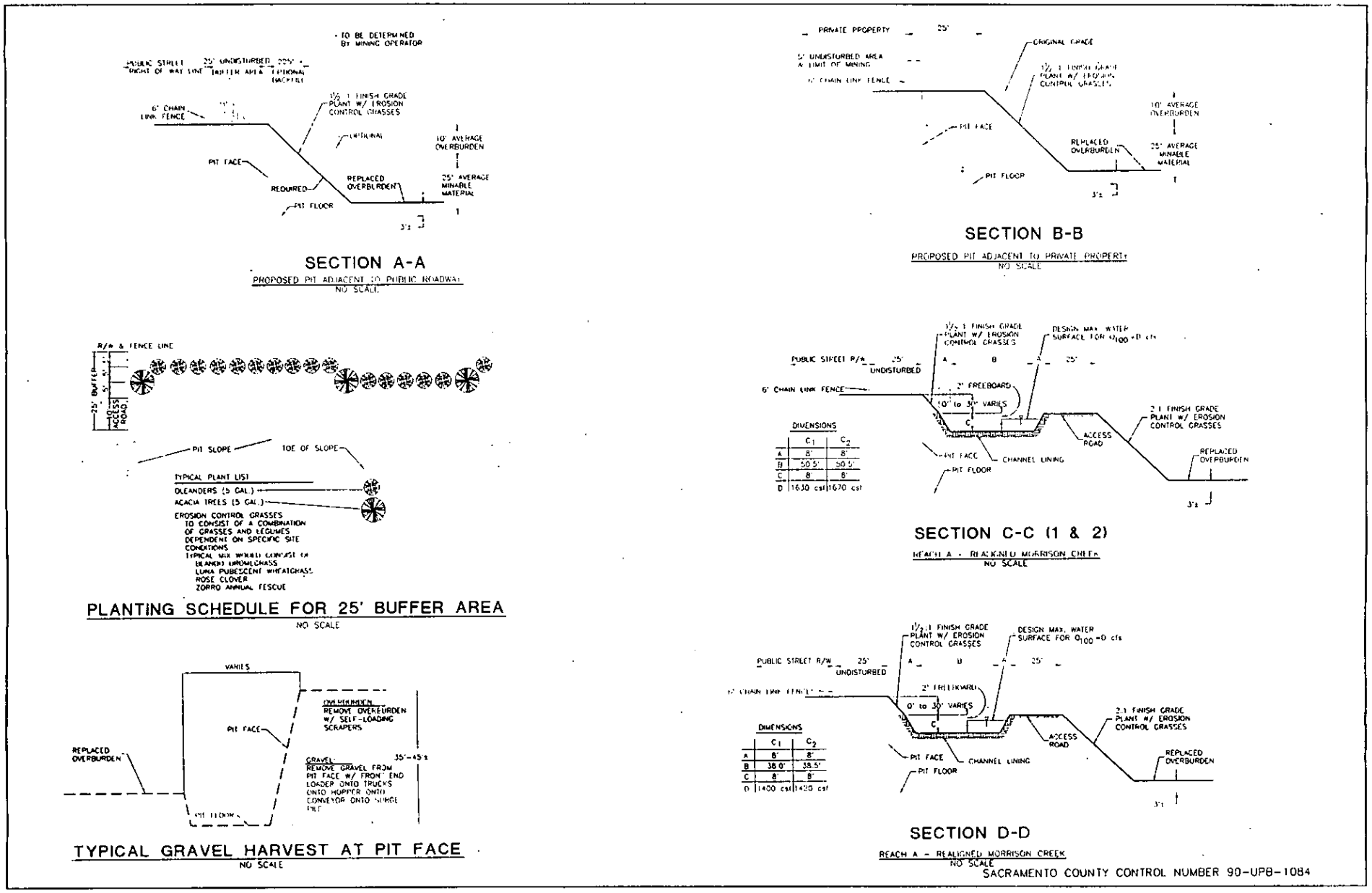
Most of the lighting would be located in the vicinity of the proposed processing plant The light within the mining area would vary in setback and height relative to adjacent uses, depending upon which area of the site is actively being mined at any particular time and the depth to which the mining of that particular area has proceeded

Proposed Project Without the Vineyard I Processing Plant Alternative

1 Under this alternative, the open space character of the project site would not be reduced by the industrial appearance of the processing plant However, neighboring uses and travelers along adjacent roadways would still be subjected to views of the mining operations, the bypass channel, and the reclaimed pit area (*Significant Impact*)

County Drainage Alternatives (Part B)

1 The Part B alternatives would generally include the same mosaic of cropland, uplands, wetlands, ponds and riparian canopy within the reclaimed pits as the proposed project,



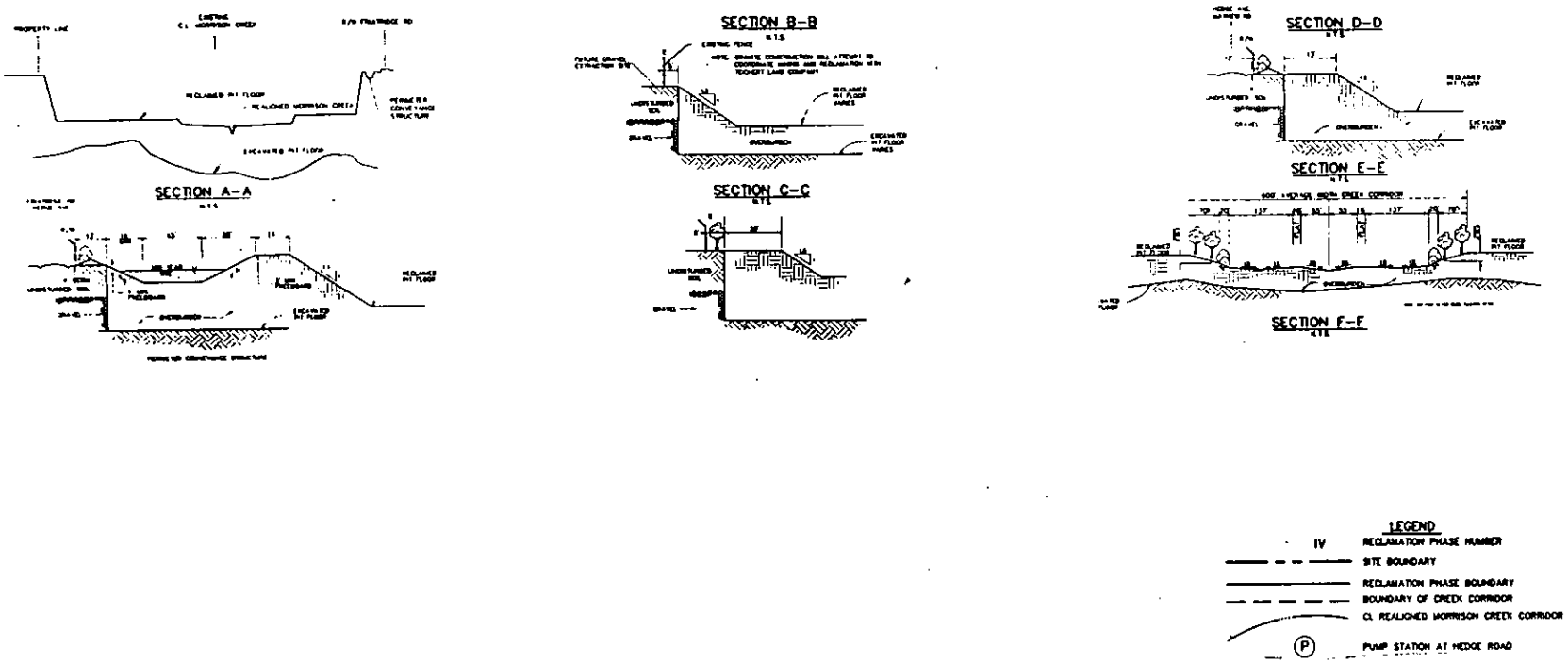
Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 5-16a
Visual Screening-Aspen III South
Proposed Project

EDAW Inc.

Source: GW Consulting Engineers

N:5s052:029



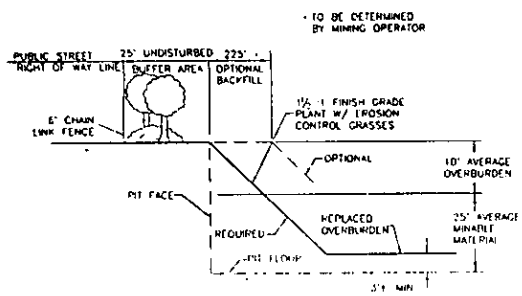
Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 5-16b
Visual Screening-Vineyard I
Proposed Project

EDAW Inc.

Source: Robert E. Young Engineers, 1994

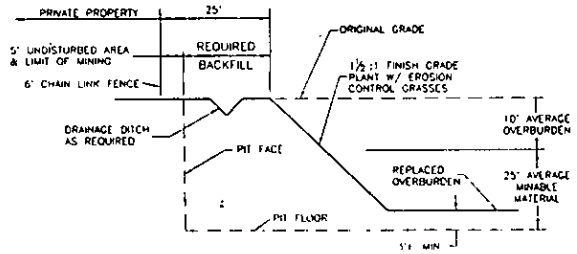
N:5s052:030



SECTION A-A

PROPOSED PIT ADJACENT TO PUBLIC ROADWAY

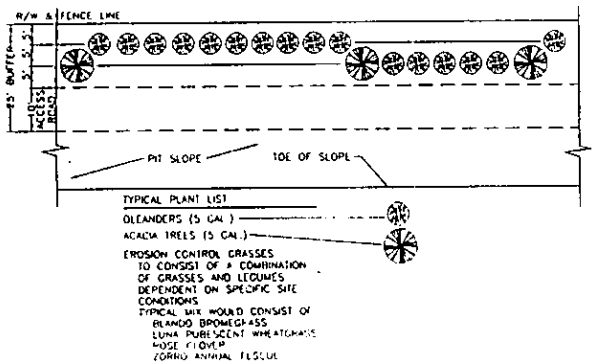
NO SCALE



SECTION B-B

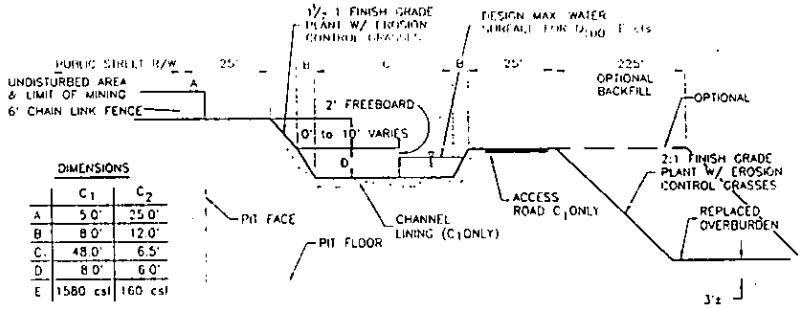
PROPOSED PIT ADJACENT TO PRIVATE PROPERTY

NO SCALE



PLANTING SCHEDULE FOR 25' BUFFER AREA

NO SCALE



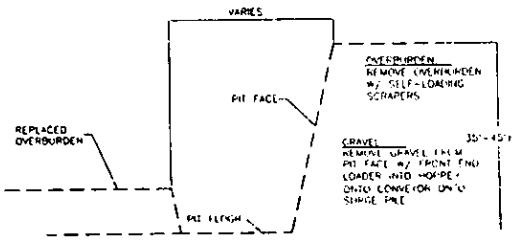
DIMENSIONS

	C_1	C_2
A	5.0'	25.0'
B	8.0'	12.0'
C	48.0'	6.5'
D	8.0'	6.0'
E	1580 cfs	160 cfs

SECTION C-C (1 & 2)

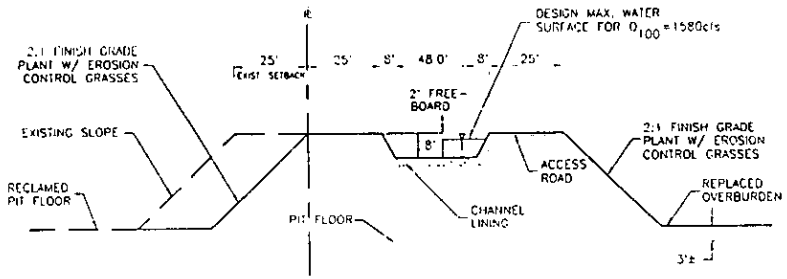
REACH A - REALIGNED MORRISON CREEK

NO SCALE



TYPICAL GRAVEL HARVEST AT PIT FACE

NO SCALE



SECTION D-D

REALIGNED MORRISON CREEK

NO SCALE

SACRAMENTO COUNTY CONTROL NUMBER 90-CZB-UPB-1607

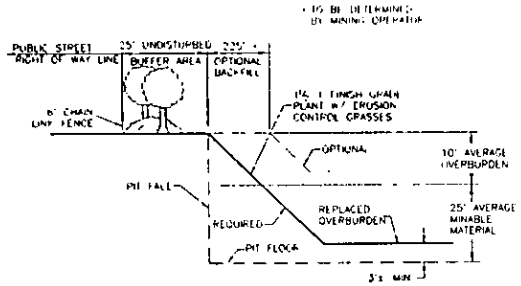
Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 5-16c
Visual Screening-Aspen IV South
Proposed Project

EDAW Inc.

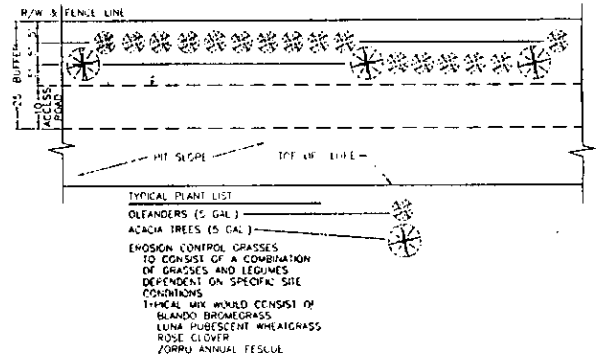
Source: GW Consulting Engineers

N:5\0152:031



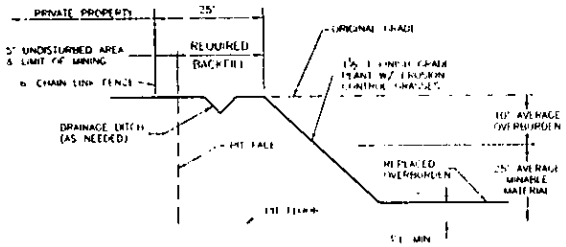
SECTION A-A

PROPOSED PIT ADJACENT TO PUBLIC ROADWAY
NO SCALE



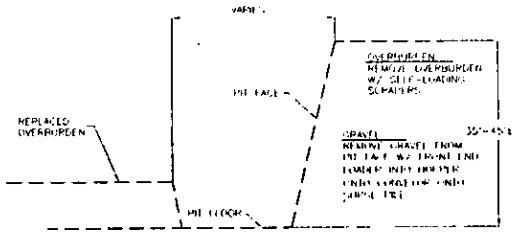
PLANTING SCHEDULE FOR 25' BUFFER AREA

NO SCALE



SECTION B-B

PROPOSED PIT ADJACENT TO PRIVATE PROPERTY
NO SCALE



TYPICAL GRAVEL HARVEST AT PIT FACE

NO SCALE

Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 5-16d
Visual Screening-Aspen V South
Proposed Project

EDAW Inc.

Source: GW Consulting Engineers

N:5s052:032

and therefore impacts would be similar. The Downstream Capacity Bypass Channel Alternative would establish a slightly larger "seasonal lake" adjacent to Hedge Avenue, and would create, for many viewers, the most aesthetically pleasing viewshed during wet years (*Significant Impact*).

~~100-Year~~ Floodplain Protection Alternatives

100-Year Floodplain Protection Alternative

1. This alternative would result in the least impacts of the mining alternatives to open space and visual resources since the natural streambed and associated vegetation would not be affected. Changed landforms resulting from mining activities would occur outside the floodplain and the bypass channel would not be built. However, mining operations and the reclaimed pit area would be visible from viewpoints surrounding the project site (*Significant Impact*).

Creek Buffer Alternative

2. Similar to the 100-Year Floodplain Protection Alternative, implementation of the Creek Buffer Alternative would result in partial mining and reclamation of the project site. The elevated creek corridor and surrounding pit areas would be visible from viewpoints surrounding the project site (*Significant Impact*).

No Project Alternative

1. Expansive visual open space and the creek corridor would be maintained in the short term. Thus, there would be no immediate adverse impacts on scenic values and surrounding residential uses (*Less-Than-Significant Impact*).

However, as much of the project site is within the industrial reserve land use categories, it is anticipated that future industrial development would reduce the open space character of the site eventually.

5.12.3 Mitigation (All Mining Alternatives)

1. The proponents shall screen mining operations from public roadways, private property, and other sensitive receptors by providing a combination of visual enhancements. These enhancements shall include 25-foot minimum buffers, chain link fencing, berming, and landscaping with fast-growing, closely spaced shrubs. To the extent possible, earthern berms shall meander and be contoured to reflect a more natural pattern with variations in width, height and direction.

2. Landscaping shall be initiated upon issuance of the use permit and, if possible, at least one year prior to commencement of the mining operations to allow plant establishment and sufficient screening growth. Plantings shall be irrigated by trenching or with individual bubblers on an automatic irrigation system. Landscaping shall be installed *exterior* to earthen berms or chain link fencing to provide the least "industrial" appearance and the highest compatibility with neighboring uses. Slats may be used in the fencing only if mining occurs before vegetation has reached screening height and density.

3. Any lighting shall be arranged and controlled so as not to illuminate public rights-of-way or adjacent properties. Mercury vapor type lights shall be used, similar to the type used as residential outdoor security lights. The top of the lights shall be covered with a metal cap, and a 10-12 inch plastic shield shall surround the bulb. The design of the light shall result in a minimum 90% of the light being projected downward, and the plastic shield shall prevent glare.

5.13 PUBLIC AND PRIVATE UTILITIES

5.13.1 Affected Environment

Sewage Disposal

The project site is located adjacent to and partially within the service area of Sacramento Regional County Sanitation District (SRCSD) and County Sanitation District No. 1 of Sacramento County (CSD-1). SRCSD and CSD-1 have completed a *Sewerage Expansion Study* and a *1994 Update Expansion Study*, in part to investigate the most feasible trunk and interceptor alignments to serve areas within the Urban Service Boundary. The 1994 Update provides for two interceptor alignments through the project site. The proposed alignments, as shown in Figure 5-17, can be roughly described as follows:

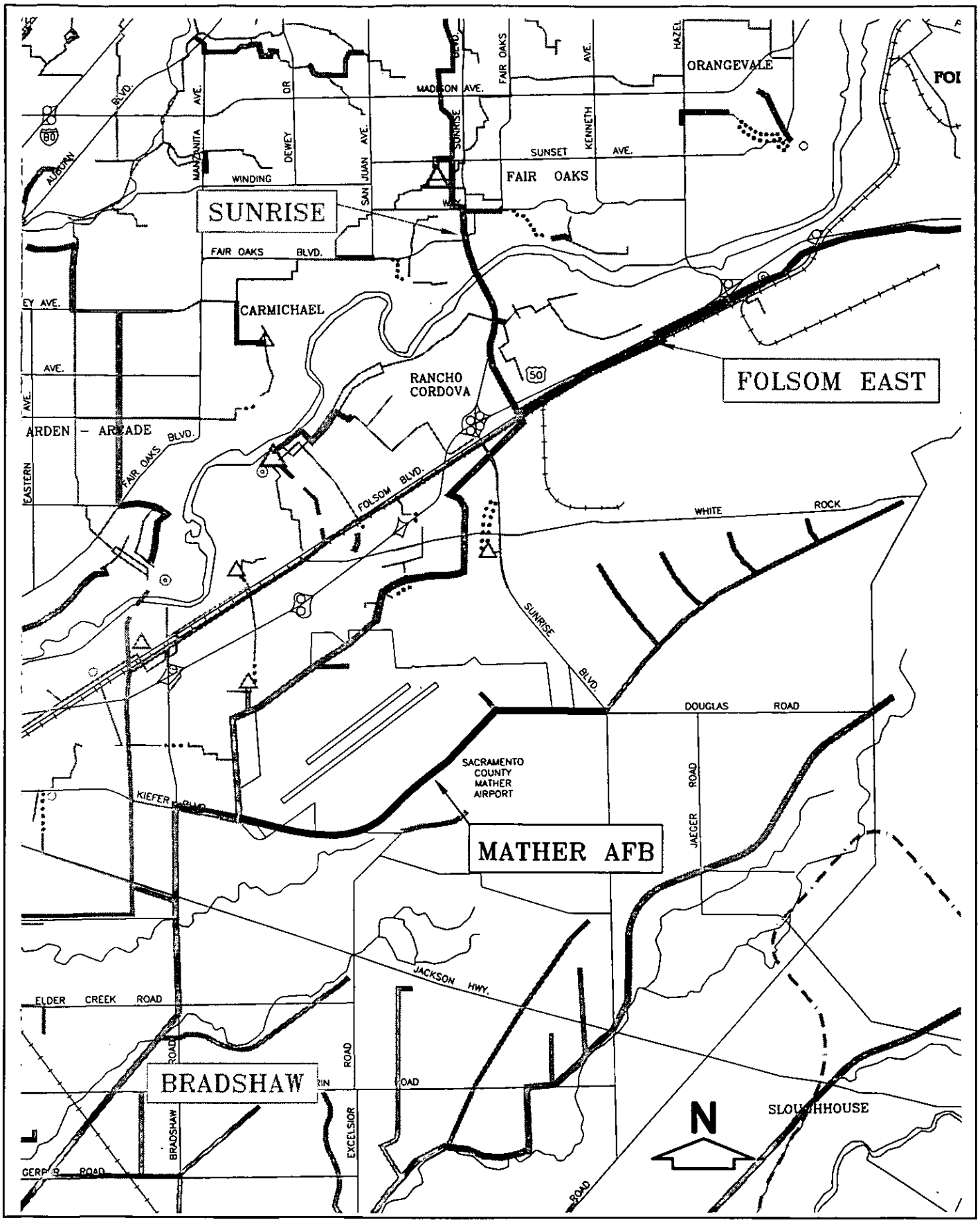
- The Bradshaw Interceptor alignment goes through the proposed project adjacent to Bradshaw Road.
- ~~The Mather Intercepter follows along the northern boundary of the project along Jackson Highway east of Bradshaw Road~~.

The Bradshaw Interceptor is expected to be constructed through this area in ~~1998~~ by 2005. Based on preliminary mining and sewerage expansion schedules, the mining operations would most likely not be started prior to construction of the planned sewers.

The following policies in the Conservation and Public Facilities Elements of the Sacramento County General Plan call to attention the need to plan sewer system extension carefully so as not to preclude mining or future reclamation options:

> CO-42. *Sewer interceptor and trunk alignments shall be routed to avoid areas planned for aggregate resource mining to the extent practical. Where such alignments are impractical, they shall be designed to minimize aggregate resources which would be precluded from mining, and make reasonable attempt to preserve the future use of mined areas for flood control or recharge purposes.*
>
> PF-10. *Development along corridors identified by the Sanitation Districts in their Master Plans as locations of future sewerage conveyance facilities shall incorporate appropriate easements as a condition of approval.*

Existing private septic systems within the project site and its vicinity are shown on Figure 5-18. Section 235-59(d) of the Zoning Code regulates mining setbacks from sewage disposal systems as follows:



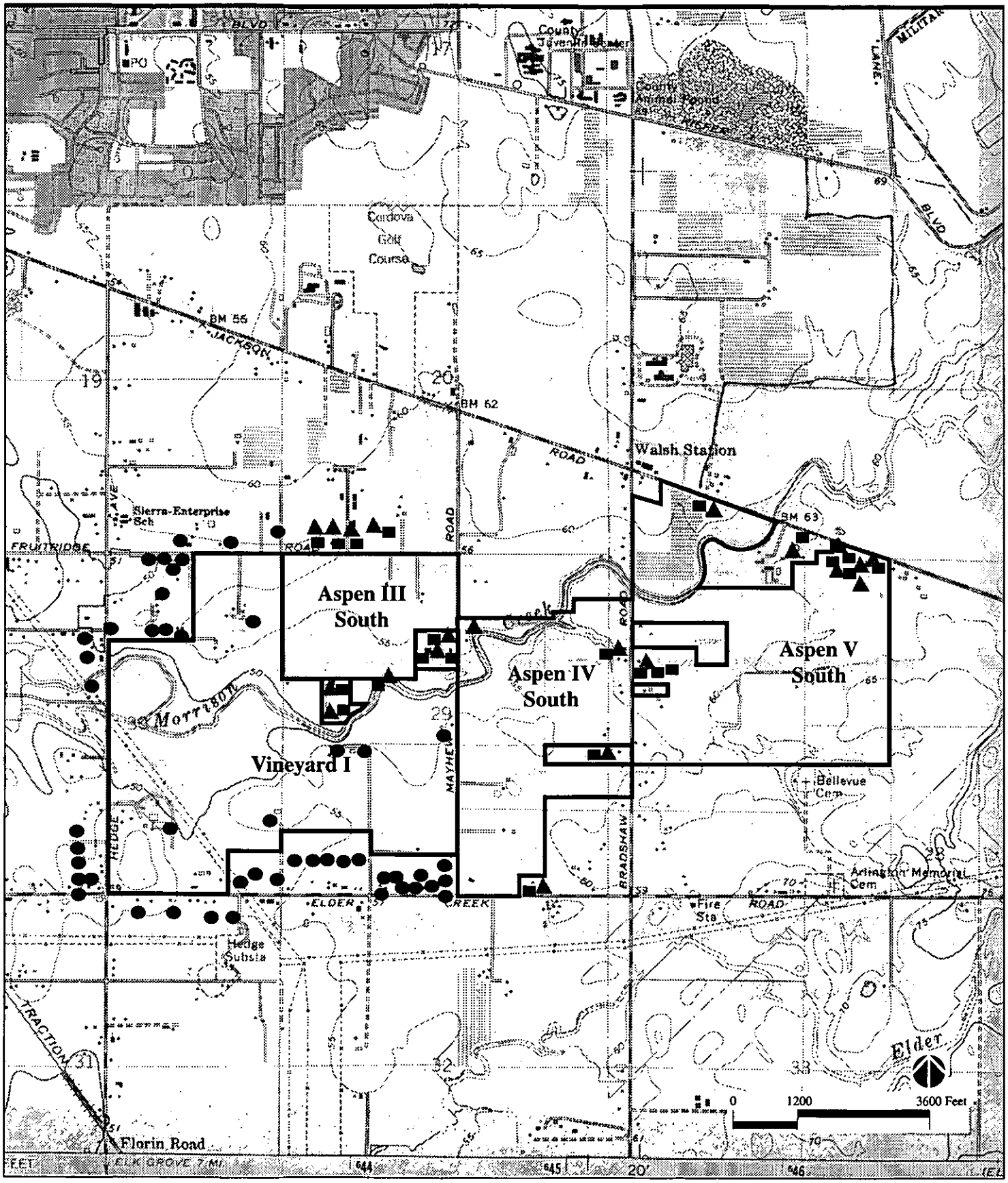
Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 5-17
Proposed Interceptor Alignments

EDAW, Inc.

Source: EDAW, Inc., 6/99

N:5s052



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Project Boundary
Well Site
Septic Tank
Wells and Septic Tanks not designated separately

Figure 5-18
Wells and Septic Tanks

EDAW Inc.

Source: County of Sacramento, 1991
Holliman, Hackard and Taylor, 1985

N:5s052:037

The mining plan shall also show all individual sewage disposal systems within three hundred feet of the proposed mining area. In the event there are individual sewage disposal systems near or within the mining site, the mining setbacks shall conform to the provisions of the Sacramento County Code, Chapter 6.32 - SANITARY SEWAGE SYSTEM, and the rules and regulations adopted pursuant thereto, and shall be subject to approval of the Sacramento County Health Agency and the Regional Water Quality Control Board. Approval of these agencies must be obtained on the minimum mining setback before a work authorization permit can be obtained.

Water Use

Wells located within and adjacent to the project site are shown in Figure 5-18.

Electric Facilities

The Sacramento Municipal Utility District (SMUD) provides electrical service to the project site and the surrounding area and extends its electrical facilities to serve all customers within its service area. SMUD is the lead agency responsible for all electric system improvements.

Natural Gas Service

The Pacific Gas and Electric Company (PG&E) provides natural gas service throughout the Sacramento area.

5.13.2 Environmental Consequences

Proposed Project (Part A)

Sewage Disposal:

1. The proposed mining operations would eliminate possible routes for the gravity sewers being considered by SRCSD and CSD-1 *(Significant Impact)*.

Based on preliminary mining and sewerage expansion schedules, the mining operations would most likely not be started prior to construction of the planned sewers. The Bradshaw Interceptor is expected to be constructed through the project site in ~~1998~~ by the year 2005.

2. Seepage from septic systems could cause adverse impacts when excavation occurs near a septic system site, especially in areas with gravelly soils *(Significant Impact)*.

3. Proposed mining operations would require the removal of onsite septic systems in compliance with Sacramento County Environmental Management Department and Building Department guidelines *(Less-Than-Significant Impact)*.

Water Use:

4. Mining activities would require water to be used for dust control and landscaping. The rate of use would depend upon dust control and plant needs. Aggregate processing would

incorporate both well water from new wells constructed within the project site and recycled settling-pond water *(Less-Than-Significant Impact)*.

There are no plans to provide public water to the project site or surrounding area during or following mining operations.

5. Proposed mining operations would require the removal of water wells in compliance with Sacramento County Environmental Management Department and Building Department guidelines (*Less-Than-Significant Impact*).

Electric Facilities:

6. Electrical facilities would need to be installed to serve the proposed project, including those for the aggregate processing facility. The processing facility would be served from SMUD's Sunrise/Jackson substation (*Less-Than-Significant Impact*).

During peak construction months (usually June, July and August), the processing facility can be expected to use approximately 750,000 to 1,000,000 KWH of electricity per month. The peak demand during these months is expected to be approximately 3,300 KWH/hr. Annually, the facility is expected to use between 7-8 million KWH of electricity. This electric power does not represent a significant increase in demand, since power is currently being supplied to the existing processing facility. Coordination with SMUD would ensure that any additional power requirements would not substantially affect the overall capacity of the substation.

Natural Gas Service:

7. Natural gas facilities would need to be installed to serve the proposed project, including those for the hot asphalt plant (*Less-Than-Significant Impact*).

The hot asphalt plant would burn between 200,000 and 300,0000 therms of natural gas per month during the peak construction season. Annually, the plant is expected to use approximately 1.2 million therms of natural gas. The maximum fuel usage of the burner would be 1,600 therms/hour. PG&E has indicated that these requirements would not significantly impact its facilities (PG&E, 1996).

Proposed Project Without the Vineyard I Processing Plant Alternative, County Drainage Alternatives (Part B), and ~~100-Year~~ Floodplain Protection Alternatives

1. The impact of these alternatives on sewage disposal would be similar to Impacts 1 and 2 described above for the proposed project (*Significant Impact*).

Each of these alternatives would result in excavation activities which may effect and/or eliminate possible routes for gravity sewers being considered by the SRCSD and CSD-1, and may also result in adverse impacts to existing septic systems (especially where excavation occurs in areas of gravelly soils).

2. The impact of these alternatives upon water use, and electrical facilities would be similar to the proposed project (*Less-Than-Significant Impact*).

The Proposed Project Without the Vineyard I Processing Plant Alternative would require less water and use less electricity. The Downstream Bypass Channel Alternative (Part B) would require a small, 5-cfs pump to operate the drainage facilities. This pump would need only minimal electric power and would not substantially affect the overall capacity of SMUD's Sunrise/Jackson substation.

No Project Alternative

1. The No Project Alternative would have no impacts on sewage disposal, sewerage expansion, water use, electric facilities, or natural gas services (*Less-Than-Significant Impact*).

5.13.3 Mitigation (All Mining Alternatives)

Recommendations/Requirements of Various Agencies

Water Quality Division, Public Infrastructure Planning and Finance and Water Resources Division:

1. As a condition of approval of this project, the proponents shall enter into an agreement with SRCSD for the dedication of a 130-foot wide strip of land to provide for construction of sanitation pipeline and/or drainage facilities. If interceptor construction occurs prior to mining, the proponent will not mine in the 40-foot strip of land designated SRCSD permanent easement. The proponents will protect the integrity of the pipeline from mining activities conducted adjacent to the permanent easement. ~~As a condition of approval of the project, the proponents shall enter into a formal agreement with Sacramento Regional County Sanitation District and County Sanitation District 1, and the Sacramento County Stormwater Utility, for the dedication of a strip of land along a 130-foot right of way for the purpose of constructing two public utility corridors. Where surface mining activities have lowered the grade below the expected flowline, suitable fill shall be required below the pipe to provide support and approximately 5 feet of fill shall be required over the pipe to protect it from surface impacts. If substantial deviations from Expansion Study routes are required to preserve aggregate resources, the proponents shall compensate SRCSD for the cost of additional interceptor line needed to go around the mining resources. Where the interceptor line is also in a drainage corridor, protection from erosion shall be required where the creek could overflow into the mining pit. Staff of the Water Quality Division and the Water Resources Division, and the project proponents shall negotiate further specific requirements within the strip of land as part of the formal agreement. The dedication shall not include mining rights to the areas encumbered by the dedication.~~

Zoning Code:

2. The proponents shall submit plans for proposed mining setbacks from existing sewage disposal systems to the County Environmental Management Department and the Regional Water Quality Control Board for approval in conformance with the provisions of Section 235-59(d) of the Zoning Code. The Project Planning Commission and the Board shall consider the setbacks and other relevant information in establishing setbacks

from the mined areas. If setbacks are established which exceed those normally prescribed by the relevant Zoning/County Codes, the Board shall specify in writing the reasons for requiring the additional setback.

Environmental Management Department:

3. The proponents shall submit for review by the Environmental Management Department a site plan showing the exact locations of existing wells and septic systems (including leach lines and seepage pits) within 300 feet of the project site. This plan shall also indicate the wells proposed for use during the mining operation, the wells and/or septic systems proposed for abandonment, and the proposed locations for any new wells.

4. The proponents shall abandon any existing septic systems according to the Environmental Management Department and Building Department procedures and standards. Use of the system to be excavated shall be discontinued six months prior to excavation and the tanks shall be pumped at that time. Should any septic system be uncovered during mining activities, it shall be destroyed as per the requirements of the Environmental Management Department.

5. The proponents shall ensure that water wells located in each phase of mining shall be abandoned to the satisfaction of the Environmental Management Department prior to initiation of the mining of that phase. Any existing wells shall be abandoned according to the Environmental Management Department and Building Department procedures and standards. Should any well be uncovered during mining activities, it shall be destroyed as per the requirements of the Environmental Management Department.

Sacramento Municipal Utility District (SMUD):

6. The proponents shall contact the SMUD Distribution Planning Department and consult with SMUD through project planning and development so that any required facilities and easements would be developed in a coordinated manner. The proponents shall keep SMUD informed of all decisions or changes in schedules that pertain to the proposed project including setbacks, landscaped corridors, processing plant needs, or any other planning efforts which may affect SMUD electrical facilities. The proponents shall coordinate with SMUD for the construction of SMUD facilities during the different phases of development.

Mitigation Measures

Sewage Disposal (All Alternatives):

1. The proponents shall enter into an agreement with the SRCSD regarding the placement and disposition of the utility corridors (to accommodate the gravity sewerage system) as they relate to the project site and the proposed project. The final plans shall be approved by SRCSD prior to implementation of the project. ~~The proponents shall consult with the County Water Quality Division regarding the placement of the utility corridors (to accommodate the gravity sewerage system) as they relate to the project site and the proposed project. The decision on placement of such corridors shall remain the sole~~

~~discretion of the County, and the proponents shall work with the County to facilitate final plans.~~

Water Use (Proposed Project):

2. All new wells constructed within the project site shall be located and designed to minimize interference with existing wells within and outside the project site, to the satisfaction of the Environmental Management Department (see Section 5.2 for a discussion of groundwater quality).

Electric Facilities (Proposed Project):

4. The proponents shall phase the start-up of the processing plant to avoid a major surge in demand on the system.

5. Any existing overhead power lines shall remain and, if necessary, be relocated at the proponents' expense as the operation proceeds.

5.14 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

The following section discusses existing socioeconomic characteristics of the area surrounding the project site and evaluates potential impacts of the proposed project and alternatives. In addition, specific consideration is given to the issue of environmental justice, per the requirements of Executive Order # 12898 (signed February 11, 1994). Environmental justice is the principle that low income and minority populations should not disproportionately bear the burden of environmental hazards.

5.14.1 Affected Environment

The project site is located in the Vineyard Community within unincorporated area of Sacramento County, California. At present, there are over one million people living in Sacramento County. This total represents a 33 percent increase over the past ten years. This growth trend is anticipated to continue, and it is estimated that total population would reach 1.5 million by the year 2000 (Sacramento County, 1994).

Population growth in Sacramento County has varied substantially by ethnic groups, with minorities experiencing greater overall growth. Today, one out of every eight Sacramento County residents is Hispanic, and one out of every ten is African American. Asian/Pacific Islanders represent the fastest growing group with an increase of 146 percent between 1980 and 1990 (Sacramento County, 1994).

During the 1980s, the ~~County~~ Sacramento region experienced strong economic growth. ~~This growth has since slowed and was marked by a downward trend in economic indicators in the third quarter of 1990, which has yet to recover.~~ The unemployment rate has steadily decreased from 9.7% in 1980 to 5.0% in 1998. The population of the six-county Greater Sacramento area increased by an average of 34,363 new residents per year between 1980 and 1998. The demand for aggregate products in the Sacramento region varies from year to year but is strongly correlated to the region's population and corresponding physical growth.

Historically, the population of the Vineyard Community has had proportionately fewer minorities than the overall County, with the exception of Asians/Pacific Islanders, which represent a slightly higher percentage of the total community population as compared to the corresponding percentage for the entire County. In addition, median household income has been higher for the Vineyard Community as compared to the County (Sacramento County, 1985).

5.14.2 Environmental Consequences

Proposed Project (Part A)

1. The proposed project (Part A) would continue and extend existing mining activities, including the operation of existing processing plants and a proposed processing plant (*Beneficial Impact*).

Based on information provided by the project proponents, it is estimated that each plant employs 200 people and contributes between $17 and $25 million per year to the local economy in the form of wages, salaries, sales and property taxes, and purchasing of local equipment and

materials. Continuation of this existing economic stimuli would have a beneficial impact on the local economy.

2. The proposed project would result in the continuation and extension of existing mining operations. It is not anticipated that any new adverse impacts to any specific segment of the population would occur (*Less-Than-Significant Impact*).

Through existing County Zoning provisions and CEQA requirements, the County provides for the orderly extraction of minerals and subsequent reclamation of mined areas with minimal adverse impacts on the surrounding community. General Plan policies provide support and direction for administering these regulations and address the need to conduct surface mining so as to minimize adverse effects (refer to the Land Use section for a discussion of potential project-generated nuisances to adjacent and displaced residents). Given that the project site represents some of the highest value remaining aggregate deposits within the region, it is unlikely that the proponents could relocate and mine a new resource site or import, at much higher cost, from more distant areas (and risk greater socioeconomic impacts elsewhere). In addition, it should be noted that aggregate mining is an interim use of land. Mined and reclaimed areas on the project site would be reused for agriculture or open space. These uses, which would enhance wildlife habitat, provide the potential for recreational opportunities, and offer a higher level of flood control, would be beneficial to the surrounding community.

Proposed Project Without the Vineyard I Processing Plant Alternative

1. This alternative would generally have the same impacts on the local economy and surrounding residences as the proposed project.

County Drainage Alternatives (Part B)

1. The County Drainage Alternatives (Part B) may have additional (beyond those associated with the proposed project) short-term economic benefits for the local economy as a result of additional construction activities required to implement the more extensive drainage mitigation plans proposed under these alternatives (*Beneficial Impact*).

~~100-Year~~ Floodplain Protection Alternatives

1. Under th~~is~~e 100-Year Floodplain Protection and Creek Buffer ~~a~~Alternatives, total reconstruction of the floodplain that would result from mining operations would not occur. In addition, high-quality gravel resources within the floodplain close to point-of-use and processing facilities would be precluded from mineral extraction. This would occur to a lesser extent under the Creek Buffer Alternative. ~~Therefore~~ and the economic benefits on the local economy would be less than the proposed project for both alternatives. However, th~~is~~ese alternatives would not substantially disrupt the construction industry and impacts would remain beneficial (*Beneficial Impact*).

No Project Alternative

1. The discontinuation of existing mining operations, including potential plant closures associated with the No Project Alternative, may have an adverse impact on the local

economy if future land uses do not provide comparable economic benefits (*Significant Impact*).

The No Project Alternative would perpetuate existing land uses (i.e., agricultural practices) and/or result in the further development of the project site based on existing zoning (refer to Land Use Section). Alternative aggregate sources would be needed to meet the projected consumption needs of the Sacramento area. Increased importation of aggregates from other source areas would ultimately increase construction costs in the Sacramento area and displace local ancillary industries that depend on the local presence of mining operations (i.e. concrete specialty products and heavy equipment sales/service).

5.14.3 Mitigation (All Mining Alternatives)

Socioeconomic impacts are expected to be less-than-significant or beneficial therefore no mitigation measures are recommended.

5.15 CONSISTENCY WITH MATHER FIELD

5.15.1 Affected Environment

The proposed project is located approximately 11,000 feet southwest of the Mather Field [formerly Mather Air Force Base (AFB)] primary runway. Because of the project site's proximity to Mather Field, an analysis of the consistency of the proposed project and alternatives with the Mather Air Force Base Comprehensive Land Use Plan (CLUP) is required.

~~Although m~~Military flight operations at Mather Field ended in May, 1993.~~,~~ ~~t~~At the time the Draft EIR/EIS for this project was circulated for public review, ~~the~~ the CLUP adopted by the Sacramento Area Council of Governments ~~in~~ (1987 ~~(and later~~ as amended in 1992) was the official plan for Mather Field. ~~)~~ Following the close of the Draft EIR/EIS review, the draft CLUP which had been revised and updated to reflect conversion of the base from military to civilian operations was officially adopted by the Sacramento Area Council of Governments (May 1997). ~~is still considered the official guide to land use compatibility in the Mather Field environs. The current CLUP therefore provides the authority for the consistency analysis in this EIR/EIS.~~ -

~~It should be noted that the County of Sacramento has recently approved the operation of a public-use airport at Mather Field. A new CLUP is being prepared and would reflect the airport's conversion to civilian aircraft operations. Although the new CLUP has not yet been adopted, preliminary projections made available as part of a related Draft EIR (Mather Field County Operated Aviation Facility, Control Number: 93-DAE-0041) indicate that air traffic safety zones and noise levels associated with the civilian operations would be less extensive than those which currently exist.~~

In general, the CLUP contains restrictions on land uses for properties adjacent to Mather Field in three major areas: safety, noise and height restrictions. The consistency analysis presented in the Draft EIR/EIS evaluated the proposed project for ~~The following analysis identifies~~ potential inconsistencies with ~~between the proposed project/alternatives and the existing (adopted)~~ the 1992 CLUP, as well as comparison with the proposed CLUP for the County-Operated Aviation Facility (which was subsequently adopted in May 1997 and is now the adopted plan for Mather). No changes to the 1997 CLUP were made that would alter the conclusions presented in the Draft EIR/EIS, and therefore the analysis of the "proposed" CLUP presented below is still relevant. The analysis of the prior plan has been left in the Final EIR/EIS as presented in the Draft for informational purposes and to maintain a complete administrative record. This analysis is consistent with the comments received from the Airport Land Use Commission (ALUC) and the Department of Airports during their review of the Notice of Preparation and Initial Study for the proposed project. As a note, because the proposed project/alternatives would not result in the construction of structures meeting Federal Aviation Regulations Part 77 that would constitute a hazard to air navigation, no impacts related to height restrictions are anticipated (and notification to appropriate agencies would be required to ensure that no future impacts related to this issue would occur).

5.15.2 Environmental Consequences

The following analysis is consistent with the comments received from the ALUC during their review of the Notice of Preparation and Initial Study for the proposed project.

Proposed Project (Part A)

1. The project site is located within the Airport-Area-of-Influence of the Mather Field ~~Air Force Base~~ CLUP, and would be subject to applicable ALUC policies and conditions related to safety and noise (~~*Significant*~~ *Less-than-Significant Impact*).

Safety:

~~Most of the Aspen III South site and part of the Vineyard I site are located within the current Approach-Departure Zone (see Figure 5-19). The remainder of t~~The Aspen V South and a portion of Aspen IV South sites would be ~~project site is~~ located within the Overflight Zone as shown on Figure 5-20.~~.~~ The CLUP defines mining and quarrying as being compatible within ~~both of these~~ this zones, subject to the following conditions:

~~a. Portions within Overflight Zone:~~

Uses compatible only if they do not result in a possibility that a water area may cause ground fog or result in a water hazard.

b. ~~Portions within Approach-Departure Zone:~~

~~*Uses compatible only if they do not result in a possibility that a water area may cause ground fog or result in a water hazard.*~~

~~and~~

~~*Uses compatible only if they do not result in a large concentration of people. A large concentration of people is defined as a gathering of individuals in an area that would result in an average density of greater than 25 people per acre per hour during a 24 hour period ending at midnight, not to exceed 50 persons per acre at any time.*~~

~~The Approach-Departure Zone proposed for the CLUP update is smaller than the existing zone, and would not encompass any of the project site. Only the northern portion of the Aspen V South site would fall within the Overflight Zone (see Figure 5-20).~~

Mining and quarrying would be compatible within the~~is~~ Overflight ~~z~~Zone, subject to the condition that such use does not result in a possibility that a water area may cause ground fog or result in a water hazard.

The newly created wetland and open water habitat resulting from the proposed project could potentially attract additional birds in the project site. However, because the wetlands would be distant from the Mather Field runway and would not be located in critical airspace, the potential for bird hazards to aircraft utilizing Mather Field is low.

Noise:

The project site is currently located partially within the ~~75-80 and 80-85~~ 60-65 and 65-70 CNEL noise contours (as shown on Figure 5-~~21~~22). The CLUP defines mining and quarrying, as well as the proposed-post reclamation use for agriculture, open space and potential trail use as being compatible within these contours.~~, subject to the following condition:~~

> ~~*Measures to achieve an interior noise level of 50 CNEL must be incorporated into the design and construction of portions of buildings where the public is received, office areas and other areas where people work or congregate.*~~

~~As with safety areas, the noise contours proposed in the CLUP update are less extensive than those which currently exist (Figure 5-22). Assuming these noise contours are the ones ultimately adopted by the ALUC, only the north central part of the project would be located within the 65-70 CNEL noise contour. Mining and quarrying would be compatible within this noise contour.~~

County Drainage Alternatives (Part B) and ~~100-Year~~ Floodplain Protection Alternatives

1. The impact of these alternatives related to airport safety and noise would be similar to the proposed project as described above (~~*Significant*~~ *Less-than-Significant Impact*).

Mining operations would be subject to applicable ALUC policies and conditions related to safety and noise. The Downstream Capacity Bypass Channel Alternative would create a slightly larger open water habitat within the pit nearest Hedge Avenue. Based on the proximity of this open water to the Mather Field runway, the potential for birds using the newly created habitat to increase the frequency of bird-aircraft collision incidents is low.

No Project Alternative

1. Potential air safety and noise-related impacts resulting from the No Project Alternative would be less-than-significant.

Existing rural open space in the short-term would be a compatible land use near Mather Field. Existing uses are not considered in conflict with the adopted CLUP. The CLUP would protect Mather Field from future non-compatible land uses and provide for orderly growth of the area surrounding the airport. Inhabitants within the vicinity of the airport and the public in general would be protected from the adverse effects of aircraft noise and aircraft-related hazards.

5.15.3 Mitigation

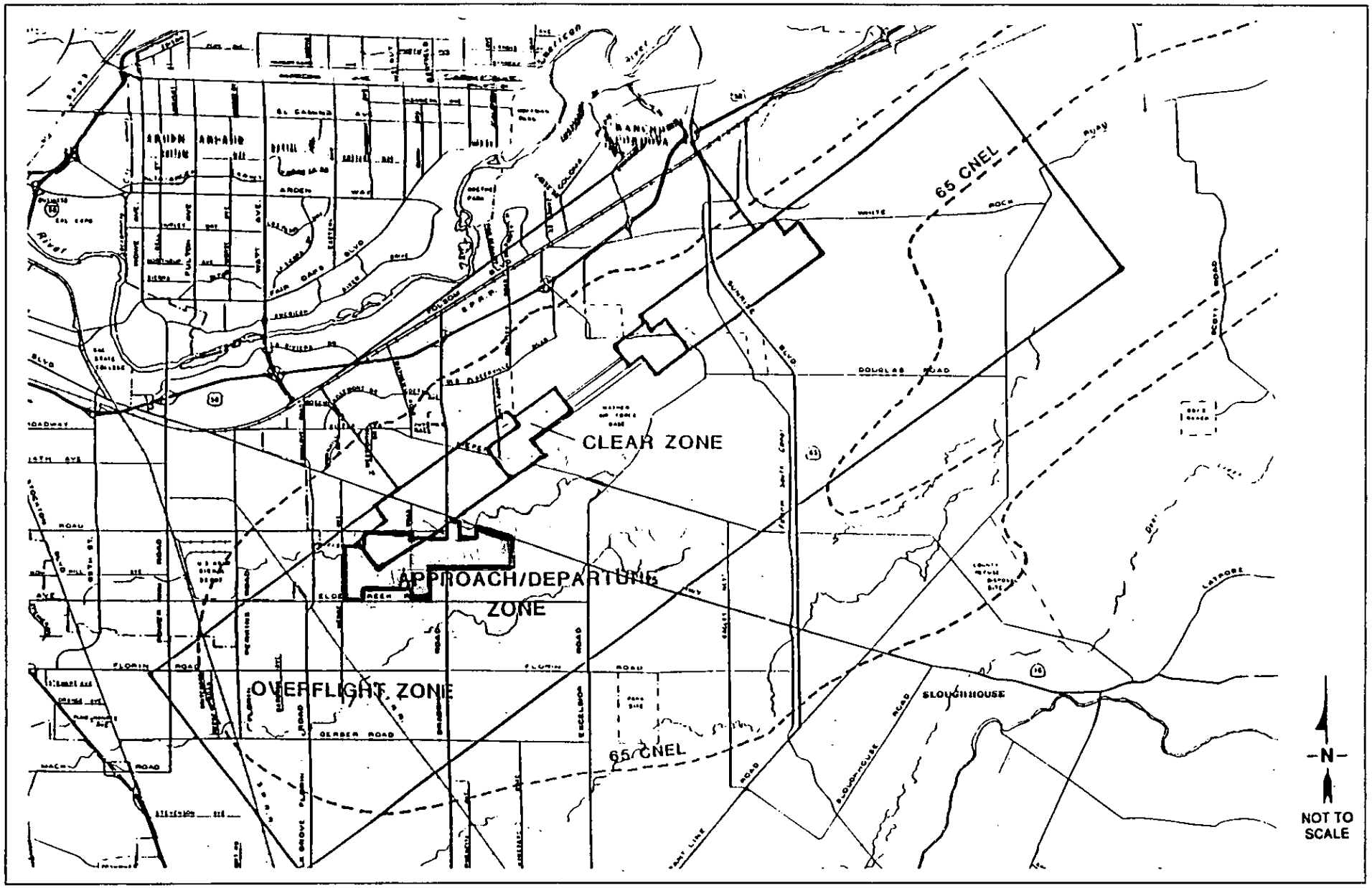
Recommendations/Requirements of Various Agencies

Mather Field ~~Air Force Base~~ Comprehensive Land Use Plan:

1. ~~Mining within the Approach-Departure Zone shall not result in a large concentration of people as defined by the CLUP.~~

2. Mining within the ~~Approach-Departure Zone and~~ Overflight Zone shall not result in a possibility that a water area may cause ground fog or result in a water hazard.

3. ~~Measures to achieve an interior noise level of 50 CNEL shall be incorporated into the design and construction of portions of buildings where the public is received, office areas, and other areas where people work or congregate.~~



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

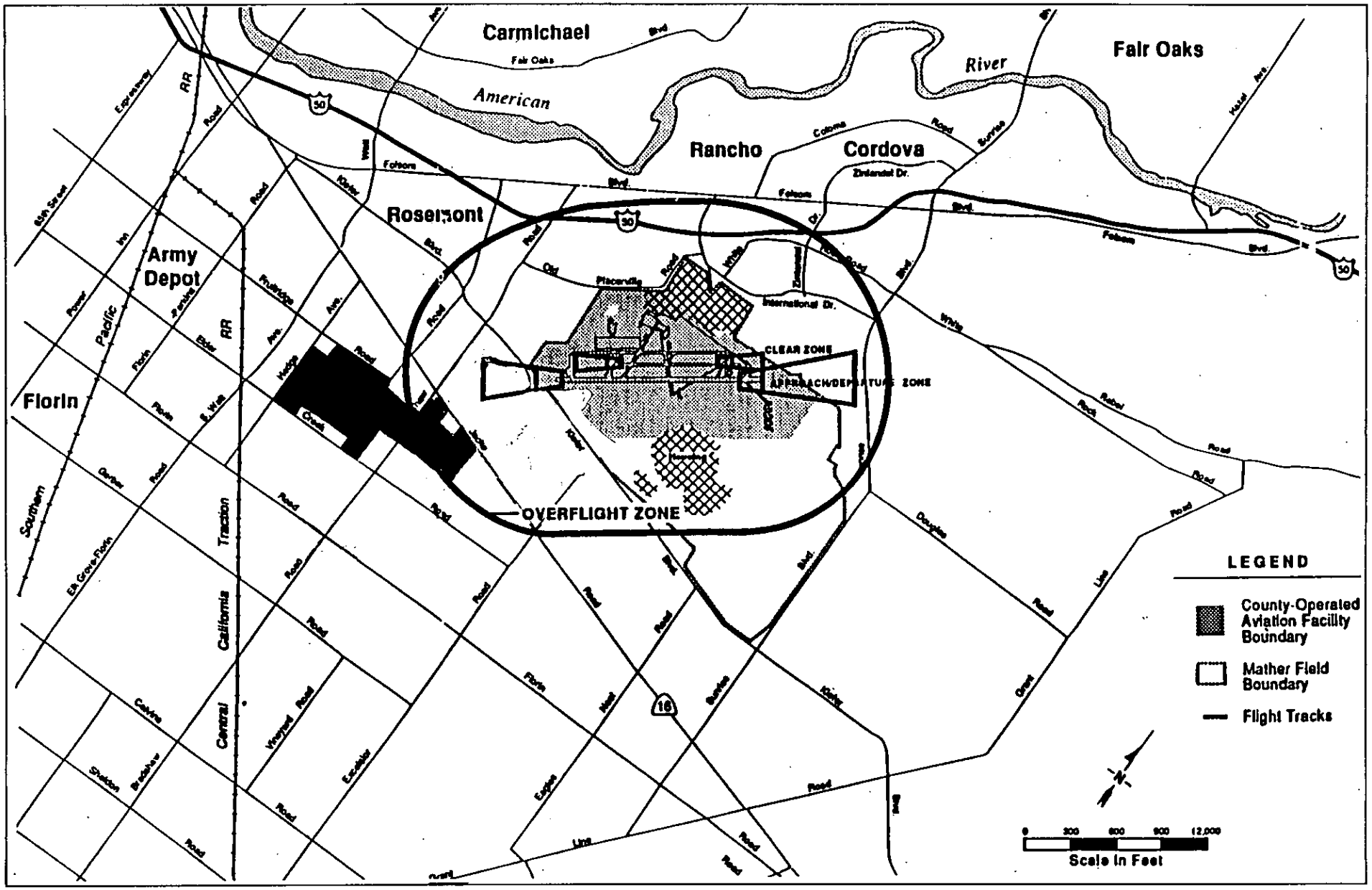
Project Boundary

Figure 5-19
Former CLUP Air Traffic Safety Zones

EDAW Inc.

Source: Mather Air Force Base Comprehensive Land Use Plan, SACOG/Airport Land Use Commission, January 1987.

N:5s052:033



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

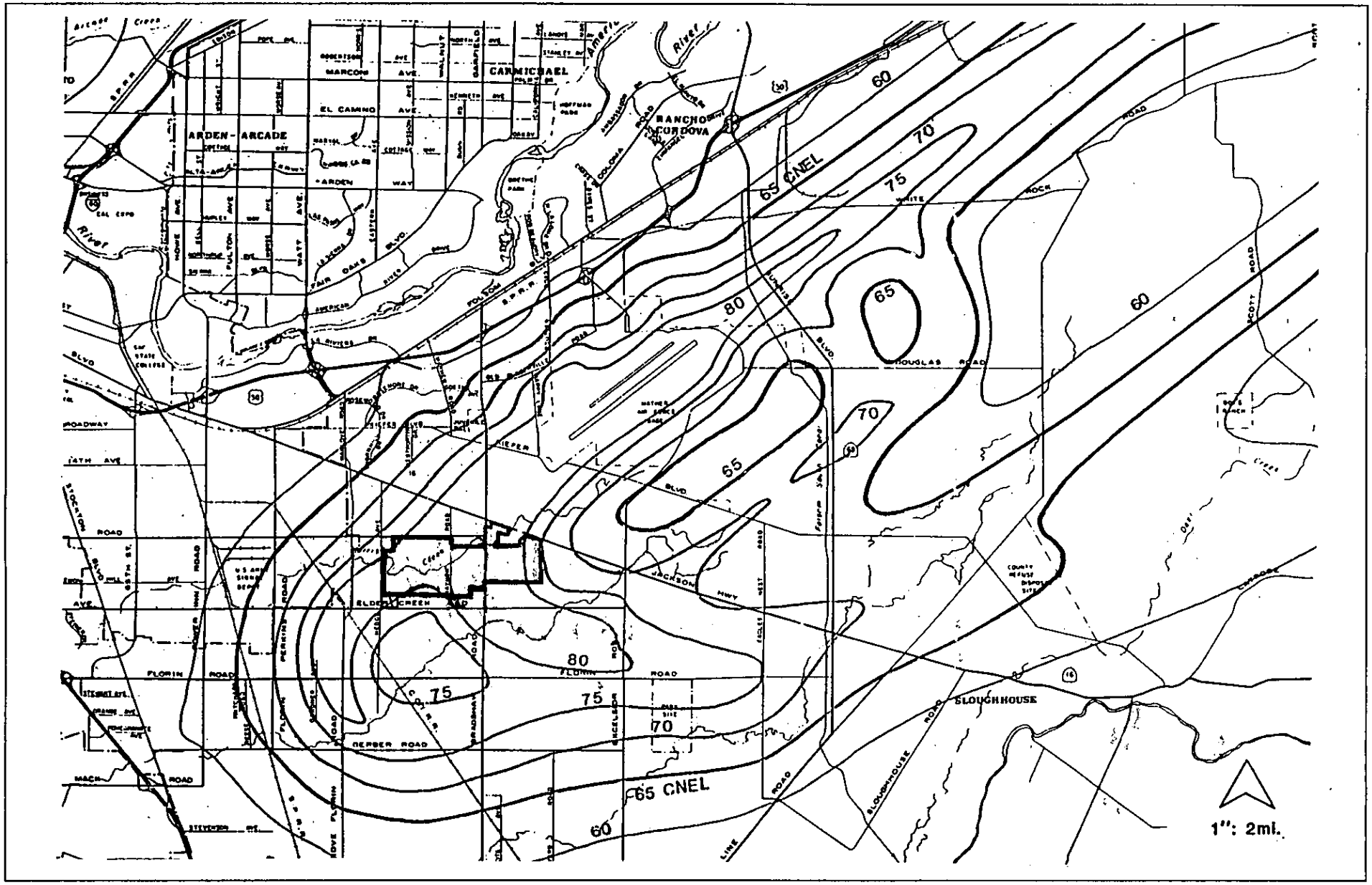
Project Site

Figure 5-20
Adopted ~~Proposed~~ CLUP Air Traffic Safety Zones

EDAW Inc.

Source: EIP

N:5s052:034



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

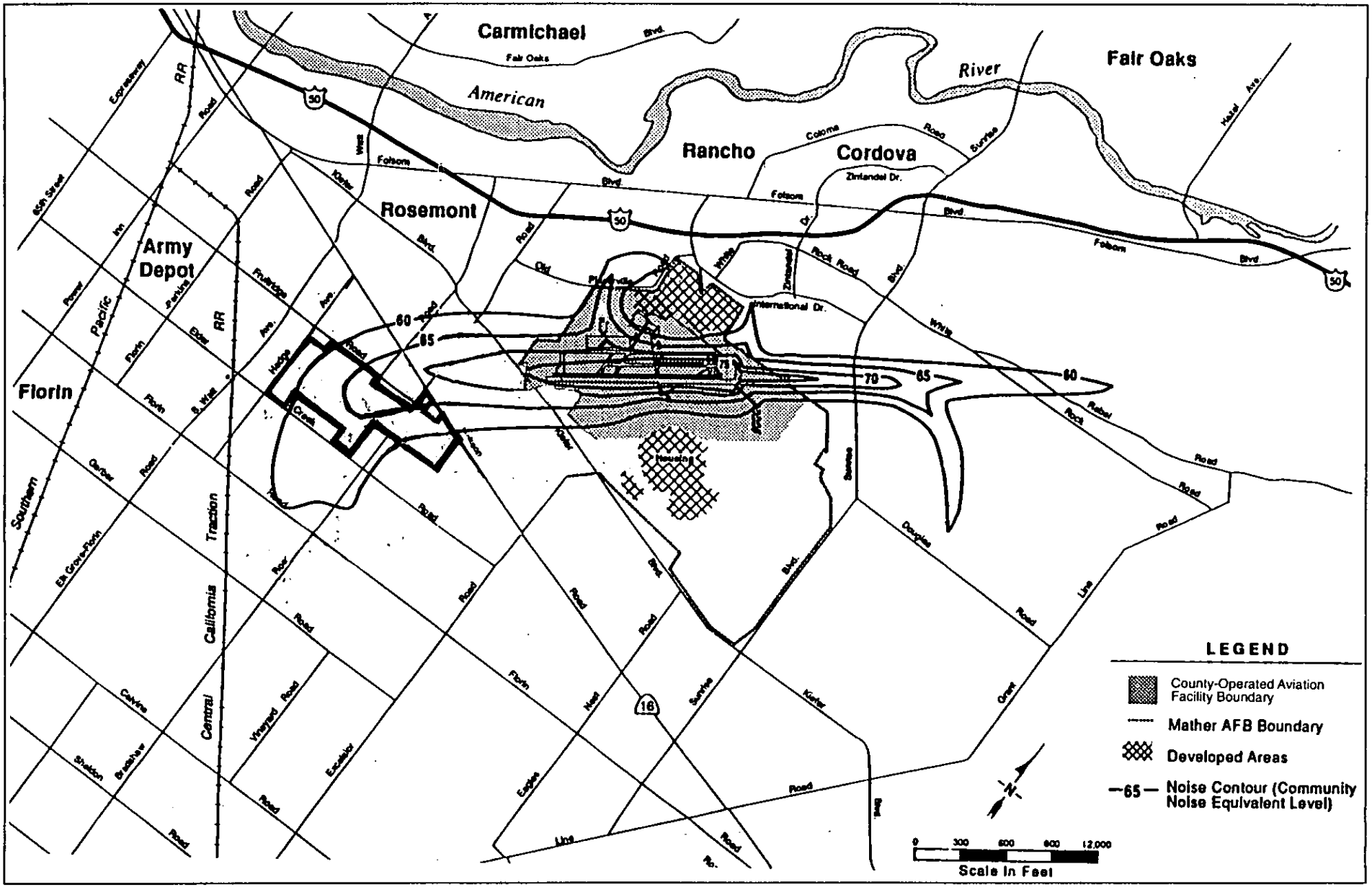
Project Boundary

Figure 5-21
Former CLUP Aircraft Noise Contours

EDAW Inc.

Source: EIP

N:5s052:035a



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Project Boundary

Figure 5-22
Current ~~Proposed~~ CLUP Aircraft Noise Contours

EDAW Inc.

Source: EIP

N:5s052:035

6.0 Disposition of Impacts

6.1 CUMULATIVE IMPACTS

Section 15130 of the CEQA Guidelines and 40 CFR 1508.25 of the NEPA Regulations require that an EIR/EIS evaluate and consider cumulative impacts. Cumulative impacts occur when two or more individual effects together create a considerable environmental impact or compound or increase other impacts. These impacts include those associated with the project and those of other reasonably foreseeable projects. The possible future projects considered typically consist of a list of specific projects that have either been approved, are under consideration for approval, or are contemplated in adopted general plans.

6.1.1 Affected Environment

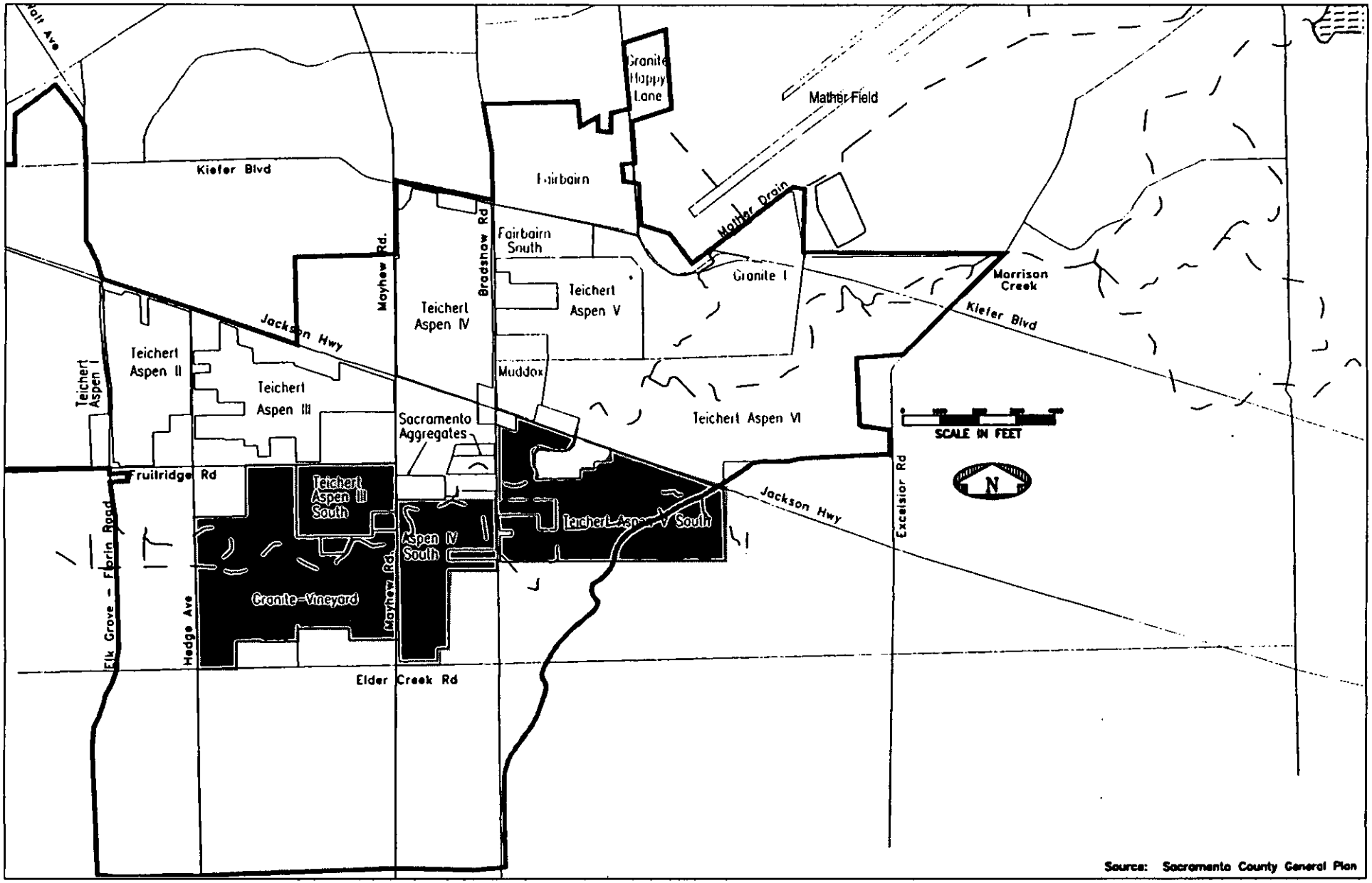
For the purposes of the cumulative impacts analysis for this EIR/EIS, the cumulative setting shall be defined as follows:

The cumulative study area includes an approximately 10.3 square-mile area on or near Morrison Creek that is designated as an Aggregate Resource Area in the Sacramento County General Plan. The areas reserved for surface mining in and around the Mining Reach are shown in Figure 6-1. Aggregate mining in the Morrison Creek Mining Reach watershed has occurred or is permitted on approximately 1,063 acres. Most of this area lies outside the 100-year floodplain. Additional areas in the headwaters of the Mather Drain watershed are being mined or are proposed for mining and would impact the floodplain of this tributary to Morrison Creek. Mining operations have begun within the vicinity of the project area. These areas are nearly fully mined, with minor reserves still left. At present, none of the areas have impacted the natural drainage courses of either Morrison Creek or Mather Drain. Submitted mining applications would expand current mine sites to include deposits under the channel and 100-year floodplain of Morrison Creek on the 4.5-mile reach between Excelsior Road and Hedge Avenue, southwest of Mather Field.

Mining applications include the following:

- Aspen III South, Aspen IV South, Aspen V South and Vineyard I (the proposed project): These applications would mine a total of approximately 882 acres south of Jackson Highway, north of Elder Creek Road, west of Excelsior Road, and east of Hedge Avenue. Mining of these and the individual project sites below would lower the creek into pits over nearly the entire 4.5-mile reach, and could permit floodwaters to flow into adjacent pits.

- Aspen V (portion within the 100-year floodplain), Aspen VI, and Granite I: These projects would affect 1,233 acres between Mather Field and Jackson Highway, and are referred to collectively as the Morrison Creek Mining Reach North (Upstream) of Jackson Highway. Approximately half of the acreage lies within the existing 100-year floodplain.



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Project Site

Figure 6-1
Cumulative Projects In and Around the Morrison Creek Mining Reach

EDAW Inc.

Source: County of Sacramanto Water Resources Division, Morrison Creek Mining Reach Drainage Mitigation Plan, 1994

N:5s052:038

- Vineyard II - This application is for mining and reclamation on 130 acres of the Vineyard I site. The entire 130-acre site is located outside of the 100-year floodplain. Granite Construction Company has submitted both applications to the County for review and approval.

As noted in Section 4.7 (Alternatives Considered but Rejected) and shown in Figure 4-3, other lands underlain by high-quality aggregates are extant in the Sacramento region. However, these lands have not been included in this discussion since they are subject to urban encroachment, incompatible zoning designations, public uses, multiple ownership, and/or adverse environmental consequences (associated with truck transportation over long distances), severely constraining or precluding mining.

6.1.2 Environmental Consequences

1. Mining operations and associated reclamation of the mined areas in the channel and active floodplain of Morrison Creek would result in the gross reconstruction of the floodplain, altered flows downstream and hydrologic and landform changes to the existing floodplain, and the loss of biological resources, open space, and aesthetic values inherently associated with the streambed, floodplain and uplands under natural conditions (*Significant Impact*).

Mining activities could occur within the entire 10.3-square-mile area designated by the General Plan for mining. The County has prepared a *Drainage Mitigation Plan for the Morrison Creek Mining Reach* to mitigate the impacts of flooding and drainage of the combined aggregate mining projects proposed within the floodplain. The mining companies would be required to reclaim the mining pits after mining operations are complete, as described by their mining permits (which include the Drainage Mitigation Plan). Mining of the entire aggregate resource within and adjacent to the Mining Reach (north and south) is expected to occur over a 23-year period.

Development of the mined areas as a detention basin and post-reclamation drainage improvements would provide for the safe conveyance of Morrison Creek flows through or around the reclaimed mining pits. In addition, implementation of Part B alternatives could supplement the Part A facilities that the proponents would build as part of their reclamation plan to mitigate future flooding impacts (peak flow or volume) on areas downstream of the Mining Reach. If implemented, the County drainage facilities would be dedicated for public ownership, operation and maintenance. Existing and future flood flows would be attenuated through the use of detention within the lowered land, while avoiding impacts to existing and planned sewer, transportation, and other infrastructure components. Construction standards for embankments would protect roadway corridors, and provide for future sewer interceptors. To protect the public from risks of failure and flooding, much of the surface area of the mining pit would be mapped within the 100-year floodplain, with appropriate restrictions on land use.

The mitigation measures presented in Section 5.7.3 are focused on reducing the significance of potential project-related biology impacts. These measures include the requirements of various government resource agencies, as well as additional recommendations made during the EIR/EIS process. Examples of these measures include the construction of wetland compensation areas, preservation of off-site vernal pool habitat, and pre-construction surveys for nesting by special

status birds ~~nests~~. In addition to these measures, it should be noted that the post-reclamation use of the project site would be agriculture, flood control, wetland restoration, and other habitat restoration. As a result, pre-project habitat value would be realized in some areas of the post-reclamation project site. The quality and extent to which these habitat areas would occur, however, is unknown at this time.

The open space and aesthetic values associated with the natural streambed, floodplain and other features on the project site would be lost during mining and reclamation activities. The post-reclamation use of the project site for habitat restoration, and potentially recreation, would help reduce the loss of these open space values. Successful implementation of the mitigation measures recommended in Section 5.12.3 (e.g., buffering/landscaping) would potentially decrease the impacts to viewers, including residents and travelers along adjacent roadways.

2. Development consistent with the Mather Field Reuse Plans, when combined with proposed mining operations, would also add to cumulative effects to regional habitat losses, roadway LOS deficiencies, increases in air emissions and noise levels, and exposure to risk (*Significant Impact*).

The only other planned, pending or approved project in the area that would exacerbate the cumulative impacts identified above is the Mather Field Reuse Plan. Development consistent with the Mather Field Reuse Plan would contribute to the cumulative loss of annual grassland, vernal pool, and riparian woodland habitat supporting known and potential habitat for special-status species. Development of the Mather Field project site combined with the proposed mining operations would result in cumulative roadway level of service (LOS) deficiencies and traffic volume increases in the vicinity of the proposed projects. Mather Field development, in conjunction with mining operations, could increase vehicular emissions of pollutants such as carbon monoxide along roadways in the air basin. The combination of three noise sources (aircraft operations, vehicular traffic, and operation of mining equipment) would increase noise levels and impact nearby residential and commercial uses. Development of the Mather Field site in conjunction with mining operations, could also increase the number of people exposed to risks associated with hazardous materials and conditions.

6.1.3 Mitigation Measures

1. Full replacement of the natural streamside resources would not be possible. However, reclamation and wetland mitigation activities would integrate riparian habitat, opportunities for recreation, and open space uses within the ultimate creek corridor and mining pits. In conjunction with the mitigation measures identified in this EIR/EIS, reclamation activities would minimize cumulative impacts of the proposed project within and downstream of the Morrison Creek Mining Reach, but not to a level of insignificance (*Significant and Unavoidable Impact*).

2. Beginning in the year 2005, hauling of materials from the project site shall not occur during the peak traffic periods for cumulative conditions: 7:00-9:00 AM and 4:00-6:00 PM. The year of mitigation has been determined by straight line interpolation of volume/capacity ratios between 1995 and 2010 for the roadway segment on Elder Creek Road between Mayhew Road and Bradshaw Road. The requirement for mitigation by 2005 may be reconsidered by the County at a later time if a competent traffic study shows

future traffic operations on Elder Creek Road is expected to comply with County level of service policies (*Significant and Unavoidable Impact*).

6.2 SIGNIFICANT IMPACTS THAT CAN MITIGATED

The following resources/environmental issues would experience impacts that are significant or potentially significant as a result of the proposed project and/or alternatives, but that can be reduced to a less-than-significant level by-incorporation of mitigation measures included in this EIR/EIS: surface water hydrology and quality (except for the Downstream Bypass Channel Alternative); groundwater hydrology and quality; cultural resources; air quality; paleontological resources; noise; public safety; aesthetics and visual resources; public and private utilities; and consistency with Mather Field CLUP.

6.3 SIGNIFICANT ADVERSE IMPACTS THAT CANNOT BE AVOIDED

The following significant environmental effects cannot be avoided if the proposed project or alternatives are implemented:

1. Implementation of the Downstream Bypass Channel Alternative would further decrease peak flows below Hedge Avenue. This would add to the disruption of the natural flow pattern that would occur upstream of Jackson Highway.

2. All Part A and Part B alternatives would result in the permanent alteration of the project site's landform.

3. All Part B alternatives would entail lining the bypass channel or using a pipe to carry Morrison Creek flows, which would reduce the general fish and wildlife habitat potential of the bypass channel and may reduce populations of fish and wildlife that might otherwise utilize or migrate through an unlined channel.

4. All Part B alternatives would reduce amount of suitable foraging habitat for Swainson's hawk and suitable foraging and nesting habitat for burrowing owls.

5. All Part A and Part B alternatives would result in the deterioration of traffic conditions (reduction in LOS) for cumulative conditions.

6. All Part A and Part B alternatives would potentially conflict with on-site and surrounding land uses, especially residences on agricultural parcels within the project site, and the adjacent residences, religious temple and health club.

6.4 GROWTH-INDUCING IMPACTS

In order to comply with CEQA, a Draft EIR must discuss the ways in which the proposed project could foster economic or population growth or the construction of housing, either directly or indirectly, in the surrounding environment [CEQA Guidelines Section 15126(g)]. A given project could induce growth within a community by lowering or removing barriers to growth, such as providing water service to an area where none currently exists, or by creating an amenity that attracts new population or economic activity. The growth-inducing potential of a project would be considered to have a significant impact if the project either induced growth or created

the capacity for growth above and beyond the levels permitted by existing public planning policies or recommended by independent projections. A project's growth-inducing potential does not, however, automatically result in growth, whether it be a portion of projected growth, or an actual exceedance of the projected growth levels. Growth at the local level is fundamentally controlled by the land use policies of local municipalities or counties, which are determined by the local policies in each jurisdiction. Growth-inducing potential or pressure, created by economic or social conditions, is transformed into actual growth only by decision makers.

Growth inducement may be considered detrimental, beneficial, or of insignificant consequence under CEQA. Induced growth is considered a significant impact only if it directly or indirectly affects the ability of agencies to provide needed public services, or if it can be demonstrated that the potential growth, in some other way, significantly affects the environment. For the reasons described below, the action of harvesting and reclaiming the project site would be considered moderately growth-inducing at best.

~~6.1.1~~6.4.1 Encouragement of Economic Growth

Implementation of the proposed project would not encourage economic growth, but would provide for further development of the region. Sand and gravel are "construction materials." These commodities, collectively referred to as aggregate, provide bulk and strength to Portland cement concrete, asphaltic concrete, and plaster, or stucco. Aggregate is also used as a roadbase, subbase, railroad ballast, or fill. Aggregate normally provides from 80 to 100 percent of the material volume in the above uses. Aggregate material is essential to the needs of a modern society, and is a resource of great importance to the economy of any metropolitan area. Under the proposed project, an estimated 36.7 million tons would be mined from the project site for use in the development of roadways, canals, parking lots, sidewalks, bridge abutments, foundations, buildings, public works projects, and general construction:

Implementation of the proposed project would provide for a continued availability of moderately-priced aggregate products in the Sacramento region in the near future at a level comparable to existing supplies, and thus would allow urban development to continue as dictated by other economic, environmental, and political factors. It should not be inferred from this discussion, however, that denial of this project would substantially disrupt urbanization. Rather, denial would cause a combination of market adjustments to occur resulting in potentially different production rates, prices, and levels of consumption.

~~6.1.2~~6.4.2 Remove Obstacles to Population Growth

The proposed project would actually create impediments to growth. Lands identified within the project site as having valuable mineral resources and being appropriate for future mining that have not previously been zoned as such would be rezoned SM (Surface Mining Combining). This combining designation would identify those areas as having valuable mineral resources and designate those resources as open space until the area is mined. While surface mining is an industrial activity, its locational requirements are dependent upon the physical location of the aggregate resources. Specific policies would apply to these areas that encourage the conservation and efficient use of mineral resources, while ensuring the maximum feasible protection of the environment. Thus, the SM combining designation would serve as a holding zone to allow long-range planning for lands that have been identified, thereby discouraging the

premature and unnecessary conversion of SM zoned lands to urban uses. The SM zoned lands would be ultimately reclaimed for agricultural, natural habitat, and other open space uses. Following reclamation, these lands would be designated as 100-year floodplain, which would serve as a constraint to development.

~~6.1.3~~6.4.3 Tax Existing Community Facilities

The proposed project would not significantly affect off-site public services or utilities. The mining companies would finance and construct the facilities associated with the proposed project (Part A) as reclamation measures for the mining operations for which they are requesting permitting. No public streets or roads would be used for the transportation of extracted resources to a processing facility. After processing, aggregate materials would be transported along existing public roads to construction sites or other destinations. The project would require mining companies to repair any structural damages to affected roadways upon which loaded trucks are routed; no new public roads, however, would be constructed. Increased employment would be negligible, and consequently, the demand for existing community service facilities would not be increased.

~~6.1.4~~6.4.4 Effect Upon Future Uses

The project's effect upon future uses of the site and off-site is difficult to determine precisely. Following aggregate resource extraction, the project site would be reclaimed for agriculture, habitat and open space. The project would not extend public infrastructure or urban services into this currently unserved area. No other lands in the project site vicinity would benefit from the project following reclamation. However, reconstruction of the mined areas with portions used as a drainage detention could reduce peak flows downstream, which may create premature pressures for rezoning and urbanization of lands in the watershed.

6.5 SHORT-TERM USES VS. LONG-TERM ENVIRONMENTAL PRODUCTIVITY

Implementation of the proposed project would result in increased short-term production from the site in the form of aggregate resources. Short-term agricultural productivity would be eliminated, but would be reestablished after completion of the project and rehabilitation of the project site.

6.6 IRREVERSIBLE ENVIRONMENTAL CHANGES

Section 15126(f) of the CEQA Guidelines and 40 CFR 1502.16 of the NEPA Regulations require the environmental analysis to identify any significant irreversible environmental changes which would be involved in the proposed action should it be implemented. This section also states that irretrievable commitments of resources should be evaluated to ensure that current consumption is justified.

The project would have as its objective the marketing of a limited natural resource. Therefore, implementation of the proposed project would result in increased short-term production from the project site in the form of aggregate resources. Short-term agricultural productivity would be eliminated, but would be reestablished to agriculture and other open space uses after completion of the project and reclamation of the mined lands within the project site.

Implementation of the proposed project would require the irreversible commitment of natural resources, because the project would permit mining and processing of minerals that would not be replenished within normal planning horizons, and would decrease the availability of aggregate resources in the future. It should be noted that not using this resource and allowing the site to be converted to a use that precluded harvesting of gravels would still result in loss of the resource, although it would not allow use of it.

Implementation of the proposed project would irreversibly alter the landform on the project site. Designation of the mining pits as within the 100-year floodplain would also contribute to the permanent conversion of the mined areas to agriculture, flood control, and/or open space.

The project would result in the irretrievable commitment of energy resources (primarily in the form of fossil fuels, including fuel oil, natural gas, and gasoline for automobiles, trucks, and construction equipment) to fuel mining, processing, and subsequent reclamation activities.

6.7 IDENTIFICATION OF ENVIRONMENTALLY SUPERIOR ALTERNATIVE

Section 15126(d)(4) of the CEQA Guidelines requires that the alternatives analysis identify the environmentally superior alternative. If that alternative is the No Project alternative, then the EIR must also identify an environmentally superior alternative among the other alternatives.

Based on the alternatives analysis in the individual sections in Chapter 5 (Affected Environment and Environmental Consequences), the 100-Year Floodplain Protection Alternative is the environmentally superior alternative. Under this alternative, the natural character of the 100-year floodplain for Morrison Creek would be maintained by avoiding aggregate extraction within the floodplain. Unlike the other mining alternatives, this alternative would not require reconstruction of the floodplain, would not alter flows downstream, and would not result in hydrologic and landform changes to the existing floodplain. Thus, impacts to biological resources, open space, and aesthetic values inherently associated with the streambed, floodplain and uplands under natural conditions would be avoided.

6.8 MITIGATION MONITORING AND REPORTING PROGRAM

The proponents shall comply with the Mitigation Monitoring and Reporting Program (MMRP) for this project as follows:

1. The proponents shall comply with the MMRP for this project, including the payment of 100 percent of the Department of Review and Assessment staff costs, and the costs of any technical consultant services incurred during implementation of the MMRP. The initial estimate of these costs is $ _____ . If the initial estimate exceeds the actual monitoring costs, the balance shall be refunded to the proponents, and if the actual monitoring costs exceed the initial estimate, the proponents shall be responsible to pay the additional amount.

2. Until the MMRP has been recorded and the estimated MMRP fee has been paid, no final parcel map or final subdivision map for the subject property(ies) shall be approved; and no encroachment, grading, building, sewer connection, water connection or occupancy permits from Sacramento County shall be approved.

7.0 List of Preparers

This EIR/EIS was prepared under contract with the County of Sacramento for the Board of Supervisors, Project Planning Commission, and the citizens of the County. The document was prepared under the direction of Dennis Yeast, Environmental Coordinator, and Catherine Hack, Project Leader, Department of Environmental Review and Assessment, and Larry Vinzant, Project Manager, U.S. Army Corps of Engineers, Sacramento District.

Technical services were performed by the following individuals:

LEAD CONSULTANT

EDAW

John Petrovsky, Principal-In-Charge
John Pelka, Project Manager
Gretchen Grani, Environmental Planner
Allison Stone, Environmental Planner
Don Lee, Graphics Support and Desktop Publishing
Brian Vahey, Word Processing

SUBCONSULTANTS

Biological Resources/Cultural and Paleontological Resources

Gregory Andrew, Garcia and Associates
Jim Gibson, Gibson & Skordal Wetland Consultants

Surface Water Hydrology and Quality/Groundwater Hydrology and Quality

Mitchell Swanson, Mitchell Swanson & Associates

Traffic and Circulation

Mark Bowman, Dowling Associates

Air Quality

Donald Ballanti, Certified Consulting Meteorologist

8.0 Environmental Review and Consultation Requirements

8.1 RELATIONSHIP TO ENVIRONMENTAL REQUIREMENTS

The following is a list of the primary federal, state and local environmental requirements beyond CEQA and NEPA, which are applicable to the proposed project. These requirements were considered during the preparation of this EIR/EIS, and the majority of these requirements/permits are being considered concurrently with this document. The federal and state lead agencies for this environmental review process (i.e., the Corps and the County, respectively) will determine whether the proponents have successfully complied with these requirements.

8.1.1 Federal Requirements

Legislation

Clean Water Act (33 U.S.C. 1344) - Section 404 of the Clean Water Act authorizes the Secretary of the Army, acting through the Chief of Engineers to issue permits, after notice and opportunity for public hearing, for the discharge of dredged or fill material, including any material in excess of incidental fallback during ~~redeposited during~~ excavation activities, into the waters of the United States. A Section 404 permit will be required of the proponents' proposal to fill 24.56 acres of jurisdictional waters. Waters of the United States include wetlands~~a~~, which are considered "special aquatic sites." Any issued permit must comply with the Section 404(b)(1) Guidelines promulgated by the U.S. Environmental Protection Agency. As a special aquatic site, there is a rebuttable presumption in the Guidelines that there are less damaging practicable alternatives to filling wetlands.

Section 401 of the Act requires any applicant for a federal license or permit to conduct any activity that may result in discharge of a pollutant (e.g., fill) into waters of the United States to obtain a certification from the State that the discharge will comply with the applicable effluent limitations and water quality standards. This certification or waiver is obtained from the State Regional Water Quality Control Board.

Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.) - This Act requires any federal agency that proposes to control or modify any body of water must first consult with the U.S. Fish and Wildlife Service and/or the National Marine Fisheries Service, as appropriate, and with the head of the appropriate state agency exercising administration over the wildlife resources (i.e., California Department of Fish and Game) of the affected state. The federal agency, in this case the Corps, must give full consideration to the recommendations of the consulted agencies.

National Historic Preservation Act of 1966, as amended (16 U.S.C. 470 et seq.) - The Act authorizes the Advisory Council on Historic Preservation, in coordination with the State Historic Preservation Officer, to review and comment upon activities licensed or permitted by the Federal Government which will have an effect upon properties listed on the National Register of Historic Places, or eligible for such listing. The Act provides for the recovery and preservation of any significant historical or archeological data prior to the commencement of the permitted activity.

Endangered Species Act (16 U.S.C. 1531 et seq.) - The Act requires that federal agencies consult, pursuant to Section 7 of the Act, with the U.S. Fish and Wildlife Service and/or National Marine Fisheries Service, as appropriate, and to use their authorities to take action necessary to ensure that any activity authorized, funded, or carried out by the federal agency is not likely to jeopardize the continued existence of endangered or threatened species or result in the destruction or adverse modification critical habitat of such species.

Executive Orders

Executive Order 11990 (May 14, 1977) - The Order directs federal agencies to avoid, to the extent possible, the long and short term adverse impacts associated with the destruction or modification of wetlands where there is a practicable alternative.

Executive Order 11988 (May 24, 1977) - The Order directs federal agencies to take action to reduce the risk of flood loss, to minimize the impacts of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains. Occupancy and modification of floodplains is to be avoided if there are practicable alternatives to floodplain development in order to avoid, to the extent possible, the long and short term adverse impacts associated with development.

Executive Order 11593 (May 15, 1971) directs federal agencies to take a leadership role in preserving, restoring, and maintaining the historic and cultural environment of the nation. Federal agencies must locate and nominate all historic resources to the National Register which are under their control and exercise caution to ensure that potentially qualified federal property is not inadvertently altered until an inventory is completed.

Executive Order 12088 (February 11, 1995) directs federal agencies to ensure environmental justice by focusing attention on the environmental and human health conditions in minority and low income communities, and ensuring that these communities do not disproportionately bear the burden of environmental hazards.

8.1.2 State Requirements

Streambed or Lake Alteration Agreement - Section 1600 *et seq.* of the California Fish and Game Code requires that any private or public entity seeking to alter a streambed must first reach an agreement with CDFG as to the nature of the alteration and any needed mitigation. Streambeds are broadly defined by the CDFG and almost always include any wetlands associated with waterways.

Clean Water Act - The Regional Water Quality Control Board administers Section 401 of the Clean Water Act (see discussion above under Federal Requirements).

California Endangered Species Act (CESA) - The CESA prohibits the taking or harassment of state-listed endangered or threatened species. The CDFG is the lead agency within the state for implementation of the CESA and makes written findings on a proposed project's impacts to listed species. The CDFG may request mitigation for such projects if, in its opinion, the project could reduce populations of the endangered or threatened species, or reduce habitat value or availability. The process for state-listed species is intended to mirror the federal process

discussed above; however, the CDFG has only recently developed permitting policies, which are still being refined.

California Surface and Mining Reclamation Act (SMARA) - Any reclamation activities approved by the County for this project must comply with the requirements of SMARA.

8.1.3 Local Requirements

Land Use Entitlements - The proposed project would result in a change in land use, and therefore would require approval by the County of Sacramento.

8.2 PUBLIC REVIEW AND SCOPING

The state and federal lead agencies for the proposed project (i.e., the County and Corps) have initiated the public review and scoping processes pursuant to the requirements of CEQA and NEPA, respectively. These requirements include the following:

- Per the requirements of CEQA, a Notice of Preparation (NOP) for the EIR/EIS was prepared and distributed to all Responsible and Trustee Agencies, and the State Clearinghouse on October 19, 1995 by the County. The NOP included a copy of the County of Sacramento Department of Environmental Review and Assessment's Initial Study for the proposed project, and was circulated for a 30-day review and comment period.

- Per the requirements of NEPA and Corps regulations, a Notice of Intent (NOI) for the EIR/EIS was published in the Federal Register on November 14, 1995. In addition, a public notice dated October 26, 1995 was distributed to all known, interested parties by the Corps. The notices included a summary of the proposed project, alternatives, significant environmental issues and other environmental review and consultation requirements. Input was requested on the topical scope, alternatives, and major issues to be covered in the Draft EIR/EIS.

8.3 AGENCIES AND ORGANIZATIONS CONSULTED

The following individuals and organizations furnished information used in this EIR/EIS. The individuals listed below are in addition to those already listed in Section 7.0 (List of Preparers) of this EIR/EIS.

8.3.1 County of Sacramento

Darrell K. Eck, John Goetz, James Paluck, Public Works Agency, Water Resources Division, Water Supply Master Planning Section

Thomas P. Engel, Director, Larry Kozub, Department of Airports

Hardeep Sidhu, Public Works Agency, Transportation Division

John Jaeger, Bob Lilly, Public Works Agency, Water Quality Division

Sue Jeffery, Nancy Ormandy, Environmental Management Department

Larry E. Kozub, Manager, Mather Airport

8.3.2 Project Proponents

B. Demar Hooper, Taylor & Hooper, Attorneys

Steve McCracken, Plant Engineer, Scott D. Wolcott, Corporate Real Estate Manager, Granite Construction Company

Rob Wainwright, Property Manager, Teichert Aggregates

8.3.3 Other Individuals or Organizations

Cathy Allen, Facilities Planner, Facilities and Planning Department, Folsom Cordova Unified School District

David Boyer, Associate Planner, Airport Land Use Commission for Sacramento, Sutter, Yolo and Yuba Counties

John Brode, Herpetologist, Terry Roscoe, David Zezulak, Acting Environmental Services Supervisor, California Department of Fish and Game, Region 2, Rancho Cordova, California

George M. Clark, Conservation Committee, Sacramento Valley Chapter, California Native Plant Society

Leanne Comrack, Bird and Mammal Conservation Program, Wildlife Management Division, California Department of Fish and Game, Sacramento, California

Louie Ellzondo, Research Technician, Regional Data Center, Sacramento Area Council of Governments, Sacramento, California

Dr. Victor Furtado, Environmental Services Department, Pacific Gas and Electric Company

Cay Goude, U.S. Fish and Wildlife Service, Sacramento, California

Claudia Gunter, Government Relations Officer, Southgate Recreation and Park District

William T. Hughs, Registered Geologist, Operational Technologies Corporation, c/o Air Force Base Conversion Agency, Mather Air Field, Sacramento

W. B. Lindsey, Hydrology/Hydraulics Engineer, California Department of Transportation, Division of Structures, Office of Structure Maintenance & Investigations

Tom Meyers, Jeffrey Pulverman, Chief, Office of Transportation Planning Metropolitan, California Department of Transportation

Don Mitchell, Fire Marshal, Florin Fire Protection Division

Jeff Philliber, David J. Farrel, Chief, Office of Federal Activities, United States Environmental Protection Agency, Region IX

James Pompy, Manager, Reclamation Unit, California Department of Conservation, Office of Mine Reclamation

John W. Pulver, Water Resources Coordinator, San Joaquin County Flood Control & Water Conservation District

Larry Serpa, Invertebrate Specialist, The Nature Conservancy, Tiburon, California

Kevin and Divi Smith, homeowners

Stan and Hazel Smith, homeowners

Phil Stafford, Associate Air Quality Planner, Sacramento Metropolitan Air Quality Management District

Nick Villa, Inland Fisheries Supervisor, California Department of Fish and Game, Region 2, Rancho Cordova, California

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William T. Hughes, Registered Geologist Operational Technologies Corporation, c/o Air Force Base Conversion Agency, Mather, CA.

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Response to Comments

Response to Comments

The following is an index of the comments received on the Draft EIR/EIS. Following the index are copies of each letter/comment and responses to each.

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Caltrans2	California Department of Transportation	C.M. Crossett Avila, Hydrology/Hydraulics Engineer	4/28/97	RC-8
OPR	Office of Planning & Research	Antero Rivasplata, Chief State Clearinghouse	4/21/97	RC-10
OMR	Department of Conservation, Office of Mine Reclamation, Reclamation Unit	John Marshall, Assistant Director James Pompy, Manager Reclamation Unit (2 prior letters)	4/17/97 (6/2/95)	RC-12
OEPC	USDI, Office of Environmental Policy and Compliance	Patricia Sanderson Port, Regional Environmental Officer	5/9/97	RC-44
EPA	US Environmental Protection Agency	Deanna M. Wieman, Deputy Director	5/5/97	RC-51
SAC	City of Sac., Dept. of Utilities	Dave Brent, Supervising Engineer	4/21/97	RC-69
TD	County of Sac., Transportation Division	Hardeep Sidhu	4/29/97	RC-71
WRD	County of Sac., Water Resources Division	James Paluck	4/11/97	RC-75
WQD	County of Sac., Water Quality Division	Bob Lilly	4/24/97	RC-77
SRPD	Southgate Recreation & Park District	Claudia Gunter, Government Relations Officer	LATE 5/23/97	RC-80
ORGANIZATIONS / GROUPS				
SAS	Sacramento Audubon Society	Roy Greenaway, Vice President	4/29/97	RC-85
UCC	Urban Creeks Council	Jane Steele, President	4/29/97	RC-89
ECS	Environmental Council of Sacramento	Linda Whitney, Co-President	4/29/97v	RC-93
CNPS	California Native Plant Society	Linda Bell	4/29/97	RC-97
TA	Teichert Aggregates	Rob Wainwright, Property Manager	4/29/97	RC-108
T&H	Taylor & Hooper	R. Bruce Steubing	5/5/97	RC-112
PG&E	Pacific Gas & Electric	Lou A. Norton, Land Agent	3/10/97	RC-119

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GDT	Law Offices of Gregory D. Hatch	Gregory Hatch	4/29/97	RC-121
MCMPOC	Morrison Creek Mining Project Opposition Committee	Entire Committee	3/20/98	RC-135
SBH	Chua Dieu Quang Vietnamese Buddhist Community Temple	Susan Brandt-Hawley, Attorney	6/10/98	RC-142
AP	Chua Dieu Quang Vietnamese Buddhist Community Temple	Anthony Palik, Attorney at Law	3/9/98	RC-145
AP2	Chua Dieu Quang Vietnamese Buddhist Community Temple	Anthony Palik, Attorney at Law	6/3/98	RC-156
SBH2	Chua Dieu Quang Vietnamese Buddhist Community Temple	Rose Zola, Attorney	8/12/97	RC-159
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DB	3000 Cresthapen Drive	David Breinke	4/28/97	RC-163
SHS	9400 Fruitridge Road	Stan and Hazel Smith	4/20/97	RC-166
DKS3	9400 Fruitridge Road	Divi and Kevin Smith	8/-/98	
DKS2	9400 Fruitridge Road	Divi and Kevin Smith	3/3/98	
DKS	9400 Fruitridge Road	Divi and Kevin Smith	4/29/97	
TSM	9307 Elder Creek Road	Tony & Shay Melvold	4/23/97	RC-199
GW	7700 Eagles Nest Road	George Waegell	4/28/97	RC-201
GW2	7700 Eagles Nest Road	George Waegell	6/9/98	RC-204
GW3	7700 Eagles Nest Road	George Waegell	9/3/98	RC-207
T&RN	9298 Elder Creek Road	Ted and Robin Niles	4/28/97	RC-210
G&SS	9427 Elder Creek Road	Gary and Susana Scott	4/28/97	RC-213
LJ	6530 Mayhew Road	Loretta Johnson	10/26/97	RC-216
POLICY PLANNING COMMISSION HEARINGS				
SH	Vineyard Area Community Planning Advisory Council Chair	Stuart Helfand	10/30/97	RC-221
DS		Divi Smith	10/30/97	RC-222
HS		Hazel Smith	10/30/97	RC-223
RS		Ray Smith	10/30/97	RC-223
KS		Kevin Smith	10/30/97	RC-223
KF		Kevin Faeth	10/30/97	RC-223
CR		Carol Ring	10/30/97	RC-224
SF		Scott French	10/30/97	RC-224
DF		Darrel Finch	10/30/97	RC-224
KR	American Buddhist Members of the Chua Dieu Quang Vietnamese Buddhist Community Temple	Kristina Russell	10/30/97	RC-225
STQ	Chua Dieu Quang Vietnamese Buddhist Community Temple	Sister Tinh Quang	10/30/97	RC-225
GW		George Waegell	10/30/97	RC-225

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DH		David Hueseman	10/30/97	RC-227
CS		Carolyn Stark	10/30/97	RC-228
RM		Roger Moyher	10/30/97	RC-228
RM1		Roger Moyher	6/10/98	RC-229
GS1		Gary Scott	6/10/98	RC-229
AT	Urban Creeks Council President	Alta Tura	8/12/98	RC-230
DH1		Dorthy Hrepich	8/12/98	RC-230
RS1		Ray Smith	8/12/98	RC-231
DS1		Divi Smith	8/12/98	RC-231
TN1		Ted Niles	8/12/98	RC-232
SS		Susana Scott	8/12/98	RC-232
GS2		Gary Scott	8/12/98	RC-232
GW1		George Waegell	8/12/98	RC-233
CR1		Carol Ring	8/12/98	RC-233
AP	Attorney-at-Law representing the Chua Diew Quang Vietmamese Buddhist Community Temple	Anthony Palik	8/12/98	RC-234
HN		Hoang Nguyen	8/12/98	RC-236
MT		Minh Thompkins	8/12/98	RC-236
CT		Cuong Truong	8/12/98	RC-236
CN		Cao Nguyen	8/12/98	RC-236
ML		Margaret Lam	8/12/98	RC-237
KR1	American Buddhist Members of the Chua Dieu Quang Vietnamese Buddhist Community Temple	Kristina Russel	8/12/98	RC-237
STQ1	Chua Dieu Quang Vietnamese Buddhist Community Temple	Sister Tinh Quang	8/12/98	RC-238
SH1		Stuart Helfand	8/12/98	RC-238

Government Agencies

CALTRANS 1

STATE OF CALIFORNIA-BUSINESS, TRANSPORTATION AND HOUSING AGENCY

PETE WILSON, Governor

DEPARTMENT OF TRANSPORTATION
DISTRICT 3, SACRAMENTO AREA OFFICE • MS 41
P. O. BOX 942874
SACRAMENTO, CA 94274-0001
TDD 916 741-4509
FAX no. 916 323-7669
Telephone 916 323-9543

April 15, 1997

ISAC033
Morrison Creek Reach Mining Plan
DEIR SCH 96102057
03-SAC-16 PM-6.2

Mr. Dennis Yeast
Sacramento County Planning
827 Seventh Street, Room 220
Sacramento, CA 95814

Dear Mr. Yeast:

We have reviewed the Draft Environmental Impact Report for the Morrison Creek Reach Mining Plan and have the following comments:

- Page 5-67. 3rd Paragraph. The base no-project traffic level should be without the new quarries. This traffic level will be without the currently existing quarry traffic since they will have ceased operations. Using offsets for determining project traffic impacts is inappropriate. New operations should be responsible for the impacts of their traffic on the surrounding circulation system. Impacts will also change location and the original permitted use that is discontinuing never addressed today's traffic. (i.e., there is no vesting of traffic impacts rights with a land use or a location.) CALTRANS 1-1

- Page 5-70. Cumulative conditions for traffic studies should use the year 2015 or 2020. The traffic study for this project uses 2010, which is only appropriate if this is the final operating year for all of the permitted uses (the year all sites have been exhausted and mining ceases). Please either update the traffic study appropriately or mining operation should cease in 2010. CALTRANS 1-2

- Page 5-70, 71. Cumulative Conditions. The widening of the 3 roads listed (Jackson Road, South Watt Avenue and Bradshaw Road) to six lanes is not indicated in the Sacramento Council of Governments (SACOG) Metropolitan Transportation Plan (MTP) for the year 2015. Sacramento County also does not have any plans to improve these roads to 6 lanes during the life of the mining projects. Thus, the cumulative traffic analysis should use only those improvements that are funded, programmed, and expected to be constructed prior to the year 2010 (which the study used as its horizon year). CALTRANS 1-3

- The gravel transport system shown going under Jackson Highway (SR-16) will require an encroachment permit from Caltrans. Upon its permanent closing, it must be CALTRANS 1-4

Mr. Dennis Yeast
April 15, 1997
Page 2

removed and the tunnel must be filled. For questions about the encroachment permit process, please contact Rich Jones at (916) 741-5374. CALTRANS 1-4

APPENDIX C

- Loss time shown for all signalized intersections is zero. Even with overlapping phasing (which is not done for safety reasons) there is an inherent loss time at all intersections. Please explain the reasoning for using zero loss time or make changes to the calculations as necessary. CALTRANS 1-5
- Intersection #4. For cumulative conditions. Use only the number of lanes that have been funded for construction prior to the year 2010. For eastbound and westbound traffic at this intersection, the right turn lane is not shared and will not be shared with through traffic. Please change the calculations using a right turn only at this location. CALTRANS 1-6
- Intersection #6. For cumulative conditions plus project. Why is there no northbound traffic shown on Mayhew Road? How would trucks get to Jackson Road from Aspen III and Aspen IV South? CALTRANS 1-7

Please provide our office with a copy of updated traffic calculations and any changes in impacts and mitigation related to those changes, prior to the final public hearings.

If you have any questions, please contact Tom Meyers at (916) 323-0543.

Sincerely,

JEFFREY PULVERMAN, Chief
Office of Transportation
Planning - Metropolitan

Caltrans 1, Letter from Jeffrey Pulverman dated 4/15/97

Caltrans 1-1: The base no-project traffic level does not assume the new quarries would be in place. The base no-project traffic is level is that of existing conditions. Other existing quarry operations in the area currently contribute to existing traffic levels.

Caltrans 1-2: It was determined that the most appropriate cumulative traffic base for the project was that contained in the Mather Field DEIR, which used the SACMET 2010 travel model. (SACOG did not have 2015 traffic forecasts available at the time of the study). The cumulative traffic base included full buildout of the County-operated Mather Aviation Facility. Although the Mather Field DEIR used the 2010 model as a base, the inclusion of buildout of the Mather Aviation Facility represents travel well beyond 2010.

Caltrans 1-3: The traffic volumes used in the analysis of cumulative conditions assume the roadways would be constructed in accordance with the General Plan. If the General Plan roadway improvements were not constructed, the traffic volumes would not increase to the level assumed for the analysis. It should be noted that the County of Sacramento Transportation Division's 1998 Transportation Improvement Program (TIP) has set aside development money for the widening of South Watt Avenue from Kiefer Boulevard to Florin Road and Jackson Road from South Watt Avenue to Bradshaw Road.

Caltrans 1-4: The need to obtain an encroachment permit for the conveyor system access under Jackson Highway is noted.

Caltrans 1-5: The Transportation Research Board Circular 212 planning method was used to analyze traffic impacts. Although loss time is shown on the calculation worksheets, it is not used in the Circular 212 planning method. Changing the loss time on the worksheet would not affect the results of the analysis.

Caltrans 1-6: Please refer to the response to comment Caltrans 1-3 above.

Caltrans 1-7: There are two sets of analysis for cumulative conditions: a "Base Volume Alternative" and a "Future Volume Alternative." The base volume calculations (for cumulative no-project conditions) show a total of 6 vehicles heading northbound on Mayhew Road during the AM peak hour. The future volume calculations (for cumulative plus project conditions) show a total of 47 passenger car equivalents for the same period.

CALTRANS 2

STATE OF CALIFORNIA BUSINESS, TRANSPORTATION AND HOUSING AGENCY PETE WILSON, Gove

DEPARTMENT OF TRANSPORTATION
DIVISION OF STRUCTURES
P.O. BOX 942874
SACRAMENTO, CA 94274-0001
TDD (916) 654-4014
FAX (916) 227-8031

April 28, 1997

File: 100.419
Morrison Creek Bridge #24-0075
SCH #95102057
PN 199400102

County of Sacramento
Department of Environmental Review and Assessment
827 Seventh Street, Room 220
Sacramento, CA 95814
Attn: Catherine Hack

Dear Ms. Hack:

Teichert Aggregates and Granite Construction Company propose to mine approximately 36.7 million tons of sand and gravel adjacent to Morrison Creek in Sacramento County. Route 16 crosses Morrison Creek immediately downstream from the proposed project (Br # 24-0075). The EIR did not address the potential impact of the proposed project on the Route 16 bridge structure as outlined in our comment on the Notice of Preparation dated November 2, 1995 including: CALTRANS 2-1

- Providing complete hydrologic and hydraulic analyses of the impacts of the project including changes in stage, discharge, and velocity through the Route 16 bridge structures.
- The realigned Morrison Creek will be a "perched" or "freestanding" channel. The following questions should be answered to Caltrans' satisfaction prior to certifying the EIR: CALTRANS 2-2
  - How will the proposed 35-45 foot deep excavations be physically separated from the Morrison Creek channel?
  - How will the proponent avoid, monitor and/or mitigate pit capture caused by potential lateral channel migration and resulting structure damage? CALTRANS 2-3
  - How will the proposed project change the sediment transport and/or geomorphological characteristics of the stream? CALTRANS 2-4

If you have any questions or require further information, please contact me at (916) 227-8035.

Sincerely,

C.M. CROSSETT AVILA
Hydrology/Hydraulics Engineer

cc: Erol Kaslan, OSM&I
Tom Meyers, District 3 IGR/CEQA
Mitchell Baker, Caltrans Planning

Caltrans 2, Letter from C.M. Crossett Avila dated 4/28/97

Caltrans 2-1: As stated on Page 5-7 under bullet #1 in the EIR/EIS, the approved mitigation plan requires that prior to commencement of mining, the project proponent shall gain approval from Caltrans and Sacramento County Water Resources Department (WRD) for the design and implementation of the proposed protective hydraulic structures (to protect Highway 16 bridge) and proposed mining plan. Such plans would include the requested analyses.

Caltrans 2-2: The approved mitigation plan requires the installation of berms, weirs, and other necessary hydraulic structures to safely contain the 100-year peak flow. This system will be designed to safely pass the 100-year peak flow without erosion or disruption of channels or the Jackson Highway Bridge. For additional information, refer to requirements/recommendations of public agencies and mitigation measures described in Sections 5.1.3 and 5.5.3 of the EIR/EIS.

Caltrans 2-3: The project proponents will be required to minimize the potential for pit capture through the construction and operation of hydraulic structures (i.e., berms, weirs, and inlet works) designed to direct flows up to the 100-year peak flows from the Jackson Highway crossing to the bypass channel system on Aspen IV South and away from the gravel pits. In the event that the flows exceed the 100-year design capacity and the channel or hydraulic structures fail, the project proponents will be required to restore the project conditions and repair any damages caused by erosion or pit capture. For additional information, refer to Section 5.1.3 in the EIR/EIS.

Caltrans 2-4: The proposed plan will alter geomorphological characteristics of Morrison Creek through replacing a degraded natural with an engineered channel. Morrison Creek does not display a high volume of sediment transport. It is not anticipated that the sediment supply to the project reach would change nor would transport through the project change. Engineered channel forms, most commonly trapezoidal channels, will dominate channel morphology.

OPR

State of California

GOVERNOR'S OFFICE OF PLANNING AND RESEARCH
1400 TENTH STREET
SACRAMENTO 95814

PETE WILSON
GOVERNOR

LEE GRISSOM
DIRECTOR

April 21, 1997

DENNIS E. YEAST
COUNTY OF SACRAMENTO
827 SEVENTH STREET
SACRAMENTO, CA 95814

Subject: MORRISON CREEK MINING REACH SOUTH OF JACKSON HIGHWAY SCH #: 95102057

Dear DENNIS E. YEAST:

The State Clearinghouse has submitted the above named draft Environmental Impact Report (EIR) to selected state agencies for review. The review period is now closed and the comments from the responding agency(ies) is(are) enclosed. On the enclosed Notice of Completion form you will note that the Clearinghouse has checked the agencies that have commented. Please review the Notice of Completion to ensure that your comment package is complete. If the comment package is not in order, please notify the State Clearinghouse immediately. Remember to refer to the project's eight-digit State Clearinghouse number so that we may respond promptly.

Please note that Section 21104 of the California Public Resources Code required that:

> "a responsible agency or other public agency shall only make substantive comments regarding those activities involved in a project which are within an area of expertise of the agency or which are required to be carried out or approved by the agency."

Commenting agencies are also required by this section to support their comments with specific documentation.

These comments are forwarded for your use in preparing your final EIR. Should you need more information or clarification, we recommend that you contact the commenting agency(ies).

This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. Please contact Kristen Derscheid at (916) 445-0613 if you have any questions regarding the environmental review process.

OPR-1

Sincerely,

Antero A. Rivasplata

ANTERO A. RIVASPLATA
Chief, State Clearinghouse

Enclosures
cc: Resources Agency

OPR, Letter from Antero Rivasplata (Governor's Office of Planning & Research) dated 4/21/97

OPR-1: Comment noted.

State of California **THE RESOURCES AGENCY**

MEMORANDUM

To: Project Coordinator
Resources Agency

Mr. Dennis Yeast
Department of Environmental
Review and Assessment
Sacramento County
827 7th Street, Room 220
Sacramento, CA 95814

From: **Department of Conservation**
Office of Governmental and Environmental Relations

Subject: Draft Environmental Impact Report (DEIR) for the Morrison Creek Mining Reach (South) of Jackson Highway - **SCH #95[redacted]2057**

The Department of Conservation's (Department) Office of Mine Reclamation (OMR) has reviewed the DEIR for Morrison Creek Mining Reach Upstream (South) of Jackson Highway. The proposed project entails a comprehensive mining plan for several mineral properties and provides a comprehensive drainage plan. OMR originally reviewed reclamation plans for two of the sites and provided comment in letters dated June 2, 1995 (Aspen IV South CA Mine Id #91-34-0008 and Aspen V South CA Mine Id #91-43-0009). Copies of these letters are attached for your reference. These comments remain applicable to the reclamation plans that OMR previously reviewed. Other than that information which is included in this DEIR, OMR finds no record of a Vineyard I reclamation plan submittal. The following comments prepared by James Pompy and Michael Sandecki are offered to assist in your review of this project. OMR-1

The "reclamation plans" included in the DEIR (Figure 3-5abc) are limited to only diagrams of the sites. Many of the elements required in a reclamation plan in accordance with the Surface Mining and Reclamation Act of 1975 (SMARA) (Public Resources Code Section 2710 et seq.) and the State Mining and Geology Board regulations for surface mining and reclamation practice (California Code of Regulations (CCR) Title 14, Chapter 8, Article 1, Section 3500 et seq., Article 9 Section 3700 et seq.) (attached) are either included as separate discussions and mitigation proposals throughout the DEIR, included in the DEIR as preliminary designs, or are provided in the DEIR but may not be feasible. The Department recommends that these elements be included in a stand alone reclamation plan for each project and that the mitigation proposals be revised where necessary.

Information that has been prepared as part of a permit application or pursuant to CEQA may be included in the project's reclamation plan by reference, if that item of OMR-2

information is attached to the reclamation plan when it is forwarded to the Department for review. To the extent that the referenced information is used to meet SMARA requirements, the information will become part of the reclamation plan and subject to all other requirements of SMARA, including calculation of financial assurances. OMR-2

The Department appreciates the opportunity to comment of the DEIR. If you have any questions on these comments or require any assistance with other mine reclamation issues, please contact James Pompy, Manager, Reclamation Unit, at (916) 323-8565.

Jason Marshall
Assistant Director

Attachments

cc: James Pompy, Office of Mine Reclamation

CALIFORNIA DEPARTMENT OF CONSERVATION
DIVISION OF MINES AND GEOLOGY

NOTE 26

SURFACE MINING AND RECLAMATION ACT

(Revised 1/97)

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THE RESOURCES AGENCY
DOUGLAS P. WHEELER
SECRETARY FOR RESOURCES

STATE OF CALIFORNIA
PETE WILSON
GOVERNOR

DEPARTMENT OF CONSERVATION
B. B. BLEVINS
ACTING DIRECTOR

RC 7/1
Response to Comments

Notice of Completion

Control Number: 94-UPB-0484, 91-CZB-UPB-0118, 90-CZB-UPB-1607, 94-CZB-UPB-0671 SEE NOTE BELOW SCH # 95102057

Mail to: State Clearinghouse, 1400 Tenth Street, Sacramento, CA 95814 916/445-0613

Project Title: MORRISON CREEK MINING REACH DOWNSTREAM (SOUTH) OF JACKSON HIGHWAY

Lead Agency: Sacramento County — Contact Person: Dennis E. Yeast

Street Address: 827 7th Street, Room 220 — Phone: 916 440-7914

City: SAcramento — Zip: 95814 — County: Sacramento

Project Location

County: Sacramento — City/Nearest Community: Vineyard

Cross Streets: Bradshaw Rd./Jackson Road — Total Acres: 966±

Assessor's Parcel No.: Various — Section: 21,28,29,30 — Twp: 8N — Range: 6E — Base: MDBM

Within 2 Miles: State Highway #: 16 — Waterways: Morrison Creek

Airports: Mather Field — Railways: — — Schools: Sierra Enterprise

FILED MAR 4 1997 STATE CLEARINGHOUSE

Document Type

CEQA: [ ] NOP [ ] Early Cons [ ] Neg Dec [X] Draft EIR [ ] Supplement/Subsequent [ ] EIR (Prior SCH No.) [ ] Other: NEPA: [ ] NOI [ ] EA [X] Draft EIS [ ] FONSI OTHER: [X] Joint Document [ ] Final Document [ ] Other:

Local Action Type

[ ] General Plan Update [ ] General Plan Amendment [ ] General Plan Element [X] Community Plan [ ] Specific Plan [ ] Master Plan [ ] Planned Unit Development [ ] Site Plan [X] Rezone [ ] Prezone [X] Use Permit [ ] Land Division (Subdivision, Parcel map, Tract Map, etc.) [ ] Annexation [ ] Redevelopment [ ] Coastal Permit [ ] Other:

Development Type

[ ] Residential: Units ____ Acres ____
[ ] Office: Sq. Ft. ____ Acres ____ Employees ____
[ ] Commercial Sq. Ft. ____ Acres ____ Employees ____
[ ] Industrial: Sq. Ft. ____ Acres ____ Employees ____
[ ] Educational
[ ] Recreational
[ ] Water Facilities: Type ____ MGD ____
[ ] Transportation: Type
[X] Mining Mineral SAND & gravel
[ ] Power Type
[ ] Waste Treatment: Type
[ ] Hazardous Waste: Type
[ ] Other:

Project Issues Discussed in Document

[X] Aesthetic/Visual
[X] Agricultural Land
[X] Air Quality
[X] Archeological/Historical
[X] Coastal Zone
[X] Drainage/Absorption
[X] Economic/Jobs
[ ] Fiscal
[X] Floodplain/Flooding
[ ] Forest Land/Fire Hazard
[X] Geologic/Seismic
[X] Minerals
[X] Noise
[X] Population/Housing Balance
[X] Public Services/Facilities
[X] Recreation/Parks
[ ] Schools/Universities
[ ] Septic Systems
[X] Sewer Capacity
[X] Soil Erosion/Compaction/Grading
[X] Solid Waste
[X] Toxic/Hazardous
[X] Traffic/Circulation
[X] Vegetation
[X] Water Quality
[X] Water Supply/Groundwater
[X] Wetland/Riparian
[X] Wildlife
[X] Growth Inducing
[X] Land Use
[X] Cumulative Effects
[X] Other:

Present Land Use/Zoning/General Plan Use: Industrial Reserve (IR) and Industrial (M-1) and M-2) zoning; Extensive Industrial & Agricultural-Urban Reserve General Plan designations; current use is for grazing land.

Project Description: See attached.

State Clearinghouse Contact: Ms. Angel Howell (916) 445-0613

State Review Begins: 3.4.97

Dept. Review to Agency: 4.11

Agency Rev to SCH: 4.16

SCH COMPLIANCE: 4.18

Please note SCH Number on all Comments: 95102057

Please forward late comments directly to the Lead Agency

AQMD/APCD ____ (Received: 3.6)

95102057

Project Sent to the following State Agencies

[X] Resources
[ ] Boating
[ ] Coastal Comm
[ ] Coastal Comm
[ ] Colorado Riv Bd
[X] Conservation
[X] Fish & Game # 2
[ ] Delta Protection Commission
[ ] Forestry
[ ] Parks & Rec/OHP
[ ] Reclamation
[ ] SCDC
[X] DWR
[ ] OES
[ ] Bus Transp Hous
[X] Aeronautics
[X] CHP
[X] Caltrans # 3
[ ] Trans Planning
[ ] Housing & Devel
[ ] Health & Welfare
[ ] Dept. of Health
[ ] Medical Waste
[ ] State/Consumer Svcs
[ ] General Services
[ ] Cal/EPA
[ ] ARB
[ ] CA Waste Mgmt Bd
[ ] SWRCB: Grants
[ ] SWRCB: Delta
[X] SWRCB: Wtr Quality
[ ] SWRCB: Wtr Rights
[X] Reg. WQCB # 5
[ ] DTSC/CTC Sac
[ ] Yth/Adt Corrections
[ ] Corrections
[ ] Independent Comm
[ ] Energy Comm
[ ] NAHC
[ ] PUC
[ ] Santa Mo Mtns
[X] State Lands Comm
[ ] Tahoe Rgl Plan
[ ] Other:

SURFACE MINING AND RECLAMATION ACT OF 1975

As amended by:

Senate Bill 1300, Nejedly - 1980 Statutes
Assembly Bill 110, Areias - 1984 Statutes
Senate Bill 593, Royce - 1985 Statutes
Senate Bill 1261, Seymour - 1986 Statutes
Assembly Bill 747, Sher - 1987 Statutes
Assembly Bill 3551, Sher - 1990 Statutes
Assembly Bill 3903, Sher - 1990 Statutes
Assembly Bill 1506, Sher - 1991 Statutes
Senate Bill 1569, Rogers - 1992 Statutes
Assembly Bill 3098, Sher - 1992 Statutes
Assembly Bill 723, Sher - 1993 Statutes
Assembly Bill 904, Sher - 1993 Statutes
Assembly Bill 867, Sher - 1994 Statutes
Senate Bill 273, Leslie - 1995 Statutes
Senate Bill 614, Craven *et al* - 1995 Statutes
Assembly Bill 1373, Olberg - 1996 Statutes, and
Senate Bill 1549, Monteith - 1996 Statutes

Article 1. General Provisions

§ 2710. This chapter shall be known and may be cited as the Surface Mining and Reclamation Act of 1975.

§ 2711. (a) The Legislature hereby finds and declares that the extraction of minerals is essential to the continued economic well-being of the state and to the needs of the society, and that the reclamation of mined lands is necessary to prevent or minimize adverse effects on the environment and to protect the public health and safety.

(b) The Legislature further finds that the reclamation of mined lands as provided in this chapter will permit the continued mining of minerals and will provide for the protection and subsequent beneficial use of the mined and reclaimed land.

(c) The Legislature further finds that surface mining takes place in diverse areas where the geologic, topographic, climatic, biological, and social conditions are significantly different and that reclamation operations and the specifications therefore may vary accordingly.

§ 2712. It is the intent of the Legislature to create and maintain an effective and comprehensive surface mining and reclamation policy with regulation of surface mining operations so as to assure that:

(a) Adverse environmental effects are prevented or minimized and that mined lands are reclaimed to a usable condition which is readily adaptable for alternative land uses.

(b) The production and conservation of minerals are encouraged, while giving consideration to values relating to recreation, watershed, wildlife, range and forage, and aesthetic enjoyment.

(c) Residual hazards to the public health and safety are eliminated.

§ 2713. It is not the intent of the Legislature by the enactment of this chapter to take private property for public use without payment of just compensation in violation of the California and United States Constitutions.

§ 2714. This chapter does not apply to any of the following activities:

(a) Excavations or grading conducted for farming or onsite construction or for the purpose of restoring land following a flood or natural disaster.

(b) Onsite excavation and onsite earthmoving activities that are an integral and necessary part of a construction project that are undertaken to prepare a site for construction of structures, landscaping, or other land improvements, including the related excavation, grading, compaction, or the creation of fills, road cuts, and embankments, whether or not surplus materials are exported from the site, subject to all of the following conditions:

(1) All required permits for the construction, landscaping, or related land improvements have been approved by a public agency in accordance with applicable provisions of state law and locally adopted plans and ordinances, including, but not limited to, Division 13 (commencing with Section 21000).

(2) The lead agency's approval of the construction project included consideration of the onsite excavation and onsite earthmoving activities pursuant to Division 13 (commencing with Section 21000).

(3) The approved construction project is consistent with the general plan or zoning of the site.

(4) Surplus materials shall not be exported from the site unless and until actual construction work has commenced and shall cease if it is determined that construction activities have terminated, have been indefinitely suspended, or are no longer being actively pursued.

(c) Operation of a plant site used for mineral processing, including associated onsite structures, equipment, machines, tools, or other materials, including the onsite stockpiling and onsite recovery of mined materials, subject to all of the following conditions:

(1) The plant site is located on lands designated for industrial or commercial uses in the applicable county or city general plan.

(2) The plant site is located on lands zoned industrial or commercial, or are contained within a zoning category intended exclusively for industrial activities by the applicable city or county.

(3) None of the minerals being processed are being extracted onsite.

(4) All reclamation work has been completed pursuant to the approved reclamation plan for any mineral extraction activities that occurred onsite after January 1, 1976.

(d) Prospecting for, or the extraction of, minerals for commercial purposes and the removal of overburden in total amounts of less than 1,000 cubic yards in any one location of one acre or less.

(e) Surface mining operations that are required by federal law in order to protect a mining claim, if those operations are conducted solely for that purpose.

(f) Any other surface mining operations that the board, as defined by section 2001, determines to be of an infrequent nature and which involve only minor surface disturbances.

(g) The solar evaporation of sea water or bay water for the production of salt and related minerals.

(h) Emergency excavations or grading conducted by the Department of Water Resources or the Reclamation Board for the purpose of averting, alleviating, repairing, or restoring damage to property due to imminent or recent floods, disasters, or other emergencies.

(i) (1) Surface mining operations conducted on lands owned or leased, or upon which easements or rights-of-way have been obtained, by the Department of Water Resources for the purpose of the State Water Resources Development System or flood control, and surface mining operations on lands owned or leased, or upon which easements or rights-of-way have been obtained, by the Reclamation Board for the purpose of flood control, if the Department of Water Resources adopts, after submission to and consultation with, the Department of Conservation, a reclamation plan for lands affected by these activities, and those lands are reclaimed in conformance with the standards specified in regulations of the board adopted pursuant to this chapter. The Department of Water Resources shall provide an annual report to the Department of Conservation by the date specified by the Department of Conservation on these mining activities.

(2) Nothing in this subdivision shall require the Department of Water Resources or the Reclamation Board to obtain a permit or secure approval of a reclamation plan from any city or county in order to conduct surface mining operations specified in paragraph (1). Nothing in this subdivision shall preclude the bringing of an enforcement action pursuant to Section 2774.1, if it is determined that a surface mine operator, acting under contract with the Department of Water Resources or the Reclamation Board on lands other than those owned or leased, or upon which easements or rights-of-way have been obtained, by the Department of Water Resources or the Reclamation Board, is otherwise not in compliance with this chapter.

(j) (1) Excavations or grading for the exclusive purpose of obtaining materials for roadbed construction and maintenance conducted in connection with timber operations or forest management on land owned by the same person or entity. This exemption is limited to excavation and grading that is conducted adjacent to timber operation or forest management roads and shall not apply to onsite excavation or grading that occurs within 100 feet of a Class One watercourse or 75 feet of a Class Two watercourse, or to excavation for materials that are, or have been, sold for commercial purposes.

(2) This exemption shall be available only if slope stability and erosion are controlled in accordance with subdivision (f) of Section 3704 and subdivision (d) of Section 3706 of Title 14 of the California Code of Regulations and, upon closure of the site, the person closing the site implements, where necessary, revegetation measures and postclosure uses in consultation with the Department of Forestry and Fire Protection.

(k) Excavations, grading, or other earthmoving activities in an oil or gas field that are integral to, and necessary for, ongoing operations for the extraction of oil or gas that comply with all of the following conditions:

(1) The operations are being conducted in accordance with Division 3 (commencing with Section 3000).

(2) The operations are consistent with any general plan or zoning applicable to the site.

(3) The earthmoving activities are within oil or gas field properties under a common owner or operator.

(4) No excavated materials are sold for commercial purposes.

§ 2715. No provision of this chapter or any ruling, requirement, or policy of the board is a limitation on any of the following:

(a) On the police power of any city or county or on the power of any city or county to declare, prohibit and abate nuisances.

(b) On the power of the Attorney General, at the request of the board, or upon his own motion, to bring an action in the name of the people of the State of California to enjoin any pollution or nuisance.

(c) On the power of any state agency in the enforcement or administration of any provision of law which it is specifically authorized or required to enforce or administer.

(d) On the right of any person to maintain at any time any appropriate action for relief against any private nuisance as defined in Part 3 (commencing with Section 3479) of Division 4 of the Civil Code or for any other private relief.

(e) On the power of any lead agency to adopt policies, standards, or regulations imposing additional requirements on any person if the requirements do not prevent the person from complying with the provisions of this chapter.

(f) On the power of any city or county to regulate the use of buildings, structures, and land as between industry, business, residents, open space (including agriculture, recreation, the enjoyment of scenic beauty, and the use of natural resources), and other purposes.

§ 2716. Any person may commence an action on his or her own behalf against the board, the State Geologist, or the director for a writ of mandate pursuant to Chapter 2 (commencing with Section 1084) of Title 1 of Part 3 of the Code of Civil Procedure to compel the board, the State Geologist, or the director to carry out any duty imposed upon them pursuant to this chapter.

§ 2717. (a) The board shall submit to the Legislature on December 1st of each year a report on the actions taken pursuant to this chapter during the preceding fiscal year. The report shall include a statement of the actions, including legislative recommendations, which are necessary to carry out more completely the purposes and requirements of this chapter.

(b) For purposes of ensuring compliance with Section 10295.5 of the Public Contract Code, on and after July 1, 1993, the department shall, at a minimum, quarterly publish in the California Regulatory Notice Register, or otherwise make available upon request to the Department of General Services or any other state agency, a list identifying all of the following:

(1) Surface mining operations for which a report has been submitted pursuant to Section 2207 which indicates that the reclamation plan and the financial assurances have been approved.

(2) Surface mining operations for which an appeal is pending before the board pursuant to subdivision (e) of Section 2770, provided that the appeal shall not have been pending before the board for more than 180 days.

§ 2718. If any provision of this chapter or the application thereof to any person or circumstance is held invalid, such invalidity shall not affect other provisions or applications of the chapter which can be given effect without the invalid provision or application, and to this end the provisions of this chapter are severable.

§ 2719. Notwithstanding any other provision of law, neither the state nor any county, city, district, or other political subdivision shall be exempt from any fee imposed upon a mining operation pursuant to subdivision (d) of Section 2207.

Article 2. Definitions

§ 2725. Unless the context otherwise requires, the definitions set forth in this article shall govern the construction of this chapter.

§ 2726. "Area of regional significance" means an area designated by the board pursuant to Section 2790 which is known to contain a deposit of minerals, the extraction of which is judged to be of prime importance in meeting future needs for minerals in a particular region of the state within which the minerals are located and which, if prematurely developed for alternate incompatible land uses, could result in the permanent loss of minerals that are of more than local significance.

§ 2727. "Area of statewide significance" means an area designated by the board pursuant to Section 2790 which is known to contain a deposit of minerals, the extraction of which is judged to be of prime importance in meeting future needs for minerals in the state and which, if prematurely developed for alternate incompatible land uses, could result in the permanent loss of minerals that are of more than local or regional significance.

§ 2727.1 "Idle" means to curtail for a period of one year or more surface mining operations by more than 90 percent of the operation's previous maximum annual mineral production, with the intent to resume those surface mining operations at a future date.

§ 2728. "Lead agency" means the city, county, San Francisco Bay Conservation and Development Commission, or the board which has the principal responsibility for approving a surface mining operation or reclamation plan pursuant to this chapter.

§ 2729. "Mined lands" includes the surface, subsurface, and ground water of an area in which surface mining operations will be, are being, or have been conducted, including private ways and roads appurtenant to any such area, land excavations, workings, mining waste, and areas in which structures, facilities, equipment, machines, tools, or other materials or property which result from, or are used in, surface mining operations are located.

§ 2730. "Mining waste" includes the residual of soil, rock, mineral, liquid, vegetation, equipment, machines, tools, or other materials or property directly resulting from, or displaced by, surface mining operations.

§ 2731. "Operator" means any person who is engaged in surface mining operations, himself, or who contracts with others to conduct operations on his behalf, except a person who is engaged in surface mining operations as an employee with wages as his sole compensation.

§ 2732. "Overburden" means soil, rock, or other materials that lie above a natural mineral deposit or in between mineral deposits, before or after their removal by surface mining operations.

§ 2732.5. "Permit" means any authorization from, or approval by, a lead agency, the absence of which would preclude surface mining operations.

§ 2733. "Reclamation" means the combined process of land treatment that minimizes water degradation, air pollution, damage to aquatic or wildlife habitat, flooding, erosion, and other adverse effects from surface mining operations, including adverse surface effects incidental to underground mines, so that mined lands are reclaimed to a usable condition which is readily adaptable for alternate land uses and create no danger to public health or safety. The process may extend to affected lands surrounding mined lands, and may require backfilling, grading, resoiling, revegetation, soil compaction, stabilization, or other measures.

§ 2734. "State policy" means the regulations adopted by the board pursuant to Section 2755.

§ 2735. "Surface mining operations" means all, or any part of, the process involved in the mining of minerals on mined lands by removing overburden and mining directly from the mineral deposits, open-pit mining of minerals naturally exposed, mining by the auger method, dredging and quarrying, or surface work incident to an underground mine. Surface mining operations shall include, but are not limited to:

(a) Inplace distillation or retorting or leaching.

(b) The production and disposal of mining waste.

(c) Prospecting and exploratory activities.

Article 3. District Committees

§ 2740. In carrying out the provisions of this chapter, the board may establish districts and appoint one or more district technical advisory committees to advise the board. In establishing districts for these committees, the board shall take into account physical characteristics, including, but not limited to, climate, topography, geology, type of overburden, and principal mineral commodities. Members of the committees shall be selected and appointed on the basis of their professional qualifications and training in mineral resource conservation, development and utilization, land use planning, mineral economics, or the reclamation of mined lands.

§ 2741. The members of the committee shall receive no compensation for their services, but shall be entitled to their actual and necessary expenses incurred in the performance of their duties.

Article 4. State Policy for the Reclamation of Mined Lands

§ 2755. The board shall adopt regulations which establish state policy for the reclamation of mined lands in accordance with the general provisions set forth in Article 1 (commencing with Section 2710) of this chapter and pursuant to Chapter 4.5 (commencing with Section 11371) of Part 1 of Division 3 of Title 2 of the Government Code.

§ 2756. State policy shall apply to the conduct of surface mining operations and shall include, but shall not be limited to, measures to be employed by lead agencies in specifying grading, backfilling, resoiling, revegetation, soil compaction, and other reclamation requirements, and for soil erosion control, water quality and watershed control, waste disposal, and flood control.

§ 2757. The state policy adopted by the board shall be based upon a study of the factors that significantly affect the present and future condition of mined lands, and shall be used as standards by lead agencies in preparing specific and general plans, including the conservation and land use elements of the general plan and zoning ordinances. The state policy shall not include aspects of regulating surface mining operations which are solely of local concern, and not of statewide or regional concern, as determined by the board, such as, but not limited to, hours of operation, noise, dust, fencing, and purely aesthetic considerations.

§ 2758. Such policy shall include objectives and criteria for all of the following:

(a) Determining the lead agency pursuant to the provisions of Section 2771.

(b) The orderly evaluation of reclamation plans.

(c) Determining the circumstances, if any, under which the approval of a proposed surface mining operation by a lead agency need not be conditioned on a guarantee assuring reclamation of the mined lands.

§ 2759. The state policy shall be continuously reviewed and may be revised. During the formulation or revision of the policy, the board shall consult with, and carefully evaluate the recommendations of, the director, any district technical advisory committees, concerned federal, state, and local agencies, educational institutions, civic and public interest organizations, and private organizations and individuals.

§ 2760. The board shall not adopt or revise the state policy, unless a public hearing is first held respecting its adoption or revision. At least 30 days prior to the hearing, the board shall give notice of the hearing by publication pursuant to Section 6061 of the Government Code.

§ 2761. (a) On or before January 1, 1977, and, as a minimum, after the completion of each decennial census, the Office of Planning and Research shall identify portions of the following areas within the state which are urbanized or are subject to urban expansion or other irreversible land uses which would preclude mineral extraction:

(1) Standard metropolitan statistical areas and such other areas for which information is readily available.

(2) Other areas as may be requested by the board.

(b) In accordance with a time schedule, and based upon guidelines adopted by the board, the State Geologist shall classify, on the basis solely of geologic factors, and without regard to existing land use and land ownership, the areas identified by the Office of Planning and Research, any area for which classification has been requested by a petition which has been accepted by the board, or any other areas as may be specified by the board, as one of the following:

(1) Areas containing little or no mineral deposits.

(2) Areas containing significant mineral deposits.

(3) Areas containing mineral deposits, the significance of which requires further evaluation.

The State Geologist shall require the petitioner to pay the reasonable costs of classifying an area for which classification has been requested by the petitioner.

(c) The State Geologist shall transmit the information to the board for incorporation into the state policy and for transmittal to lead agencies.

§ 2762. (a) Within 12 months of receiving the mineral information described in Section 2761, and also within 12 months of the designation of an area of statewide or

regional significance within its jurisdiction, every lead agency shall, in accordance with state policy, establish mineral resource management policies to be incorporated in its general plan which will:

(1) Recognize mineral information classified by the State Geologist and transmitted by the board.

(2) Assist in the management of land use which affect areas of statewide and regional significance.

(3) Emphasize the conservation and development of identified mineral deposits.

(b) Every lead agency shall submit proposed mineral resource management policies to the board for review and comment prior to adoption.

(c) Any subsequent amendment of the mineral resource management policy previously reviewed by the board shall also require review and comment by the board.

(d) If any area is classified by the State Geologist as an area described in paragraph (2) of subdivision (b) of Section 2761, and the lead agency either has designated that area in its general plan as having important minerals to be protected pursuant to subdivision (a), or otherwise has not yet acted pursuant to subdivision (a), then prior to permitting a use which would threaten the potential to extract minerals in that area, the lead agency shall prepare, in conjunction with preparing any environmental document required by Division 13 (commencing with Section 21000), or in any event if no such document is required, a statement specifying its reasons for permitting the proposed use, and shall forward a copy to the State Geologist and the board for review.

If the proposed use is subject to the requirements of Division 13 (commencing with Section 21000), the lead agency shall comply with the public review requirements of that division. Otherwise, the lead agency shall provide public notice of the availability of its statement by all of the following:

(1) Publishing the notice at least one time in a newspaper of general circulation in the area affected by the proposed use.

(2) Directly mailing the notice to owners of property within one-half mile of the parcel or parcels on which the proposed use is located as those owners are shown on the latest equalized assessment role.

The public review period shall not be less than 60 days from the date of the notice and shall include at least one public hearing. The lead agency shall evaluate comments received and shall prepare a written response. The written response shall describe the disposition of the major issues raised. In particular, when the lead agency's position on the proposed use is at variance with recommendations and objections raised in the comments, the written response shall address in detail why specific comments and suggestions were not accepted.

(e) Prior to permitting a use which would threaten the potential to extract minerals in an area classified by the State Geologist as an area described in paragraph (3) of subdivision (b) of Section 2761, the lead agency may cause to be prepared an evaluation of the area in order to ascertain the significance of the mineral deposit located therein. The results of such evaluation shall be transmitted to the State Geologist and the board.

§ 2763. (a) If an area is designated by the board as an area of regional significance, and the lead agency either has designated that area in its general plan as having important minerals to be protected pursuant to subdivision (a) of Section 2762, or otherwise has not yet acted pursuant to subdivision (a) of Section 2762, then prior to permitting a use which would threaten the potential to extract minerals in that area, the lead agency shall prepare a statement specifying its reasons for permitting the proposed use, in accordance with the requirements set forth in subdivision (d) of Section 2762. Lead agency land use decisions involving areas designated as being of regional significance shall be in accordance with the lead agency's mineral resource management policies and shall also, in balancing mineral values against alternative land uses, consider the importance of these minerals to their market region as a whole and not just their importance to the lead agency's area of jurisdiction.

(b) If an area is designated by the board as an area of statewide significance, and the lead agency either has designated that area in its general plan as having important minerals to be protected pursuant to subdivision (a) of Section 2762, or otherwise has not yet acted pursuant to subdivision (a) of Section 2762, then prior to permitting a use which would threaten the potential to extract minerals in that area, the lead agency shall prepare a statement specifying its reasons for permitting the proposed use, in accordance with the requirements set forth in subdivision (d) of Section 2762. Lead agency land use decisions involving areas designated as being of statewide significance shall be in accordance with the lead agency's mineral resource management policies and shall also, in balancing mineral values against alternative land uses, consider the importance of the mineral resources to the state and nation as a whole.

§ 2764. (a) Upon the request of an operator or other interested person and payment by the requesting person of the estimated cost of processing the request, the lead agency having jurisdiction shall amend its general plan, or prepare a new specific plan or amend any applicable specific plan, that shall, with respect to the continuation of the existing surface mining operation for which the request is made, plan for future land uses in the vicinity of, and access routes serving, the surface mining operation in light of the importance of the minerals to their market region as a whole, and not just their importance to the lead agency's area of jurisdiction.

(b) In adopting amendments to the general plan, or adopting or amending a specific plan, the lead agency shall make written legislative findings as to whether the future land uses and particular access routes will be compatible or incompatible with the continuation of the surface mining operation, and if they are found to be incompatible, the findings shall include a statement of the reasons why they are to be provided for, notwithstanding

the importance of the minerals to their market region as a whole or their previous designation by the board, as the case may be.

(c) Any evaluation of a mineral deposit prepared by a lead agency for the purpose of carrying out this section shall be transmitted to the State Geologist and the board.

(d) The procedure provided for in this section shall not be undertaken in any area that has been designated pursuant to Article 6 (commencing with Section 2790) if mineral resource management policies have been established and incorporated in the lead agency's general plan in conformance with Article 4 (commencing with Section 2755).

Article 5. Reclamation of Mined Lands and the Conduct of Surface Mining Operations

§ 2770. (a) Except as provided in this section, no person shall conduct surface mining operations unless a permit is obtained from, a reclamation plan has been submitted to and approved by, and financial assurances for reclamation have been approved by, the lead agency for the operation pursuant to this article.

(b) Any person with an existing surface mining operation who has vested rights pursuant to Section 2776 and who does not have an approved reclamation plan shall submit a reclamation plan to the lead agency not later than March 31, 1988. If a reclamation plan application is not on file by March 31, 1988, the continuation of the surface mining operation is prohibited until a reclamation plan is submitted to the lead agency. For purposes of this subdivision, reclamation plans may consist of all or the appropriate sections of any plans or written agreements previously approved by the lead agency or another agency, together with any additional documents needed to substantially meet the requirements of Sections 2772 and 2773 and the lead agency surface mining ordinance adopted pursuant to subdivision (a) of Section 2774, provided that all documents which together were proposed to serve as the reclamation plan are submitted for approval to the lead agency in accordance with this chapter.

(c) If a person with an existing surface mining operation has received lead agency approval of its financial assurances for reclamation prior to January 1, 1991, the lead agency shall administratively review those existing financial assurances in accordance with subdivision (d) prior to January 1, 1992. The review of existing financial assurances shall not be considered a project for purposes of Division 13 (commencing with Section 21000). Any person with an existing surface mining operation which does not have financial assurances that received lead agency approval prior to January 1, 1991, shall submit financial assurances for reclamation for review in accordance with subdivision (d).

(d) The lead agency's review of reclamation plans submitted pursuant to subdivision (b) or of financial assurances pursuant to subdivision (c) is limited to whether the plan or the financial assurances substantially meet the applicable requirements of Sections 2772, 2773, and 2773.1, and the lead agency surface mining ordinance adopted pursuant to subdivision (a) of Section 2774, but, in any event, the lead agency shall require that financial assurances for reclamation be sufficient to perform reclamation of lands remaining disturbed. Reclamation plans or financial assurances determined to substantially meet these requirements shall be approved by the lead agency for purposes of this chapter. Reclamation plans or financial assurances determined not to substantially meet these requirements shall be returned to the operator within 60 days. The operator has 60 days to revise the plan or financial assurances to address identified deficiencies, at which time the revised plan or financial assurances shall be returned to the lead agency for review and approval. Except as specified in subdivision (e) or (i), unless the operator has filed on or before July 1, 1990, an appeal pursuant to subdivision (e) with regard to nonapproval of the reclamation plan, or has filed on or before January 1, 1994, an appeal pursuant to subdivision (e) with regard to nonapproval of financial assurances, and that appeal is pending before the board, the continuation of the surface mining operation is prohibited until a reclamation plan and financial assurances for reclamation are approved by the lead agency.

(e) Any person who, based on the evidence of the record, can substantiate that a lead agency has either (1) failed to act according to due process or has relied on considerations not related to the specific applicable requirements of Sections 2772, 2773, and 2773.1, and the lead agency surface mining ordinance adopted pursuant to subdivision (a) of Section 2774, in reaching a decision to deny approval of a reclamation plan or financial assurances for reclamation, (2) failed to act within a reasonable time of receipt of a completed application, or (3) failed to review and approve reclamation plans or financial assurances as required by subdivisions (c) and (d), may appeal that action or inaction to the board.

(f) The board may decline to hear an appeal if it determines that the appeal raises no substantial issues related to the lead agency's review pursuant to this section.

(g) Appeals that the board does not decline to hear shall be scheduled and heard at a public hearing within 45 days of the filing of the appeal, or any longer period as may be mutually agreed upon by the board and the person filing the appeal. In hearing an appeal, the board shall only determine whether the reclamation plan or the financial assurances substantially meet the applicable requirements of Sections 2772, 2773, 2773.1, and the lead agency surface mining ordinance adopted pursuant to subdivision (a) of Section 2774. A reclamation plan or financial assurances determined to meet these requirements shall be approved. A reclamation plan or

financial assurances determined not to meet these requirements shall be returned to the person filing the appeal with a notice of deficiencies, who shall be granted, once only, a period of 30 days, or a longer period mutually agreed upon by the operator and the board, to correct the noted deficiencies and submit the revised reclamation plan or the revised financial assurances to the lead agency for review and approval.

(h)(1) Within 90 days of a surface mining operation becoming idle, as defined in Section 2727.1, the operator shall submit to the lead agency for review and approval, an interim management plan. The review and approval of an interim management plan shall not be considered a project for purposes of Division 13 (commencing with Section 21000). The approved interim management plan shall be considered an amendment to the surface mining operation's approved reclamation plan, for purposes of this chapter. The interim management plan shall provide measures the operator will implement to maintain the site in compliance with this chapter, including, but not limited to, all permit conditions.

(2) The interim management plan may remain in effect for a period not to exceed five years, at which time the lead agency shall do one of the following:

(A) Renew the interim management plan for another period not to exceed five years, if the lead agency finds that the surface mining operator has complied fully with the interim management plan.

(B) Require the surface mining operator to commence reclamation in accordance with its approved reclamation plan.

(3) The financial assurances required by Section 2773.1 shall remain in effect during the period that the surface mining operation is idle. If the surface mining operation is still idle after the expiration of its interim management plan, the surface mining operation shall commence reclamation in accordance with its approved reclamation plan.

(4) Within 60 days of the receipt of the interim management plan, or a longer period mutually agreed upon by the lead agency and the operator, the lead agency shall review and approve the plan in accordance with its ordinance adopted pursuant to subdivision (a) of Section 2774, so long as the plan satisfies the requirements of this subdivision, and so notify the operator in writing. Otherwise, the lead agency shall notify the operator in writing of any deficiencies in the plan. The operator shall have 30 days, or a longer period mutually agreed upon by the operator and the lead agency, to submit a revised plan.

(5) The lead agency shall approve or deny approval of the revised interim management plan within 60 days of receipt. If the lead agency denies approval of the revised interim management plan, the operator may appeal that action to the lead agency's governing body, which shall schedule a public hearing within 45 days of the filing of the appeal, or any longer period mutually agreed upon by the operator and the governing body.

(6) Unless review of an interim management plan is pending before the lead agency, or an appeal is pending before the lead agency's governing body, a surface mining operation which remains idle for over one year after becoming idle as defined in Section 2727.1 without obtaining approval of an interim management plan shall be considered abandoned and the operator shall commence and complete reclamation in accordance with the approved reclamation plan.

(i) Any enforcement action which may be brought against a surface mining operation for operating without an approved reclamation plan, financial assurance, or interim management plan, shall be held in abeyance pending review pursuant to subdivision (b), (c), (d), or (h) or the resolution of an appeal filed with the board pursuant to subdivision (e), or with a lead agency governing body pursuant to subdivision (h).

§ 2770.5. Whenever surface mining operations are proposed in the 100-year flood plain for any stream, as shown in Zone A of Flood Insurance Rate Maps issued by the Federal Emergency Management Agency, and within one mile, upstream or downstream, of any state highway bridge, the lead agency receiving the application for the issuance or renewal of a permit to conduct the surface mining operations shall notify the Department of Transportation that the application has been received. The Department of Transportation shall have a period of not more than 45 days to review and comment on the proposed surface mining operations with respect to any potential damage to the state highway bridge from the proposed surface mining operations. The lead agency shall not issue or renew the permit until the Department of Transportation has submitted its comments or until 45 days from the date the application for the permit was submitted, whichever occurs first.

§ 2771. Whenever a proposed or existing surface mining operation is within the jurisdiction of two or more public agencies, is a permitted use within the agencies, and is not separated by a natural or manmade barrier coinciding with the boundary of the agencies, the evaluation of the proposed or existing operation shall be made by the lead agency in accordance with the procedures adopted by the lead agency pursuant to Section 2774. If a question arises as to which public agency is the lead agency, any affected public agency, or the affected operator, may submit the matter to the board. The board shall notify in writing all affected public agencies and operators that the matter has been submitted, specifying a date for a public hearing. The board shall designate the public agency which shall serve as the lead agency, giving due consideration to the capability of the agency to fulfill adequately the requirements of this chapter and to an examination of which of the public agencies has principal permit responsibility.

§ 2772. (a) The reclamation plan shall be filed with the lead agency, on a form provided by the lead agency, by any person who owns, leases, or otherwise controls or operates on all, or any portion of any, mined lands, and

who plans to conduct surface mining operations on the lands.

(b) All documentation for the reclamation plan shall be submitted by the lead agency to the department at one time.

(c) The reclamation plan shall include all of the following information and documents:

(1) The name and address of the surface mining operator and the names and addresses of any persons designated by the operator as an agent for the service of process.

(2) The anticipated quantity and type of minerals for which the surface mining operation is to be conducted.

(3) The proposed dates for the initiation and termination of surface mining operation.

(4) The maximum anticipated depth of the surface mining operation.

(5) The size and legal description of the lands that will be affected by the surface mining operation, a map that includes the boundaries and topographic details of the lands, a description of the general geology of the area, a detailed description of the geology of the area in which surface mining is to be conducted, the location of all streams, roads, railroads, and utility facilities within, or adjacent to, the lands, the location of all proposed access roads to be constructed in conducting the surface mining operation, and the names and addresses of the owners of all surface interests and mineral interests in the lands.

(6) A description of, and a plan for, the type of surface mining to be employed, and a time schedule that will provide for the completion of surface mining on each segment of the mined lands so that reclamation can be initiated at the earliest possible time on those portions of the mined lands that will not be subject to further disturbance by the surface mining operation.

(7) A description of the proposed use or potential uses of the mined lands after reclamation and evidence that all owners of a possessory interest in the land have been notified of the proposed use or potential uses.

(8) A description of the manner in which reclamation, adequate for the proposed use or potential uses will be accomplished, including both of the following:

(A) A description of the manner in which contaminants will be controlled, and mining waste will be disposed.

(B) A description of the manner in which affected streambed channels and streambanks will be rehabilitated to a condition minimizing erosion and sedimentation will occur.

(9) An assessment of the effect of implementation of the reclamation plan on future mining in the area.

(10) A statement that the person submitting the reclamation plan accepts responsibility for reclaiming the mined lands in accordance with the reclamation plan.

(11) Any other information which the lead agency may require by ordinance.

(d) An item of information or a document required pursuant to subdivision (c) that has already been prepared as part of a permit application for the surface mining operation, or as part of an environmental document prepared for the project pursuant to Division 13 (commencing with Section 21000), may be included in the reclamation plan by reference, if that item of information or that document is attached to the reclamation plan when the lead agency submits the reclamation plan to the director for review. To the extent that the information or document referenced in the reclamation plan is used to meet the requirements of subdivision (c), the information or document shall become part of the reclamation plan and shall be subject to all other requirements of this article.

(e) Nothing in this section is intended to limit or expand the department's authority or responsibility to review a document in accordance with Division 13 (commencing with Section 21000).

§ 2773. (a) The reclamation plan shall be applicable to a specific piece of property or properties, shall be based upon the character of the surrounding area and such characteristics of the property as type of overburden, soil stability, topography, geology, climate, stream characteristics, and principal mineral commodities, and shall establish site-specific criteria for evaluating compliance with the approved reclamation plan, including topography, revegetation and sediment, and erosion control.

(b) By January 1, 1992, the board shall adopt regulations specifying minimum, verifiable statewide reclamation standards. Subjects for which standards shall be set include, but shall not be limited to, the following:

(1) Wildlife habitat.

(2) Backfilling, regrading, slope stability, and recontouring.

(3) Revegetation.

(4) Drainage, diversion structures, waterways, and erosion control.

(5) Prime and other agricultural land reclamation.

(6) Building, structure, and equipment removal.

(7) Stream protection.

(8) Topsoil salvage, maintenance, and redistribution.

(9) Tailing and mine waste management.

These standards shall apply to each mining operation, but only to the extent that they are consistent with the planned or actual subsequent use or uses of the mining site.

§ 2773.1. (a) Lead agencies shall require financial assurances of each surface mining operation to ensure reclamation is performed in accordance with the surface mining operation's approved reclamation plan, as follows:

(1) Financial assurances may take the form of surety bonds, irrevocable letters of credit, trust funds, or other forms of financial assurances specified by the board pursuant to subdivision (e), which the lead agency reasonably determines are adequate to perform reclamation in accordance with the surface mining operation's approved reclamation plan.

(2) The financial assurances shall remain in effect for the duration of the surface mining operation and any additional period until reclamation is completed.

(3) The amount of financial assurances required of a surface mining operation for any one year shall be adjusted annually to account for new lands disturbed by surface mining operations, inflation, and reclamation of lands accomplished in accordance with the approved reclamation plan.

(4) The financial assurances shall be made payable to the lead agency and the department. Financial assurances that were approved by the lead agency prior to January 1, 1993, and were made payable to the State Geologist shall be considered payable to the department for purposes of this chapter. However, if a surface mining operation has received approval of its financial assurances from a public agency other than the lead agency, the lead agency shall deem those financial assurances adequate for purposes of this section, or shall credit them toward fulfillment of the financial assurances required by this section, if they are made payable to the public agency, the lead agency, and the department and otherwise meet the requirements of this section. In any event, if a lead agency and one or more public agencies exercise jurisdiction over a surface mining operation, the total amount of financial assurances required by the lead agency and the public agencies for any one year shall not exceed that amount which is necessary to perform reclamation of lands remaining disturbed. For purposes of this paragraph, a "public agency" may include a federal agency.

(b) If the lead agency or the board, following a public hearing, determines that the operator is financially incapable of performing reclamation in accordance with its approved reclamation plan, or has abandoned its surface mining operation without commencing reclamation, either the lead agency or the director shall do all of the following:

(1) Notify the operator by personal service or certified mail that the lead agency or the director intends to take appropriate action to forfeit the financial assurances and specify the reasons for so doing.

(2) Allow the operator 60 days to commence or cause the commencement of reclamation in accordance with its approved reclamation plan and require that reclamation be completed within the time limits specified in the approved reclamation plan or some other time period mutually agreed upon by the lead agency or the director and the operator.

(3) Proceed to take appropriate action to require forfeiture of the financial assurances if the operator does not substantially comply with paragraph (2).

(4) Use the proceeds from the forfeited financial assurances to conduct and complete reclamation in accordance with the approved reclamation plan. In no event shall the financial assurances be used for any other purpose. The operator is responsible for the costs of conducting and completing reclamation in accordance with the approved reclamation plan which are in excess of the proceeds from the forfeited financial assurances.

(c) Financial assurances shall no longer be required of a surface mining operation, and shall be released, upon written notification by the lead agency, which shall be forwarded to the operator and the director, that reclamation has been completed in accordance with the approved reclamation plan. If a mining operation is sold or ownership is transferred to another person, the existing financial assurances shall remain in force and shall not be released by the lead agency until new financial assurances are secured from the new owner and have been approved by the lead agency in accordance with Section 2770.

(d) The lead agency shall have primary responsibility to seek forfeiture of financial assurances and to reclaim mine sites under subdivision (b). However, in cases where the board is not the lead agency pursuant to Section 2774.4, the director may act to seek forfeiture of financial assurances and reclaim mine sites pursuant to subdivision (b) only if both of the following occurs:

(1) The financial incapability of the operator or the abandonment of the mining operation has come to the attention of the director.

(2) The lead agency has been notified in writing by the director of the financial incapability of the operator or the abandonment of the mining operation for at least 15 days, and has not taken appropriate measures to seek forfeiture of the financial assurances and reclaim the mine site; and one of the following has occurred:

(A) The lead agency has been notified in writing by the director that failure to take appropriate measures to seek forfeiture of the financial assurances or to reclaim the mine site shall result in actions being taken against the lead agency under Section 2774.4.

(B) The director determines that there is a violation which amounts to an imminent and substantial endangerment to the public health, safety, or to the environment.

(C) The lead agency notifies the director in writing that its good faith attempts to seek forfeiture of the financial assurances have not been successful.

The director shall comply with subdivision (b) in seeking forfeiture of financial assurances and reclaiming mine sites.

(e) The board may adopt regulations specifying financial assurance mechanisms other than surety bonds, irrevocable letters of credit, and trust funds, which the board determines are reasonably available and adequate to ensure reclamation pursuant to this chapter, but these mechanisms may not include financial tests. These mechanisms may include reclamation bond pool programs.

(f) On or before March 1, 1993, the board shall adopt guidelines to implement this section. The guidelines are exempt from the requirements of Chapter 3.5 (commencing with Section 11340) of Part 1 of Division 3 of Title 2 of the Government Code, and are not subject to review by the Office of Administrative Law.

§ 2774. (a) Every lead agency shall adopt ordinances in accordance with state policy which establish procedures for the review and approval of reclamation plans and financial assurances and the issuance of a permit to conduct surface mining operations, except that any lead agency without an active surface mining operation in its jurisdiction may defer adopting an implementing ordinance until the filing of a permit application. The ordinances shall establish procedures requiring at least one public hearing and shall be periodically reviewed by the lead agency and revised, as necessary, to ensure that the ordinances continue to be in accordance with state policy.

(b) The lead agency shall conduct an inspection of a surface mining operation within six months of receipt by the lead agency of the surface mining operation's report submitted pursuant to Section 2207, solely to determine whether the surface mining operation is in compliance with this chapter. In no event shall a lead agency inspect a surface mining operation less than once in any calendar year. The lead agency may cause such an inspection to be conducted by a state-registered geologist, state-registered civil engineer, state-licensed landscape architect, or state-registered forester, who is experienced in land reclamation and who has not been employed by the surface mining operation in any capacity during the previous 12 months. All inspections shall be conducted using a form developed by the department and approved by the board. The operator shall be solely responsible for the reasonable cost of the inspection. The lead agency shall notify the director within 30 days of the date of completion of the inspection that the inspection has been conducted. The notice shall contain a statement regarding the surface mining operation's compliance with this chapter, shall include a copy of the completed inspection form, and shall specify which aspects of the surface mining operations, if any, are inconsistent with this chapter. If the surface mining operation has a review of its reclamation plan, financial assurances, or an interim management plan pending under subdivision (b), (c), (d), or (h) of Section 2770, or an appeal pending before the board or lead agency governing body under subdivision (e) or (h) of Section 2770, the notice shall so indicate. The lead agency shall forward to the operator a copy of the notice, a copy of the completed inspection form, and any supporting documentation, including, but not limited to, any inspection report prepared by the geologist, civil engineer, landscape architect, or forester.

(c) Prior to approving a surface mining operation's reclamation plan, financial assurances, including existing financial assurances reviewed by the lead agency pursuant to subdivision (c) of Section 2770, or any amendments, the lead agency shall submit the plan, assurances, or amendments to the director for review. All documentation for that submission shall be submitted to the director at one time. When the lead agency submits a reclamation plan or plan amendments to the director for review, the lead agency shall also submit to the director, for use in reviewing the reclamation plan or plan amendments, information from any related document prepared, adopted, or certified pursuant to Division 13 (commencing with Section 21000), and shall submit any other pertinent information. The lead agency shall certify to the director that the reclamation plan is in compliance with the applicable requirements of Article 1 (commencing with Section 3500) of Chapter 8 of Division 2 of Title 14 of the California Code of Regulations in effect at the time that the reclamation plan is submitted to the director for review.

(d) (1) The director shall have 30 days from the date of receipt of a reclamation plan or plan amendments submitted pursuant to subdivision (c), and 45 days from the date of receipt of financial assurances submitted pursuant to subdivision (c), to prepare written comments, if the director so chooses. The lead agency shall evaluate any written comments received from the director relating to the reclamation plan, plan amendments, or financial assurances within a reasonable amount of time.

(2) The lead agency shall prepare a written response to the director's comments describing the disposition of the major issues raised. In particular, if the lead agency's position is at variance with any of the recommendations made, or objections raised, in the director's comments, the written response shall address, in detail, why specific comments and suggestions were not accepted. Copies of any written comments received and responses prepared by the lead agency shall be forwarded to the operator.

(3) To the extent that there is a conflict between the comments of a trustee agency or a responsible agency that are based on the agency's statutory or regulatory authority and the comments of other commenting agencies which are received by the lead agency pursuant to Division 13 (commencing with Section 21000) regarding a reclamation plan or plan amendments, the lead agency shall consider only the comments of the trustee agency or responsible agency.

(e) Lead agencies shall notify the director of the filing of an application for a permit to conduct surface mining operations within 30 days of such an application being filed with the lead agency. By July 1, 1991, each lead agency shall submit to the director for every active or idle mining operation within its jurisdiction, a copy of the mining permit required pursuant to Section 2774, and any conditions or amendments to those permits. By July 1 of each subsequent year, the lead agency shall submit to the director for each active or idle mining operation a copy of any permit or reclamation plan amendments, as applicable, or a statement that there have been no changes during the previous year. Failure to file with the director the information required under this section shall be cause for action under Section 2774.4.

§ 2774.1. (a) Except as provided in subdivision (i) of Section 2770, if the lead agency or the director determines, based upon an annual inspection pursuant to Section 2774, or otherwise confirmed by an inspection of the mining operation, that a surface mining operation is not in compliance with this chapter, the lead agency or

the director may notify the operator of that violation by personal service or certified mail. If the violation extends beyond 30 days after the date of the lead agency's or the director's notification, the lead agency or the director may issue an order by personal service or certified mail requiring the operator to comply with this chapter or, if the operator does not have an approved reclamation plan or financial assurances, cease all further mining activities.

(b) An order issued under subdivision (a) shall not take effect until the operator has been provided a hearing before the lead agency for orders issued by the lead agency, or board for orders issued by the director, concerning the alleged violation. Any order issued under subdivision (a) shall specify which aspects of the surface mine's activities or operations are inconsistent with this chapter, shall specify a time for compliance which the lead agency or director determines is reasonable, taking into account the seriousness of the violation and any good faith efforts to comply with applicable requirements, and shall set a date for the hearing, which shall not be sooner than 30 days after the date of the order.

(c) Any operator who violates or fails to comply with an order issued under subdivision (a) after the order's effective date, as provided in subdivision (b), or who fails to submit a report to the director or lead agency as required by Section 2207, shall be subject to an order by the lead agency or the director imposing an administrative penalty of not more than five thousand dollars ($5,000) per day, assessed from the original date of noncompliance with this chapter or Section 2207. The penalty may be imposed administratively by the lead agency or the director. In determining the amount of the administrative penalty, the lead agency or the director shall take into consideration the nature, circumstances, extent, and gravity of the violation or violations, any prior history of violations, the degree of culpability, economic savings, if any, resulting from the violation, and any other matters justice may require. Orders setting administrative penalties shall become effective upon issuance thereof and payment shall be made to the lead agency or the director within 30 days, unless the operator petitions the legislative body of the lead agency, the board, or the superior court for review as provided in Section 2774.2. Any order shall be served by personal service or by certified mail upon the operator. Penalties collected by the director shall be used for no purpose other than to cover the reasonable costs incurred by the director in implementing this chapter or Section 2207.

(d) If the lead agency or the director determines that the surface mine is not in compliance with this chapter, so that the surface mine presents an imminent and substantial endangerment to the public health or the environment, the lead agency or the Attorney General, on behalf of the director, may seek an order from a court of competent jurisdiction enjoining that operation.

(e) Upon a complaint by the director, the department, or the board, the Attorney General may bring an action to recover administrative penalties under this section, and penalties under Section 2207, in any court of competent jurisdiction in this state against any person violating any provision of this chapter or Section 2207, or any regulation adopted pursuant to this chapter or Section 2207. The Attorney General may bring such an action on his or her own initiative if, after examining the complaint and the evidence, he or she believes a violation has occurred. The Attorney General may also seek an order from a court of competent jurisdiction compelling the operator to comply with this chapter and Section 2207.

(f) The lead agency has primary responsibility for enforcing this chapter and Section 2207. In cases where the board is not the lead agency pursuant to Section 2774.4, enforcement actions may be initiated by the director pursuant to this section only after the violation has come to the attention of the director and either of the following occurs:

(1) The lead agency has been notified by the director in writing of the violation for at least 15 days, and has not taken appropriate enforcement action.

(2) The director determines that there is a violation which amounts to an imminent and substantial endangerment to the public health or safety, or to the environment.

The director shall comply with this section in initiating enforcement actions.

(g) Remedies under this section are in addition to, and do not supersede or limit, any and all other remedies, civil or criminal.

§ 2774.2. (a) Within 30 days of the issuance of an order setting administrative penalties under subdivision (c) of Section 2774.1, the operator may petition that legislative body of the lead agency, if the lead agency has issued the order, or the board for orders issued by the director, for review of the order. If the operator does not petition for review within the time limits set by this subdivision, the order setting administrative penalties shall not be subject to review by any court or agency.

(b) The legislative body of the lead agency or the board shall notify the operator by personal service or certified mail whether it will review the order setting administrative penalties. In reviewing an order pursuant to this section, the record shall consist of the record before the lead agency or the director, and any other relevant evidence which, in the judgment of the legislative body or the board, should be considered to effectuate and implement the policies of this chapter.

(c) The legislative body or the board may affirm, modify, or set aside, in whole or in part, by its own order, any order of the lead agency or the director setting administrative penalties reviewed by the legislative body or the board pursuant to this section.

(d) Any order of the legislative body or the board issued under subdivision (c) shall become effective upon issuance thereof, unless the operator petitions the superior

court for review as provided in subdivision (e). Any order shall be served by personal service or by certified mail upon the operator. Payment of any administrative penalty which is specified in an order issued under subdivision (c), shall be made to the lead agency or the director within 30 days of service of the order; however, the payment shall be held in an interest bearing impound account pending the resolution of a petition for review filed pursuant to subdivision (e).

(e) Any operator aggrieved by an order of the legislative body or tne board issued under subdivision (c) may obtain review of the order by filing in the superior court a petition for writ of mandate within 30 days following the issuance of the order. Any operator aggrieved by an order of a lead agency or the director setting administrative penalties under subdivision (c) of Section 2774.1, for which the legislative body or board denies review, may obtain review of the order in the superior court by filing in the court a petition for writ of mandate within 30 days following the denial of review. The provisions of Section 1094.5 of the Code of Civil Procedure shall govern judicial proceedings pursuant to this subdivision, except that in every case the court shall exercise its independent judgment. If the operator does not petition for a writ of mandate within the time limits set by this subdivision, an order of the board or the legislative body shall not be subject to review by any court or agency.

§ 2774.3. The board shall review lead agency ordinances which establish permit and reclamation procedures to determine whether each ordinance is in accordance with state policy, and shall certify the ordinance as being in accordance with state policy if it adequately meets, or imposes requirements more stringent than, the California surface mining and reclamation policies and procedures established by the board pursuant to this chapter.

§ 2774.4. (a) If the board finds that a lead agency either has (1) approved reclamation plans or financial assurances which are not consistent with this chapter, (2) failed to inspect or cause the inspection of surface mining operations as required by this chapter, (3) failed to seek forfeiture of financial assurances and to carry out reclamation of surface mining operations as required by this chapter, (4) failed to take appropriate enforcement actions as required by this chapter, (5) intentionally misrepresented the results of inspections required under this chapter, or (6) failed to submit information to the department as required by this chapter, the board shall exercise any of the powers of that lead agency under this chapter, except for permitting authority.

(b) If, no sooner than three years after the board has taken action pursuant to subdivision (a), the board finds, after a public hearing, that a lead agency has corrected its deficiencies in implementing and enforcing this chapter, and the rules and regulations adopted pursuant to this chapter, the board shall restore to the lead agency the powers assumed by the board pursuant to subdivision (a).

(c) Before taking any action pursuant to subdivision (a), the board shall first notify the lead agency of the identified deficiencies, and allows the lead agency 45 days to correct the deficiencies to the satisfaction of the board. If the lead agency has not corrected the deficiencies to the satisfaction of the board within the 45-day period, the board shall hold a public hearing within the lead agency's area of jurisdiction, upon a 45-day written notice given to the public in at least one newspaper of general circulation within the city or county, and directly mailed to the lead agency and to all surface mining operators within the lead agency's jurisdiction who have submitted reports as required by Section 2207.

(d) Affected surface mining operators and interested persons have the right, at the public hearing, to present oral and written evidence on the matter being considered. The board may, at the public hearing, place reasonable limits on the right of affected surface mining operators and interested persons to question and solicit testimony.

(e) If, after conducting the public hearing required by subdivision (c), the board decides to take action pursuant to subdivision (a) the board shall, based on the record of the public hearing, adopt written findings which explain all of the following:

(1) The action to be taken by the board.

(2) Why the board decided to take the action.

(3) Why the action is authorized by, and meets the requirements of, subdivision (a).

In addition, the findings shall address the significant issues raised, or written evidence presented, by affected surface mining operators, interested persons, or the lead agency. The transcript of testimony and exhibits, together with all papers and requests filed in the proceedings, shall constitute the exclusive record for decision by the board.

(f) The lead agency, any affected surface mining operator, or any interested person who has presented oral or written evidence at the public hearing before the board pursuant to subdivision (d) may obtain review of the board's action taken pursuant to subdivision (a) by filing in the superior court a petition for writ of mandate within 30 days following the issuance of the board's decision. Section 1094.5 of the Code of Civil Procedure governs judicial proceedings pursuant to this subdivision, except that in every case the court shall exercise its independent judgment. If a petition for a writ of mandate is not filed within the time limits set by this subdivision, the board's action under subdivision (a) shall not be subject to review by any court or agency.

§ 2774.5. (a) If, upon review of an ordinance, the board finds that it is not in accordance with state policy, the board shall communicate the ordinance's deficiencies in writing to the lead agency. Upon receipt of the written communication, the lead agency shall have 90 days to submit a revised ordinance to the board for certification as being in accordance with state policy. The board shall review the lead agency's revised ordinance for certification

within 60 days of its receipt. If the lead agency does not submit a revised ordinance within 90 days, the board shall assume full authority for reviewing and approving reclamation plans submitted to the lead agency until the time the lead agency's ordinances are revised in accordance with state policy.

(b) If, upon review of a lead agency's revised ordinance, the board finds the ordinance is still not in accordance with state policy, the board shall again communicate the ordinance's deficiencies in writing to the lead agency. The lead agency shall have a second 90-day period in which to revise the ordinance and submit it to the board for review. If the board again finds that the revised ordinance is not in accordance with state policy or if no revision is submitted, the board shall assume full authority for reviewing and approving reclamation plans submitted to the lead agency until the time the lead agency's ordinances are revised in accordance with state policy.

(c) In any jurisdiction in which the lead agency does not have a certified ordinance, no person shall initiate a surface mining operation unless a reclamation plan has been submitted to, and approved by, the board. Any reclamation plan, approved by a lead agency under the lead agency's ordinance which was not in accordance with state policy at the time of approval, shall be subject to amendment by the board or under the ordinance certified by the board as being in accordance with state policy.

(d) Reclamation plans approved by the board pursuant to this section shall not be subject to modification by the lead agency at a future date but may be amended by the board. Reclamation plans approved by the board shall be remanded to the lead agency upon certification of the lead agency's ordinance, and the lead agency shall approve the reclamation plan as approved by the board, except that a subsequent amendment as may be agreed upon between the operator and the lead agency may be made according to this chapter. No additional public hearing shall be required prior to the lead agency's approval. Nothing in this section shall be construed as authorizing the board to issue a permit for the conduct of mining operations.

§ 2774.6. (a) On or before March 1, 1995, the department shall submit to the Governor and the Legislature a report, prepared by a qualified consultant, which may include an educational institution, which evaluates the effectiveness of lead agencies and the department in implementing this chapter and Section 2207, and in meeting the intent of the Legislature as set forth in Section 2712. The report shall be prepared to the extent that funds are appropriated by the Legislature for this purpose. Prior to encumbering any funds for preparation of the report, the board may conduct a public hearing to receive and respond to public comments concerning the scope of issues to be addressed.

(b) The report shall include, but is not limited to, an evaluation of all of the following:

(1) Compliance with this chapter and Section 2207 by operators of surface mines, lead agencies, the State Geologist, the department, and the board.

(2) Compliance with the reclamation requirements prescribed in Section 2773.

(3) The adequacy of resources needed to carry out this chapter and Section 2207.

(4) The adequacy of information available for purposes of preparing the report.

(5) Any recommended changes to administrative regulations or recommendations for further legislation.

§ 2775. (a) An applicant whose request for a permit to conduct surface mining operations in an area of statewide or regional significance has been denied by a lead agency, or any person who is aggrieved by the granting of a permit to conduct surface mining operations in an area of statewide or regional significance, may, within 15 days of exhausting his rights to appeal in accordance with the procedures of the lead agency, appeal to the board.

(b) The board may, by regulation, establish procedures for declining to hear appeals that it determines raise no substantial issues.

(c) Appeals that the board does not decline to hear shall be scheduled and heard at a public hearing held within the jurisdiction of the lead agency which processed the original application within 30 days of the filing of the appeal, or such longer period as may be mutually agreed upon by the board and the person filing the appeal. In any such action, the board shall not exercise its independent judgment on the evidence but shall only determine whether the decision of the lead agency is supported by substantial evidence in the light of the whole record. If the board determines the decision of the lead agency is not supported by substantial evidence in the light of the whole record it shall remand the appeal to the lead agency and the lead agency shall schedule a public hearing to reconsider its action.

§ 2776. No person who has obtained a vested right to conduct surface mining operations prior to January 1, 1976, shall be required to secure a permit pursuant to this chapter as long as the vested right continues and as long as no substantial changes are made in the operation except in accordance with this chapter. A person shall be deemed to have vested rights if, prior to January 1, 1976, he or she has, in good faith and in reliance upon a permit or other authorization, if the permit or other authorization was required, diligently commenced surface mining operations and incurred substantial liabilities for work and materials necessary therefor. Expenses incurred in obtaining the enactment of an ordinance in relation to a particular operation or the issuance of a permit shall not be deemed liabilities for work or materials.

The reclamation plan required to be filed under subdivision (b) of Section 2770, shall apply to operations conducted after January 1, 1976, or to be conducted.

Nothing in this chapter shall be construed as requiring the filing of a reclamation plan for, or the reclamation of, mined lands on which surface mining operations were conducted prior to January 1, 1976.

§ 2777. Amendments to an approved reclamation plan may be submitted detailing proposed changes from the original plan. Substantial deviations from the original plan shall not be undertaken until such amendment has been filed with, and approved by, the lead agency.

§ 2778. (a) Reclamation plans, reports, applications, and other documents submitted pursuant to this chapter are public records, unless it can be demonstrated to the satisfaction of the lead agency that the release of that information, or part thereof, would reveal production, reserves, or rate of depletion entitled to protection as proprietary information. The lead agency shall identify such proprietary information as a separate part of the application. Proprietary information shall be made available only to the director and to persons authorized in writing by the operator and by the owner.

(b) A copy of all reclamation plans, reports, applications, and other documents submitted pursuant to this chapter shall be furnished to the director by lead agencies on request.

§ 2779. Whenever one operator succeeds to the interest of another in any incompleted surface mining operation by sale, assignment, transfer, conveyance, exchange, or other means, the successor shall be bound by the provisions of the approved reclamation plan and the provisions of this chapter.

Article 6. Areas of Statewide or Regional Significance

§ 2790. After receipt of mineral information from the State Geologist pursuant to subdivision (c) of Section 2761, the board may by regulation adopted after a public hearing designate specific geographic areas of the state as areas of statewide or regional significance and specify the boundaries thereof. Such designation shall be included as a part of the state policy and shall indicate the reason for which the particular area designated is of significance to the state or region, the adverse effects that might result from premature development of incompatible land uses, the advantages that might be achieved from extraction of the minerals of the area, and the specific goals and policies to protect against the premature incompatible development of the area.

§ 2791. The board shall seek the recommendations of concerned federal, state, and local agencies, educational institutions, civic and public interest organizations, and private organizations and individuals in the identification of areas of statewide and regional significance.

§ 2792. Neither the designation of an area of regional or statewide significance nor the adoption of any regulations for such an area shall in any way limit or modify the rights of any person to complete any development that has been authorized pursuant to Part 2 (commencing with Section 11000) of Division 4 of the Business and Professions Code, pursuant to the Subdivision Map Act, (Division 2 [commencing with Section 66410] of Title 7 of the Government Code), or by a building permit or other authorization to commence development, upon which such person relies and has changed his position to his substantial detriment, and, which permit or authorization was issued prior to the designation of such area pursuant to Section 2790. If a developer has by his actions taken in reliance upon prior regulations obtained vested or other legal rights that in law would have prevented a local public agency from changing such regulations in a way adverse to his interests, nothing in this chapter authorizes any governmental agency to abridge those rights.

§ 2793. The board may, by regulation adopted after a public hearing, terminate, partially or wholly, the designation of any area of statewide or regional significance on a finding that the direct involvement of the board is no longer required.

Article 7. Fiscal Provisions

§ 2795. (a) Notwithstanding any other provision of law, the first two million dollars ($2,000,000) of moneys from mining activities on federal lands disbursed by the United States each fiscal year to this state pursuant to Section 35 of the Mineral Lands Leasing Act, as amended (30 U.S.C. Sec. 191), shall be deposited in the Surface Mining and Reclamation Account in the General Fund, which account is hereby created, and may be expended, upon appropriation by the Legislature, for the purposes of this chapter. However, if in any fiscal year, the amount of money disbursed to the state pursuant to Section 35 of the Mineral Lands Leasing Act is less than twenty million dollars ($20,000,000), then only the first one million one hundred thousand dollars ($1,100,000) of that money shall be deposited in the Surface Mining and Reclamation Account for the next fiscal year.

(b) Proposed expenditures from the account shall be included in a separate item in the Budget Bill for each fiscal year for consideration by the Legislature. Each appropriation from the account shall be subject to all of the limitations contained in the Budget Act and to all other fiscal procedures prescribed by law with respect to the expenditure of state funds.

§ 2796. (a) The Legislature hereby establishes a state abandoned minerals and mineral materials mine reclamation program for the purpose of administering funds received by the state under the Surface Mining

Control and Reclamation Act of 1977, or through amendments to the federal general mining laws (30 U.S.C. Secs. 1, 12A, 16, 161, and 162, and 602, et seq.).

(b) There is hereby created in the State Treasury, the Abandoned Mine Reclamation and Minerals Fund. The money in the fund may be expended, upon appropriation by the Legislature, as required by federal legislation amending the federal general mining laws, and for the following purposes:

(1) Development of an inventory of mined lands, water, and facilities eligible for reclamation.

(2) Establishment by the director of the abandoned minerals and mineral materials mine reclamation program pursuant to the pending federal legislation amending the federal general mining laws, if enacted, that provides for all of the following:

(A) (i) Reclamation and restoration of abandoned surface mined areas.

(ii) For purposes of this subparagraph, "abandoned surface mined area" means mined lands that meet all of the following requirements:

(I) Mining operations have ceased for a period of one year or more.

(II) There is no interim management plan in effect that meets the requirements of Section 2770.

(III) There are no approved financial assurances that are adequate to perform reclamation in accordance with this chapter.

(IV) The mined lands are adversely affected by past mineral mining, other than mining for coal, oil, and gas, and mineral material mining.

(B) Reclamation and restoration of abandoned milling and processing areas.

(C) Sealing, filling, and grading abandoned deep mine entries.

(D) Planting of land adversely affected by past mining to prevent erosion and sedimentation.

(E) Prevention, abatement, treatment, and control of water pollution created by abandoned mine drainage.

(F) Control of surface subsidence due to abandoned deep mines.

(G) The expenses necessary to accomplish the purposes of this section.

(3) To the extent those expenditures are allowed by the applicable statutes:

(A) Grants to lead agencies for the purposes of carrying out this chapter.

(B) Implementation of this chapter and Section 2207 by the department, which may include an offsetting reduction in the amount of reporting fees collected from each active and idle mining operation and deposited in the Mine Reclamation Account pursuant to subdivision (d) of the Section 2207, as determined by the director.

(c) The Abandoned Mine Reclamation and Minerals Fund shall be the depository for all moneys from mining activities on federal lands, as follows:

(1) (A) Disbursements made by the United States each fiscal year to this state pursuant to Section 35 of the Mineral Lands Leasing Act (30 U.S.C. Sec. 191), with respect to royalties levied on the production of locatable minerals or mineral concentrates from any mining claim located on federal lands in the state pursuant to the pending federal legislation amending the federal general mining laws, but excluding oil, gas, and geothermal revenues.

(B) The federal funds specified in this paragraph do not include the funds deposited in the Surface Mining and Reclamation Account pursuant to Section 2795, the funds deposited in the Geothermal Resources Development Account pursuant to Section 3820, or the funds deposited in the State School Fund pursuant to Section 12320 of the Education Code.

(2) Grants made by the Secretary of the Interior to this state from the Abandoned Minerals Mine Reclamation Fund pursuant to the pending federal legislation amending the federal general mining laws, for the implementation of an abandoned minerals and mining materials mine reclamation program.

(d) The expenditure of money from the Abandoned Mine Reclamation and Minerals Fund shall reflect the following priorities and other priorities as specified in federal statute in the following ranking:

(1) The protection of public health and safety and the environment from the adverse effects of past minerals and mineral materials mining practices.

(2) The protection of property that is in extreme danger as a result of past minerals and mineral materials mining practices.

(3) The restoration of land and water resources previously degraded by the adverse effects of past minerals and mineral materials mining practices.

(e) Proposed expenditures from the Abandoned Mine Reclamation and Minerals Fund shall be included in a separate item in the Budget Bill for each fiscal year for consideration by the Legislature. Each appropriation from the fund shall be subject to all the limitations contained in the Budget Act and to all other fiscal procedures prescribed by law with respect to the expenditure of state funds.

NOTE: Section 2796 shall become operative upon the effective date of any federal legislation which is enacted requiring the payment of a royalty on the production of locatable minerals, produced from any mining claim located or converted on federal lands in this state, excluding royalties paid on oil, gas, and geothermal lease activities, and not already subject to disposition under any of the following:

(1) The Mineral Lands Leasing Act (30 U.S.C. Sec. 191).
(2) The Geothermal Steam Act of 1970 (30 U.S.C. Sec. 100).
(3) The Materials Act of 1947 (30 U.S.C. Sec. 601).
(4) The Mineral Leasing Act for Acquired Lands (30 U.S.C. Sec. 351).

ANNUAL REPORTING REQUIREMENTS AND REPORTING FEE

Public Resources Code Section 2207
(Repealed and added by AB 3551, Chapter 1097, Statutes of 1990, Sher,
Amended by AB 3903, Chapter 1101, Statutes of 1990, Sher, AB 1506, Chapter 845,
Statutes of 1991, Sher, AB 3098, Chapter 1077, Statutes of 1992, Sher, and
SB 741, Chapter 1287, Statutes of 1993, Rogers)

§ 2207(a) The owner, lessor, lessee, agent, manager, or other person in charge of any mining operation of whatever kind or character within the state shall forward to the director not later than July 1, 1991, and every year thereafter not later than an anniversary date established by the director, upon forms which will be furnished by the board, a report which identifies all of the following:

(1) The name, address, and telephone number of the person, company, or other owner of the mining operation.

(2) The name, address, and telephone number of a designated agent who resides in this state, and who will receive and accept service of all orders, notices, and processes of the lead agency, board, director, or court.

(3) The location of the mining operation, its name, its mine number as issued by the Bureau of Mines or the director, its section, township, range, latitude, longitude, and approximate boundaries of the mining operation marked on a United States Geological Survey 7½-minute or 15-minute quadrangle map.

(4) The lead agency.

(5) The approval date of the mining operation's reclamation plan.

(6) The mining operation's status as active, idle, reclaimed, or in the process of being reclaimed.

(7) The commodities produced by the mine and the type of mining operation.

(8) Proof of annual inspection by the lead agency, starting with the 1992 report.

(9) Proof of financial assurances.

(10) Ownership of the property, including government agencies, if applicable, by the assessor's parcel number, and total assessed value of the mining operation.

(11) The approximate permitted size of the mining operation subject to Chapter 9 (commencing with Section 2710), in acres.

(12) The approximate total acreage of land newly disturbed by the mining operation during the previous calendar year.

(13) The approximate total of disturbed acreage reclaimed during the previous calendar year.

(14) The approximate total unreclaimed disturbed acreage remaining as of the end of the calendar year.

(15) The total production for each mineral commodity produced during the previous year.

(16) A copy of any approved reclamation plan and any amendments or conditions of approval to any existing reclamation plan approved by the lead agency.

(b) Every year, not later than the anniversary date established by the director, the person submitting the report pursuant to subdivision (a) shall forward to the lead agency, upon forms which shall be furnished by the board, a report which provides all of the information specified in paragraphs (1) to (14), inclusive, of subdivision (a).

(c) Subsequent reports shall include only changes in the information submitted for the items described in subdivision (a), except that, instead of the approved reclamation plan, the reports shall include any reclamation plan amendments approved during the previous year. The reports shall state whether review of a reclamation plan, financial assurances, or an interim management plan is pending under subdivision (b), (c), (d), or (h) of Section 2770, or whether an appeal before the board or lead agency governing body is pending under subdivision (e) or (h) of Section 2770. The director shall notify the person submitting the report and the owner's designated agent in writing that the report and the fee required pursuant to subdivision (d) have been received, specify the anniversary date by which the mining operation shall submit reports, specify the mining operation's mine number if one has not been issued by the Bureau of Mines, and notify the person and agent of any deficiencies in the report within 90 days of receipt. That person or agent shall have 30 days from receipt of the notification to correct the noted deficiencies and forward the revised reports to the director and the lead agency. Any person who fails to comply with this section, or knowingly provides incorrect or false information in reports required by this section, may be subject to an administrative penalty as provided in subdivision (c) of Section 2774.1.

(d) (1) The board shall impose, by regulation, pursuant to paragraph (2), an annual reporting fee on, and method for collecting annual fees from, each active or idle mining operation. The maximum fee for any single mining operation shall not exceed two thousand dollars ($2,000) annually and shall not be less than fifty dollars ($50) annually.

(2) (A) The board shall adopt, by regulation, a schedule of fees authorized under paragraph (1) to cover the department's cost in carrying out this section and Chapter 9 (commencing with Section 2710), as reflected in the Governor's Budget, and may adopt those

regulations as emergency regulations. In establishing the schedule of fees to be paid by each active and idle mining operation, the fees shall be calculated on an equitable basis reflecting the size and type of operation. The board shall also consider the total assessed value of the mining operation, the acreage disturbed by mining activities, and the acreage subject to the reclamation plan.

(B) Regulations adopted pursuant to this subdivision shall be adopted by the board in accordance with Chapter 3.5 (commencing with Section 11340) of Part 1 of Division 3 of Title 2 of the Government Code. The adoption of any emergency regulations pursuant to this subdivision shall be considered necessary to address an emergency and shall be considered by the Office of Administrative Law to be necessary for the immediate preservation of the public peace, health, safety, and general welfare.

(3) For the 1991-92 fiscal year the total revenue generated by the reporting fees established pursuant to this subdivision shall not exceed, and may be less than, one million one hundred thirty-two thousand dollars ($1,132,000), which shall be adjusted in the 1992-93 and 1993-94 fiscal years to reflect increases in the cost of living, as measured by the California Consumer Price Index for all urban consumers, calendar year averages, using the percentage change in the previous year. Beginning in the 1994-95 fiscal year, and for subsequent fiscal years the total revenue generated by the reporting fees shall not exceed, and may be less than, the amount of one million dollars ($1,000,000), as adjusted for the cost of living beginning with the 1991-92 fiscal year and annually thereafter. If the director determines that the revenue collected during the preceding fiscal year was greater or less than the cost to operate the program, the board shall adjust the fees to compensate for the overcollection or undercollection of revenues.

(4) The reporting fees established pursuant to this subdivision shall be deposited in the Mine Reclamation Account, which is hereby created. Any fees, penalties, interest, fines, or charges collected by the director or board pursuant to this chapter or Chapter 9 (commencing with Section 2710) shall be deposited in the Mine Reclamation Account. The money in the account shall be available to the department and board, upon appropriation by the Legislature, solely to carry out this section and Chapter 9 (commencing with Section 2710), and up to three hundred thousand dollars ($300,000) shall be available to the department upon appropriation by the Legislature to contract for preparation of the report required by Section 2774.6

(5) In case of late payment of the reporting fee, a penalty of not less than one hundred dollars ($100) or 10 percent of the amount due, whichever is greater, plus interest at the rate of 1½ percent per month, computed from the delinquent date of the assessment until and including the date of payment, shall be assessed. New mining operations which have not submitted a report shall submit a report prior to commencement of operations. The new operation shall submit its fee according to the reasonable fee schedule adopted by the board, and the month that the report is received shall become that operation's anniversary month.

(e) The lead agency may impose a fee upon each mining operation to cover the reasonable costs incurred in implementing this chapter and Chapter 9 (commencing with Section 2710).

(f) For purposes of this section, "mining operation" has the same meaning as "surface mining operation" as defined in Section 2735, unless excepted by Section 2714. For the purposes of fee collections only, "mining operation" may include one or more mines operated by a single operator or mining company on one or more sites, if the total annual combined mineral production for all sites is less than 100 troy ounces for precious metals, if precious metals are the primary mineral commodity produced, or less than 100,000 short tons if the primary mineral commodity produced is not precious metals.

(g) Any information in reports submitted pursuant to subdivision (a) which includes or otherwise indicates the total mineral production, reserves, or rate of depletion of any mining operation shall not be disclosed to any member of the public, as defined in subdivision (f) of Section 6252 of the Government Code. Other portions of the reports are public records unless excepted by statute. Statistical bulletins based on these reports and published under Section 2205 shall be compiled to show, for the state as a whole and separately for each lead agency, the total of each mineral produced therein. In order not to disclose the production, reserves, or rate of depletion from any identifiable mining operation, no production figure shall be published or otherwise disclosed unless that figure is the aggregated production of not less than three mining operations. If the production figure for any lead agency would disclose the production, reserves, or rate of depletion of less than three mining operations or otherwise permit the reasonable inference of the production, reserves, or rate of depletion of any identifiable mining operation, that figure shall be combined with the same such figure of not less than two other lead agencies without regard to the location of the lead agencies. The bulletin shall be published annually by June 30 or as soon thereafter as practicable.

SITE INSPECTIONS CONDUCTED BY THE DEPARTMENT OF CONSERVATION

Public Resources Code Section 2208
(Amended by AB 2943 [Allen, Chapter 999, Statutes of 1992])

§ 2208. The director or a qualified assistant may at any time enter or examine any and all mines, quarries, wells, mills, reduction works, refining works, and other mineral properties or working plants in this state in order to gather data to comply with the provisions of this chapter.

PURCHASE AND USE OF MINED MATERIALS BY STATE AGENCIES

Public Contract Code Section 10295.5
(Amended by AB 3098 [Sher, Chapter 1077, Statutes of 1992]
and AB 723 [Sher, Chapter 278, Statutes of 1993])

10295.5 (a) Notwithstanding any other provision of law, no state agency shall purchase or utilize sand, gravel, aggregates, or other minerals produced from a surface mining operation subject to the Surface Mining and Reclamation Act of 1975 (Chapter 9 (commencing with Section 2710) of Division 2 of the Public Resources Code), unless the operation is identified in the list published pursuant to subdivision (b) of Section 2717 of the Public Resources Code as having either of the following:

(1) An approved reclamation plan and financial assurances covering the affected surface mining operation.

(2) An appeal pending before the State Mining and Geology Board pursuant to subdivision (e) of Section 2770 of the Public Resources Code with respect to the reclamation plan or financial assurances.

(b) The Department of General Services shall revise its procedures and procurement specifications for state purchases of sand, gravel, aggregates, and other minerals to ensure maximum compliance with this section.

(c) For purposes of the section, "minerals" means any naturally occurring chemical element or compound, or groups of elements and compounds, formed from inorganic processes and organic substances, including, but not limited to, coal, peat, and bituminous rock, but excluding geothermal resources, natural gas, and petroleum.

(d) The requirements of this section shall apply to mining operations on federal lands or Indian lands that are subject to the Surface Mining and Reclamation Act of 1975 (Chapter 9 (commencing with Section 2710) of Division 2 of the Public Resources Code) pursuant to a memorandum of understanding between the Department of Conservation and the federal agency having jurisdiction over the lands.

(e)(1) This section does not apply to construction or maintenance contracts if the contractor has entered into a written subcontract, executed prior to July 1, 1993, for the purchase of materials from a mine operator that would not otherwise qualify under the list published pursuant to subdivision (b) of Section 2717 of the Public Resources Code.

(2) This subdivision shall become inoperative on July 1, 1996.

(f) This section shall become operative on July 1, 1993.

LIABILITY LIMITATIONS FOR REMEDIATION/RECLAMATION OF ABANDONED MINES

See Water Code Section 13397 et seq.
(Added by SB 1108 [Leslie, Chapter 878, Statutes of 1995])

NOTE: While this section amends the California Water Code, liabilities under the federal Clean Water Act may remain until similar federal amendments are adopted.

STATE MINING AND GEOLOGY BOARD RECLAMATION REGULATIONS

Article 1. Surface Mining and Reclamation Practice

§ 3500. Purpose. It is the purpose of this subchapter to establish state policy for the reclamation of mined lands and the conduct of surface mining operations in accord with the general provisions set forth in Public Resources Code, Division 2, Chapter 9, Section 2710 et seq. (Surface Mining and Reclamation Act of 1975, as amended by Statutes of 1980).
Note: Authority cited: Section 2755, Public Resources Code. Reference: Sections 2710-2795, Public Resources Code.

§ 3501. Definitions. The following definitions as used herein shall govern the interpretation of these regulations:

Angle of Repose. The maximum angle of slope (measured from horizontal plane) at which loose cohesionless material will come to rest on a pile of similar material.

Backfill. Earth, overburden, mine waste or imported material used to replace material removed during mining.

Borrow Pits. Excavations created by the surface mining of rock, unconsolidated geologic deposits or soil to provide material (borrow) for fill elsewhere.

Critical Gradient. The maximum stable inclination of an unsupported slope under the most adverse conditions that it will likely experience, as determined by current engineering technology.

Excavations for On-Site Construction. Earth material moving activities that are required to prepare a site for construction of structures, landscaping, or other land improvements (such as excavation, grading, compaction, and the creation of fills and embankments), or that in and of themselves constitute engineered works (such as dams, road cuts, fills, and catchment basins).

Grading. To bring an existing surface to a designed form by cutting, filling, and/or smoothing operations.

Minerals. Any naturally occurring chemical element or compound, or groups of elements and compounds, formed from inorganic processes and organic substances, including, but not limited to, coal, peat, and bituminous rock, but excluding geothermal resources, natural gas, and petroleum.

Person. Any individual, firm, association, corporation, organization, or partnership, or any city, county, district, or the state or any department or agency thereof.

Reclamation Plan. The applicant's (operator's) completed and approved plan for reclaiming the lands affected by his surface mining operations conducted after January 1, 1976, as called for in Section 2772 of the Act.

Resoiling. The process of artificially building or reconstructing a soil profile.

Stream Bed Skimming. Excavation of sand and gravel from stream bed deposits above the mean summer water level or stream bottom, whichever is higher.

Surface Mining Operations. In addition to the provisions of Section 2735 of the Act, borrow pitting, streambed skimming, segregation and stockpiling of mined materials (and recovery of same) are deemed to be surface mining operations unless specifically excluded under Section 2714 of the Act or Section 3505 of these regulations.

Temporarily Deactivated Operation. A surface mine that has been closed down and that the operator has maintained in the expectation of reopening it when the conditions justify.

Topsoil. The upper part of the soil profile that is relatively rich in humus, which is technically known as the A-horizon of the soil profile.

NOTE: Authority cited: Section 2755, Public Resources Code. Reference: Sections 2726-2735, Public Resources Code.

§ 3502. The Reclamation Plan.

(a) Objectives. Reclamation plans shall be developed to attain the objectives of Public Resources Code Section 2712(a)-(c).

(b) Reclamation Plan Elements. In addition to the information required by Public Resources Code Section 2772, the following elements shall be included in the reclamation plan:

(1) The environmental setting of the site of operations and the effect that possible alternate reclaimed site conditions may have upon the existing and future uses of surrounding lands.

(2) The public health and safety, giving consideration to the degree and type of present and probable future exposure of the public to the site.

(3) The designed steepness and proposed treatment of the mined lands' final slopes shall take into consideration the physical properties of the slope material, its probable maximum water content, landscaping requirements, and other factors. In all cases, reclamation plans shall specify slope angles flatter than the critical gradient for the type of material involved. Whenever final slopes approach the critical gradient for the type of material involved, regulatory agencies shall require an engineering analysis of the slope stability. Special emphasis on slope stability and design shall be necessary when public safety or adjacent property may be affected.

(4) Areas mined to produce additional materials for backfilling and grading, as well as settlement of filled areas, shall be considered in the reclamation plan. Where ultimate site uses include roads, building sites, or other improvements sensitive to settlement, the reclamation

plans shall include compaction of the fill materials in conformance with good engineering practice.

(5) Disposition of old equipment.

(6) Temporary stream or watershed diversions.

(c) Adequacy. In judging the adequacy of a particular reclamation plan in meeting the requirements described herein and within the Act, the lead agency shall consider the physical and land-use characteristics of the mined lands and their surrounding area pursuant to Public Resources Code Section 2773.

NOTE: Authority cited: Section 2755, Public Resources Code. Reference: Sections 2712(a)-(c), 2756-2757, 2770 and 2772-2773, Public Resources Code.

§ 3503. Surface Mining and Reclamation Practice.

The following are minimum acceptable practices to be followed in surface mining operations:

(a) Soil Erosion Control.

(1) The removal of vegetation and overburden, if any, in advance of surface mining shall be kept to the minimum.

(2) Stockpiles of overburden and minerals shall be managed to minimize water and wind erosion.

(3) Erosion control facilities such as retarding basins, ditches, streambank stabilization, and diking shall be constructed and maintained where necessary to control erosion.

(b) Water Quality and Watershed Control.

(1) Settling ponds or basins shall be constructed to prevent potential sedimentation of streams at operations where they will provide a significant benefit to water quality.

(2) Operations shall be conducted to substantially prevent siltation of ground-water recharge areas.

(c) Protection of Fish and Wildlife Habitat. All reasonable measures shall be taken to protect the habitat of fish and wildlife.

(d) Disposal of Mine Waste Rock and Overburden. Permanent piles or dumps of mine waste rock and overburden shall be stable and shall not restrict the natural drainage without suitable provisions for diversion.

(e) Erosion and Drainage. Grading and revegetation shall be designed to minimize erosion and to convey surface runoff to natural drainage courses or interior basins designed for water storage. Basins that will store water during periods of surface runoff shall be designed to prevent erosion of spillways when these basins have outlet to lower ground.

(f) Resoiling. When the reclamation plan calls for resoiling, coarse hard mine waste shall be leveled and covered with a layer of finer material or weathered waste. A soil layer shall then be placed on this prepared surface. Surface mines that did not salvage soil during their initial operations shall attempt, where feasible, to upgrade remaining materials. The use of soil conditioners, mulches, or imported topsoil shall be considered where revegetation is part of the reclamation plan and where such measures appear necessary. It is not justified, however, to denude adjacent areas of their soil, for any such denuded areas must in turn be reclaimed.

(g) Revegetation. When the reclamation plan calls for revegetation the available research addressing revegetation methods and the selection of species having good survival characteristics, for the topography, resoiling characteristics, and climate of the mined areas shall be used.

NOTE: Authority cited: Section 2755, Public Resources Code. Reference: Sections 2756 and 2757, Public Resources Code.

§ 3504. Administration by Lead Agency.

(a) Record Keeping. The lead agency shall establish and maintain inhouse measures and procedures to ensure organized record-keeping and monitoring of surface mining reclamation under its jurisdiction. The lead agency shall forward a copy of each permit and approved reclamation plan to the California Division of Mines and Geology (Sacramento).

(b) Performance Assurances. The lead agency shall ensure that the objectives of the reclamation plan will be attained. This may include provisions for liens, surety bonds or other security, to guarantee the reclamation in accordance with the approved reclamation plan.

NOTE: Authority cited: Section 2755, Public Resources Code. Reference: Sections 2757, 2758(b), 2774(a) and 2778, Public Resources Code.

§ 3505. Special Provisions.

(a) Exemptions. In addition to the provisions of Public Resources Code Section 2714(a), (c) and (d), any surface mining operation that does not involve either the removal of a total of more than 1000 cubic yards of minerals, ores, and overburden, or involve more than one acre in any one location, shall be exempt from the provisions of the Act.

(b) Vested Rights. The permit and reclamation plan requirements for persons with vested rights are stated in Public Resources Code Section 2776.

Where a person with vested rights continues surface mining in the same area subsequent to January 1, 1976, he shall obtain an approval of a reclamation plan covering the mined lands disturbed by such subsequent surface mining. In those cases where an overlap exists (in the horizontal and/or vertical sense) between pre- and post-Act mining, the reclamation plan shall call for reclamation proportional to that disturbance caused by the mining after the effective date of the Act.

NOTE: Authority cited: Sections 2714(d) and 2755, Public Resources Code. Reference: Sections 2714, 2758(c) and 2776, Public Resources Code.

Article 6. Mineral Resource Management Policies

§ 3675. Definitions. The following definitions as used herein shall govern the interpretation of these regulations:

Compatible Land Use. Land uses inherently compatible with mining and/or that require a minimum public or private investment in structures, land improvements, and which may allow mining because of the relative economic

value of the land and its improvements. Examples of such uses may include, but shall not be limited to, very low density residential, geographically extensive but low impact industrial, recreational, agricultural, silvicultural, grazing, and open space.

Incompatible Land Use. Land uses inherently incompatible with mining and/or that require public or private investment in structures, land improvements, and landscaping and that may prevent mining because of the greater economic value of the land and its improvements. Examples of such uses may include, but shall not be limited to, high density residential, low density residential with high unit value, public facilities, geographically limited but impact intensive industrial, and commercial.

NOTE: Authority cited: Section 2755, Public Resources Code. Reference: Sections 2761-2762, Public Resources Code.

§ 3676. Mineral Resource Management Policies.

Lead agency mineral resource management policies adopted pursuant to the provisions of PRC Section 2762 shall include but not be limited to, the following:

(a) A summary of the information provided by the classification and/or designation reports, or incorporation of PRC Sections 2710 et seq., and state policy by reference, together with maps of the identified mineral deposits or incorporation by reference of the classification and/or designation maps provided by the Board.

(b) Statements of policy in accordance with the provisions of PRC Section 2762(a).

(c) Implementation measures that shall include:

(1) Reference in the general plan of the location of identified mineral deposits, and a discussion of those areas targeted for conservation and possible future extraction by the lead agency.

(2) Use of overlay maps or inclusion of information on any appropriate planning maps to clearly delineate identified mineral deposits and those areas targeted by the lead agency for conservation and possible future extraction.

(3) At least one of the following:

(A) Use of special purpose overlay zones, mineral resource/open space zoning, or any other appropriate zoning that identifies the presence of identified mineral deposits and restricts the encroachment of incompatible land uses in those areas that are to be conserved.

(B) Record, on property titles in the affected mineral resource areas, a notice identifying the presence of identified mineral deposits.

(C) Impose conditions upon incompatible land uses in and surrounding areas containing identified mineral deposits for the purpose of mitigating the significant land use conflicts prior to approving a use that would otherwise be incompatible with mineral extraction.

NOTE: Authority cited: Section 2755, Public Resources Code. Reference: Sections 2757 and 2761-63, Public Resources Code.

Article 9. Reclamation Standards

§ 3700. Applicability. Reclamation of mined lands shall be implemented in conformance with the standards in this Article.

(a) The standards shall apply to each surface mining operation to the extent that:

(1) they are consistent with required mitigation identified in conformance with the California Environmental Quality Act, provided that such mitigation is at least as stringent as the standards; and

(2) they are consistent with the planned or actual subsequent use or uses of the mining site.

(b) Where an applicant demonstrates to the satisfaction of the lead agency that an exception to the standards specified in this article is necessary based upon the approved end use, the lead agency may approve a different standard for inclusion in the approved reclamation plan. Where the lead agency allows such an exception, the approved reclamation plan shall specify verifiable, site-specific standards for reclamation. The lead agency may set standards which are more stringent than the standards set forth in this Article; however, in no case may the lead agency approve a reclamation plan which sets any standard which is less stringent than the comparable standard specified in this Article.

(c) When substantial amendments are proposed to reclamation plans which were approved prior to January 15, 1993, the standards set forth in this Article shall be applied by the lead agency in approving or denying approval of the amended reclamation plan.

(d) The standards in this Article shall not apply to mining operations:

(1) which completed reclamation prior to January 15, 1993, in conformance with an approved reclamation plan; or

(2) for which a reclamation plan has been approved prior to January 15, 1993.

NOTE: Authority cited: Sections 2755, 2756 and 2773, Public Resources Code. Reference: Section 2773, Public Resources Code.

§ 3701. Definitions. The following definitions shall govern the interpretation of these regulations:

"Arid" means landscapes with an average annual precipitation of five inches or less.

"Contamination" means an impairment of the quality of the waters of the state to a degree which creates a hazard to the public health through poisoning or through the spread of disease.

"Highwall" means the unexcavated face of exposed overburden and ore in a surface mine.

"Indigenous Plants" means plants occurring naturally in an area, not introduced.

"Native Species" means plant species indigenous to California, using pre-European as the historic time reference.

"Noxious Weeds" means any species of plant that is or is likely to become destructive or difficult to control or eradicate, and is termed to be so by the Director of the

Department of Food and Agriculture in section 4500, Title 3 of the California Code of Regulations, pursuant to the Food and Agriculture Code section 5004 et seq.

"Vegetative Cover" means the vertical projection of the crown or shoot area of a species to the ground surface expressed as a percentage of the reference area (percentage can be greater than 100 percent).

"Vegetative Density" means the number of individuals or stems of each species rooted within the given reference area.

"Vegetative Species-richness" means the number of different plant species within the given reference area.

"Wetlands" for the purposes of these regulations, the definition of wetlands shall be the same as defined in the California Fish and Game Code, section 2785, subdivision (g).

NOTE: Authority cited: Sections 2755, 2756 and 2773, Public Resources Code. Reference: Section 2773, Public Resources Code.

§ 3702. Financial Assurances. Lead agencies shall require financial assurances for reclamation in accordance with Public Resources Code section 2773.1 to ensure that reclamation is performed in accordance with the approved reclamation plan and with this article.

NOTE: Authority cited: Sections 2755, 2773 and 2773.1, Public Resources Code. Reference: Sections 2773 and 2773.1, Public Resources Code.

§ 3703. Performance Standards for Wildlife Habitat.

Wildlife and wildlife habitat shall be protected in accordance with the following standards:

(a) Rare, threatened or endangered species as listed by the California Department of Fish and Game, (California Code of Regulations, Title 14, sections 670.2 - 670.5) or the U. S. Fish and Wildlife Service, (50 CFR 17.11 and 17.12) or species of special concern as listed by the California Department of Fish and Game in the Special Animals List, Natural Diversity Data Base, and their respective habitat, shall be conserved as prescribed by the federal Endangered Species Act of 1973, 16 U.S.C. section 1531 et. seq., and the California Endangered Species Act, Fish and Game Code section 2050 et seq. If avoidance cannot be achieved through the available alternatives, mitigation shall be proposed in accordance with the provisions of the California Endangered Species Act, Fish and Game Code section 2050 et seq., and the federal Endangered Species Act of 1973, 16 U.S.C. section 1531 et seq.

(b) Wildlife habitat shall be established on disturbed land in a condition at least as good as that which existed before the lands were disturbed by surface mining operations, unless the proposed end use precludes its use as wildlife habitat or the approved reclamation plan establishes a different habitat type than that which existed prior to mining.

(c) Wetland habitat shall be avoided. Any wetland habitat impacted as a consequence of surface mining operations shall be mitigated at a minimum of one to one ratio for wetland habitat acreage and wetland habitat value.

NOTE: Authority cited: Sections 2755, 2756 and 2773, Public Resources Code. Reference: Section 2773, Public Resources Code.

§ 3704. Performance Standards for Backfilling, Regrading, Slope Stability, and Recontouring. Backfilling, regrading, slope stabilization, and recontouring shall conform with the following standards:

(a) Where backfilling is proposed for urban uses (e.g., roads, building sites, or other improvements sensitive to settlement), the fill material shall be compacted in accordance with section 7010, Chapter 70 of the Uniform Building Code, published by the International Conference of Building Officials (1991), the local grading ordinance, or other methods approved by the lead agency as appropriate for the approved end use.

(b) Where backfilling is required for resource conservation purposes (e.g., agriculture, fish and wildlife habitat, and wildland conservation), fill material shall be backfilled to the standards required for the resource conservation use involved.

(c) Piles or dumps of mining waste shall be stockpiled in such a manner as to facilitate phased reclamation. They shall be segregated from topsoil and topsoil substitutes or growth media salvaged for use in reclamation.

(d) Final reclaimed fill slopes, including permanent piles or dumps of mine waste rock and overburden, shall not exceed 2:1 (horizontal:vertical), except when site-specific geologic and engineering analysis demonstrate that the proposed final slope will have a minimum slope stability factor of safety that is suitable for the proposed end use, and when the proposed final slope can be successfully revegetated.

(e) At closure, all fill slopes, including permanent piles or dumps of mine waste and overburden, shall conform with the surrounding topography and/or approved end use.

(f) Cut slopes, including final highwalls and quarry faces, shall have a minimum slope stability factor of safety that is suitable for the proposed end use and conform with the surrounding topography and/or approved end use.

(g) Permanent placement of piles or dumps of mining waste and overburden shall not occur within wetlands unless mitigation acceptable to the lead agency has been proposed to offset wetland impacts and/or losses.

NOTE: Authority cited: Sections 2755, 2756 and 2773, Public Resources Code. Reference: Section 2773, Public Resources Code.

§ 3705. Performance Standards for Revegetation.

Revegetation shall be part of the approved plan, unless it is not consistent with the approved end use.

(a) A vegetative cover suitable for the proposed end use and capable of self-regeneration without continued dependence on irrigation, soil amendments or fertilizer shall be established on disturbed land unless an artificially maintained landscape is consistent with the approved reclamation plan. Vegetative cover or density, and species-richness shall be, where appropriate, sufficient to stabilize the surface against effects of long-term erosion and shall be similar to naturally occurring habitats in the surrounding area. The vegetative density, cover and

species richness of naturally occurring habitats shall be documented in baseline studies carried out prior to the initiation of mining activities. However, for areas that will not be reclaimed to prior conditions, the use of data from reference areas in lieu of baseline site data is permissible.

(b) Test plots conducted simultaneously with mining shall be required to determine the most appropriate planting procedures to be followed to ensure successful implementation of the proposed revegetation plan. The lead agency may waive the requirement to conduct test plots when the success of the proposed revegetation plan can be documented from experience with similar species and conditions or by relying on competent professional advice based on experience with the species to be planted.

(c) Where surface mining activities result in compaction of the soil, ripping, disking, or other means shall be used in areas to be revegetated to eliminate compaction and to establish a suitable root zone in preparation for planting.

(d) Prior to closure, all access roads, haul roads, and other traffic routes to be reclaimed shall be stripped of any remaining roadbase materials, prepared in accordance with subsection 3705(g), covered with suitable growth media or topsoil, and revegetated. When it is not necessary to remove roadbase materials for revegetative purposes, lead agencies may set a different standard as specified in section 3700(b) of this Article.

(e) Soil analysis shall be required to determine the presence or absence of elements essential for plant growth and to determine those soluble elements that may be toxic to plants, if the soil has been chemically altered or if the growth media consists of other than the native topsoil. If soil analysis suggests that fertility levels or soil constituents are inadequate to successfully implement the revegetative program, fertilizer or other soil amendments may be incorporated into the soil. When native plant materials are used, preference shall be given to slow-release fertilizers, including mineral and organic materials that mimic natural sources, and shall be added in amounts similar to those found in reference soils under natural vegetation of the type being reclaimed.

(f) Temporary access for exploration or other short-term uses on arid lands shall not disrupt the soil surface except where necessary to gain safe access. Barriers shall be installed when necessary to gain safe access. Barriers shall be installed when necessary to prevent unauthorized vehicular traffic from interfering with the reclamation of temporary access routes.

(g) Native plant species shall be used for revegetation, except when introduced species are necessary to meet the end uses specified in the approved reclamation plan. Areas to be developed for industrial, commercial, or residential use shall be revegetated for the interim period, as necessary, to control erosion. In this circumstance, non-native plant species may be used if they are not noxious weeds and if they are species known not to displace native species in the area.

(h) Planting shall be conducted during the most favorable period of the year for plant establishment.

(i) Soil stabilizing practices shall be used where necessary to control erosion and for successful plant establishment. Irrigation may be used when necessary to establish vegetation.

(j) If irrigation is used, the operator must demonstrate that the vegetation has been self-sustaining without irrigation for a minimum of two years prior to release of the financial assurances by the lead agency, unless an artificially maintained landscape is consistent with the approved end use.

(k) Noxious weeds shall be managed: (1) when they threaten the success of the proposed revegetation; (2) to prevent spreading to nearby areas; and (3) to eliminate fire hazard.

(l) Protection measures, such as fencing of revegetated areas and/or the placement of cages over individual plants, shall be used in areas where grazing, trampling, herbivory, or other causes threaten the success of the proposed revegetation. Fencing shall be maintained until revegetation efforts are successfully completed and the lead agency authorizes removal.

(m) Success of revegetation shall be judged based upon the effectiveness of the vegetation for the approved end use, and by comparing the quantified measures of vegetative cover, density, and species-richness of the reclaimed mined-lands to similar parameters of naturally occurring vegetation in the area. Either baseline data or data from nearby reference areas may be used as the standard for comparison. Quantitative standards for success and the location(s) of the reference area(s) shall be set forth in the approved reclamation plan. Comparisons shall be made until performance standards are met provided that, during the last two years, there has been no human intervention, including, for example, irrigation, fertilization, or weeding. Standards for success shall be based on expected local recovery rates. Valid sampling techniques for measuring success shall be specified in the approved reclamation plan. Sample sizes must be sufficient to produce at least an 80 percent confidence level. There are standard statistical methods in commonly available literature for determining an 80 percent confidence level on a site-by-site basis. Examples of such literature include, but are not limited to, D. Mueller-Dombois and H. Ellenberg, 1974, "Aims and Methods of Vegetation Ecology", John Wiley and Sons, Inc., or C. D. Bonham, 1988, "Measurements for Terrestrial Vegetation", John Wiley and Sons, Inc., and are available at many university libraries. The texts are also available at some local libraries through the Inter-Library Loan Program.

NOTE: Authority cited: Sections 2755, 2756 and 2773, Public Resources Code. Reference: Section 2773, Public Resources Code.

§ 3706. Performance Standards for Drainage, Diversion Structures, Waterways, and Erosion Control.

(a) Surface mining and reclamation activities shall be conducted to protect on-site and downstream beneficial uses of water in accordance with the Porter-Cologne Water Quality Control Act, Water Code section 13000, et seq., and the Federal Clean Water Act, 33 U.S.C. section 1251, et seq.

(b) The quality of water, recharge potential, and storage capacity of ground water aquifers which are the source of water for domestic, agricultural, or other uses dependent on the water, shall not be diminished, except as allowed in the approved reclamation plan.

(c) Erosion and sedimentation shall be controlled during all phases of construction, operation, reclamation, and closure of a surface mining operation to minimize siltation of lakes and watercourses, as required by the Regional Water Quality Control Board or the State Water Resources Control Board.

(d) Surface runoff and drainage from surface mining activities shall be controlled by berms, silt fences, sediment ponds, revegetation, hay bales, or other erosion control measures, to ensure that surrounding land and water resources are protected from erosion, gullying, sedimentation and contamination. Erosion control methods shall be designed to handle runoff from not less than the 20 year/1 hour intensity storm event.

(e) Where natural drainages are covered, restricted, rerouted, or otherwise impacted by surface mining activities, mitigating alternatives shall be proposed and specifically approved in the reclamation plan to assure that runoff shall not cause increased erosion or sedimentation.

(f) When stream diversions are required, they shall be constructed in accordance with:

(1) the stream and lake alteration agreement between the operator and the Department of Fish and Game; and

(2) the requirements of the Federal Clean Water Act, Sections 301 (33 U.S.C. 1311) and Section 404 (33 U.S.C. 1344) and/or Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

(g) When no longer needed to achieve the purpose for which they were authorized, all temporary stream channel diversions shall be removed and the affected land reclaimed.

NOTE: Authority cited: Sections 2755, 2756 and 2773, Public Resources Code. Reference: Section 2773, Public Resources Code.

§ 3707. Performance Standards for Prime Agricultural Land Reclamation. In addition to the standards for topsoil salvage, maintenance, and redistribution, the following standards shall apply to mining operations on prime agricultural lands where the approved end use is agriculture:

(a) Mining operations which will operate on prime agricultural lands, as defined by the U.S. Soil Conservation Service, shall return all disturbed areas to a fertility level as specified in the approved reclamation plan.

(b) When distinct soil horizons are present, topsoil shall be salvaged and segregated by defined A, B, and C soil horizons. Upon reconstruction of the soil, the sequence of horizons shall have the A atop the B, the B atop the C, and the C atop graded overburden.

(c) Reclamation shall be deemed complete when productive capability of the affected land is equivalent to or exceeds, for two consecutive crop years, that c the premining condition or similar crop production in the area. Productivity rates, based on reference areas described in the approved reclamation plan, shall be specified in the approved reclamation plan.

(d) Use of fertilizers or other soil amendments shall not cause contamination of surface or ground water.

NOTE: Authority cited: Sections 2755, 2756 and 2773, Public Resources Code. Reference: Section 2773, Public Resources Code.

§ 3708. Performance Standards for Other Agricultural Land. The following standards shall apply to agricultural lands, other than prime agricultural lands, when the approved end use is agriculture.

In addition to the standards for topsoil salvage, maintenance, and redistribution, non-prime agricultural lands shall be reclaimed so as to be capable of sustaining economically viable production of crops commonly grown in the surrounding areas.

NOTE: Authority cited: Sections 2755, 2756 and 2773, Public Resources Code. Reference: Section 2773, Public Resources Code.

§ 3709. Performance Standards for Building, Structure, and Equipment Removal.

(a) All equipment, supplies and other materials shall be stored in designated areas (as shown in the approved reclamation plan). All waste shall be disposed of in accordance with state and local health and safety ordinances.

(b) All buildings, structures, and equipment shall be dismantled and removed prior to final mine closure except those buildings, structures, and equipment approved in the reclamation plan as necessary for the end use.

NOTE: Authority cited: Sections 2755, 2756 and 2773, Public Resources Code. Reference: Section 2773, Public Resources Code.

§ 3710. Performance Standards for Stream Protection, Including Surface and Groundwater.

(a) Surface and groundwater shall be protected from siltation and pollutants which may diminish water quality as required by the Federal Clean Water Act, sections 301 et seq. (33 U.S.C. section 1311), 404 et seq. (33 U.S.C. section 1344), the Porter-Cologne Act, section 13000 et seq., County anti-siltation ordinances, the Regional Water Quality Control Board or the State Water Resources Control Board.

(b) In-stream surface mining operations shall be conducted in compliance with Section 1600 et seq. of the California Fish and Game Code, section 404 of the Clean

Water Act, and Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

(c) Extraction of sand and gravel from river channels shall be regulated to control channel degradation in order to prevent undermining of bridge supports, exposure of pipelines or other structures buried within the channel, loss of spawning habitat, lowering of ground water levels, destruction of riparian vegetation, and increased stream bank erosion (exceptions may be specified in the approved reclamation plan). Changes in channel elevations and bank erosion shall be evaluated annually using records of annual extraction quantities and benchmarked annual cross sections and/or sequential aerial photographs to determine appropriate extraction locations and rates.

(d) In accordance with requirements of the California Fish and Game Code section 1600 et seq., in-stream mining activities shall not cause fish to become entrapped in pools or in off-channel pits, nor shall they restrict spawning or migratory activities.

NOTE: Authority cited: Sections 2755, 2756 and 2773, Public Resources Code. Reference: Section 2773, Public Resources Code.

§ 3711. Performance Standards for Topsoil Salvage, Maintenance, and Redistribution. When the approved reclamation plan calls for revegetation or cultivation of disturbed lands, the following performance standards shall apply to topsoil salvage, maintenance, and redistribution activities:

(a) All salvageable topsoil suitable for revegetation shall be removed as a separate layer from areas to be disturbed by mining operations. Topsoil and vegetation removal shall not precede surface mining activities by more than one year, unless a longer time period is approved by the lead agency.

(b) Topsoil resources shall be mapped prior to stripping and the location of topsoil stockpiles shall be shown on a map in the reclamation plan. If the amount of topsoil needed to cover all surfaces to be revegetated is not available on site, other suitable material capable of sustaining vegetation (such as subsoil) shall be removed as a separate layer for use as a suitable growth media. Topsoil and suitable growth media shall be maintained in separate stockpiles. Test plots may be required to determine the suitability of growth media for revegetation purposes.

(c) Soil salvage operations and phases of reclamation shall be carried out in accordance with a schedule that: (1) is set forth in the approved reclamation plan; (2) minimizes the area disturbed; and (3) is designed to achieve maximum revegetation success allowable under the mining plan.

(d) Topsoil and suitable growth media shall be used to phase reclamation as soon as can be accommodated by the mining schedule presented in the approved reclamation plan following the mining of an area. Topsoil and suitable growth media that cannot be utilized immediately for reclamation shall be stockpiled in an area where it will not be disturbed until needed for reclamation. Topsoil and suitable growth media stockpiles shall be clearly identified to distinguish them from mine waste dumps. Topsoil and suitable growth media stockpiles shall be planted with a vegetative cover or shall be protected by other equally effective measures to prevent water and wind erosion and to discourage weeds. Relocation of topsoil or suitable growth media stockpiles for purposes other than reclamation shall require prior written approval from the lead agency.

(e) Topsoil and suitable growth media shall be redistributed in a manner that results in a stable, uniform thickness consistent with the approved end use, site configuration, and drainage patterns.

NOTE: Authority cited: Sections 2755, 2756 and 2773, Public Resources Code. Reference: Section 2773, Public Resources Code.

§ 3712. Performance Standards for Tailing and Mine Waste Management.

State Water Resources Control Board mine waste disposal regulations in Article 7 of Chapter 15 of Title 23, California Code of Regulations, shall govern mine waste and tailings, and mine waste disposal units shall be reclaimed in conformance with this article.

NOTE: Authority cited: Sections 2755, 2756 and 2773, Public Resources Code. Reference: Section 2773, Public Resources Code.

§ 3713. Performance Standards for Closure of Surface Openings.

(a) Except those used solely for blasting or those that will be mined through within one year, all drill holes, water wells, and monitoring wells shall be completed or abandoned in accordance with each of the following:

(1) Water Code sections 13700, et seq. and 13800, et seq.;

(2) the applicable local ordinance adopted pursuant to Water Code section 13803;

(3) the applicable Department of Water Resources report issued pursuant to Water Code section 13800; and

(4) Subdivisions (1) and (2) of section 2511(g) of Chapter 15 of Title 23 regarding discharge of waste to land.

(b) Prior to closure, all portals, shafts, tunnels, or other surface openings to underground workings shall be gated or otherwise protected from public entry in order to eliminate any threat to public safety and to preserve access for wildlife habitat.

NOTE: Authority cited: Sections 2755, 2756 and 2773, Public Resources Code. Reference: Section 2773, Public Resources Code.

Article 11. Financial Assurance Mechanisms

§ 3800. Purpose. It is the purpose of this article to specify additional financial assurance mechanisms to assure reclamation pursuant to Public Resources Code Section 2710 et seq. (Surface Mining and Reclamation Act, as amended).

NOTE: Authority cited: Section 2773.1, Public Resources

Organizations/Groups

Code. Reference: Section 2773.1(e), Public Resources Code.

§ 3801. Authority. Review, approval, adjustment, enforcement, notification, forfeiture and all other responsibilities of the lead agency, operator and Department of Conservation with respect to financial assurances shall be conducted as prescribed in Public Resources Code Section 2710 et seq. unless expressly outlined in this article.

NOTE: Authority cited: Section 2773.1, Public Resources Code. Reference: Section 2773.1(e), Public Resources Code.

§ 3802. Definitions. The following definitions shall govern the interpretation of this article:

(a) "Budget Set Aside" means a financial assurance mechanism, meeting the requirements of Section 3806.2 of this article, by which a government entity proposes to make specific identified monies within the entity's budget available to perform reclamation pursuant to the approved reclamation plan.

(b) "Financial Assurance Amount" means that amount of money necessary to conduct and complete reclamation on the mined lands in accordance with the approved reclamation plan, plus a reasonable estimate of the administrative costs and expenses which would be incurred by the lead agency or the Department of Conservation, the total of which shall be calculated in accordance with section 3804, and shall constitute an obligation to pay by the operator.

(c) "Financial Assurance" means an instrument, fund or other form of Financial Assurance as provided in Section 2773.1(a) and (e) of the Public Resources Code and this Article.

(d) "Pledge of Revenue" means a financial assurance mechanism meeting the requirements of Section 3806.1, of this Article, by which a governmental entity proposes to make specific, identified future revenue available to perform reclamation pursuant to the approved reclamation plan.

NOTE: Authority cited: Section 2755, Public Resources Code. Reference: Sections 2726-2734, Public Resources Code.

§ 3803. Financial Assurance Mechanisms. As outlined by this article, financial assurances may take the form of any one or a combination of the following, which the lead agency, upon review by the Department of Conservation, reasonably determines are adequate to perform reclamation in accordance with the approved reclamation plan.

(a) For non-governmental entity operators:

(1) Surety bonds;

(2) Irrevocable letters of credit; and

(3) Trust funds;

(b) For governmental entity operators:

(1) Surety bonds;

(2) Irrevocable letters of credit;

(3) Trust funds;

(4) Pledges of Revenue; or

(5) Budget Set Aside.

NOTE: Authority cited: Section 2773.1, Public Resources Code. Reference: Section 2773.1(e), Public Resources Code.

§ 3804. Calculation of Financial Assurance Amount.

(a) The Financial Assurance Amount shall be calculated as prescribed in Public Resources Code Section 2773.1 and based on:

(1) an analysis of the physical activities and materials necessary to implement the approved reclamation plan;

(2) the lead agency's unit costs, or costs for third party contracting, for each of these activities, if applicable;

(3) the number of units of each of these activities, if applicable;

(4) a contingency amount not to exceed 10% of the reclamation costs.

(b) The calculated amount should not include the cost of completing mining of the site.

(c) In order for the lead agency or the Department of Conservation to determine what annual adjustments, if any, are appropriate to the Financial Assurance Amount, the operator shall annually submit to the lead agency a revision of the written calculation required under Section 3804(a).

NOTE: Authority cited: Section 2773.1, Public Resources Code. Reference: Section 2773.1(e), Public Resources Code.

§ 3805. Review by the Department of Conservation.

Pursuant to Section 2774(c), Public Resources Code, the lead agency shall submit a copy of the proposed Financial Assurance and the Calculation of Financial Assurance Amount submitted by the operator pursuant to Section 3804 to the Director of the Department of Conservation for review. With this submittal the lead agency shall include the information and documentation relied upon in calculating the amount of the proposed Financial Assurance and indicate to the Director that the Financial Assurance Amount is adequate for the lead agency or the Department of Conservation to conduct and complete reclamation on the mined lands in accordance with the approved reclamation plan. The Director shall have 45 days, upon receipt, to prepare written comments regarding the proposed Financial Assurance, if he/she so chooses.

NOTE: Authority cited: Section 2774, Public Resources Code. Reference: Section 2774(c), (d), Public Resources Code.

§ 3806. Surface mining operations owned and operated by state or local governmental entities.

In addition to the mechanisms provided in Public Resources Section 2773.1 and this article, a financial assurance mechanism for reclamation for a surface mining operation owned and operated by the state, county, city, district or other political subdivision may be in the form of a:

(a) Pledge of Revenue; or

(b) Budget Set Aside.

These financial assurance mechanisms may only be

used by the state, county, city, district, or other political subdivision.

NOTE: Authority cited: Section 2773.1, Public Resources Code. Reference: Section 2773.1(e), Public Resources Code.

§ 3806.1. Pledge of Revenue.

(a) A pledge of revenue shall consist of a resolution or other appropriate document from the governing body of the state, county, city, district, or other political subdivision responsible for reclamation of the mined lands pursuant to the approved reclamation plans. The resolution or document shall remain effective continuously throughout the period in which the pledge of revenue is used to satisfy the requirements of Section 2773.1, Public Resources Code.

(b) The pledge of revenue shall contain the following items:

(1) The resolution or document establishing the pledge of revenue;

(2) The types and sources of pledged revenue;

(3) The period of time that each source of revenue is pledged to be available;

(4) The calculation amount of the financial assurance prepared pursuant to Section 3804; and

(5) The authorization for the lead agency or the Department of Conservation to use the proceeds of the pledge to conduct and complete reclamation if the lead agency or the Department of Conservation determines that the operator is incapable of performing the reclamation covered by the pledge pursuant to Section 2773.1(b).

(c) The state, county, city, district, or other political subdivision may pledge any following types of revenue that it controls and that will be available in a timely manner to conduct and complete reclamation:

(1) Fees, rents, or other charges;

(2) Tax revenues within statutory limitations; and/or

(3) Other guaranteed revenues that are acceptable to the lead agency and the Board.

(d) If the governmental entity ceases at any time to retain control of its ability to allocate any pledged revenue to conduct and complete reclamation, the entity shall notify the lead agency and the Department of Conservation and shall obtain alternative coverage within 60 days after control lapses.

NOTE: Authority cited: Section 2773.1, Public Resources Code. Reference: Section 2773.1(e), Public Resources Code.

§ 3806.2. Budget Set Aside.

(a) A Budget Set Aside shall consist of a specific fund or line item set aside by the state, county, city, district or other political subdivision responsible for reclamation of the mined lands. The Budget Set Aside shall remain in effective continuously throughout the period in which the Budget Set Aside is used to satisfy the requirements of Section 2773.1, Public Resources Code.

(b) The set aside shall contain the following items:

(1) A resolution or other appropriate document establishing the set aside or line item including proof of approval by the governing body or appropriate official of the state, county, city, district or other political subdivision;

(2) The types and sources of specific funds;

(3) The period of time that each funding source is to be available;

(4) The calculation amount of the financial assurance prepared pursuant to Section 3804; and

(5) The authorization for the lead agency or the Department of Conservation to use the funds to conduct and complete reclamation if the lead agency or the Department of Conservation determines that the operator is incapable of performing the reclamation covered by the set aside pursuant to Section 2773.1(b).

NOTE: Authority cited: Section 2773.1, Public Resources Code. Reference: Section 2773.1(e), Public Resources Code.

OMR, Letter from Office of Mine Reclamation dated 4/17/97

OMR-1: Information presented in the Draft EIR/EIS related to the proposed mining and reclamation plans is not intended to fulfill the requirements of the SMARA or the State Mining and Geology Board regulations. It is the County Planning Department's standard practice to submit complete mining and reclamation applications to OMR for review. Comments on these applications are addressed and incorporated with the conditions of approval in the final documents and re-submitted to OMR. Thank you for the attached copy of SMARA regulations and comment letters previously submitted on the various project applications. These resources will be considered in the revision and update of the proposed mining and reclamation plans.

OMR-2: Comment noted.

United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
600 Harrison Street, Suite 515
San Francisco, California 94107-1376

May 9, 1997

ER97/153

U.S Army Corps of Engineers
Sacramento District
Attn: Regulatory Section (L. Vinzant)
1325 J Street
Sacramento, California 95814-2922

Subject: Review of the Draft Environmental Impact Report/Statement (DEIR/S) for Morrison Creek Mining Reach Downstream (South) of Jackson Highway, Morrison Creek, Sacramento, Sacramento County, California

Dear Mr. Vinzant:

The Department of the Interior has received and reviewed the February 28, 1997, Draft Environmental Impact Report/Statement (DEIR/S) for the Morrison Creek Mining Reach Downstream (South) of Jackson Highway. The DEIR/S was provided in reference to a proposal for expanding aggregate mining by Teichert Aggregates and Granite Construction in the Morrison Creek drainage. The following comments are provided to assist your review of the proposal, and will not take the place of any formal comments that may be required under the provisions of the Fish and Wildlife Coordination Act or the Endangered Species Act of 1973, as amended (Act).

PROJECT DESCRIPTION

The proposed project is the expansion of aggregate mining in the Morrison Creek watershed on a 966 acre site south of Jackson Highway operated by Teichert Aggregates and Granite Construction. The site contains four adjoining properties referred to as the Aspen III South, Vineyard I, Aspen IV South, and Aspen V South sites. Construction of a new processing plant located on the Vineyard I site would be included in the project in order to have an onsite facility. In addition to sand and gravel, placer gold will be mined. Mining would occur in phases with 50-150 acres of the 966 acres being actively mined at one time. The area is currently used for livestock grazing. OEPC-1

WETLANDS

The project would impact a total of 24.56 acres of wetlands and waters of the United States. According to Table 5-8 in the DEIR/S, 13 65 acres were identified as riparian habitat along Morrison Creek, 4.58 acres were documented as a jurisdictional tributary, 5.5 acres consist of

seasonal wetland habitat, and 0.83 acre is an irrigated seasonal wetland. As mitigation for these impacts, the applicant proposes to construct a total of 43.21 acres of wetland habitats to mitigate for impacts; this acreage consists of 16.56 acres of perennial marsh, 15.01 acres of riparian woodland associated with Morrison Creek, and 11.74 acres of seasonal marsh. This is a ratio of 1.76 acres created:1 acre impacted. Wetlands supporting special status species may require mitigation at higher ratios. OEPC-1

Much of the proposed mitigated habitat is out-of-kind replacement for the habitat lost. The Fish and Wildlife Service recommends in-kind mitigation for lost wetlands in order to retain the value of those habitats. The mitigation plan should include as much in-kind replacement as possible. OEPC-2

VERNAL POOLS

The DEIR/S states that vernal pools have been delineated on the Aspen V South site (page 5-43). The vernal pools on this site could be affected by potential changes in hydrology resulting from mining the upland drainage area. This would result in the loss of ecological and biological values of the pools There is no information on acreage of the pools that are to be impacted. Vernal pool acreage is also not differentiated in Table 5-8 with the rest of the wetland habitats. Further information is needed on the acreage of vernal pools being impacted by this project. Vernal pools are not proposed for construction in the mitigation plan either. Mitigation for impacted vernal pools should also be addressed in the plan. OEPC-3

MORRISON CREEK

The Drainage Mitigation Plan for Morrison Creek would consist of constructing an unlined trapezoidal bypass channel at the existing (unmined) elevation of the site Morrison Creek would be routed through the center of the site within a 600-foot wide riparian corridor that would contain the creek, perennial marsh, riparian woodland, seasonal marsh, and valley oak woodland in a series of terraces. The downstream end of the creek may include a sump pond to allow pumping of the flow back up to grade. This channel would be designed to handle a portion of the current 100 year flow event, and excess flow would be diverted into one of the pit floor detention areas via weiring/outfall structures. The DEIR/S does not state how many of these structures will be present or their location. Additional information on these structures is needed. OEPC-4

The DEIR/S covers the range of alternatives to the proposed project. The 100-Year Floodplain Protection Alternative provides for the protection of the floodplain and the natural course of Morrison Creek. This would allow for the preservation of the resources and floodplain associated with Morrison Creek. The Service recommends the Corps strongly consider this alternative as the preferred project proposal in order to maintain the natural course of Morrison Creek This would provide for retention of the biological and hydrologic values of the stream. OEPC-5

CUMULATIVE IMPACTS

This project is an expansion of the Morrison Creek mining project located north of the Jackson Highway and creates a significant cumulative impact in this area. The DEIR/S states that mining in the area results in the gross reconstruction of the floodplain, altered downstream flows, as well as hydrologic and landform changes to the existing Morrison Creek floodplain (page 6-3). There would also be a loss of biological resources and open space associated with the stream, floodplain, and uplands under natural conditions. The DEIR/S also states that full replacement of the natural riparian resources would not be possible (page 6-4). The 100-Year Floodplain Alternative would lessen the cumulative impacts to the Morrison Creek watershed. OEPC-6

SPECIAL STATUS SPECIES

Any endangered or threatened species populations found in the project area should be avoided. If avoidance is not possible, a project design that minimizes impacts, and an appropriate mitigation plan, should be developed in consultation with the Service and California Department of Fish and Game.

Surveys for special status plants should be completed in the appropriate season for the various species by a qualified botanist. The Fish and Wildlife Service's guidelines for botanical inventories of listed species can be obtained from the Endangered Species Division office at the phone number below. OEPC-7

Thank you for providing the Department of the Interior with the opportunity to comment on this DEIR/S. If you have any further questions regarding these comments, please contact Kelly Oliver-Amy, Wetlands Branch, U.S. Fish and Wildlife Service, at (916) 979-2113. For an updated species list or other questions regarding endangered species, please contact the Endangered Species Division at (916) 979-2725.

Sincerely,

Patricia Sanderson Port
Regional Environmental Officer

cc:
Director, OEPC, w/original incoming
Regional Director, FWS, Region I

3

ATTACHMENT A

Endangered and Threatened Species that May Occur in
or be Affected by Projects in the Following Selected Quads

April 9, 1997

QUAD : 512D CARMICHAEL

Listed Species

Birds

American peregrine falcon, *Falco peregrinus anatum* (E)

Aleutian Canada goose, *Branta canadensis leucopareia* (T)

bald eagle, *Haliaeetus leucocephalus* (T)

Reptiles

giant garter snake, *Thamnophis gigas* (T)

Amphibians

California red-legged frog, *Rana aurora draytonii* (T)

Fish

delta smelt, *Hypomesus transpacificus* (T)

Invertebrates

vernal pool tadpole shrimp, *Lepidurus packardi* (E)

vernal pool fairy shrimp, *Branchinecta lynchi* (T)

valley elderberry longhorn beetle, *Desmocerus californicus dimorphus* (T)

Proposed Species

Fish

Central Valley steelhead, *Oncorhynchus mykiss* (PE)

Sacramento splittail, *Pogonichthys macrolepidotus* (PT)

Candidate Species

Birds

mountain plover, *Charadrius montanus* (C)

Amphibians

California tiger salamander, *Ambystoma californiense* (C)

Species of Concern

Mammals

small-footed myotis bat, *Myotis ciliolabrum* (SC)

long-eared myotis bat, *Myotis evotis* (SC)

fringed myotis bat, *Myotis thysanodes* (SC)

long-legged myotis bat, *Myotis volans* (SC)

QUAD : 512D CARMICHAEL

Species of Concern

Mammals

Yuma myotis bat, *Myotis yumanensis* (SC)

San Joaquin pocket mouse, *Perognathus inornatus* (SC)

Pacific western big-eared bat, *Plecotus townsendii townsendii* (SC)

Birds

tricolored blackbird, *Agelaius tricolor* (SC)

western burrowing owl, *Athene cunicularia hypugea* (SC)

ferruginous hawk, *Buteo regalis* (SC)

little willow flycatcher, *Empidonax traillii brewsteri* (SC)

white-faced ibis, *Plegadis chihi* (SC)

Reptiles

northwestern pond turtle, *Clemmys marmorata marmorata* (SC)

California horned lizard, *Phrynosoma coronatum frontale* (SC)

Amphibians

western spadefoot toad, *Scaphiopus hammondii* (SC)

Fish

green sturgeon, *Acipenser medirostris* (SC)

KEY:

(E)	*Endangered*	Listed (in the Federal Register) as being in danger of extinction.
(T)	*Threatened*	Listed as likely to become endangered within the foreseeable future.
(P)	*Proposed*	Officially proposed (in the Federal Register) for listing as endangered or threatened.
(C)	*Candidate*	Candidate to become a *proposed* species.
(SC)	*Species of Concern*	May be endangered or threatened. Not enough biological information has been gathered to support listing at this time.
(*)		Possibly extinct.
	Critical Habitat	Area essential to the conservation of a species.

SACRAMENTO COUNTY

Species of Concern

Fish

green sturgeon, *Acipenser medirostris* (SC)
river lamprey, *Lampetra ayresi* (SC)
Kern Brook lamprey, *Lampetra hubbsi* (SC)
Pacific lamprey, *Lampetra tridentata* (SC)
longfin smelt, *Spirinchus thaleichthys* (SC)

Invertebrates

Antioch Dunes anthicid beetle, *Anthicus antiochensis* (SC)
Sacramento anthicid beetle, *Anthicus sacramento* (SC)
San Joaquin dune beetle, *Coelus gracilis* (SC)
curved-foot hygrotus diving beetle, *Hygrotus curvipes* (SC)

Plants

Suisun Marsh aster, *Aster lentus* (SC)
valley spearscale, *Atriplex joaquiniana* (SC)
Tuolumne coyote-thistle, *Eryngium pinnatisectum* (SC)
Ahart's rush, *Juncus leiospermus var. ahartii* (SC)
delta tule-pea, *Lathyrus jepsonii var. jepsonii* (SC)
legenere, *Legenere limosa* (SC)
Mason's lilaeopsis, *Lilaeopsis masonii* (SC)
valley sagittaria, *Sagittaria sanfordii* (SC)
Northern California black walnut, *Juglans californica var. hindsii* (SC)

KEY:

(E)	*Endangered*	Listed (in the Federal Register) as being in danger of extinction.
(T)	*Threatened*	Listed as likely to become endangered within the foreseeable future.
(P)	*Proposed*	Officially proposed (in the Federal Register) for listing as endangered or threatened.
(C)	*Candidate*	Candidate to become a *proposed* species.
(SC)	*Species of Concern*	May be endangered or threatened. Not enough biological information has been gathered to support listing at this time.
(*)	Possibly extinct.	
	Critical Habitat	Area essential to the conservation of a species.

OEPC, Letter from Office of Environmental Policy and Compliance (US Department of the Interior) dated 5/9/97

OEPC-1: If changes to the mitigation ratio for wetland replacement are being required by the federal government, such changes should be articulated to the applicants and included as a condition of the United States Army Corps of Engineers Section 404 permit.

OEPC-2: In-kind mitigation is an expressed goal in the mitigation plans. For additional detail on the proposed mitigation plans, please refer to Appendix B of the EIR/EIS.

OEPC-3: No vernal pools would be directly affected as a result of the proposed project. As shown on Figures 3-6c and 5-8, the vernal pools identified on the Aspen V South site are in an area that is not proposed for mining. The potential for indirect impacts to the pools from mining in the adjacent areas was identified as a significant impact of the proposed project. As such, mitigation to reduce this potential impact was identified in the Draft EIR/EIS (refer to measure 1.d. in Section 5.7.3). The proposed mitigation includes monitoring of the hydrologic and botanical conditions within the pools to document consistency and identify any potential changes. If monitoring reveals that the vernal pools have been significantly impacted, mitigation for the vernal pools will be developed by the applicant in consultation with USFWS, CDFG, Corps, and the County.

OEPC-4: The overall design of the proposed flood control facilities for the entire Morrison Creek Mining Reach are described in the Drainage Mitigation Plan (Montgomery Watson, 1995). The inclusion of hydraulic structures such as berms, weirs and inlet works within the southern reach (i.e., project site) was identified as mitigation for potential flow capture. As stated in mitigation measure 1 on page 5-7, detailed engineering plans for these improvements must be submitted to the County of Sacramento County Public Works Agency, Water Resources Division for review and approval prior to implementation of any mining activities on the project site.

OEPC-5: The commentor's recommendation that the Corps consider the 100-year floodplain protection alternative as a preferred project alternative is noted for the record and taken under advisement.

OEPC-6: The commentor references a statement taken from the cumulative impact section of the DEIR/DEIS which states that "full replacement of the natural riparian resources would not be possible. Information provided elsewhere in the EIR/EIS concurs with the commentor's statement that the 100-year floodplain protection alternative would lessen environmental impacts to the Morrison Creek Watershed. Specifically, Section 6.7 (Identification of Environmentally Superior Alternative) indicates that the 100-year floodplain would be environmentally superior to the proposed project.

OEPC-7: As indicated in Section 5.7.3 of the EIR/EIS, the applicants would be required to comply with several regulatory agency requirements as well as a series of recommended mitigation measures in implementing the project. Such requirements include completion of Section 7 consultation pursuant to the Federal Endangered Species Act and approval by the California Department of Fish and Game of the needed Streambed Alteration Agreement. These requirements are also identified in Section 5.7.3 of the EIR/EIS. With regard to plant surveys, please refer to response to comment CNPS-11that addresses this issue in detail.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

MAY 0 9 1997

Art Champ, Chief
Regulatory Branch, Sacramento
U.S. Army Corps of Engineers
1325 J Street
Sacramento, California 95814

Dear Mr. Champ:

The U.S. Environmental Protection Agency (EPA) has reviewed the Draft Environmental Impact Statement/Report (DEIS/R) for the MORRISON CREEK MINING REACH DOWNSTREAM (SOUTH) OF JACKSON HIGHWAY, Sacramento County, California. The document has been jointly prepared by the Corps of Engineers and the County of Sacramento to satisfy the respective requirements of the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). EPA provided scoping comments on the Notice of Intent in December, 1995. Our comments on the DEIS/R are provided pursuant to NEPA, Section 309 of the Clean Air Act, the Council on Environmental Quality's Regulations for Implementing NEPA (40 CFR 1500-1508), and Section 404 of the Clean Water Act (CWA). Regarding the completeness of the document's Section 404 analysis, our comments are advisory and provided in keeping with Section 404 since the proposed Federal action is the issuance or denial of a permit or permits under Section 404 and 40 CFR Part 230. EPA will provide additional comments to the Corps on the proposed project's Public Notice(s) when available. EPA-1

The DEIS/R analyzes the environmental impacts associated with the surface mining of sand and gravel on 881.7 acres of the 966.3-acre downstream mining reach of Morrison Creek in the community of Vineyard. The project proponents are two mining companies, Teichert Aggregates and Granite Construction Company. The project site is composed of four mining sites: Aspen III South, Vineyard I, Aspen IV South and Aspen V South. Three of the four sites are subject to the Corps' jurisdiction under CWA Section 404; Aspen III South has no acreage under Section 404 jurisdiction. The project site has approximately 24.56 acres of wetlands and other waters of the United States that would be impacted by the proposed mining and reclamation plans: 21.95 acres at Vineyard I, 1.78 acres at Aspen IV, and 0.83 acre of an irrigated seasonal wetland at Aspen V. The DEIS/R estimates that the site contains 36.7 million tons of sand and gravel, approximately 29% of the Sacramento region's remaining likely supply. The proposed action site is adjacent to the Morrison Creek North site, the subject of Draft and Final EIS's in 1995-1996. The Corps' permit approval has already been granted for the northern mining reach.

The DEIS/R analyzes the environmental effects of several action alternatives and a No Action Alternative. Alternatives examined in the DEIS/R include the Proposed Project, the proposed project without the Vineyard I processing plant alternative, the county drainage alternatives, and the 100-year floodplain protection alternative. In addition to sand and gravel mining, the proposed project includes reclamation work, construction and operation of a new processing plant on the Vineyard I site, and the likely recovery of placer gold as part of processing operations. Three other alternatives are identified but rejected: a recycling alternative, offsite alternative(s), and a Mather Field alternative. We presume that the action alternatives assessed in detail in the DEIS/R are "practicable" alternatives as defined in the CWA 404(b)(1) Guidelines ("Guidelines"), while the three rejected alternatives are not practicable. EPA-2

We have several objections to the proposed project and its accompanying environmental documentation - chiefly with regard to the proposed project's failure to comply with the requirements of CWA Section 404 and the Guidelines. We object to the adverse impacts that would occur to wetlands and other protected waters of the United States as a result of the proposed project. The DEIS/R fails to demonstrate a purpose and need for the proposed project that would necessitate the placement of dredged or fill material in approximately 24.56 acres of wetlands and other waters. The DEIS/R also does not clearly demonstrate that all appropriate measures have been taken to first avoid and then minimize the placement of dredged or fill material in areas subject to Section 404 jurisdiction. EPA-3

Specifically, the DEIS/R projects the loss of seasonal wetlands (including vernal pools), riparian woodland, portions of Morrison Creek, and irrigated seasonal wetlands. However, there is no consideration of whether the proposed project could be designed or configured to avoid or minimize the loss of these aquatic resources. For example, by avoiding Section 404 jurisdictional areas, the project proponents would spare significant environmental impacts at a cost of perhaps three percent of potential aggregate resources available at the site; this alternative is not considered. Similarly, the DEIS/R provides only brief mention of a recycling alternative (p. 4-9) which may greatly reduce the loss of wetlands and other waters of the United States. We strongly encourage the Corps and the County to determine whether the proposed project can be designed to avoid or minimize the loss of Section 404 areas <u>and</u> whether a recycling alternative could be pursued further to minimize or avoid the loss of Section 404 habitats. We also believe that the proposed mitigation may be inadequate to compensate for adverse impacts to the aquatic ecosystem because the DEIS/R does not accurately reflect the proposed project's adverse effects (cumulative and indirect) on downstream resources such as Beach and Stone Lakes. EPA-4

On a related matter, we are concerned that the DEIS/R contains no discussion regarding the proposed project's consistency with the Water Quality Control Plan developed by the State of California and approved by U.S. EPA. This Plan requires the control of pollutants which may adversely affect water quality and beneficial uses such as the downstream uses at Beach and Stone Lakes and the Stone Lakes National Wildlife Refuge. In that regard, we believe that the discussion about cumulative and indirect impacts needs to be considerably strengthened. EPA-5

These issues, which are expressed in greater detail in the attached comments, form the basis for our rating of EO-2, Environmental Objections - Insufficient Information. We strongly recommend that the Corps evaluate EPA's comments and incorporate the information we found to be lacking in a more comprehensive EIS/EIR rather than proceeding directly to the Final EIS/EIR (FEIS/R). We also suggest that the Corps consider re-issuing the NEPA document in draft form for public review and comment with a minimum 45-day public comment period. Please refer to the attached "Summary of Rating Definitions and Follow-Up Action" for an explanation of EPA's rating system. EPA-6

We appreciate the opportunity to comment on the DEIS/R and welcome an opportunity to meet with the Corps and the County prior to issuance of the FEIS/R. Please send two copies of the subsequent EIS/EIR to our office (mailcode: CMD-2) at the letterhead address when it is filed with EPA's Washington, D.C. office. If you have any questions, please call David Farrel, Chief of the Federal Activities Office at 415-744-1584 or David Tomsovic of his staff at 415-744-1575. Questions regarding our Section 404 review may also be directed to Elizabeth White of our Clean Water Act Compliance Section at 415-744-1988.

Sincerely,

Deanna M. Wieman, Deputy Director
Cross-Media Division

Attachments: 2
(a) Summary of Rating Definitions and Follow-Up Action
(b) EPA's detailed comments on DEIS/R

cc: Patricia Port, DOI
Cay Goude, F&WS
Mark Littlefield, F&WS
Thomas E. Harvey, F&WS, Stone Lakes NWR
Dave Zezukak, CDF&G
Dennis E. Yeast, Sacramento County

M.I. 002588

SUMMARY OF RATING DEFINITIONS AND FOLLOW-UP ACTION

Environmental Impact of the Action

LO-Lack of Objections

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC-Environmental Concerns

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

EO-Environmental Objections

The EPA review has identified significant environmental impacts that must be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU-Environmentally Unsatisfactory

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of environmental quality, public health or welfare. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommend for referral to the Council on Environmental Quality (CEQ).

Adequacy of the Impact Statement

Category 1-Adequate

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2-Insufficient Information

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

Category 3-Inadequate

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From: EPA Manual 1640, "Policy and Procedures for the Review of Federal Actions Impacting the Environment."

EPA COMMENTS ON DRAFT EIS/R, MORRISON CREEK MINING DOWNSTREAM OF JACKSON HIGHWAY, SACRAMENTO COUNTY, CA. MAY 5, 1997

CLEAN WATER ACT, SECTION 404

Introduction: The Draft Environmental Impact Statement/Report (DEIS/R) does not include a fully detailed discussion of the overall requirements of 40 CFR 230. For example, the Clean Water Act (CWA) Section 404(b)(1) Guidelines ("Guidelines") are very specific in terms of the requirements that must be clearly demonstrated before an applicant can receive a Section 404 permit. For example, 40 CFR 230.10(a) stipulates that no discharge of dredged or fill material shall be permitted "...if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences..." The DEIS/R fails to demonstrate that the placement of dredged or fill material in approximately 24.56 acres of wetlands and other waters of the United States is absolutely essential in order to satisfy the project's basic purpose, nor is there any clear demonstration in the DEIS/R that the proponents have examined measures to avoid or minimize the loss of these 24.56 acres such as mining a smaller portion of the project site. EPA-7

Project Purpose: The DEIS/R defines the project's purpose and need (as defined by the proponents) as "...aggregate mining and reclamation activities located along the Morrison Creek Mining Reach Downstream (South) of Jackson Highway in the unincorporated area of Sacramento County, within the community of Vineyard." We believe that the proponents' statement of project purpose is too limiting as it narrows the scope of alternatives to those onsite at Morrison Creek. Moreover, this purpose is not supported by statements elsewhere in the document which describe the project need as meeting the aggregate requirements of Sacramento County. We believe that the purpose statement should be amended in the FEIS/R to avoid the limiting geographic parameters imposed by that definition of project purpose in the DEIS/R. EPA-8

Project Need: The proponents recently received authorization from the Corps to mine a site known as Morrison Creek Mining Reach - North (Upstream) which is projected to supply an estimated 66.3 million tons of aggregate. Because that 66.3 million tons could meet the Sacramento region's aggregate needs for approximately eight years (i.e., the annual consumption of 8.5 million tons per year mentioned on p. 2-2), we do not understand the need for additional mining at this time. The FEIS/R should discuss in greater detail the need for the proposed project at this time. EPA-9

Least Environmentally Damaging Practicable Alternative (LEDPA): Neither the DEIS/R nor the technical appendix clearly demonstrates which of the action alternatives analyzed in detail EPA-10

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is considered to be the Least Environmentally Damaging Practicable Alternative (LEDPA), pursuant to Section 404 and 40 CFR 230.10 (Restrictions on Discharge). We believe that other, less-damaging practicable alternatives may exist which would allow a reasonable economic return on the property and meet the project's purpose and need of supplying aggregate to the Sacramento area. EPA-10

The DEIS/R also does not clearly portray the proposed project's indirect and cumulative impacts over the life of the project. In terms of indirect impacts, the documentation contains little analysis of such effects on downstream habitats and resources such as Beach and Stone Lakes and the national wildlife refuge. Similarly, the cumulative effects to the Morrison Creek ecosystem and downstream habitats are not clearly portrayed (i.e., effects due to this project, the Morrison north project and other watershed-affecting projects). Because of this lack of information on direct, indirect and cumulative effects, the reader cannot determine which of the action alternatives is the LEDPA. We recommend that the FEIS/R identify which of the action alternatives is the LEDPA, taking into account all reasonably foreseeable direct, indirect and cumulative impacts over the life of the project. EPA-11

Alternatives Analysis: The DEIS/R (Technical Appendix) contains a January, 1994 alternatives analysis for 403 acres of the 966.3-acre project site. However, according to p. 1-1 of the DEIS/R, the proposed project would allow surface mining on 881.7 acres of the 966.3-acre downstream mining reach. The 404(b)(1) alternatives analysis needs to reflect the entire project area that would be subject to mining, reclamation and drainage work, as identified in the FEIS/R. EPA-12

Recycling Alternative: The Technical Appendix (Executive Summary, p. 1, Granite Vineyard Wetland Mitigation Plan) indicates that the demand for aggregate in the Sacramento-Fairfield area "will outstrip useable supplies within approximately 10 years at current rates of development." The projected output from the Morrison south field is 36.7 millions tons of sand and gravel, approximately 29 percent of the remaining likely supply for the Sacramento area. The Sacramento area uses 8.5 million tons of sand and gravel per year. Wetlands and other waters under Section 404 jurisdiction comprise approximately 24.56 acres or the 881.7-acre project site (i.e., 2.79 percent). Presumably, the aggregate extracted from beneath the 404 jurisdictional areas would account for a corresponding 2.79 percentage of the total mining output, or somewhat more than 1.00 million tons of the total projected output of 36.7 million tons. EPA-13

The DEIS/R (p. 4-9) indicates that the Sacramento County General Plan requires that 10 percent of aggregate demand be met by recycled or substitute materials by 2000 (20 percent by 2010).

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Thus, of the annual area consumption of 8.5 million tons, 850,000 tons per year must be recycled or substitute by 2000, and 1.7 million tons recycled or substitute by 2010. The DEIS/R gives no indication as to how those figures will be met. However, in terms of restoring and maintaining the integrity of waters of the United States, we believe that it is incumbant upon the Corps to provide a more detailed rationale, both in the FEIS/R and the 404(b)(1) alternatives analysis, as to why a recycling alternative is not practicable.

The DEIS/R dismisses the recycling alternative by contending that it "may not be feasible at this time." This is due to a lack of private companies in Sacramento that recycle concrete and asphalt; available recyclable material; and county enforcement of the general plan's requirement. This rationale does not recognize the general plan requirements that recycled or substitute material be used (10 percent in 2000 and 20 percent in 2010). Neither does the DEIS/R explore whether a recycling alternative would be useful in protecting wetlands and other waters of the United States. Finally, the analysis does not investigate whether a recycling element could be incorporated into the proposed project. EPA-13

We believe that it may be feasible to develop a new hybrid alternative that would permit development of the four sites, avoid or substantially avoid wetland impacts by using recycled material to replace the sand and aggregate that would be obtained from areas under Section 404 jurisdiction, and be practicable as well. We strongly encourage the Corps, the County and the proponents to explore the feasibility of such a hybrid alternative in the FEIS/R.

Offsite Alternatives: The DEIS/R analysis does not clearly demonstrate that mining offsite resources is not practicable. As stated by the proponents, Sacramento County currently receives aggregate from Yolo County's Cache Creek area and the Yuba River area outside Sacramento County. Cache Creek and the Yuba fields are, respectively, 28 and 40 miles from Sacramento (Technical Appendix, p. B-101). The alternatives analysis identifies aggregate reserves and resources in various sectors. While these sectors have been identified as having waters of the United States, they may nevertheless be less environmentally damaging. The proponents should provide additional information on these offsite alternatives. Additionally, the FEIS/R should explore other alternative sites such as south of Sacramento County. EPA-14

For the purpose of supplying Sacramento County with aggregate, we agree that importing aggregate from outside Sacramento County has associated environmental impacts (increased truck traffic, air pollution, consumption of fossil fuels), however, the alternatives analysis does not provide enough specific detail to clearly demonstrate that the environmental consequences are more

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environmentally-damaging than the proposed project. The proponents state that transportation costs are high relative to other costs of producing aggregate, but the alternatives analysis does not demonstrate this quantitatively. EPA-14

Onsite Avoidance and the 100-Year Floodplain Alternative: The 404(b)(1) Guidelines prohibit the discharge of dredged or fill material unless appropriate and practicable steps have been taken that will minimize potential adverse impacts of the discharge on the ecosystem [40 CFR 230.10(d)]. Chapter 4 of the DEIS/R discusses the 100-year floodplain alternative. The 100-year floodplain alternative avoids impacts to Morrison Creek and, instead, impacts ruderal, disced and cultivated habitats. The 100-year floodplain alternative is less environmentally damaging practicable alternative to the proposed project. It would also reduce or eliminate long-term channel maintenance costs, provide flood protection, reduce the potential of flooding the pit floor, enhance water quality and habitat functions, and reduce the project's indirect and cumulative impacts on important downstream habitats. The Corps has not clearly demonstrated that the 100-year floodplain alternative is not practicable in terms of achieving the project purpose, even the very narrow purpose described in the DEIS/R. This alternative should be further analyzed in the FEIS/R. EPA-15

Mining Plan: The mining plan section (DEIS/R, p. 3-7) states that mining would occur simultaneously at several locations on the site. Based on the mining plan section, it is unclear whether other sequencing options may be available that could avoid adverse impacts to wetlands, other waters of the United States and water quality. We recommend that the FEIS/R discuss whether other scenarios or options might be more protective of natural resources and water quality than the simultaneous operations described on page 3-7, while practically achieving the project purpose and need. If so, we recommend that appropriate mitigation measures and/or permit conditions be included in the FEIS/R, the ROD and the Corps' permit(s) for the proposed project. EPA-16

Cumulative Impacts: The cumulative impacts section of the DEIS/R fails to sufficiently consider the cumulative effects of stream channelization on valuable downstream ecological reserves at Beach and Stone Lakes. The DEIS/R (p. 5-3) alludes generally to the project's cumulative environmental consequences due to "...gross reconstruction of the floodplain, [and] altered flows downstream..." However, there is no discussion as to the actual effects on downstream water quality, wildlife and other natural resources that would occur from altered flows. EPA-17

Beach and Stone Lakes offer a mosaic of extremely valuable wetlands and wildlife habitat supporting herons, egrets, white pelicans, waterfowl, shorebirds and other wildlife. Beach and

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Stone Lakes and the Stone Lakes National Wildlife Refuge are in part dependent on the quality of surface waters flowing from Morrison Creek's watershed. The DEIS/R offers no discussion about how the proposed project, or the proposed project in combination with the already-permitted northern sector, will affect these valuable downstream resources. Substantial investment has been made to enhance and restore portions of Morrison Creek, including the National Audubon Society's improvement of the Morrison Creek corridor to improve waterfowl nesting habitat in and around Upper Beach Lake, and the 135-acre Caltrans mitigation bank to enhance and restore the lakes' riparian connectivity. This is of particular concern to EPA because section 4.3 states that the proposed project may cause impacts to Beach and Stone Lakes due to increased stormwater flows. There is no comparison of the present and proposed hydrologic regime and sediment budget of Morrison Creek, and its impacts to downstream resources such as the lakes and the national wildlife refuge. EPA-17

Mitigation: As noted, we believe that the FEIS/R should more clearly document whether avoidance and minimization can reduce the impacts to approximately 24.56 acres of wetlands and other waters of the United States. Once avoidance and minimization have been clearly demonstrated, we believe that the approximate 1.5:1 ratios outlined in the DEIS/R (at 3.6.4, Wetland Mitigation Plan) are minimum ratios which should be carried forth in the FEIS/R, the ROD, and the Public Notice, subject to review and approval by Federal and State resource agencies. We note that the mitigation ratios may need to be improved to compensate for both adverse temporal impacts and cumulative and/or indirect impacts to downstream natural resources (e.g., Beach and Stone Lakes) from mining in the Morrison north and Morrison south sectors. EPA-18

We encourage the proponents to examine a range of both onsite and offsite mitigation to adequately compensate for unavoidable adverse impacts to wetlands and other waters of the United States. One example may be to acquire offsite vernal pools for preservation, possibly in conjunction with other agencies (Caltrans, U.S. Fish & Wildlife Service, California Department of Fish & Game, etc.) and private groups such as the Nature Conservancy. Areas within southern Sacramento County offer a range of opportunities. EPA is quite willing to work with the Corps, the County and the proponents on investigating potential mitigation opportunities for unavoidable project-related impacts, both onsite and offsite.

Request for Clarification: The DEIS/R contains a large number of references to "seasonal wetlands," which can include vernal pools. We request that the acreage and location of vernal pools be specifically identified in the text of the FEIS/R, the updated 404(b)(1) alternatives analysis, and the various figures and tables in the EIS. EPA-19

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CLEAN WATER ACT, WATER QUALITY

Water Quality Control Plan: We are seriously concerned that the DEIS/R contains no reference to the project's compliance with the Water Quality Control Plan ("Plan"), developed by the Regional Water Quality Control Board and approved by U.S. EPA pursuant to the Clean Water Act. The Plan, which is federally enforceable, contains provisions to protect water quality and existing and potential beneficial uses. Beneficial uses may include municipal and domestic water supply, ground water recharge, freshwater replenishment, cold and warm freshwater habitat, wildlife habitat, and the protection of rare, threatened, endangered species. EPA-20

The Plan for the project area contains specific provisions to protect surface waters from pollutants. In the case of this project, the primary cause of concern would be increased erosion and sedimentation, however, the potential for increased spills of hydrocarbons and chemicals from onsite equipment is also a concern. The Plan specifically provides that the suspended sediment load and sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses. Similarly, the Plan provides that waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses, and provides specific limits for increases in turbidity. The Plan also contains specific requirements concerning floating materials, oil and grease, toxicity, dissolved oxygen, settleable material and other factors or conditions that may adversely affect water quality and beneficial uses.

We recommend that the Corps and the County contact the Regional Water Quality Control Board to ensure the project's consistency with the Plan's requirements on sediment, turbidity and other factors. Appropriate mitigation measures to protect water quality and beneficial uses should be included in the FEIS/R, the ROD and, as appropriate, permit conditions. The Stormwater Pollution Prevention Plan mentioned on p. 5-5 may be an appropriate forum to reference the requirements of the Water Quality Control Plan.

MONITORING WELLS, MATHER FIELD CONTAMINATION PLUME

The DEIS/R (pp. 5-10 and 5-11) discusses potential consequences and proposed mitigation associated with the monitoring wells for the Mather Field (formerly Mather Air Force Base) contamination plume. The DEIS/R indicates that proposed gravel mining operations "could affect or destroy some monitoring wells" (p. 5-10). Page 5-11 describes mitigation that the project proponents would undertake with the Air Force Base Conversion Agency. EPA-21

According to EPA's records, there are three Mather groundwater monitoring wells on Teichert property, but these three wells are located north of Jackson Highway (the subject of the 1995-96 NISs for the northern mining sector). Although there are currently no wells located in the area covered by the southern sector DEIS/R, it is probable that the Air Force may want to locate monitoring wells in this area to monitor plume migration at some future point. Accordingly, we recommend that the text on page 5-11 under 5.2.3 Mitigation, number 2 be modified to read: EPA-21

> "The proponents shall coordinate mining in the vicinity of groundwater contamination with the Air Force's groundwater monitoring program [added text], planned groundwater...."

AIR QUALITY

The DEIS/R provides useful information on a variety of air quality-related issues, including information on State and Federal air quality standards, the current air quality status of the project area, air emissions at the project site, and air permits required for the proposed facility. However, it is unclear whether any of the project's direct or indirect emissions may be subject to the requirements of Section 176(c) of the Federal Clean Air Act (general conformity) and EPA's general conformity regulations. EPA's final rule on general conformity is codified at 40 CFR Part 93, Subpart B. The FEIS/R should discuss the applicability of EPA's general conformity rule to the proposed project. If the Corps determines that a general conformity determination is needed for the proposed project, the conformity determination should be circulated for agency review pursuant to 40 CFR 93.155 before or concurrent with the FEIS/R. EPA-22

POLLUTION PREVENTION OPPORTUNITIES

The DEIS/R does not address pollution prevention mechanisms in the proposed project to the extent recommended in guidance issued by the Council on Environmental Quality (January 29, 1993 Federal Register, pp. 6478-6481). We believe that the proposed project could be strengthened by specifically designing, constructing and operating the project with pollution prevention measures. One example may be to incorporate the latest energy and water conservation features in the new processing plant at the Vineyard I site, another may be to adopt a comprehensive solid waste recycling program for the proposed project and the companies' daily operations. A third measure may be to inventory the use of any chemicals and hazardous materials used in the mining, processing and reclamation work so as to reduce the use of hazardous compounds and/or substitute less hazardous materials. This would have the added benefit of reducing the generation of hazardous waste. We encourage the adoption of reclamation and vegetation restoration efforts that minimize or avoid using EPA-23

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pesticides and herbicides. We recommend that appropriate pollution prevention commitments be identified in the FEIS/R and that appropriate commitments be included in the ROD and, as appropriate, as 404 permit conditions. EPA-23

PLACER GOLD RECOVERY

The DEIS/R (p. 3-12) indicates that the recovery of placer gold would likely be part of the processing operations. The gold would be recovered through a mechanical device known as a "jig system." According to the DEIS/R, no chemicals are used in this process. The FEIS/R should indicate whether subsequent environmental documentation would be required by the Corps and/or the County should future gold recovery at the site require the use of chemicals or other hazardous agents. EPA-24

EPA, Letter from United States Environmental Protection Agency dated 5/5/97

EPA-1: The commentor's overview of the EPA's jurisdiction and responsibility in reviewing the EIR/EIS and the draft 404 permit are noted. As instructed by the commentor, all comments related specifically to the 404 permit completeness are considered advisory and will be given due consideration. The Public Notice for the proposed project was distributed January 26, 1996. A second Public Notice will indicate the availability of the final EIR/EIS.

EPA-2: The commentor's summary of the project and assumption regarding the "practicable" alternatives and alternatives withdrawn from further consideration is noted.

EPA-3: The commentor's objection to the proposed project "...chiefly with regard to the proposed project's failure to comply with the requirements of CWA Section 404 and the Guidelines" is noted. With regard to demonstration of the proposed project's purpose and need, additional information on this topic may be found in Chapter 2 in the EIR/EIS which presents an overview of the applicant's stated purpose for the project. The information provided in Chapter 2 is supported by Appendix B (pages B-96-115) which provides additional detail on the availability, consumption and predicted demand for aggregate materials (project purpose). Also refer to response to comments EPA-6 and 8. The Corps has not concluded that the proposed project is the least damaging alternative and is evaluating a reasonable range of alternatives.

EPA-4: The EIR/EIS includes two alternatives aimed at reducing or avoiding impacts to jurisdictional waters: the 100-Year Floodplain Protection Alternative and the Creek Buffer Alternative (150-foot setback from the lateral extent of Corps jurisdiction). The latter was added to the EIR/EIS at the request of the EPA and other commentors. Please refer to Section 4.4 of the EIR/EIS for additional discussion of these alternatives. As a point of clarification, no vernal pools would be displaced by the proposed project. The only vernal pool habitat identified within the project site occurs in area on the Aspen V South property in an area not proposed for mining. Refer to Section 5.7 (and Figure 3-6c) for additional detail.

EPA-5: The project proponents will have to obtain Section 401 water quality certification or waiver from the Regional Water Quality Control Board. The RWQCB is responsible for implementation of the adopted Water Quality Control Plan. In its review of the proposed permit applications, the RWQCB will determine consistency with the existing Water Quality Control Plan and either approve, conditionally approve or deny such permits. Conditional approval may include assigning specific performance standards and other criteria such that the proposed action will be made consistent with the goals and objectives of the adopted Water Quality Control Plan including those directly linked to the protection and preservation of downstream beneficial uses. In this role, the RWQCB will be the judge of the adequacy of the proponents' proposed water quality protection program including the mitigation identified in the EIR/EIS. The EIR/EIS has been revised (see Section 5.1.3) to include reference to this existing requirement. For additional information related to Beach and Stone Lakes, please see response to comment EPA-17.

EPA-6: Please refer to response to comments EPA-7 through EPA-24. As recommended by the EPA, additional consideration of alternatives was given in the Final EIR/EIS. The Final EIR/EIS also addresses all comments on the draft document. The preparers of this document do not believe issuance of another draft would result in new information or additional substantive

comments. Please refer to response to comment UCC-2 for additional information on this subject.

EPA-7: With regard to the issue raised by the commentor regarding practicable alternatives to the proposed action, please refer to response to comment EPA-6 above. For additional information on the purpose and need for the project, refer to EPA-3 above.

EPA-8: Although the primary objective of the applicants for the project is related to mining and reclamation on the project site (which is currently owned by the applicants), the scope of alternatives considered was not restricted by this fact. Consistent with Section 15126.6 of the State CEQA Guidelines, the Lead Agency is responsible for the selection of the alternatives to be evaluated. Both CEQA and NEPA provide guidance for Lead Agencies to use when selecting alternatives to the project, including consideration of off-site alternatives. Chapter 4 of the EIR/EIS describes the alternatives to the project which include variations of the proposed mining plan, a floodplain protection alternative, a creek buffer alternative, a recycling alternative and several off-site alternatives. Some of these alternatives were removed from further consideration in the EIR/EIS because they would not avoid or eliminate the environmental impacts of the project, would create additional impacts, or for other reasons as explained in Chapter 4. It is also important to note that aggregate is a diminishing resource in high demand. This restricts practicable alternatives with regard to resource location where the aggregate would be used, and availability (e.g., for sale) of other sites.

EPA-9: An EIR/EIS for the north project was prepared in 1995. In August of 1996, final approval from the United States Army Corps of Engineers was granted for the north project. There are approximately 68 million tons of aggregate resources located within the north project site. Assuming the average annual rate of aggregate consumption in the Sacramento region continues at a rate of 8.5 million tons per year, the north project would provide about 8 years of supply or approximately until the year 2003 (four years from the release of this Final EIR/EIS). However, at this time aggregate is being consumed at a faster rate due to improved economic conditions and increased construction. This scenario assumes that mining and reclamation *is* allowed, as proposed and evaluated in the EIR/EIS for the north project. If, however, mining is permanently precluded in the 150-foot buffer area (imposed by Special Condition 1 in the approved 404 Permits for the north project), then the total aggregate available from the north site would be reduced, thereby shortening the mine's life. It is also important to note that considerable lead time in the permitting process is necessary.

EPA-10: Section 6.7 of the EIR/EIS identifies the environmentally superior alternative consistent with the requirements of the California Environmental Quality Act and the National Environmental Policy Act. Consistent with Corps procedures, the Least Environmentally Damaging Practicable Alternative (LEDPA) is not identified until completion of the permitting process, including publication of the FEIS and production of the Record of Decision. As described in Section 6.7, the 100-Year Floodplain Protection Alternative is considered the environmentally superior alternative. Under that alternative, mining would occur entirely outside of the 100-year floodplain. Since release of the Draft EIR/EIS, various commentors, including the EPA, have requested that a variation of the 100-year floodplain alternative be considered. This variation, now referred to as the "Creek Buffer Alternative," would allow additional mining

such that project feasibility is enhanced, while minimizing the wetland/riparian habitat impacts. Please refer to response to comment UCC-2 for additional information on this alternative.

EPA-11: Comments noted. Please refer to response to comment EPA-5 above and Section 6.7 (Identification of Environmentally Superior Alternative).

EPA-12: The referenced alternatives analysis from the Technical Appendix (B) of the EIR/EIS was prepared specifically for the Vineyard I parcel and represents the Granite portion of the larger project site. A separate alternative analysis dated January 18, 1984, was completed for the Aspen IV and V South sites and is included in Appendix F (Refer to Chapter 3, Project Description, in the EIR/EIS for additional detail).

EPA-13: Avoidance of the 24.56 acres of jurisdictional wetlands on the project site during mining, or roughly 2.7% of the proposed mining area, would not translate to a 2.7% reduction in aggregate material unless mining was conducted to the edge of each wetland, resulting in perched wetlands 35 to 45 feet above the resulting ground surface. (Please note that in their letter dated 7/2/97, the US Army Corps of Engineers verified that the total amount of jurisdictional waters on the Vineyard I site was reduced from 21.95 acres to 17.22 acres thereby reducing project total to 19.83 acres.) The depth and quality of aggregate within the project site varies and is most abundant and of highest quality along the creek. Thus avoidance of the 2.7% land area would not result in a commensurate reduction in aggregate resources of "...somewhat more than 1.00 million tons..." In addition, avoidance of the wetland areas only would also require setback/buffer areas and additional land for the side slopes of the proposed mining activities and would therefore require more than 24 acres of land. Regardless of this, the EIR/EIS does evaluate two alternatives focused on the protection of wetland resources: the 100-Year Floodplain Protection Alternative and the Creek Buffer Alternative (that establishes a 150-foot buffer on either side of the creek). The latter alternative was included in the Final EIR/EIS at the request of the EPA and other commentors (refer to response to comment UCC-2 for additional information on this subject).

Currently, there are private companies in the County which recycle concrete and asphalt and the EIR/EIS has been corrected to reflect this fact. Additional information on current recycling opportunities within the County was provided to the US Army Corps of Engineers in a letter from one of the project proponents (Granite Construction Company) dated March 18, 1998, and updated May 17, 1999. As described in the letter, possible uses for recycled materials are currently limited to aggregate base materials, and as an additive to asphalt production (generally at a maximum of 20%). Despite ongoing efforts by private sector and local and state agencies, recycling has historically had the potential to only provide approximately 25% of the materials under demand (assuming that an adequate supply of recyclable material has been available for reprocessing). It is expected that as aggregate resources are depleted, recycling will become more cost effective and important in extending supplies. For additional information on recycling, please refer to Chapter 4 and Appendix B of the EIR/EIS.

EPA-14: Additional information on the alternative off-site locations considered is provided in Appendix B, specifically on pages B-105 through 116. This discussion presents a site-by-site analysis of the reasonable off-site locations, including an analysis of available aggregate resources, onsite wetlands, land uses, and ownership. Regarding the cost of transportation,

information is provided in the EIR/EIS related to this subject. The commentor is referred to page 2-2, which indicates that based on the California Public Utilities *Commission's 1993 Minimum Rate Tariff Area 7 Rates*, it was assumed that transporting aggregate 40 miles would increase the cost at least 65 percent.

EPA-15: The comments regarding the 404(b) analysis are noted. Refer to response to comment UCC-2 for information on the modified floodplain protection alternative evaluated in the Final EIR/EIS.

EPA-16: Although different sequences may, in the short-term, preserve some wetlands, the end result would be elimination. Appropriate mitigation for a Corps permit would be required prior to determining the LEDPA.

EPA-17: No increase in downstream stormwater flows would occur as a result of the proposed project. If detention facilities are permitted, downstream flows would likely be attenuated. Detention facilities would probably reduce erosion and sedimentation. The commentor expresses concern based on referenced statement from Section 4.3 of the EIR/EIS: "...the proposed project may cause impacts to Beach and Stone Lakes due to increased stormwater flows." Section 4.3 of the EIR/EIS does not state this. Chapter 4 of the EIR/EIS presents the alternatives to proposed project, and Section 4.3 describes the County Drainage Alternatives (Part B). Within this discussion there is one reference to Beach and Stone Lakes. The reference, made in the first paragraph under 4.3, states that: "The studies also indicated that further downstream, because the outlet of Beach/Stone Lakes can be blocked by high Delta flood stages, any increases in the volume of storm water flowing into the lake would aggravate (to some degree) flooding in the surrounding area." This statement is referring to an existing condition that was identified in studies conducted by the City of Sacramento and Corps of Engineers that identified flood control deficiencies within the Morrison Creek channel downstream of the project site. It is not related to conditions that might be induced by the proposed project or the Part B drainage alternatives. Both Part A and B Drainage Alternatives were identified as part of comprehensive flood control study entitled Drainage Mitigation Plan for Morrison Creek Mining Reach (Montgomery Watson, August 1995). The purpose of the alternatives and the plan itself is to provide for the long-term, safe conveyance of flood flows within the Morrison Creek Reach.

The proposed project's impacts on downstream uses, including water quality and biological resources, are analyzed in Chapter 5 of the EIR/EIS. Refer to Sections 5.1 and 5.7 for a discussion of impacts and mitigation that would be required if the project is approved. As described in these sections, potential downstream impacts would be reduced to a less-than-significant level by implementation of a series of mitigation measures and existing regulatory controls.

EPA-18: An additional alternative was considered per the commentor's recommendation. Please refer to response to comment UCC-2 that addresses this issue. The commentor's recommendations regarding mitigation ratios and potential off-site locations is noted. As a point of clarification, no vernal pools would be displaced by the proposed project.

EPA-19: The only vernal pools on the project site are on the Aspen V South property, and these vernal pools would be avoided by the proposed mining and reclamation activities (refer to Figures 3-6c and 5-8). Also refer to response to comment OEPC-3.

EPA-20: The project would not result in increased erosion, turbidity or significant changes in sediment transport offsite. The upstream section of natural channel would remain unchanged and "natural". The new bypass channels would be constructed to withstand a 100-year flow, and therefore would be constructed to be stable in lesser flows. The project and its construction would be subject to permit requirements for Stormwater Pollution Protection Plan (SWPPP) and Waste Discharge Requirements by Regional Water Quality Control Board (RWQCB). This permit will consider the construction impacts of the bypass channel and will likely require measures to protect water quality and compliance with the Water Quality Control Plan. Since the final project design will be subject to modification during the EIR/EIS approval process, formulating precise water quality measures is not practical. As the EPA suggests in the last comment, the RWQCB is best qualified in this circumstance to formulate specific requirements under the SWPPP to carry out water quality protection. Also see response to comment EPA-5.

EPA-21: Comment noted. The mitigation related to water quality monitoring that was conducted by the Air Force has been revised to reflect that no on-site monitoring wells currently exist.

EPA-22: As discussed in Section 5.4 of the EIR/EIS, the project is located within the southern portion of the Sacramento Valley Air Basin, which is designated a nonattainment for the federal carbon monoxide standard and severe nonattainment for the federal ozone standard. The U.S. Environmental Protection Agency's general conformity rule, codified in 40 CFR Part 93, Subpart B, provides that a general conformity determination be conducted for increases in pollutants which could affect existing nonattainment or maintenance conditions. Conformity determinations are required for increases in nonattainment pollutants that equal or exceed 100 tons per year for emissions of carbon monoxide and 25 tons per year for emissions of ozone precursor pollutants within severe nonattainment areas.

The analysis of impacts to regional air quality is presented in Section 5.4.2 of the EIR/EIS. Based on this analysis, under the worst-case project scenario (i.e., on-site processing plant alternative) would result in emissions of carbon monoxide and ozone precursor emissions, including an estimated 4 tons/year of ROG and 51 tons/year of NO_x. However, according to the proponents, equipment used on the proposed project site would be transferred from active mining areas, as the currently mined areas are depleted. The emissions associated with activities conducted at the project site, though substantial, would be replacing emissions currently occurring in other mining areas. In addition, the overall capacity and annual throughput of aggregate, asphaltic concrete and Portland cement concrete in the region would not be changed by the proposed project. As a result, no net change in regional emissions associated with the proposed project would occur. Because the proposed project is not expected to result in a net increase in emissions of carbon monoxide or ozone precursor pollutants, a formal conformity determination is not an anticipated requirement for project.

EPA-23: The recommendations related to pollution prevention are noted. As a point of clarification, the on-site processing plant option has been removed from further consideration by the project applicants. Following the review period on the Draft EIR/EIS, the applicants were able to successfully negotiate the required easements to allow conveyor access to an existing plant north of the project site. The EIR/EIS currently has mitigation to reduce potential water quality impacts associated with the use of hazardous materials (please refer to Sections 5.1.3 and

5.1.2 – under "Recommendations/Requirements of Public Agencies" and "Mitigation Measures" for detailed information on this subject).

EPA-24: If future gold recovery operations at the project site require the use of chemicals or hazardous materials and such uses require discretionary action by the County Board of Supervisors then additional environmental review of the project under CEQA and NEPA would be required. This activity may not be subject to Section 404 jurisdiction. There are several federal and state environmental laws governing the use of hazardous materials that may also be triggered by such uses and would require the applicant to comply with specific preventative, safety, reporting and contingency planning requirements should such uses be proposed in the future.

SAC

DEPARTMENT OF UTILITIES

ENGINEERING SERVICES

CITY OF SACRAMENTO
CALIFORNIA

5770 FREEPORT BLVD.
SUITE 100
SACRAMENTO, CA
95822-2011

PH 916-433-6318
FAX 916-433-6652

April 21, 1997
970214:DRS

MEMORANDUM

TO: Grace Garcia, Environmental Services Division

FROM: David R. Schamber, Associate Engineer DRS

SUBJECT: DEIR/EIS for the Morrison Creek Mining Reach Downstream (South) of Jackson Highway (Control Numbers: 94-UPB-0484, 91-CZB-UPB-0118, 90-CZB-UPB-1607 and 94-CZB-UPB-0671)

Thank you for the opportunity to review and comment on the above subject document. Our comments are as follows:

- **Flood Control.** The City of Sacramento supports the County Drainage Alternatives (Part B) which will reduce downstream flooding. The plan which lowers the downstream 100-year channel discharge below the existing channel capacity and provides for detention storage is preferable to the City. SAC-1

- **Sediment.** The County Drainage Alternatives (Part B) will utilize the gravel pits created by the mining operation as detention basins for flood control. If sediment loading from the upstream watershed is significant, a portion of the storage volume in the gravel pits should be reserved for the accumulation of sediment. A maintenance program needs to be established to periodically remove the accumulated sediment. SAC-2

If you have any questions regarding the above comments, please contact me at 433-6660.

cc: Dave Brent, Supervising Engineer

SAC, Letter from the City of Sacramento dated 4/21/97

SAC-1: Following additional consideration and evaluation of the "Part B County Drainage Alternatives," the County of Sacramento determined that the incremental downstream flood control benefits would be minimal. Therefore, the County has decided to forgo additional consideration of this alternative at this time.

SAC-2: Comment noted. Please refer to response to comment SAC-1 above.

TD

COUNTY OF SACRAMENTO

Inter-Agency Correspondence

April 29, 1997

To: Bob Davison
Public Infrastructure Planning and Financing Section

From: Hardeep Sidhu HS
Transportation Division

Subject: **NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT / ENVIRONMENTAL IMPACT STATEMENT FOR MORRISON CREEK MINING REACH SOUTH OF JACKSON HIGHWAY: ASPEN III SOUTH (94-0484), VINEYARD I (91-0018), ASPEN IV SOUTH (90-1607), ASPEN V SOUTH (94-0671).**

The Transportation Division has reviewed the Draft Environmental Impact Report / Environmental Impact Statement for the above referenced project and recommends the following conditions for it's approval. All recommended conditions and mitigation measures in the DEIR which require the installation of improvements and recordation of right-of-way shall be met before the issuance of the work authorization permit, unless otherwise stated.

1. Grant the County right-of-way for Fruitridge Road based on an 84' standard and install public street improvements pursuant to the Sacramento County Improvement Standards.

2. Grant the County right-of-way for Mayhew Road based on an 84' standard and install public street improvements pursuant to the Sacramento County Improvement Standards.

3. Grant the County right-of-way for Elder Creek Road based on an 84' standard and install public street improvements pursuant to the Sacramento County Improvement Standards.

4. Grant the County right-of-way for Bradshaw Road based on an 108' standard and install public street improvements pursuant to the Sacramento County Improvement Standards.

5. Grant the County right-of-way for Hedge Avenue based on an 60' standard and install public street improvements pursuant to the Sacramento County Improvement Standards.

6. Grant the County right-of-way for Jackson Road based on an 108' standard and install public street improvements pursuant to the Sacramento County Improvement Standards.

TD-1

7. Grant the County additional right-of-way on Fruitridge Road/Mayhew Road for intersection widening per standard drawings H-24 and H-25 of the Sacramento County Improvement Standards.

8. Grant the County additional right-of-way on Elder Creek Road/Mayhew Road for intersection widening per standard drawings H-24 and H-25 of the Sacramento County Improvement Standards.

9. Grant the County additional right-of-way on Elder Creek Road/Hedge Avenue for intersection widening per standard drawings H-24 and H-25 of the Sacramento County Improvement Standards.

10. Grant the County additional right-of-way on Bradshaw Road/Jackson Road for intersection widening per standard drawings H-24 and H-25 of the Sacramento County Improvement Standards.

11. The proposed conveyor tunnels under various roadways shall be designed to accommodate the ultimate roadway cross-section to the satisfaction of the Transportation Division of the Public Works Agency/Caltrans. TD-1

12. Fruitridge Road between the Aspen III South driveway and Mayhew Road shall be overlaid to the satisfaction of the Transportation Division of the Public Works Agency. This overlay shall be done within three months of the completion of the initial overburden removal for the Aspen III South project.

13. Install Class "C" intersection widening on Elder Creek Road/Mayhew Road per standard drawing H-28 of the Sacramento County Improvement Standards. This widening should include an eastbound left turn lane in addition to the right turn deceleration lane as shown in the mitigation measures to the satisfaction of the Transportation Division of the Public Works Agency.

14. Retain a qualified geotechnical consultant to prepare a soils report for Elder Creek Road between South Watt Avenue and Bradshaw Road to assess the structural section of the existing pavement. The report should include recommendations regarding the need to upgrade the pavement section to accommodate the additions truck traffic from the project site.

15. The location, number and design of the access driveways for various project sites shall be to the satisfaction of the Transportation Division of the Public Works Agency.

16. No truck access for overburden removal or aggregate shall be allowed onto Fruitridge Road

TD

between South Watt Avenue and the previously approved Aspen III South access point.

17. Pave Mayhew Road from Elder Creek Road to 200 feet north of Elder Creek Road TD-1

The above mentioned recommended conditions are in addition to the mitigation measures listed in the DEIR for this project. Please call me at 440-5966, if you have any questions.

c: Steve Hetland
Steve Hartwig
Kevin Crawford & Paul Philleo, LD&SIR

TD, Letter from County of Sacramento, Public Works Agency - Transportation Division dated 4/29/97

TD-1: The recommended conditions of approval have been incorporated into Section 5.8.3 of the EIR/EIS with the exception of numbers 13, 14 and 17. These conditions would no longer be relevant to the proposed project based on another condition restricting access to and from Elder Creek. Please refer to the mitigation measures presented in Section 5.8.3 of the EIR/EIS for additional information.

WRD

COUNTY OF SACRAMENTO
WATER RESOURCES DIVISION
INTER-DEPARTMENT CORRESPONDENCE

MEMORANDUM

April 11, 1997

TO: **Susan Goetz**
Public Infrastructure Planning and Financing Section

FROM: **James J. Paluck**
Water Resources Division

SUBJECT: **Comments on the DEIR for Morrison Creek Mining Reach Downstream (South) of Jackson Hwy, Control No. 94-0484, 91-0118, 90-1607 & 94-0671**

The Water Resources Division (WRD) has the following comments on the subject project.

On Pages ES-2 and 5-6 (#4), the Draft EIR includes the following condition of approval:

> "Drainage easements shall be provided and facilities installed pursuant to the Sacramento County Floodplain Management Ordinance, Sacramento County Land Grading and Erosion Control Ordinance, Sacramento County Water Agency Code, and Sacramento County Improvement Standards, including any fee required by Ordinance No. 1 of the County Water Agency."

This condition should be deleted or revised. In my previous memorandum dated November 20, 1995, it states that the SCWA <u>will not</u> accept operation and maintenance of the drainage improvements, including pump stations and the reconstructed channel of Mather Drain and Morrison Creek. Therefore, no easements will be taken over the proposed drainage channels. WRD-1

On Pages ES-3 and 5-6 (#6), the Draft EIR includes the following condition of approval:

> "Prior to the improvement plan approval or recordation of the final map, whichever occurs first, a fair-share contribution to the costs of the following shall be paid: delineating wetlands; preparing a drainage master plan; acquiring right-of-way for and constructing flood control detention and water quality facilities; and providing environmental mitigation for drainage improvements..."

This condition should be deleted since the new SCWA code incorporates this fair-share contribution into the revised drainage fees. WRD-2

If you have any questions, please feel free to contact me at 440-6851.

302/13.08

cc: Craig Crouch Terri Wegener Pete Ghelfi

WRD, Letter from County of Sacramento, Public Works Agency - Water Resources Division dated 4/11/98

WRD-1: Comment noted. The EIR/EIS has been revised as requested to correctly reflect that no drainage easements will be necessary or accepted by the County.

WRD-2: Comment noted. The EIR/EIS has been revised as requested.

WQD

COUNTY OF SACRAMENTO

Public Works Agency
Water Quality Division Memorandum

April 24, 1997
E225.000

TO: Susan Goetz
Public Infrastructure Planning & Finance Section

FROM: Bob Lilly BL
Water Quality Division

SUBJECT: **DRAFT EIR FOR THE MORRISON CREEK MINING REACH SOUTH OF JACKSON HIGHWAY**
CONTROL NO. 94-UPB-0484, 91-CZB-UPB-0118, 90-CZB-UPB-1607, 94-CZB-UPB-0671

Water Quality Division staff on behalf of Sacramento Regional County Sanitation District (SRCSD) and County Sanitation District No. 1 (CSD- No. 1) has reviewed the subject document on and has the following comments.

The following comments should be changed on page ES-21, Table ES-1.

Heading: Requirements/Recommendations of Public Agencies

Existing comment: "As a condition of approval of the project ... two public utility corridors."

Replace with: As a condition of approval of this project , the proponents shall enter into an agreement with SRCSD for the dedication of a 130-foot wide strip of land to provide for construction of sanitation pipeline and/or drainage facilities. If interceptor construction occurs prior to mining, the proponent will not mine in a 40-foot strip of land shown as SRCSD PERMANENT EASEMENT on Exhibit A enclosed. Proponent will protect the integrity of the pipeline from mining activities conducted adjacent to the permanent easement.

WQD-1

WQD

Susan Goetz
April 24, 1997
Page 2

Heading: Mitigation Measures

Existing Comment: "The proponents shall consult ... to facilitate final plans..."

Replace With: The proponents shall enter into an agreement with SRCSD staff regarding the placement and disposition of the utility corridors (to accommodate the gravity sewerage system) as they relate to the project site and the proposed project. The final plans shall be approved by SRCSD staff WQD-2

On page 5-109 the description of the projects includes the Mather Interceptor. This facility is no longer affected by this project as the current alignment proposed for the Mather Interceptor is along Kiefer Boulevard. WQD-3

If you have any questions, please contact me at Ext. 5-6865.

BL

cc: Michael A. Maggi
John C. Boehm
Neal B. Allen

lilly/goetz714.mem/203641

WQD, Letter from County of Sacramento, Public Works Agency – Division of Water Quality dated 4/24/97

WQD-1: Comment noted. The EIR/EIS has been revised as requested.

WQD-2: Comment noted. The EIR/EIS has been revised as requested.

WQD-3: Comment noted.

May 23, 1997

Mr. Dennis Yeast
Environmental Coordinator
County of Sacramento
Department of Environmental Review and Assessment
827 7th Street, Room 220
Sacramento, CA 95814

SOUTHGATE
RECREATION & PARK DISTRICT

Sheldon
ministrative Headquarters
6000 Orange Avenue
acramento, CA 95823
Phone 916-428-1171
acsimile 916-428-7334

Board of Directors
Robert D. Cochran
ohn E. Cockerham
r. Dennis McKibben
Edwin A. Smith
hristine Thompson

General Manager
Larry Gury

ant General Manager
Ward Winchell

Dear Dennis:

Enclosed please find Southgate Recreation and Park District Resolution #96-148 which was approved by our Board of Directors at their meeting of May 20, 1997. This Resolution provides comments regarding the Draft EIR/EIS for the Morrison Creek Mining Reach South of Jackson Highway. The project is identified by Control Numbers 94-UPB-0484; 91-CZB-UPB-0118; 90-CZB-UPB-1607; and 94-CZB-UPB-0671.

Our Board of Directors has reviewed the project and the project site. They have also met with the mining representatives. Their comments in this resolution reflect a strong desire to utilize natural areas such as creekways as logical corridors for off-street bicycle travel; not limited to recreation, but also as functional commuter routes for our ever-increasing population. The Board has noted their desired options for providing such an amenity which could be provided after the completion of any mining, either through the project's reclaimed creek corridor, or along the bypass channel's maintenance road. SRPD-1

Regarding the timing of our comments, I spoke to Cathy Hack who indicated that although the 45 day review period is passed, our District can submit comments anytime prior to the Planning Commission hearing for this project. Therefore, please review the attached comments and include them in information sent to the Planning Commission and the Board of Supervisors regarding this project.

Sincerely,

Claudia Gunter
Government Relations Officer

cc: Supervisor Don Nottoli
Larry Vinzant, Army Corps of Engineers

Resolution 96-148

COMMENTING ON THE MORRISON CREEK MINING REACH DOWNSTREAM (SOUTH) OF JACKSON HIGHWAY

SOUTHGATE
RECREATION & PARK DISTRICT

Sheldon
Administrative Headquarters
6000 Orange Avenue
Sacramento, CA 95823
Phone 916-428-1171
Facsimile 916-428-7334

Board of Directors
Robert D. Cochran
John E. Cockerham
Dr. Dennis McKibben
Edwin A. Smith
Christine Thompson

General Manager
Larry Gury

Assistant General Manager
Ward Winchell

WHEREAS, the Southgate Recreation and Park District is in receipt of a Draft Environmental Impact Report/Environmental Impact Statement from the County of Sacramento Department of Environmental Review and Assessment, identified by Control Numbers 94-UPB-0484; 91-CZB-UPB-0118; 90-CZB-UPB-1607; and 94-CZB-UPB-0671 which are owned by Granite Construction Company and Teichert Aggregates; and

WHEREAS, this project is bounded by Jackson Highway to the north, Elder Creek Road to the south, Hedge Avenue to the west, and Excelsior Road to the east; and

WHEREAS, the project applicants propose to impact the existing Morrison Creek through mining, and to construct an elevated bypass channel around the portions of the perimeter of the project site to handle diverted creek flows; and also to create a realigned Morrison Creek Corridor which will contain mitigation consisting of perennial marsh, riparian woodlands, seasonal marsh and valley oak woodland; and

WHEREAS, the Southgate Recreation and Park District places a high value on identifying locations for and encouraging development of off-street bicycle trail systems throughout the District wherever possible to accommodate both recreational users and commuters; and

WHEREAS, the County of Sacramento has identified measures in the 2010 Bikeway Master Plan *(1992)* which support bikeways, with specific references to:

> *1. Requiring the dedication of trail corridors and street rights of way as property is reviewed and approved for development (Chapter 3, page 11)*
> *2. Establishing, where appropriate, bikeways along existing trails, levees, railroads, streams, rivers, power lines, and drainage canals for both recreational and commuter bicycling. (Chapter 5, page 9); and*

NOW, THEREFORE, BE IT RESOLVED, that the Board of Directors does hereby comment of the Draft EIR/EIS for the Morrison Creek Mining Reach Downstream of Jackson Highway as follows:

1. The proposed Morrison Creek Mining Reach project should include a **publicly accessed trail requirement as a condition of approval** due to the importance placed on such facilities by the public and the County of Sacramento as published in the Bikeway 2010 Master Plan document and adopted by the Sacramento County Board of Supervisors. **SRPD-2**

Resolution 96-148
Page 2 of 2

2. The Southgate Recreation and Park District has identified that such a trail could exist either along the proposed maintenance road which will be required along the elevated bypass channel, with such a road to meet the requirements for safe bicycle travel and constructed by the project developers; or through the re-created Morrison Creek Corridor through the project site, with the developer to adjust the pit side slopes at the areas leading into the Corridor to allow for safe entry into and out of the project site by trail users. SRPD-3

3. The nature of business by the mining operators allows them access to the types of simple materials required for an asphalt trail improvement, and therefore the proposed bicycle trail should be constructed by the developer, and dedicated to the Park District for ongoing preservation and maintenance, placing the land into public trust, when mining operations are completed. SRPD-4

4. The Southgate Recreation and Park District will continue to provide coordination and planning efforts to link this proposed trail to future District and County-wide recreational and trail facilities to provide logical bicycle commuting routes and recreational opportunities for the residents of Sacramento County. SRPD-5

BE IT FURTHER RESOLVED, that the Southgate Recreation and Park District Board of Directors encourages the developers to maintain close communication and discussions with the Park District regarding the aforementioned concerns in order to achieve a mutually acceptable solution to this request. SRPD-6

PASSED AND ADOPTED by the Board of Directors of the Southgate Recreation and Park District this 20th day of May, 1997, by the following vote to wit:

AYES:
Cochran, Cockerham, McKibben Smith and Thompson

NOES:
None

Edwin A. Smith, Chair

Christine Thompson, Clerk

SRPD, Letter from Southgate Recreation & Park District dated 5/23/97

SRPD-1: Comment noted.

SRPD-2: Comment noted. Please refer to response to comment UCC-3.

SRPD-3: The District's recommendations regarding placement of a proposed trail are noted.

SRPD-4: The District's recommendation regarding the applicant's role in constructing a proposed trail and its future dedication are noted. Also see response to comment UCC-3.

SRPD-5: The District's commitment and ongoing coordination of the countywide trail system is noted.

SRPD-6: The District's recommendation for the proponents to maintain close communication on the aforementioned issues is noted.

SAS

April 29, 1997

Dennis Yeast
County of Sacramento
Department of Environmental Review and Assessment
827 7th Street, Room 220
Sacramento, CA 95814

Regarding: DEIR/DEIS, Morrison Creek Mining Reach Downstream (South) of Jackson Highway

Dear Mr. Yeast,

After reviewing the environmental documentation for this project, we have concerns that we would like to see addressed. We intend to elaborate on this letter at the Policy Planning Commission hearing. We have been informed by your staff that written and oral comments presented at that hearing will be responded to in the FEIR.

Project Description

We question whether the Project Description is proper. The DEIR/EIS states that the applicant must prepare an analysis that considers the possibility that mining and detention may not occur on the upstream reach and detention may be required in the downstream reach. This possibility is not considered in any of the project alternatives. Neither does the Project Description include this possibility. Therefore the Project Description may be inadequate. However, inclusion of this possibility would seem to introduce instability to the project description. In either case, the DEIR fails to meet its purpose of informing the public. We have had difficulty analyzing the impacts and proposed mitigations for the various project alternatives and County drainage alternatives. Much of that difficulty may stem from the above-mentioned uncertainties. SAS-1

Mitigation

We have questions regarding the mitigation plans. Our first question is how will mitigation be affected if the south reach is required in the future to supply more detention capacity than is shown in any of the alternatives described in the DEIR? How will mitigation be affected if the Board of Supervisors approves the Mining Plan (Part A) and later (before construction begins) approves one of the County Drainage Alternatives (Part B)? We have been advised by your staff that this is a realistic possibility. Mitigation appears to be uncertain. SAS-2

Natural Resources are the Wealth of the Nation

Please address the mitigation corridor interface between Aspen IV South and Vineyard I. It is unclear to us how the two mitigation plans would mesh. Additionally, are the proposed blackberry plantings expected to provide adequate thickets for tri-colored blackbird nesting? SAS-3

Thank you for considering our comments.

Sincerely,

Roy Geenaway

Roy Geenaway, Vice President
Sacramento Audubon

Alta Tura

Alta Tura, Conservation Committee
Sacramento Audubon
4633 Q Street
Sacramento, CA 95819
454-4544

SAS, Letter from Sacramento Audubon Society dated 4/29/97

SAS-1: In August 1996 the United States Army Corps of Engineers issued Section 404 permits (#198900074 and #198900076) for the "north project" located upstream of Jackson Highway). Included in the final permits was "Special Condition 1" which required that a 150-foot setback be established from the lateral extent of the Corps jurisdiction along Morrison Creek. The buffer area is being required for a period of 5 years to determine if riparian vegetation can establish itself within the creek corridor and if an elevated creek channel is safe and feasible. If these two conditions are successfully demonstrated, than the 150-foot buffer will remain as a permanent component of the northern reach and mining will be precluded within that area. If either of these two conditions are not met, and subject to approval by the Corps, mining and reclamation of the entire northern site will occur as proposed and evaluated in the prior EIR/EIS for the northern project (and as previously approved by the County Board of Supervisors).

When the Section 404 permits were issued for the north site in August 1996, the proposed mining, reclamation and drainage plans for the south property had already been prepared and work on the Draft EIR/EIS was in progress. Based on the 5-year waiting period and potentially temporal nature of "Special Condition 1" on the north property, it was determined that modification to the mining, reclamation and drainage plans to develop an alternative scenario based on "Special Condition 1" was not necessary at that time. Such modifications are also not being proposed by the project proponents at this time. In the event that the mining and reclamation is precluded within the 150-foot buffer area on the north site by the Corps, the proponents may be required to prepare necessary revisions to the proposed mining and reclamation plans. Such revisions will be subject to review and approval by the County, and will undergo subsequent environmental review

SAS-2: The "County Drainage Alternatives (Part B)" were evaluated in the Draft EIR/EIS and are provided in Appendix D of that document. These drainage alternatives were originally considered by the County as means to obtain additional downstream flood control benefits. As a result of independent studies conducted by the County Public Works Agency Water Resources Division and the Army Corps of Engineers; however, it was determined that the amount of flood control benefit that would be realized (under both current and anticipated future conditions) would be minimal. Thus, the County has decided to forego further consideration of the Part B Drainage Alternatives. A letter from the WRD stating this is provided in Appendix D of the FEIR/FEIS.

SAS-3: The proposed Wetland Mitigation Plans for all properties within the project site are presented in Appendix B of the Draft EIR/EIS, including the referenced Aspen IV South (see page B-124) and Vineyard I (see page B-35). Although Aspen IV South and Vineyard I plans are presented on different maps (as different applicants own them), the overall design of the proposed mitigation plan is consistent. As described in Appendix B, a contiguous 600-foot creek corridor would be established to accommodate the realigned Morrison Creek. Emergent wetland, riparian and upland habitat would be established throughout the corridor. Mitigation has been proposed in the EIR/EIS that would not only require implementation of the proposed plans, but also would require additional monitoring, compliance with specific performance standards, and contingency requirements to ensure successful implementation. As discussed under impact # 11 in Section 5.7.2 of the EIR/EIS, the proposed perennial marsh and lower riparian habitat areas

are intended to provide suitable habitat for the tricolored blackbird. For additional information on the wetland mitigation plans and biological impacts and mitigation, refer directly to Appendix B and Section 5.7 of the EIR/EIS.

UCC

Urban Creeks Council
4855 Hamilton Street, Sacramento, CA 95841
(916) 482-8377 Fax (916) 482-8410

SACRAMENTO CHAPTER

April 29, 1997

Dennis E. Yeast
County of Sacramento
Department of Environmental Review and Assessment
827 7th Street, Room 220
Sacramento, CA 95814

Subject: Morrison Creek Mining Reach Downstream (South) of Jackson Highway DEIR/EIS
Control Numbers: 94-UPB-0484, 91-CZB-UPB-0118, 90-CZB-UB-1607, and 94-CZB-UPB-0671

Dear Mr. Yeast:

As you know, we are a chapter of the Urban Creeks Council of California whose purpose is to encourage the preservation, protection, restoration, and maintenance of natural streams in urban environments. Our efforts are directed to protect natural streams and prevent incursions into floodplains and floodways of natural creeks. As with the Upstream mining project, we find ourselves in the predicament of commenting on the removal of a natural stream and its incumbent wildlife habitat.

Fish

As with the North Reach, we request a fish survey be conducted to determine the potential loss to fisheries. The EIR mentions that the native Sacramento blackfish might be present as well as non-native species of fish. Please address the impacts to aquatic wildlife from pumps and low flows in the mitigation area. UCC 1

Loss of Natural Riparian Corridor and Creek

All of the existing riparian corridor along the portion of the creek to be mined will be lost. None of the alternatives adequately address replacement of the creek bed and banks and corridor. The Army Corps of Engineers has conditioned its permits for the Mining Reach Upstream to prohibit mining within a 150 foot creek corridor for the first five years of the permits. It seems this would be a more reasonable alternative than the 100 year Floodplain Protection Alternative. A Creek Corridor Protection Alternative would be more feasible in that it would allow more mining than the 100 Year Floodplain Protection Alternative. It would also lessen significant biological and geological impacts of the proposed project. We feel the EIR/EIS discussion of alternatives is inadequate due to the omission of this known alternative. UCC 2

Parks/Public Access

Whatever alternative is chosen, it should contain a parks/public access component. Although the property will remain in private ownership and inaccessible to the public for at least another twenty (20) years, now is the time for the mining companies to make a commitment of giving the public an opportunity to enjoy wildlife habitat and passive recreation with a trail/wildlife corridor in the reclaimed pit floor. Park staff and the County Parks Commission should have preliminary and continuing input into issues such as public access, possible passive recreation uses, and the restoration of the site. A process or structure should be set up by the mining companies to turn over property to the County for public access and passive recreation as the land is restored and mining activities cease. UCC 3

Flood Protection and Consequences of Flooding

We have concerns about the bypass channel that not only include, but go beyond aesthetics. Keeping in mind that historically engineers have underestimated storm and flood events when designing capacities of drainage systems, it seems prudent to design for more than the 100 year event. To our knowledge, in the last ten years, we have had three 500 year events. The alternative plans should look at the 200 year volume and what would be required to accommodate that flood or storm event. Planning for the 200 year event would support County staff's commitment to flood protection for the downstream communities. At the least, the proposed project alternatives should include an analysis on the impacts of the greater than 100 year flood to the project area, downstream and upstream. UCC 4

Conclusion

The Urban Creeks Council cannot select any of the alternatives presented in the Environmental Impact Report. We can only support an alternative that best provides for habitat and aesthetics, keeping in mind the creek's present and potential value as habitat, as a place for passive recreation, and a place that provides a greenway within the urban area. The EIR/EIS should present and discuss such an alternative. UCC 5

Sincerely,

Jane A. Steele
President

UCC, Letter from Urban Creeks Council dated 4/29/97

UCC-1: Impacts to fisheries have been evaluated based upon reconnaissance-level field visits, existing reports, and based on the habitat conditions of the creek and assumptions about the fish that it supports; namely, a warm water fishery. Fish habitat was recognized as a value of Morrison Creek. However, it is not believed to be a significant fishery resource since these habitats, both pre-project and post-project, would only be seasonal and could not support year-round fish populations. The only exception would be small isolated pools subject to intensive predator pressure. The wetland mitigation plan for the proposed project was designed to restore wetland habitat along the creek corridor, including perennial marsh habitat that should be suitable for sustaining warm water fish. Some warm water fish may also migrate through and become established in the bypass channel. Mitigation measure 3 in Section 5.7.3 of the EIR/EIS requires that the bypass channel be designed to incorporate suitable habitat features for fish movement/migration and that the design of these features are developed in consultation with the USFWS, CDFS, Corps, and County. -

Impacts to fish from the pumps may include the loss of some fish taken up (entrained) in the pumps but the extent of this potential impact is not known. This potential impact seems more likely to occur at the pump that will be located at the sump pond in the downstream end of the mitigation corridor (on the Vineyard I parcel), which may support fish, than at the pump described on page 3-26 of the Draft EIR/EIS, because that pump would be at the pond/detention area on the north side of Jackson Highway and that pond/detention area is not likely to support fish. Impact #7 in Section 5.7.2 of the EIR/EIS has been expanded to explain the potential loss of individual fish from the pump. Impacts to fish and aquatic wildlife from low flows do not appear likely. The restored creek corridor will include a perennial marsh area that will provide permanent open water in several ponds, scattered throughout the perennial vegetation, that are at least three feet deep during summer water conditions (Zentner and Zentner, 1994). Fish and other aquatic wildlife will be able to congregate in and around these perennial ponds. This should mimic existing conditions of Morrison Creek.

UCC-2: A modified floodplain protection alternative, or "Creek Buffer Alternative" as proposed by the commentor has been evaluated in the Final EIR/EIS. For a description of the alternative, refer to Chapter 4. The environmental impacts of the alternative are evaluated within each subsection of Chapter 5 under the "Floodplain Protection Alternatives" heading. Provided under this heading is a comparison of the anticipated environmental effects of both the 100-Year Floodplain and Creek Buffer Alternatives.

UCC-3: Mitigation is recommended that would require both applicants to identify, record and grant to the County of Sacramento 600-foot wide open space easements within six months of completing all mining reclamation activities. The easements would be needed to delineate riparian corridors associated with the construction of the proposed seasonal drainages. The easements would identify the limits of agricultural activities so as to guarantee sufficient area to allow for regeneration of the riparian corridor and to allow for the subsequent establishment of a public trail system when deemed appropriate by the County as part of an areawide trail network involving urban stream corridors. Refer to Section 5.9.3 for additional information on this issue (mitigation measure #3).

UCC-4: The 100-year peak event has been selected as the design flood by the Sacramento County Public Works Agency Water Resources Division, and as such is used as the current standard for design of flood control facilities in the County. The purposed of preparing the Drainage Mitigation Plan for the Morrison Creek Mining Reach (Montgomery Watson, August 1995) was to provide a comprehensive evaluation of the potential long-term flood impacts. The "Part A" drainage alternative being proposed by the applicants is one of the alternatives identified in that study.

UCC-5: Comment noted. Please refer to response to comments UCC-3 and UCC-2 above.

ECS

ENVIRONMENTAL COUNCIL OF SACRAMENTO

April 29, 1997

Dennis E. Yeast
County of Sacramento
Department of Environmental Review and Assessment
827 Seventh Street, Room 220
Sacramento, CA 95814

Re: Draft EIR/EIS forMorrison Creek Mining Reach Downstream (South) of Jackson Highway
Public Notice Number 199400102

Dear Mr. Yeast:

We have reviewed the DEIR and Appendices for the project. Our concerns are many. We concur with comments from California Native Plant Society, Sacramento Audubon Society, and Sacramento Urban Creeks Council regarding project impacts on the biological resources and proposed mitigation for those impacts. This letter will outline what we see as inadequacies in planning for the Morrison Creek watershed drainage and exacerbation of those inadequacies by approval of the mining project.

ECS-1

Review of the documents is complicated by weaknesses of the Morrison Creek Mining Reach Drainage Mitigation Plan.

Page ES-2 of the DEIR states, "The proposed mining operations shall be consistent with the Drainage Mitigation Plan for the Morrison Creek Mining Reach which is currently being developed by the Water Resources Division." Consistency is impossible to determine at this time if the Drainage Mitigation Plan is still being developed.

ECS-2

Page ES-2 continues, "An analysis shall be submitted to WRD showing the reclamation plan and ultimate land use for the site. This analysis shall be consistent with WRD studies and the Drainage Mitigation Plan for the Morrison Creek Mining Reach." Are these WRD studies contained within the Drainage Mitigation Plan or are these future studies?

ECS-3

The paragraph concludes, "The analysis shall also consider the possibility that mining (and detention) may not occur upstream of Jackson Highway (as currently proposed), and detention may be required downstream of Jackson Highway (Public Works Agency, Water Resources Division)." Why should the analysis contain that possibility? Are there inconsistencies in the phasing between the North and South reach mining plans? What is the linkage between the two? Page I-1 states that the Downstream and Upstream EIR/EIS are related, but does not elaborate. It appears to us to be a vital link. Are there other possible constraints on the North Reach project not mentioned or discussed in the DEIR for the South Reach? Is WRD alluding to the Corps condition prohibiting mining

* AMERICAN LUNG ASSOCIATION OF SACRAMENTO, EMIGRANT TRAILS * CALIFORNIA NATIVE PLANT SOCIETY *
* CALIFORNIANS AGAINST WASTE * LEAGUE OF WOMEN VOTERS * LIGHT RAIL AND TRANSIT ADVOCATES *
* NATOMAS COMMUNITY ASSOCIATION * SACRAMENTO AREA BICYCLE ADVOCATES * SACRAMENTO AUDUBON SOCIETY *
* SACRAMENTO HOUSING ALLIANCE * SACRAMENTO LOCAL CONSERVATION CORPS * SACRAMENTO NATURAL FOODS COOP *
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909 12TH STREET, SACRAMENTO, CALIFORNIA 95814

within 150 feet of Morrison Creek on the Upstream reach? Wouldn't substantial changes in the Downstream Reach projects be required if mining and detention did not occur upstream? This issue should be fully disclosed and discussed before approval of the South Reach mining applications. Perhaps the better forum for this discussion would be within the formulation of a Master Drainage Plan for the watershed concurrent with the mining projects. ECS-3

Part A of the Drainage Mitigation Plan appears to have been approved by the Board of Supervisors when the North Mining Reach approvals were granted. This seems to have resulted in de facto and piece meal planning for drainage of the Morrison Creek watershed. The inadequate process continues as we review the South Mining Reach environmental documentation. Where is the policy and criteria based on what is in the best interest of the public? ECS-4

It appears that a Master Drainage Plan for the proposed mining area has not been approved by the County Board of Supervisors as an official planning document intended to guide physical alterations to the land within the drainage study area. The drainage planning conducted by the county with the assistance of the mining industry appears to have been done for the purpose of assisting and not guiding mining proposals within the subject area. We are led to believe that the intent of the County is to adopt whatever drainage plan is worked out with the mining companies as a result of their mining proposals. ECS-5

The processing and judging of a drainage master plan for the area at the same time as the mining proposals has merit, not only because of the proposed mining of aggregates within the floodplain of Morrison Creek, but because an "approved" drainage plan, in this case, will help shape the where and the how mining will take place on the site. However, it is inappropriate to use the processing of mining proposals as the means of establishing drainage and flood protection policies whose impacts reach beyond the mining sites. It also robs the public of the opportunity to judge in a more objective setting the full merits of the drainage master plan. The drainage issues being contemplated in this case transcend the interests of the mining companies and deserve being fully and properly reviewed by the general public, as a separate matter. ECS-6

Thank you for considering our comments.

Linda Whitney

Co-President

ECS, Letter from Environmental Council of Sacramento dated 4/29/97

ECS-1: The *Morrison Creek Mining Reach Drainage Mitigation Plan* was prepared under the direction of the Sacramento County Public Works Agency, Water Resources Division (WRD) in 1995, and the Final EIR/EIS has been revised as appropriate. Additional refinement of the design and construction-level detail for the facilities proposed under each of the alternatives will be needed prior to implementation. Part of this refinement process will include consideration of the progress and results of implementation on the northern portion of the reach (that was approved for implementation in 1996). Oversight and a determination of "consistency" with the Drainage Mitigation Plan for implementation of any flood control infrastructure facilities within the mining reach will continue to be the responsibility of the WRD. Please refer to response to comment SAS-1 for additional information on this subject.

ECS-2: The "WRD studies" refers to various studies conducted by and/or for the Water Resources Division. These are general studies that address issues such as drainage, flood elevation, and water supplies within the Sacramento area. These studies are not specifically related to the proposed project and, therefore, are not incorporated into the Drainage Mitigation Plan. Instead they are to be used as reference and guidance when preparing the reclamation plan.

ECS-3: Please refer to response to comment SAS-1.

ECS-4: The purpose of preparing *the Drainage Mitigation Plan for the Morrison Creek Mining Reach* (Montgomery Watson, August 1995) was to ensure that the cumulative effects of potential mining activities within the entire reach were evaluated, rather than consider such effects on a project-by-project basis. The recommendation to prepare the drainage mitigation plan came from an EIR that was prepared in 1989 for two proposed mining and reclamation projects located within the northern reach (Granite I and Aspen VI). Following the EIR's recommendation that such a plan be prepared, the Granite I and Aspen VI conditional use permit applications were put on hold for several years to allow adequate time to fully analyze the cumulative effects of mining within the Morrison Creek reach. The study was prepared under the direction of the Water Resources Division (WRD) of the County Public Works Agency. The WRD is charged with long-range planning for the ultimate needs of the County in the areas of stormwater quality, drainage, and flood control. The stated objective of the Drainage Mitigation Plan is to prepare a plan that provides for "...the safe conveyance of Morrison Creek flows through or around the reclaimed mining pits under potential land use development." To achieve this, the study evaluated existing and projected hydrologic and hydraulic conditions within the reach (for a detailed description of the methodology used, refer directly to the plan). As a result of the analysis, a series of alternatives, including the "Part A" and "Part B" drainage alternatives evaluated in the EIR/EIS were developed. These alternatives do not represent "...de facto and piece meal planning..." as the commentor suggests, rather they represent a comprehensive plan that was developed over many years of study and guidance from the Sacramento County Public Works Agency WRD.

ECS-5: Approval of the proposed project would include approval of the Drainage Mitigation Plan for that area.

ECS-6: Please refer to Response to Comment ECS-5.

RECEIVED

APR 3 0 1997

DEPT. OF ENVIRONMENTAL
REVIEW & ASSESSMENT
SACRAMENTO COUNTY

April 30, 1997

CNPS

Dennis Yeast,

To make sure I made the cut-off time on April 29th, I had to turn in my comments before I was able to reread them and make any needed corrections. I have provided you this second copy, so I can at least make chances to the most glaring mistakes - such as directing the letter to you, as opposed to Catherine Hack - and obvious typos. The rest will have to stay, since there was a deadline.

I hope this is acceptable.

Thank you very much,

Linda Bell

Linda Bell
California Native Plant Society, Sacramento Valley Chapter

CNPS

April 29, 1997

County of Sacramento
Department of Environmental Review and Assessment
827 Seventh Street, Room 220
Sacramento, CA 95814

Attn: Dennis Yeast

RE: Draft Environmental Impact Report/Environmental Impact Statement for the Morrison Creek Mining Reach Downstream (South) of Jackson Highway (Control Numbers: 94-UPB-0484 [Aspen III South], 91-CZB-UPB-0118 [Vineyard I], 90-CZB-UPB-1607 [Aspen IV South] and 94-CZB-UPB-0671 [Aspen V South]

From: Linda Bell
CNPS Sacramento Valley Chapter
2239 4th. Avenue
Sacramento, CA 95818

Dear Dennis Yeast:

Since the California Native Plant Society (CNPS) did not receive a copy of the Morrison Creek Mining Research Downstream (South) of Jackson Highway EIR/EIS until April 24th and had to borrow a copy of the Appendix (because none were available), we did not have sufficient time to thoroughly review the report. We would like the comment period to be extended, since this is such an important project which will significantly impact the Morrison Creek drainage and all of the biological, economic, and sociological communities associated with the drainage. There are ecological issues, such as the destruction of riparian communities (a very threatened plant community in California), which are being discussed in this report which can have much larger, regional effect through the precedent set by the issuance of a permit for mining aggregate in this drainage.

This report is presented "in a programmatic manner" (page 1-2). I believe that such a report should be given a longer comment period because of it's significant cumulative effect on the environment of Sacramento. The list of issues of concern included in the Scope of the EIR/EIS (page 1-2) are extensive and there was no time to adequately address all of these issues. CNPS-1

Overall Plan Comments

EIR/EIS and Appendix

Reproduction Standards: Reproduction standards must be raised so that the copies sent out for review are useable. Figures (specifically maps and their legends) are often eligible. Many of the maps in the appendix require a magnifying glass to read, and even with a magnifying glass, much of the fine lines have disintegrated and the type plugged due to poor reproduction methods. These maps and figures are integral to the evaluation process, and so have to be improved.

Appendices: The EIR/EIS reports are of little use without the accompanying details contained in the Appendices. The same number of EIR/EIS and Appendices should always be printed. The usual response is that the appendices cost too much to reproduce. If some of the sections of the report, such as the Morrison Creek Mining Reach Drainage Mitigation Plan, were written without the massive amount of repetition in certain sections, there would be enough funds to print the additional appendicies.

Table of Contents: It would be very helpful if there was a Table of Contents for the Appendix. CNPS-2

Master Plan

The County needs to develop a Master Plan for the rivers, streams, and creeks of the Sacramento Area in which their numerous values and functions are evaluated and analyzed. This Stream System Master Plan should then analyzed along with a Master Plan for the resources, demands and alternatives for aggregates to figure out how to avoid future impacts on natural stream systems. This study should cover the use of recycling and the development of alternative materials which could replace aggregate use. Riverine gravels are a finite resource and their exhaustion is inevitable. CNPS-3

The final EIR/EIS should address the importance of investigating alternative resources. We need to investigate these alternatives now, and not push this decision into the future when we have mined all the riparian corridors and have no other recourse. CNPS-4

Corp of Engineer's Conditional Permit for Morrison Creek Mining Reach Upstream (N) of Jackson Highway

The Corp gave approval for the Morrison Creek North project under the condition that no mining and grazing within 150 feet of jurisdictional waters associated with Morrison Creek be allowed within the first five years of the permits to determine if avoiding the creek corridor is feasible and will result in a stable and viable riparian community (pg 1-1).

This condition should also be applied to the southern mining reach since CEQA requires that agencies "..focus on alternatives to the project or its location that are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the projects objectives, or would be more costly." (CEQA Guidelines, 815126, subd. (d)(1).) CNPS-5

However, in Plan A, (pg 1-7) it states that construction of the perimeter bypass channel between Morrison Creek and Mather Drain will take place during mining years 2-7. It would be helpful if the final EIR/EIS will explain how these two programs will be reconciled if, after 5 years, it is determined that the creek can maintain itself. What would happen with the constructed channel, etc?

Habitat Mitigation

The EIR/EIS does not adequately address the long-term survival of the habitats created as mitigation for mining. Depending on which alternative or alternatives are choisen for implementation, there will be different levels of water detention in Vineyard I and the upstream, North of Jackson HW mining reach. In the Executive Summary (pg ES-2) it mentions that "The analyses shall also consider the possibility that mining (and detention) may not occur upstream of Jackson HW (as currently proposed), and detention may be required downstream of Jackson HW."

In the present EIR/EIS (Southern Reach), the habitat mitigation plans emphasize detention in the North of Jackson HW pit and only a small area of detention in the western end of Vinyard I. If detention was shifted from from the northern portion to the southern portion of the project, or if future development or planning decisions modify this decision, there could be a major impact on the mitigation habitat. CNPS-6

The effects of any changes in detention areas must be discussed in the Final EIR/EIS.

Water Supply to Mitigation Habitat Areas and Downstream Communites

The draft EIR/EIS says that " a flow pattern similar to the existing regime" (pg 3-20) will be maintained in the bypass channel to attempt to maintain the natural values downstream, while it will also provide flows to regulate and maintain the mitigation corridor by releasing water from the bypass channel (pg 5-60). The flows to the habitat mitigation corridor are to be determined in consultation with the USFWS, CDFG, Corps and County and shall be sufficient to support the mosaic of habitat proposed in the corridor (pg 5-60). This consultation is supposed to establish the minimum low flow and optimal high flow conditions. CNPS-7

The Final EIR/EIS should have a detailed discussion of where these water flows will come from and how they will be sustained during drought conditions.

Unlined Channel

If the County does not supplement the Preferred Plan A with one of the additional alternatives discussed in the plan (Plan B) the at-grade bypass channel will be constructed as an unlined channel. As an unlined channel there is an increased chance of failure which could flood areas of the pits, and their associated mitigation habitat. Not all areas of the pits were designed, with drop structures, to receive releases from the raised channel. CNPS-8

Details must be included in the Final EIR/EIS on what actions will be taken to ensure the mitigation habitat will survive any unforseen failures of the unlined channel.

Reconstructed Creek Corridor

Throughlout the draft EIR/EIS, the habitat mitigation plans refer to the "reconstructed creek corridor", but the creek corridor is composed of various types of wetlands, riparain woodland and scrub and oak savannah. There is no actual creek - bed and bank - being created throughout most of the mitigation plans. The only area which refers to an actual creek channel is the area proposed by Sugnet & Associates for Aspen IV (fig. 1-2, pg. B-124). This area has a proposed low-flow channel which will be allowed to meander within the proposed habitat corridor. CNPS-9

The Final EIR/EIS must clarify the use of the term "reconstructed creek corridor", because it is misleading. Details should also be provided as to the actual construction of Sugnet & Associates "low-flow channel". CNPS-9

Adequacy of Biological Reports and Mitigation Plans

As stated on page 2-3 of the EIR/EIS, the Corps has determined that the cumulative effects to wetlands and other waters subject to the Corps in the project area will "significantly impact the quality of the human environment".

The Granite Vineyard project site has the most wetlands and other waters, which will be directly impacted, and it has the most detailed biological assessment, but Aspen IV and V should also have detailed reports. Sugnet & Associates wetlands mitigation report for Aspen IV is very loosely defined and Aspen V has no mitigation plan included in the Appendix.

Aspen V, which includes the oak woodland and vernal pool areas which have been considered significant enough to be avoided, also has only a "Biological Resource Assessment Report". There is no rare plant survey report or detailed monitoring program included in the Appendix.

The different levels of biological detail in the reports for the different mining areas must be addressed in the Final EIR/EIS. CNPS-10

Rare Plant Surveys

Page 5.54 of the draft EIR/EIS (under Special Status Species) says "The project (Plan A) would not significantly impact any special status plants since none are known to occur within the project site."

There are no references to any rare plant surveys included in the EIR/EIS or the Appendix for any of the mining project areas. This needs to be addressed in the Final EIR/EIS. The mitigation plans all note the possibilities of special status species occurence, so rare plant surveys are needed to determine if they occur within the project area.

The Final EIR/EIS needs to include any rare plant surveys which were carried out for the project area and these surveys should follow the guidelines for rare plant survey laid out by CNPS. Qualifications must be supplied for the consultants which performed or will perform the surveys and the following information must be included in the surveys: 1) project description, including a detailed map of the project location and study are; 2) a written description of the biological setting referencing the community nomenclature used, and a vegetation map; 3) detailed description of survey methodology; 4) dates of field surveys; 5) results of survey (including detailed maps); 6) an assessment of potential impacts; 7) discussion of the importance of rare plant populations with consideration of nearby populations and total species distribution; 8) recommended mitigation to reduce or avoid impacts; 9) list of all species identified; 10) copies of all California Native Species Field Survey Forms or Natural Community Field Survey Forms; 11) name of field investigator(s); and references cited, persons contacted, herbaria visited, and disposition of voucher specimens. CNPS-11

Transition Zones Between the Mining Project Areas

The draft EIR/EIS does not adequately address the transition zones between the different mining areas and how the different mitigation plans in these mining areas will integrate. Detailed descriptions must be included in the Final EIR/EIS for these transition zones: North of Jackson HW to Aspen V, Aspen V to Aspen IV and Aspen IV to Vineyard I.

North of Jackson HW to Aspen V: How will the hydrological transition from an elevated unlined channel to a natural stream bed be constructed and how will it affect the natural oak community which is being protected south of Jackson HW.

Aspen IV to Vineyard I: Though Aspen IV and Vineyard I both utilize the 600 foot "reconstructed Morrison Creek corridor" for mitigation (pg 5.3), the mitigation plans are quite different in their design and installation. See B-124 & B-139 for Aspen IV and B-35 & B-40 for Vineyard I. Zentner and Zentner have a very detailed plan (B-40) with well defined zones and a detailed planting plan, while Sugnet & Associates have what they call a "conceptual wetlands mitigation plan" which they say will be "contiguous and compatible with Zentner & Zentners plan (pg B-137). Sugnet & Associates plan however, has a much looser planting plan and a different layout of vegetation communities. Of special interest is the "meandering, unmanaged habitat corridor" which will connect (under a roadway) to the highly defined Zentner and Zentner habitat. These differences, and how they may affect the success of the mitigation plan, must be addressed in the Final EIR/EIS. CNPS-12

Specific Comments on Mining Areas

Aspen V

Mitigation Plan:

1) Figure 3-6c, in the EIR/EIS, and Figure 3-1, in the Appendix report for Aspen IV, show the Wetland Mitigation Plan for Aspen V. There is also a very brief description of the plan on page 3-27, but there is no detailed mitigation plan included for Aspen V in the Appendix. It is somewhat humorous that the mitigation plan map for Aspen V, in the Appendix, is only included in the Aspen IV report. And where it is included it is the wrong map - the report is alluding to the Aspen IV mitigtion map, but they mistakenly put in the Aspen V map. CNPS-13

2) Figure 3-6c shows that the SE vernal pool section of Aspen V and the wetland compensation area, south of Rancho Arroyo, will be set aside as preserve areas and not be mined, but in the Mining Reach Phasing and Hydraulics Proposed Project map (figure 3-8 (EIR/EIS), there is no indication that these areas will not be mined. The oak woodland preserve in the NW portion of Aspen V is the only area set aside in the Mining Reach Phasing and Hydraulics map. CNPS-14

3) There is also no detailed description of the Wetland Compensation Area in the Aspen V section of the Appendix. The only reference to a compensation wetland is included in the Aspen IV report by Sugnet & Associates. CNPS-15

A detailed description of the wetland compensation area must be included in the Final EIR/EIS and corrections must be made to the Mining Reach Phasing and Hydraulics Project maps.

Monitoring Plan:

The monitoring plan for the vernal pools should be described in detail in the final Appendix along with the steps which will be taken for additional mitigation, if monitoring reveals that the pools are being degraded or otherwise impacted.

The monitoring plan for th NW oak woodland preserve area must also be included in the Final Appendix. Page 5-60 refers to a 10 year monitoring plan for riparian woodland, riparian scrub, and Valley oak savanna habitats, but I believe this is referring to the Zentner & Zentner report for the Vineyard I mitigation plan. A detailed monitoring plan needs to be included in the Appendix for the Aspen V oak woodland/riparian preserve. CNPS-16

Rare Plants:

As mentioned in the earlier commments on Rare Plant Surveys, a rare plant survey is needed for Aspen V, especially because of the vernal pools. Sugnet & Associates' preliminary plant survey shows that a species of *Sagittaria* occurs on the site and their document search indicates that a number of special status species could occur in this area. CNPS-17

Aspen IV

Appendices:

The following 2 appendices are not included in the report. They are given a page designation and referred to in the report, but they are not included: Appendix C - Delineation Verification Letter and Appendix E - Wetland Compensation Plan. CNPS-18

These two reports need to be included in the Fnal Appendix.

Mitigation Plan:

In the Wetland Mitigation Plan for Aspen IV, the map of the mitigation plan is included as Figure 1-2 on page 124, but it is not referred to in the report. The report refers to figure 3-1 which is the wetland mitigation plan for Aspen V. This needs to be corrected. CNPS-19

More details are also needed on how the various components of Sugnet & Associates mitigation plan will be constructed. Figure 1-2 on page 124 seems to indicate that a "woodlan habitat" will occur along the most northern section of the corridor and then will stop and a habitat corridor with a meandering, low-flow channel will commence. Details as to how these two zones will interface and how this meandering channel will be constructed are needed in the final report. CNPS-20

The monitoring requirements, stated on page B-143 of the Appendix, seem to refer to the "woodland habitat" section of the mitigation plan. What kind of monitoring plan will be established for the rest of the corridor. CNPS-21

Vineyard I

Discrepancies Between the Zentner & Zentner (1992and 1994) Report and the Gibson & Skordal and Garcia & Associates Reports:

Details must be presented in regards to the discrepancies between the wetland delineations completed by Zentner & Zentner in 1992, and verified by the Corps in 1992, and the Gibson & Skordal 1995 report. Information is needed as to why these difference in wetlands delineations occurred. Zentner & Zentener and the Corps reports were prepared in the winter (November & December of 1992), while Gibson & Skordal reviewed the areas in the summer and fall of 1995. The time of year may be significant. CNPS-22

The loss of the elderberry shrubs recorded by Zentner & Zentner in 1994 is significant and details as to who and under what conditions these shrubs were removed must be investigated and included in the final EIR/EIS. The shrubs were recorded to have had several stems with exit holes typical of the Valley Elderberry Longhorn Beetle which is a federally liseted species. Corrective actions should be taken to deal with the removal of these shrubs. CNPS-23

Thank you for the chance to comment on this report, and I hope that the comment period can be extended.

Sincerely,

Linda Bell

Linda Bell
CNPS, Sacramento Valley Chapter

cc: Larry Vinzant, U.S. Army Corps of Engineers

CNPS, Letters from California Native Plant Society dated 4/29/98 & 4/30/97

CNPS-1: The commentor's request for extension of the comment period is noted. The formal comment period for the Draft EIR/EIS was 45 days, as required by the California Environmental Quality Act and the National Environmental Policy Act. Since the close of the comment period in April 1997, the County has continued to accept letters and comments from the public including oral comments during three Policy Planning Commission hearings on the project. During the hearings members of the public, other regulatory agencies and the applicants were present to discuss and resolve existing concerns regarding the project design and the EIR/EIS evaluation of various alternatives. Refer to the Summary Table (Table ES-1) for an overview of the changes in the mitigation and other revisions to conditions of project approval that resulted from this process. In total, more than a year has been available to make public comments.

CNPS-2: Comments noted. The Draft EIR/EIS and Appendices were available at the Sacramento Central Library and the Rancho Cordova Library throughout the review period. In addition, copies were also available for purchase (for cost of reproduction) at the Sacramento County Department of Environmental Review and Assessment.

CNPS-3: Comment noted. The commentor states the County needs to develop a Master Plan for the rivers, streams, and creeks of the Sacramento Area. This Stream System Master Plan would be utilized for, among other things, describing the use of recycling and the development of alternative materials that could replace aggregate use. Although a comprehensive Countywide Stream System Master Plan would be beneficial in determining and the quantity of resources available and their function, this is outside the scope of this document.

CNPS-4: Comment noted. The EIR/EIS describes alternatives to the project, including alternative sources for aggregate. Refer to Chapter 4 of the EIR/EIS for a complete discussion of alternatives.

CNPS-5: At the request of several commentors, a 150-foot buffer alternative was evaluated in the EIR/EIS (refer to response to comment UCC-2 for additional information on this subject). The questions related to "Plan A" and implementation of the bypass channel is referring to a page from the *Drainage Mitigation Plan for the Morrison Creek Mining Reach* (Montgomery Watson, August 1995). The phasing outlined in this document was prepared prior to the condition of approval requiring a minimum 5-year 150-year buffer zone along the creek placed on the northern project by the Corps of Engineers. Please refer to response to comment SAS-1 for additional information on this subject. The referenced page (1-7) from the drainage plan describes the proposed perimeter bypass channel between Morrison Creek and Mather Drain that would be implemented beginning in year 2 of the project. Special Condition 1 of the 404 Permits (#198900074 and 198900076) for the north project excludes this proposed improvement from the 150-foot buffer zone restrictions and the proposed diversion of Morrison Creek at this location (near Jackson Highway) has already been implemented.

CNPS-6: The proposed wetland mitigation plans do address the long-term viability of the proposed mitigation areas/habitat and include performance standards and monitoring requirements to ensure success. In addition to the measures proposed in the plans (see Appendix B of the EIR/EIS for additional detail), the EIR/EIS includes mitigation that requires a written determination of success of the proposed habitat areas be prepared after a five year period of

monitoring. The determination will be prepared by a qualified biologist and will be submitted to the USFWS, CDFG, Corps and County. If the proposed mitigation does not meet the specified success criteria, then the proponents will be required to take additional remedial actions (refer to mitigation measure #2 in Section 5.7.3 of the EIR/EIS). No changes in the proposed wetland mitigation plans are being proposed at this time. For information related to the conditions of approval for the north project and its effect on the south project, refer to response to comment SAS-1.

CNPS-7: As described in mitigation measure #2 in Section 5.1.3, water needed for the wetland mitigation area may come either from an approved surface water diversion from Morrison Creek or from groundwater and reliable urban or agricultural flows. The precise amount of flows needed to sustain the proposed wetlands will be established through the consultation with the Corps, CDFG, USFWS, and County as required by mitigation in the EIR/EIS. Drought is a reoccurring natural phenomenon within the Morrison Creek watershed and long-term mitigation for such existing conditions would not be required by the project. However, if drought conditions persist during the initial planting and restoration phases of the project, supplemental water may be needed so that the proponents can successfully meet required performance criteria for establishing habitat mitigation. As described in Section 5.1.3 of the EIR/EIS, any proposed diversion of surface water from Morrison Creek for use in the mitigation area will require application to the California State Water Resources Control Board (SWRCB). This measure will not be necessary if other proven long term water supplies (i.e., groundwater and reliable urban or agricultural flows) for perennial marsh, open water, emergent marsh and riparian vegetation are demonstrated and utilized. For additional detail on the wetland mitigation plans, refer to Appendix B of the EIR/EIS.

CNPS-8: Mitigation measure 1 in Section 5.1.3 requires that the proposed facilities be designed to allow the safe passage of the 100-year peak flow without disruption. That means that erosion shall not change the alignment of the bypass channel. The channel may have to be protected from erosion in vulnerable reaches, by utilizing lining or other stabilizing methods if necessary.

CNPS-9: The "reconstructed creek corridor" is one of the primary wetland mitigation areas being proposed within the project site. The commentor is referred to Appendix B of the EIR/EIS for additional detail on the components of the proposed wetland mitigation plan, including Figure 9 on page B-40, which presents a schematic diagram of the reconstructed creek corridor. As shown on Figure 9, the corridor is comprised of a variety of habitat and transition areas beyond just a "low-flow channel" including perennial marsh, low-terrace riparian woodland, seasonal marsh and mid-terrace riparian woodland.

CNPS-10: Avoidance of the primary wetland and oak woodland resources on the Aspen V South site was incorporated into the project design as a way to reduce the potential adverse impacts of the project. As a result, no vernal pools would be displaced by the proposed project. The only jurisdictional wetland that would be disturbed on the Aspen V South site is 0.83 acres of irrigated seasonal wetland. To compensate for this loss, 1.5 acres of perennial marsh will be established in an unmined area of the project site. The effect of this loss and subsequent mitigation were fully evaluated in Section 5.7 of the Draft EIR/EIS. The commentor is correct, a copy of the Wetland Mitigation Plan for the Aspen V South site was not included in Appendix B. A copy of the plan was submitted as part of the project application and was reviewed and used in the

preparation of the impact analysis (as is indicated by the in-text references to the plan). A copy is now available as part of the Final EIR/EIS in Appendix B. Additional copies are available for review at the US Army Corps of Engineers Sacramento District Office and the Sacramento County Department of Environmental Review and Assessment.

CNPS-11: The Draft EIR/EIS (Table 5-6) lists eleven special status plant species that have the potential to occur within the project site, describes the habitat that these species most commonly occur within and identifies the flowering phenology of each species. Two species are listed under the federal Endangered Species Act. One additional species is proposed for federal listing. The Draft EIR/EIS (page 5-50) also states that none of the eleven species were observed within the project site during surveys conducted by the project proponents. All potential habitats on the Aspen IV South parcel were inspected by a botanist on at least two occasions in April and June, 1991 (Sugnet & Associates, 1991a) and a field survey for wetland plants was conducted on that parcel by a field biologist on May 5, 1995 (Sugnet & Associates, 1995a). A reconnaissance-level biotic resource assessment was conducted on the Aspen V South parcel during June, 1994 which included walking meandering transects and assessing the potential for the presence of special status species within the parcel boundaries (Sugnet & Associates, 1994a). A field survey for wetland plants was also conduct on the Aspen V South parcel by a field biologist on May 19, 1995 (Sugnet & Associates, 1995b). Biological surveys were conducted on the Vineyard I parcel between March and July of 1993 (Zentner and Zentner, 1994). In addition, site visits to portions of that parcel were conducted on July 6, 1995 (Zentner and Zentner, 1995a) and in August 1995 (Zentner and Zentner, 1995b). Based upon habitat conditions it appears that the highest potential for occurrences of special status plant species would be on the Aspen V South parcel where vernal pools occur. The vernal pool area would be preserved as no mining or reclamation activities are proposed in this area, and mitigation for the ongoing monitoring to ensure that no indirect effects could occur are included in the EIR/EIS. Refer to the appendices of the proposed wetland mitigation plans (presented in Appendix B of the EIR/EIS) for additional information.

CNPS-12: Mitigation measure #1 in Section 5.1.3 requires containment of a peak 100-year flow. From the natural section to the inlet of the perched channel, this will be accomplished by levees situated along the north boundary of Aspen V South. This should not affect the oak conservation area. With regard to the mitigation plan connectivity questions, the proposed creek mitigation corridor would be continuous from one project area to the next, as shown on Figure 3-70 of the Draft EIR/EIS. Both mitigation plans provide sufficient detail for purposes of the EIR/EIS. However, additional information will be required prior to implementing any mitigation plan. The mitigation measures presented in Section 5.7.3 provide additional assurance of successful mitigation that would be applicable to the entire mitigation area.

CNPS-13: Comment noted. A copy of the Wetland Mitigation Plan for Aspen V South has been included in Appendix B of the EIR/EIS. Also refer to response to comment CNPS-10 above.

CNPS-14: Figure 3-8 presented in the EIR/EIS presented phasing within the entire mining reach. This figure was prepared several years ago before information regarding the vernal pool resources on the Aspen V South property was known. As a result of the environmental review process, this area has been removed from the proposed mining and reclamation activities on Aspen V South as is reflected in Figures 3-3d (proposed mining plan), 3-5d (proposed reclamation plan), and 3-6c (proposed wetland mitigation plan). Mining of the vernal pool area

on Aspen V South is not part of the project application and would not be allowed in the event that the County and Corps grant approval on the proposed project or an alternative.

CNPS-15: Refer to response to comments CNPS-10 and 13 above. Figure 3-8 represents the entire reach and modification of the figure for the purposes of this project is not necessary. Please refer to response to comment CNPS-14 above.

CNPS-16: The reference to the 10-year monitoring plan is relevant to all wetland mitigation plans. Please see first line of mitigation measure #1 in Section 5.7.3 and item c. under #1. Also, please refer to response to comments CNPS-10 and 13 above.

CNPS-17: Refer to response to comments CNPS-10, 11 and 13 above. A copy of the Wetland Mitigation Plan for Aspen V South has been included in the Final EIR/EIS Appendix B that includes a list of plant species for the site.

CNPS-18: The "Appendix C" to the Aspen IV South Wetland Mitigation Plans is the wetland delineation verification letters from the Corps of Engineers. These letters were not available for inclusion in the Draft EIR/EIS or the Final EIR/EIS. With regard to Appendix E "Wetland Compensation Plan," this plan is a 1:200 scale oversized drawing of Figure 3-6b in the EIR/EIS. A copy of the oversized drawing can be made available for review at the Sacramento County Department of Environmental Review and Assessment or the US Army Corps of Engineers Sacramento District Office

CNPS-19: Comment noted. Figure 1-2 represents the proposed wetland compensation plan for the Aspen IV South property as indicated by the commentor.

CNPS-20: As discussed in the wetland mitigation plan for Aspen IV South (in Appendix B of the EIR/EIS), most of the restored creek corridor will be unmanaged and allowed to develop natural plant and animal communities. Specific areas of replacement habitat, such as the referenced woodland habitat, will be planted within or along the restored corridor. Also proposed for construction within the Aspen IV South site are areas of riparian and emergent marsh. It is anticipated that the transition from the planted woodland habitat into the unmanaged corridor will not be an abrupt line of plants. Comment noted regarding the incorrect placement of the Aspen V South wetland mitigation plan for the Aspen IV South site in the Appendices of the EIR/EIS (correct figures were provided in Chapter 3 and the Appendix has been corrected).

CNPS-21: Page B-143 in the Draft EIR/EIS addresses both wetland and woodland monitoring.

CNPS-22: The difference between the two delineations is likely the result of varied irrigation practices. When Zentner & Zentner conducted their delineation, the area in question had been flood irrigated and contained hydrophytic plants. The area had not been irrigated prior to the Gibson & Skordal delineation. Because of this discrepancy, Zentner & Zentner subsequently field reviewed this area and submitted a revised delineation to the Corps of Engineers. The revised delineation excluded the area in question. The Corps verified the revised delineation in a letter dated July 2, 1997. The total acreage of jurisdictional waters was reduced from 21.95 acres to 17.22 acres. This change has been incorporated into the Final EIR/EIS.

CNPS-23: Elderberry bushes are the host plants for the federally threatened valley elderberry longhorn beetle. The USFWS has the responsibility and authority to implement the potential corrective actions recommended by the commentor, pursuant to Section 10 of the ESA. Likewise, this impact can be addressed through Section 7 consultation between the Corps and USFWS. The USFWS may incorporate these actions into the required permit and consultation process for the proposed project and/or may choose to independently implement such actions.

TA

Corporate Office
3500 American River Drive
P.O. Box 15002
Sacramento, CA 95851-1002
(916) 484-3011 • FAX (916) 484-7012

TEICHERT AGGREGATES

April 29, 1997

Mr. Dennis Yeast
County of Sacramento
Department of Environmental Review
and Assessment
827 Seventh Street, Room 220
Sacramento, California 95814

Dear Mr. Yeast:

This letter contains, for your review and consideration, Teichert's comments on the Draft Environmental Impact Report / Environmental Impact Statement (DEIR/EIS) for the Morrison Creek Mining Reach Downstream (South) of Jackson Highway. Teichert has three projects covered by this document, Aspen III South, Aspen IV South, and Aspen V South. The following comments deal primarily with those projects and the distinction between Teichert's projects and Granite Construction's Vineyard project.

Comments

Page 1-1 of DEIR/EIS incorrectly states that Teichert's Aspen III South and V South projects have direct impacts on Morrison Creek. Both sites avoid Morrison Creek. TA-1

Teichert and Granite are proponents of separate projects. Teichert is the project proponent of Aspen III South, IV South, and V South. TA-2

The description of wetland acres on Teichert's project sites is inconsistent between page 2-3 (4.74 acres) and page 3-4 (2.61 acres). TA-3

Page 3-7 describes 430,000 cubic yards of overburden removed from the site. Teichert's applications for its three projects Aspen III South, IV South, and V South request the removal of 300,000 cubic yards from each site. TA-4

Neither the project description for Teichert Aspen IV South nor the Drainage Mitigation Plan calls for detention of excess flows in the excavated areas. Excess flows are not anticipated since the upstream volume is limited by the upstream bypass channel and detention facilities. TA-5

It is unclear what preserve area, flood detention area, and bypass channel are referred to under the Aspen V South portion of the description on page 3-27. No detention area or bypass channel is part of the Aspen V South site reclamation. TA-6

The assumption that Granite will gain conveyor access from Vineyard I is presumptuous. Such TA-7

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an access route would have to cross Teichert's property. Approval of the Granite Vineyard project without the processing plant should in no way require Teichert to provide access. TA-7

It is unclear where the berm described in MM 1(1) page 5-7 would be located and what purpose it would serve. It is most unlikely that the Morrison Creek floodplain would overtop into Aspen V South since the flow in Morrison Creek will be capped upstream of Jackson Hwy. MM 1(2) is incorrect. There is no pit floor wetland mitigation area in Aspen V South. TA-8

It is assumed that the reference to Aspen V and IV in MM 2 page 5-7 should be Aspen V South and IV South. Again, there is no pit floor wetland mitigation area in Aspen V South. TA-9

The monitoring and clean up of groundwater contamination is the responsibility of the U.S. Air Force. Any impacts to landowners' uses of land caused by the contamination is the responsibility of the Air Force. The replacement of wells removed by mining and/or compensation for the lost value of unmined aggregate is the responsibility of the Air Force. TA-10

Since the separate Teichert and Granite projects appear to be lumped together as one project it is unclear what portion of the ozone and PM-10 exceedances mentioned on page 5-22 are due to the new plant site proposed by Granite Construction. Teichert Aggregates will transport all mined aggregate from the Aspen III South, IV South, and V South sites via conveyor to its existing processing facility. Table 5-5 on page 5-23 should break down the emissions by company and site. TA-11

Previous biological surveys by Foothill Associates for the Aspen VI and Granite I projects have shown that the downstream reach of Morrison Creek is not Sacramento blackfish habitat. TA-12

The Mitigation Measure 1(b) on page 5-60 erroneously calls for placement of Valley elderberry longhorn beetle (VELB) mitigation on Teichert's Aspen IV South site. The DEIR/EIS indicates that the impact to the VELB is caused by Granite's Vineyard I project. Mitigation should take place on that property. Teichert should not be required to provide mitigation for Granite's impacts. TA-13

Mitigation Measures 3,4,5, and 6 on page 5-73 mitigate the impacts of Granite's proposed processing facility and are their sole responsibility. TA-14

I hope you will consider these comments as you prepare the Final EIR/EIS. If you have any questions regarding these projects, please call me at (916)484-3317.

Sincerely,

Rob Wainwright

Rob Wainwright
Property Manager

cc: Demar Hooper

TA, Letter from Teichert Aggregates dated 4/29/97

TA-1: Implementation of the proposed mining and reclamation activities on Aspen III South and Aspen V South sites would not directly impact Morrison Creek. Page 1-1 of the EIR/EIS has been revised to clarify this.

TA-2: Page 3-1 of the EIR/EIS has been revised to further clarify which mining and which applicant is proposing reclamation projects.

TA-3: Page 2-3 of the EIR/EIS has been corrected to indicate that the amount of jurisdictional waters affected by the proposed project on the Aspen V South site would be 0.83 acres.

TA-4: Section 3.6.1 on page 3-7 of the Final EIR/EIS has been corrected to indicate that a total of 1,000,000 cubic yards of overburden are proposed for removal.

TA-5: As shown on Figure 3-7 in the EIR/EIS, the proposed project includes one detention area at the western edge of the Vineyard I site. The other detention area included in the "Part A" drainage alternative is located on the upstream side of Jackson Highway and is part of the north project (that was analyzed in a prior EIR/EIS and approved by the Corps and County). Also, please refer to response to comment T&H-6 below.

TA-6: The EIR/EIS has been revised to clarify that no detention or bypass channels are being proposed on the Aspen V South site.

TA-7: Since preparation of the Draft EIR/EIS, Granite Construction Company and Teichert Aggregates have reached an agreement to allow the required access (conveyor belt alignment) across Teichert-owned property. Such an agreement would be a prerequisite for implementation of the "Proposed Project Without Vineyard I Processing Plant" Alternative.

TA-8: The proposed berm or levee would be designed to prevent a 100-year peak flow from entering the proposed Aspen V South pit, and would extend from Jackson Highway just south of the unmined portion of Morrison Creek across the Aspen V South site and be tied into the proposed inlet of the Aspen IV South bypass channel. The mitigation measure requires approval of the 100-year peak flow containment plan by WRD, which has the authority to choose the with or without upstream flood storage option upstream of Jackson Highway. The option was left open to account for uncertainties over the interim and ultimate configuration of North of Jackson Highway flood control facilities. With regard to pit detention on the Aspen V South site, refer to response to comment TA-6 above.

TA-9: Comment noted. The EIR/EIS have been revised to reflect that no flood detention is being proposed for Aspen V South, and the terminology used to describe each site has been corrected as requested.

TA-10: The EIR/EIS identifies a significant impact related to the project's potential to disrupt ongoing ground water quality monitoring efforts being conducted by the United States Air Force as part of the Mather Field remediation effort. The remediation program was developed and is being implemented consistent with the requirements of the Solid Waste Disposal Act as amended by the Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental

Response, Compensation and Liability Act (CERCLA). The mitigation identified in the EIR/EIS is in coordination with appropriate parties to ensure that project actions do not adversely affect the ongoing monitoring program (i.e., testing wells), and in the event that project could affect such wells, that the applicants be responsible for their replacement. The applicants in no way would be responsible for past contamination caused by land uses at Mather Field.

TA-11: The projected emissions for the proposed project, including a Vineyard I processing plant, are presented in Table 5-5. This alternative represents the worst-case scenario with regard to air quality emissions and is therefore presented in the EIR/EIS for the consideration of the decision-makers. The mitigation measures presented in Section 5.4.3 of the EIR/EIS would be required by both applicants. These measures represent standard practices for the reduction of particulate matter (dust), an impact that would be significant under the proposed project (with or without the Vineyard I processing plant), and would be required by both applicants during overburden removal and operation of conveyor systems. Since all mitigation would be required of both applicants, it is not necessary to try to differentiate their respective shares of pollutants.

TA-12: The EIR/EIS analysis of fisheries resources was based on prior studies, field observations, and discussions with California Department of Fish and Game staff. While Sacramento blackfish (*Orthodon microlepidotus*) may not be present in this reach of Morrison Creek on a regular basis, the historic range of this native fish extended up Morrison Creek. It now probably exists further downstream, but may move up into the project site reach during wet years. The oxbow section and some other portions of this reach of Morrison Creek may provide suitable slow-water habitat to be used by Sacramento blackfish in wet years, thus the need to consider this species in the impact analysis.

TA-13: The EIR/EIS states that a total of nine elderberry bushes will be lost and describes this as a significant impact. Two of these bushes are located on the Aspen IV South parcel with the remaining seven on the Vineyard I parcel. The commentor is referring to mitigation measure 1(b) in Section 5.7.3 of the EIR/EIS that specifically requires mitigation for this significant impact on the Aspen IV South parcel. As stated under item 1 of that same mitigation measure, the proponents will be required to implement the wetland mitigation plans they proposed "Except as modified below for the proposed mitigation, ..." The proposed mitigation plan for the Vineyard I parcel already included the required mitigation for the planting of elderberry bushes and thus is not repeated as part of the mitigation measure. The Aspen IV South plan did not specifically address this requirement, and thus was included as mitigation measure 1(b) in the EIR/EIS.

TA-14: Comment noted. Per the applicants' requests, the Summary Table (Table ES-1) in the EIR/EIS has been revised to indicate applicability, by property(ies) (i.e., Aspen III South) for the required mitigation measures.

TAYLOR & HOOPER
A PROFESSIONAL CORPORATION
ATTORNEYS
1435 RIVER PARK DRIVE, SUITE 300
SACRAMENTO, CALIFORNIA 95815
TELEPHONE: (916) 929-5545
TELEFAX: (916) 929-0283

JOHN M. TAYLOR
B. DEMAR HOOPER
JAMES B. WILEY
R. BRUCE STEUBING
KATHLEEN R. MAKEL

May 5, 1997

Mr. Dennis Yeast
COUNTY OF SACRAMENTO
Department of Environmental Review & Assessment
827 7th Street, Rm. 220
Sacramento, CA 95814

Re: Comments to Draft Environmental Impact Report/ Environmental Impact Statement (DEIR/S) for Teichert Aggregates Aspen III South, Aspen IV South, and Aspen V South Morrison Creek Mining Reach Downstream (South) of Jackson Highway (State Clearinghouse No. 95102057)

Dear Dennis:

Taylor & Hooper represents Teichert Aggregates (hereafter "Teichert") for the referenced project. Thank you for the opportunity to comment on the referenced DEIR/S. This letter supplements, clarifies, and if inconsistent, supersedes, Teichert's April 29, 1997, letter to you. Teichert believes the DEIR/S adequately addresses the substantive impacts of the project and its alternatives, and that the document satisfies the requirements of the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). The comments provided below fall principally into the categories of corrections and clarification. **T&H-1**

DEIR/EIS: 1-1

Page 1-1 incorrectly states that Aspen III South and Aspen V South projects have direct impacts on Morrison Creek. Both Aspen III South and Aspen V South avoid Morrison Creek. Therefore, please revise the DEIR/EIS to state that Aspen III South and Aspen V South avoid Morrison Creek. **T&H-2**

DEIR/EIS: 2-3 AND 3-4

The description of wetland acres on Teichert's project sites is inconsistent and inaccurate. Page 2-3 inaccurately states that Teichert project sites will impact 6.52 acres. Page 3-4 accurately states that Teichert's projects will impact 2.61 acres of wetland. Please revise page 2-3 to accurately reflect Teichert projects' proposed impact on wetlands (2.61 acres). **T&H-3**

Mr. Dennis Yeast
Re: DEIR/S - Teichert
May 5, 1997
Page 2

DEIR/EIS: 3-1 to 3-4.

Teichert and Granite are processing separate applications. Teichert is the applicant for the Aspen III South, Aspen IV South, and Aspen V South projects. Granite is the project proponent for the Vineyard I project. Please revise the DEIR/EIS's Project Description on pages 3-1 to 3-4 to specify that Teichert is the applicant for the Aspen South projects and Granite is the project proponent for the Vineyard I project. **T&H-4**

DEIR/EIS: 3-7

Page 3-7 inaccurately notes that the project proponents will remove 430,000 cubic yards overburden from the site. Teichert proposes to remove 300,000 cubic yards from each of its sites. Thus, Teichert proposes to remove a total of 900,000 cubic yards of overburden from Aspen III South, Aspen IV South, and Aspen V South. Therefore, the DEIR/EIS should be revised to discuss the 900,000 cubic yards of overburden that Teichert proposes to remove as well as the amount of overburden that Granite proposes to remove from its Vineyard I project. **T&H-5**

DEIR/EIS: 3-20 to 3-27

Neither the project description for Teichert's Aspen IV South (3-26 to 3-27) nor the Drainage Mitigation Plan (3-20 to 3-26) requires detention of excess flows in the excavated areas. Excess flows are not anticipated on the Aspen IV South site because the upstream volume is proposed to be limited by the upstream bypass channel and detention facilities. Therefore, please revise the DEIR/EIS to delete any reference to excess flows on the Aspen IV South site. **T&H-6**

DEIR/EIS: 3-27

The project description of Aspen V South (page 3-27) refers to a preserve area, flood detention area, and bypass channel. Teichert's reclamation plans for Aspen V South do not include either a detention area or bypass channel. Therefore, please revise the DEIR/EIS to clarify that the Aspen V South project does not have flood detention and bypass channel components. **T&H-7**

DEIR/EIS: 5-22

Page 5-22 assumes that Granite's proposed processing plant will gain conveyor access from Vineyard I. This assumption is not necessarily accurate. Such an access route would have to cross Teichert's property. Approval of the Granite Vineyard I project should not, and will not, require Teichert to provide access for a future conveyor system between Granite's proposed **T&H-8**

RBS/1632.09/050597

processing plant and its Vineyard I project. Granite would have to purchase any access on, under, or over Teichert's property. Therefore, please revise page 5-22 to clarify that Granite will have to obtain the necessary right-of-way through Teichert's property to operate a conveyor system between its proposed processing plant and its Vineyard I project. **T&H-8**

DEIR/EIS: 5-7, Mitigation Measure (MM) 1(1):

Page 5-7, MM 1(1) describes a berm. It is unclear where this berm would be located and what purpose it would serve. It is unlikely that any flood flows will overtop Morrison Creek onto the Aspen V South property because the flow in Morrison Creek will be capped upstream of Jackson Highway. Hence, please revise the DEIR/EIS to explain the location and purpose of any berm proposed to be located on the Aspen V South project site. **T&H-9**

DEIR/EIS: 5-7, MM 1(2):

MM 1(2) incorrectly discusses a pit floor mitigation area on the Aspen V South property. Teichert does not propose a pit floor mitigation area on the Aspen V South property. Therefore, please revise MM 1(2) on page 5-7 by deleting any reference to a pit floor wetland mitigation area. **T&H-10**

DEIR/EIS: 5-7, MM 2

Please revise page 5-7, MM 2's reference to Aspen IV and Aspen V to refer to Aspen IV South and Aspen V South. Again, please delete any reference to a pit floor wetland mitigation area on Aspen V South property. **T&H-11**

DEIR/EIS: 5-9

The U.S. Air Force is responsible for monitoring and clean up of groundwater contamination. The U.S. Air Force is responsible for any impacts caused by the contamination on a landowner's land uses. The U.S. Air Force is also responsible for the replacement of their monitoring or remediation wells that are removed by mining. Further, the U.S. Air Force must compensate landowners for the lost value of unmined aggregate reserves caused by contamination of groundwater resources. Please revise page 5-9 to include a discussion of these important U.S. Air Force responsibilities. **T&H-12**

DEIR/EIS: 5-18 to 5-25

The Air Quality Section of the DEIR/EIS does not distinguish between Teichert's and Granite's air quality impacts. Specifically, page 5-22's discussion of ozone and PM-10 exceedences does not distinguish between Teichert's **T&H-13**

impacts and Granite's proposed processing plant's impacts. Teichert Aggregates will transport all mined aggregate from its Aspen III South, IV South, and V South sites by conveyor to its existing processing facility. Therefore, please revise the DEIR/EIS's air quality discussion to explicitly distinguish between Teichert's air quality impacts and Granite's impacts to air quality. Further, please revise Table 5-5 on page 5-23 to reflect the allocation of emissions by company and site. **T&H-13**

DEIR/EIS: 5-54

Previous biological surveys by Foothill Associates for the Aspen VI and Granite I projects show that the downstream reach of Morrison Creek is not Sacramento blackfish habitat. Therefore, please revise page 5-54 by deleting reference to the potential loss of Sacramento blackfish habitat. **T&H-14**

DEIR/EIS: 5-60, MM 1(b)

MM 1(b) on page 5-60 incorrectly requires the placement of Valley elderberry longhorn beetle (VELB) mitigation on Teichert's Aspen IV South Property. The DEIR/EIS indicates that Granite's Vineyard I project impacts the VELB. Teichert cannot be required to mitigation for Granite's impacts to the VELB. Therefore, please revise MM 1(b) by deleting reference to Aspen IV South, and stating that Granite is responsible for mitigating for its impacts on the VELB. **T&H-15**

DEIR/EIS: 5-73, MM 3, 4, 5, and 6

MM 3, 4, 5, and 6 on page 5-73 mitigate for the impacts caused by Granite's proposed processing facility. Thus, please revise these mitigation measures to specifically state that compliance with these measures is the sole responsibility of Granite. **T&H-16**

RBS/1632.09/050597

Teichert looks forward to completion of the hearing process and issuance of the Final EIR/S for the project. Teichert also appreciates the efforts of County and Corps staff to expedite processing consistent with legal requirements.

Please call if you have any questions or concerns.

Very truly yours,

R. Bruce Steubing

cc: Rob Wainwright, *Teichert Aggregates*
Jeff Gamel, *County of Sacramento*
Larry Vinzant, *Corps of Engineers*

RBS/1632.9/L.DYeir

RBS/1632.09/050597

T&H, Letter from Taylor & Hooper dated 5/5/97

T&H-1: Comment noted.

T&H-2: No direct impacts to Morrison Creek would occur as a result of mining and reclamation on the Aspen III South or Aspen V South sites, and the EIR/EIS has been revised as appropriate.

T&H-3: Please refer to response to comment TA-3 above which addresses this same issue (EIR/EIS correction regarding wetland acreage for Aspen V South).

T&H-4: Page 3-1 of the EIR/EIS has been modified to clearly distinguish which proponent is proposing which mining project.

T&H-5: Page 3-7 of the Final EIR/EIS has been corrected to indicate that a total of 1,000,000 cubic yards of overburden are proposed for removal.

T&H-6: The reference on page 3-20 to the Aspen IV South property is referring to the location of the bypass channel not flood detention. The sentence has been revised to clarify this distinction. As shown on Figure 3-7 in the EIR/EIS, the proposed project includes one detention area at the western edge of the Vineyard I site. The other detention area included in the "Part A" drainage alternative is located on the upstream side of Jackson Highway and is part of the north project (that was analyzed in a prior EIR/EIS and approved by the Corps and County).

T&H-7: The EIR/EIS has been revised to clarify that no on-site flood detention is being proposed on the Aspen V South site (also see response to comment TA-6).

T&H-8: The EIR/EIS has been revised to clarify that right-of-way easements across private property not owned by an applicant would be necessary. Also see response to comment TA-7.

T&H-9: As stated in the referenced mitigation, the purpose of the berm will be to safely contain a 100-year peak flow and its location will be along the northerly boundary of Aspen V South to the inlet of Aspen IV South. The precise location of the berm within this general alignment will be defined by the Sacramento County Public Works Agency Water Resources Division in their review and approval of design drawings for the proposed flood control facilities.

T&H-10: The proposed wetland mitigation at Aspen V South would occur at-grade, in an unmined area (as shown on Figure 3-6c). The reference to "pit floor" has been removed as a point of clarification.

T&H-11: The referenced measure (MM2 on page 5-7) would be applicable for any wetland mitigation area that may require diversion from Morrison Creek. No "pit floor" reference was included in MM2, page 5-7 and therefore no change to the EIR/EIS has been made in this location. Please refer to response to comments TA-9 and T&H-10 above.

T&H-12: Please refer to response to comment TA-10 which addresses this same issue. The commentor requests that the Final EIR/EIS be amended to include a discussion of the Air Force's responsibilities for economic compensation for landowners effected by contamination at the former Mather Field. This is not an environmental issue requiring discussion in the EIR/EIS.

T&H-13: Please refer to response to comment TA-11 which addresses this same issue (air quality impacts, by proponent).

T&H-14: Please refer to response to comment TA-12 which addresses this same issue (Sacramento blackfish habitat).

T&H-15: Please refer to response to comment TA-13 which addresses this same issue (elderberry mitigation).

T&H-16: Please refer to response to comment TA-14 which addresses this same issue (assigning mitigation responsibility by applicant).

PG&E

Pacific Gas and Electric Company
Building and Land Services

343 Sacramento Street
Auburn, CA 95603

March 10, 1997

RECEIVED
MAR 1 1 1997
DEPT OF ENVIRONMENTAL
REVIEW & ASSESSMENT
SACRAMENTO COUNTY

Mr. Dennis E. Yeast
County of Sacramento DERA
827 7th Street, Room 220
Sacramento, CA 95814

Re: Draft EIR for Morrison Creek Mining Reach Downstream of Jackson Highway Control Nos. 94-UPB-0484, 91-CZB-UPB-0118, 90-CZB-UPB-1607 & 94-CZB-UPB-0671.

Dear Mr. Yeast:

Thank you for the opportunity to review the Draft Environmental Impact Report for the Morrison Creek Mining Reach Downstream of Jackson Highway Community Plan Amendment, Rezone, Use Permit, Amendment to Existing Use Permit, and Section 404 Permit Application for lands within the Vineyard planning area of Sacramento County.

PG&E has no facilities affected by this project and therefore we have nothing to add to the report.

PG&E-1

If you have any questions, please call me at (916) 889-3160.

Sincerely,

Lou A. Norton
Land Agent

PG&E, Letter from Pacific Gas & Electric dated 3/10/97

PG&E-1: Comment noted.

GDT

LAW OFFICES OF
GREGORY D. THATCH
1730 I Street, Suite 220
SACRAMENTO, CA 95814
Telephone (916) 443-6956
Facsimile (916) 443-4632

GREGORY D. THATCH
LARRY C. LARSEN
MICHAEL DEVEREAUX
G. MICHAEL MILLER

WASHINGTON, DC OFFICE
700 Thirteenth Street NW, Suite 400
WASHINGTON, DC 20005
Telephone (202) 347-7132

April 29, 1997

HAND DELIVERED

Mr. Dennis E. Yeast
County of Sacramento
Department of Environmental Review and Assessment
827 Seventh Street
Sacramento, CA 95814

Mr. Larry Vinzant
Regulatory Section
U.S. Army Corps of Engineers
Sacramento District
1325 J Street
Sacramento, CA 95814-2922

Re: Draft EIR/EIS for Morrison Creek Mining Reach/Downstream

Dear Mr. Yeast and Mr. Vinzant:

This office represents Granite Construction Company, a proponent of the Morrison Creek Mining Reach/Downstream Project. We have reviewed the February 1997 Draft EIR/EIS and request that you consider the within comments as they pertain to the Vineyard I project area owned by Granite Construction Company.

As noted in the EIR/EIS, there are four project areas, one of which is proposed for mining by Granite Construction Company and three areas proposed for mining by Teichert Aggregates (Aspen III South, Aspen IV South, and Aspen V South). The mitigation measures described in the EIR/EIS should be separated by applicant or project areas, since not all measures will apply to both applicants. For instance, there are no vernal pools in the project area proposed for mining by Granite Construction Company. We suggest adding a column to Table ES-1, the Summary of Impacts and Mitigation Measures, which indicates the project areas involved in each mitigation measure. GDT-1

No Project Alternative.

The discussion of the No Project Alternative on page 4-8 of the Draft EIR/EIS would benefit from further elaboration of its environmental impacts. While the No Project Alternative might avoid site specific impacts, it would result in a large number of adverse regional and cumulative environmental impacts. Traffic impacts would include increased heavy truck traffic on the region's GDT-2

highways to bring aggregate from out of county areas to the existing aggregate processing plants. The closest of these out of county areas is near Marysville in Yuba County, approximately 40 miles away. Such an increase in heavy vehicle traffic would not only lead to increased congestion, but also increased air pollution, increased wear on the public highway system, and increased public safety impacts due to the increased opportunities for automobile/heavy truck accidents. GDT-2

Proposed Project

Mitigation Measure No.1 and its attendant discussion (Page ES-2) would require the proposed project to be submitted to the Sacramento County Water Resources Department for a review of its consistency with the Drainage Mitigation Plan for the Morrison Creek Mining Reach. Granite Construction has designed its project in close conjunction with the Water Resources Department from the very beginning in order to insure that it was consistent with the Morrison Creek Mining Reach Drainage Plan. This Mitigation Measure is therefore somewhat redundant and unnecessary in this regard. GDT-3

The "Requirements/Recommendations of Public Agencies" discussion which accompanies Mitigation Measure No.1 indicates that the project must continue to accept any off-site runoff during all phases. Any requirement that the project areas accept off-site runoff must first include a qualitative and quantitative evaluation of the drainage source producing that runoff. The project cannot be expected to receive off-site pollution or excessive amounts of drainage produced by a new source. GDT-4 In addition, please clarify whether the section in Table ES-1 entitled "Requirements/Recommendations of Public Agencies" is intended to be an abbreviated discussion of the environmental impact or an additional mitigation measure. GDT-5

The armored weirs which Mitigation Measure No.1 would require for the Vineyard I project area are unnecessary. The water bypass channel, which has been designed for this project area in conjunction with the Water Resources Department, does not incorporate any armored weirs. Instead, weirs and other water control features have been incorporated as features of the upstream facilities to be constructed for the Morrison Creek Upstream Mining Reach. Those structures will obviate the need for any type of weir in the bypass channel. The upstream weir (north of the Jackson Highway) will preclude the water volumes in Morrison Creek from exceeding the 1650 cfs capacity of the bypass channel around the Vineyard I project area. Additionally, the recommendation of an analysis considering the possibility that upstream detention may not occur should not be necessary, as the Upstream Mining Project was approved by the County in 1996. The completion of these Upstream detention facilities will substantially reduce the flow in Morrison Creek, as well as the size of the 100 year floodplain within the Vineyard I project area, and concerns about water overflow will be greatly diminished. GDT-6

The EIR/EIS' evaluation of the proposed project's reclamation plans indicates that the re-use of the reclaimed lands for agricultural purposes would have potentially significant impacts to the surface and groundwater from the use of pesticides, herbicides and farm machinery which could lead GDT-7

to toxic contamination (See page 5-5). Such potential impacts are already present under the current agricultural uses of the project areas. In addition, such potential impacts also would be present with the No Project Alternative's agricultural uses. GDT-7

Floodplain Protection Alternative

One of the alternatives presented in the EIR/EIS is a prohibition on any mining within the existing 100 year floodplain of Morrison Creek. We believe that the EIR/EIS's discussion of the impacts of the Floodplain Protection Alternative (See page 5-32) does not fully explore the feasibility of this alternative. If the existing floodplain is left intact, there will be significant risks of hydrologic and morphologic changes when the surrounding land is mined. Problems will arise from natural creek channel migration, piping of water through the gravel strata in the floodplain, and the need for containment levees to maintain the physical integrity of the floodplain when surrounding areas are mined to a lower level. GDT-8

Biological Resources.

We are extremely concerned by the length of time proposed for the monitoring of riparian woodland, riparian scrub and Valley Oak savanna habitats that would be created as part of the reclamation efforts. The Mitigation Plans contained in the Appendices for the wetland habitats all required five (5) year monitoring efforts, subject to increase only if initial efforts do not satisfactorily progress. Consequently, we see no foundation for the EIR/EIS to propose an initial ten (10) year monitoring period for the riparian woodland, riparian scrub and Valley Oak savanna habitats. Such an extended monitoring period will be very costly and appears to have been arbitrarily selected. GDT-9

We also question the requirement of Biological Resources Mitigation Measure 3 (Page 5-61) which will require the incorporation of Sacramento blackfish habitat in the Morrison Creek bypass channel. The Draft EIR/EIS admits that the Sacramento blackfish has never been observed in this reach of Morrison Creek and that there are no records of it ever occurring in the vicinity of the Project site (See Page 5-45). Without any fisheries surveys or other evidence of native fish in Morrison Creek, the EIR/EIS' discussion of fisheries impacts is purely speculative (Page 5-54) and its conclusion of habitat loss unsupported by any scientific evidence. The EIR/EIS is only speculating on whether the Sacramento blackfish still exists in the downstream reaches of Morrison Creek and on whether it might possibly move up into the project site during wet years. Insofar as this species is not designated as a special status species and is not demonstrably known to occur in or near the vicinity of the project site, we see no premise upon which to require the recreation of its habitat in the bypass channel. GDT-10

The Biological Resources section of the EIR/EIS has also been reviewed by Zentner and Zentner. The EIR/EIS was generally found to confirm the accuracy of the Zentner and Zentner delineation (other than the possible deletion or reduction of two seasonal marshes) which described the wetlands on the Vineyard I site as seasonal marshes. The EIR/EIS also described these areas as GDT-11

seasonal wetlands (which generally connote a seasonally inundated/saturated habitat that contains a mix of wetland species) that may contain the listed invertebrate species. Zentner and Zentner determined that it was unlikely that these listed invertebrate species would occur on the Vineyard I site as the soils were unsuitable for the habitat required by these species. Moreover, the presence/absence of those species was reviewed in the field by Zentner and Zentner staff during surveys performed between March 16 and July 5, 1993, and none of the listed invertebrates were found. Finally, the listing petition for these invertebrate species lists their habitat as "vernal pools", not seasonal marshes. The EIR/EIS should explain why its description of that species' habitat is at variance with the listing petition's description of habitat. GDT-11

The EIR/EIS states that the Corps of Engineers should re-review the wetlands on the Vineyard I property as all or the major portion of the two largest areas of seasonal marsh may no longer be jurisdictional. Zentner and Zentner agreed with that conclusion and noted that they are completing additional field work to determine the status of the two seasonal marshes (Nos. 6 and 7 on the delineation map), and should have Corps of Engineers' verification prior to completion of the Final EIR/EIS. GDT-12

Zentner and Zentner also found that the plant list (Appendix B) fails to list the most important riparian trees: Fremont cottonwood (*Populus fremontii*), arroyo willow (*Salix lasiolepos*), and black willow (*Salix gooddingii*). Red willow is included, but with the wrong specific epithet. It is *S. Laevigata, not S. lasiandra.* The latter is the name of a completely different species, the shining willow, which may or may not occur at the Vineyard I site. GDT-13

On Page 5-35, 42 and 47 (and elsewhere), the EIR/EIS describes the project area as including seasonal "wetlands" but not seasonal "marshes" as described in the Zentner and Zentner delineation report. The "seasonal wetland" paragraph on p. 5-42 is particularly unclear and not descriptive of the site. For example, the term "swale" does not have a universally recognized scientific meaning and needs to be defined. As used in the EIR/EIS, "swales with shorter duration of flow" have a plant list typical of moist grasslands, while "swales with longer duration of flow" have a list typical of vernal pools, which are characterized by ponding rather than flow. The term "seasonal wetlands" also needs clarification, particularly with respect to distinguishing it from "vernal pools". The "seasonal wetlands in isolated depressions" category is even more problematic since it is associated with a plant list typical of artificially created basins with hydrology similar to natural vernal pools. The EIR/EIS should define these terms, and clarify whether it is relying on the classifications assigned by the project applicants' consultants. GDT-14

The EIR/EIS poorly describes the potential wildlife populations (Page 5-43) with highly qualitative statements such as "waterfowl such as mallards. . . may breed and raise brood in the creek. . . ." Although mallards almost certainly do breed along Morrison Creek since very little of such habitat remains unused by this ubiquitous species, this conclusion should be quantified with any observations. Similarly, in several places in the species discussion on Pages 5-44 through 5-51, the study area and areas upstream are treated as a homogenous unit with regards to wildlife use. GDT-15

However, this is not the case, and any inferences of wildlife use at the Vineyard I site based on the species' use of upstream habitats must particularly identify the compared habitats and state the basis for concluding that the species is or may be present at Vineyard I. GDT-15

Zentner and Zentner differ with the EIR/EIS on the importance of the creekbed of Morrison Creek to burrowing animals (Page 5-43). Because of the creekbed's seasonal inundation and limited food supply for these animals, it has little value for them. Additionally, western gray squirrels are unlikely on the Vineyard I project site because they inhabit open oak and pine forests (Page 5-43). GDT-16

On Page 5-44 of the EIR/EIS, it is unclear whether the discussion of invertebrates is referencing species observed in the study area or those generally found in similar habitats. Additionally, the invertebrates identified by Sugnet & Associates in monitoring vernal pools are unlikely to be found on the Vineyard I site due to the absence of vernal pools. GDT-17

Zentner and Zentner also found that Yellow-rumped warblers do not breed on the Vineyard I site, or anywhere else in Sacramento County. Page 5-44 of the EIR/EIS is incorrect on this point. GDT-18

Contrary to the statement in the EIR/EIS at Page 5-50, the results of Zentner and Zentner's special status species' surveys are included in appendix A to the Vineyard I mitigation plan. The reference to the Swainson's Hawks' 10-mile foraging radius on Page 5-51 should specifically state that this is the radius used by the California Department of Fish and Game ("DFG"), and that the EIR/EIS is adopting DFG's position in defining potential foraging habitat on the project site. On Pages 5-51 and 5-50 of the EIR/EIS, it should be clarified that the Valley Elderberry Longhorn Beetle ("VELB") was not actually observed anywhere on the project site; only exit holes were found. GDT-19

On Page 5-52, the EIR/EIS states that "vernal pools" on the site may host listed invertebrates, while on Page 5-56 the EIR/EIS states that the loss of "seasonal wetlands" would eliminate potential habitat for the listed invertebrates. This inconsistency needs to be resolved. There is no evidence that any special status species uses the "seasonal wetlands" referred to on Page 5-56. GDT-20

The "significance" determination for general wildlife used in the EIR/EIS (Page 5-53) needs to be better explained and substantiated. If Impact Nos. 5 and 6 on Page 5-54 (loss of 2 miles of existing natural stream channel and post-reclamation agricultural activities) are less than significant, please explain why Item 4 on Page 5-53 (disruption of habitat by the proposed project) is considered significant. The potential impact of construction of the Vineyard I processing plant on special status wildlife referenced on Page 5-57 also needs to be further explained. This is an upland area with no known special status species occurrences. GDT-21

Item No.5 on Page 5-59 of the EIR/EIS should be clarified since Section 7 consultations are the responsibility of federal agencies (such as the Corps of Engineers during Section 404 permitting). Although an applicant can initiate "informal" consultation, affected federal agencies, not the applicant, make decisions regarding the necessity for a Section 7 consultation. GDT-22

Mitigation Measure No.5 on Page 5-62 of the EIR/EIS describes the mitigation for the loss of trees on-site. The replacement of landmark size native trees on an inch-for-inch basis should be clearly defined, similar to the equivalents given for the replacement of oak trees. GDT-23

Special Status Species

Zentner and Zentner's review of the EIR/EIS also prompted them to suggest the following comments on Special Status Species:

1. The San Joaquin spearscale (*Atriplex joaquininana*) plant could not occur in the Morrison Creek mining reach because it is confined to alkaline grassland. Alkaline soils do not occur in the mining reach (Skinner & Pavilk 1994; USDA SCS 1991).

2. The Rose-mallow (*Hibiscus lasiocarpus*) could not occur in the Morrison Creek mining reach because it is confined to freshwater marsh and riparian habitat in basins along major rivers in California's central valley. It has never been found along small tributary streams like Morrison Creek (Pavilk & Skinner 1994).

3. The Delta green ground beetle (*Elaphrus viridis*) has virtually no potential to occur in the Morrison Creek mining reach since it has never been found outside the Jepson Prairie Preserve, which is in a different county distant from Morrison Creek and has distinct ecological features (alkaline soils) not occurring there (Biosystems 1994). GDT-24

4. At Page 5-50, the EIR/EIS states that the site may contain the giant garter snake while at Page 5-51, the EIR/EIS states that the snake is "not expected to use Morrison Creek in this area" and cites two individuals, especially John Brode, who had significant experience with this species. Giant garter snakes (*Thamnophis gigas*) would not occur in the Morrison Creek mining reach since the snake was formerly confined to large perennial freshwater marshes along major rivers in California's Central Valley. More recently the snake's primary habitat has become the rice fields that have replaced freshwater marshes in the riverine basins (Rossman et al. 1996, Biosystems 1994). Neither habitat occurs along the Morrison Creek mining reach.

5. The short-eared owl (*Asio flammeus*) nests in relatively extensive marshes and moist grasslands, habitat types which do not occur along Morrison Creek in the mining reach. Local bird nesting localities are particularly well-known because of the activities of the area's many birding enthusiasts and personnel of the California Department of Fish and Game. Neither source reports short-eared owl nesting near the Morrison Creek mining reach (Zeiner et al. 1990; Sac Audubon 1993).

6. The prairie falcon (*Falco mexicanus*) nests on cliffs and large rock outcrops, habitat types absent from the Morrison Creek mining reach. Prairie falcons do not, in fact, nest anywhere in Sacramento County (Zeiner et al. 1990; Sac Audubon 1993).

7. The yellow warblers (*Dendroica petechia*) formerly nested in the Central Valley in riparian habitat like that occurring along Morrison Creek, but it has been extirpated from the valley floor as a nester by cowbird parasitism (Zeiner et al. 1990).

8. The black-shouldered kite (*Elanus caeruleus*) and white-tailed kite (*Elanus leucurus*) although listed separately in Table 5-7, are synonyms for the same bird species. The current correct name is the latter (Small 1994).

Zentner and Zentner also found that a number of special status species do not occur at the Vineyard I project area because specific habitat types are lacking (but possibly occurring elsewhere in the mining reach): GDT-24

1. Species not occurring at Vineyard I because of its lack of vernal pools:

   a. Dwarf downingia (*Downingia pusilla*).
   b. Bogg's lake hedge hyssop (*Gratiola heterosepala*).
   c. Ahart's dwarf rush (*Juncus leiospermus var. ahartii*).
   d. Legenere (*Legenere limosa*).
   e. Pincushion navarretia (*Navarretia myersii*).
   f. Slender Orcutt grass (*Orcuttia tenuis*).
   g. Sacramento Orcutt grass (*Orcuttia viscida*).
   h. Conservancy fairy shrimp (*Branchinecta conservatio*).
   i. Vernal pool fairy shrimp (*Brachinecta lynchi*).
   j. Vernal pool tadpole shrimp (*Lepidurus packardi*).

2. Species not occurring at Vineyard I because of its lack of oak woodland habitat:
   a. Hoary navarretia (*Navarretia eriocephala*).

Traffic and Circulation

A typographical error appears to have been made with respect to the amount of overburden which will have to be removed from the project areas. Traffic and Circulation Mitigation Measure No.1 (Page ES-13) indicates that 403,000 cubic yards will initially have to be removed. Granite Construction's project description includes the removal of 1,000,000 cubic yards of overburden, while retaining the topsoil on site for use in the reclamation program. The overburden is simply dirt. This dirt is considered as a construction material, and one which is in short supply in the Sacramento Area inasmuch as large amounts of fill material are needed for such structures as levees and freeway GDT-25

ramps. The 1,000,000 cubic yards of overburden which Granite Construction must remove from its project area represents less than 10% of the overburden on site, which leaves over 9,000,000 cubic yards of overburden for reclamation and associated activities. GDT-25

The EIR/EIS (Pages ES-15 and 5-67) cited an average of 50 truck trips per hour for hauling aggregate from the Vineyard I Processing Facility. Granite estimates that this rate could be as high as 120 trips per hour between the hours of 6:00 am and 8:00 am. The transport of aggregate is essential to the operation of the project area facility as well as to the efficient completion of construction activities in the Sacramento region which need the aggregate. The suggestion in Mitigation Measure No.10 (Page ES-5) that truck trips will be curtailed between 7:00 am and 9:00 am in the Year 2005 is unacceptable, unless all other discretionary projects approved by Sacramento County will have similar restrictions on vehicle use. This restriction seems to be excessively stringent as it appears that a level of service D will be exceeded on Elder Creek Road in Year 2008 even under the No-Project alternative. GDT-26

Noise.

The EIR/EIS states that, with the recent closure of Mather AFB, noise levels have been substantially reduced (Page 5/87). While military use of Mather has been reduced, Sacramento County has converted it into a civilian airport aimed primarily at air cargo operations and has been successful in attracting some major air cargo users to the Mather Airport (Federal Express and United Parcel). Consequently, we do not concur that noise from the airport has been substantially reduced. It has been only temporarily reduced due to diminished military air operations. The proposed CLUP for Mather following the cessation of Air Force operation indicates that most of the project area will be within the 60 dbn noise contour. GDT-27

The noise mitigation measures the EIR/EIS proposes for the Vineyard I project area (Page ES-17) need further clarification. It should be clearly expressed that the intent of the mitigation measure is to provide thirty (30) vertical feet of visual/acoustic screening. This thirty (30) feet will be measured from the base elevation of the aggregate plant to the residential receptors located within twelve hundred (1200) feet of the aggregate plant. In some cases, an earthen berm situated along the property boundary line will not be feasible. In those instances, an earthen berm may be located closer to the aggregate plant in an interim location within the project area. With these modifications, temporary noise barriers and perimeter landscape buffers can still be installed to mitigate for the noise arising from mining activities. GDT-28

The minimum setbacks from adjoining lands mentioned in the EIR/EIS (Page 5-85) should be waived when the adjoining lands have also been approved for surface mining uses. GDT-29

Growth Inducing Impacts:

Encouragement of Economic Growth (Section 6.4.1).

We agree with the EIR/EIS that the proposed project would not encourage economic growth, but would itself be a response to economic growth elsewhere in the Sacramento region. Consequently, the proposed project may be seen as a project which facilitates growth which has arisen from outside, independent factors, such as the continuing and future increased needs for high quality aggregates this project could supply at an affordable cost. Consequently, the EIR/EIS is correct in its conclusion that the proposed project is not growth inducing. GDT-30

Thank you for the opportunity to comment upon the Draft EIR/EIS for the Morrison Creek Mining Reach/Downstream. We trust you will find the above comments helpful in fully and fairly evaluating the environmental impacts of mining the Vineyard I project area.

Very truly yours,

GREGORY D. THATCH

GDT/ca
T4516.ltr

cc: Scott D. Wolcott, Granite Construction Incorporated

GDT, Letter from the Law Office of Gregory D. Thatch dated 4/29/97

GDT-1: The EIR/EIS has been revised to indicate mitigation responsibility by property (i.e., Aspen V South).

GDT-2: A discussion of this issue is provided in Section 2.1 in the EIR/EIS.

GDT-3: The referenced mitigation measure establishes a standard to preventing pit capture and potential attendant erosion problems and infrastructure damage. Past consultation and cooperation by the project proponents in the development of the *Drainage Mitigation Plan for the Morrison Creek Mining Reach* have played in important role in the development of the comprehensive plan which exists today, as noted by the commentor. However, if the project is approved by the County and Corps, ongoing coordination with the Sacramento County Pubic Works Agency Water Resources Division related to the detailed design and implementation of flood control facilities, including coordination with activities in the northern reach will be essential to successful implementation. Thus, including such requirements as mitigation in the EIR/EIS is justified and necessary.

GDT-4: Mitigation measure #1 in Section 5.1.3 of the EIR/EIS requires approval by the Sacramento County Public Works Agency, Water Resources Division (WRD) for design flows and project design. The issue of runoff rates will be addressed by WRD during the design and drainage plan approval process.

GDT-5: The discussion presented in Table ES-1 under "Requirements/Recommendation of Public Agencies" summarizes existing regulatory requirements and/or recommended conditions of approval that the project would be subject to if approved. Such requirements are administered by regulatory agencies that have jurisdiction over the project or resources potentially effected by the project. These requirements would be implemented as a matter of process separate from the mitigation recommended in the EIR/EIS. These requirements were identified in the EIR/EIS to disclose and provide a more thorough understanding of the project approval process, and were considered in the impact analysis and development of mitigation measures.

GDT-6: The commentor is correct in stating that weirs or other water control facilities have been incorporated as features of the Morrison Creek Upstream Mining Reach Project, which was approved by the Count in 1996. Although these facilities have been proposed and the upstream project approved, these conditions do not mandate that these facilities will be constructed. Therefore, in order to ensure that flows in Morrison Creek will be precluded from exceeding the 1,650-cfs capacity of the bypass channel, appropriate mitigation was included in this FEIR/FEIS to reduce this impact to a less-than-significant level.

GDT-7: The proposed project will remove the low permeability "hardpan" layer that presently separates the surface soils (and present farming operations) from the regional aquifer. Therefore pollutants from any future farming operations have a greater potential to more readily percolate with recharge into groundwater. As a result, the conditions would not be the same as under the "No-Project" Alternative. The mitigation proposed in the EIR/EIS is focused on reducing that potential for increased contamination to a less-than-significant level.

GDT-8: Morrison Creek does not demonstrate a great deal of lateral erosion activity due to small floods and resistant hardpan soils. For similar reasons, it is not anticipated that the pits would be vulnerable to failure by "soil piping." The need for "containment levees" would be addressed by the Sacramento County Public Works Agency ,Water Resources Division, as part of the drainage plan for the grading permit process.

GDT-9: The expansion of the required monitoring program proposed by the applicants in their wetland mitigation plans from 5 to 10 years for the woody plant habitats of riparian woodland, riparian scrub, and Valley oak savanna, is based on the long period of time (well in excess of 10 years) that it will take for these plant communities to mature and thus fully replace the functions and values provided by the existing communities. The extended monitoring period will provide a measure of assurance that the woody plant communities will become established and self sustaining, and that replanting would be conducted after 5 years in the event that the 80% survival rate (specified in the mitigation plan for the Vineyard I parcel) or 15% cover criteria (specified in the mitigation plan for the Aspen IV South parcel) is not met.

GDT-10: The EIR/EIS identifies the loss of potential habitat for the native Sacramento blackfish and disruption of fish migration as significant impacts. The Sacramento blackfish is the only fish species that the California Department of Fish and Game expressed concern for during consultation efforts for the project. Since the only use of this reach of Morrison Creek may be occasional movement up into the project site reach during wet years, the mitigation would likely be to ensure the capability for migration into the bypass channel. Habitat requirements of the Sacramento blackfish are not described as being very complex and are characterized as warm, shallow, and usually turbid waters (Moyle, 1976) and as shallow water with dense vegetation (Johnson and Wang, 1986). It is also noted that identical mitigation was called for in the EIR/EIS for the Morrison Creek Mining Reach Upstream (North) of Jackson Highway (Upstream) project and so the approach here is consistent with that project . See also responses to comments UCC-1 and TA-12.

GDT-11: The EIR/EIS identifies vernal pools as the primary potential habitat for the federally listed fairy shrimp (*Branchinecta lynchi*) and tadpole shrimp (*Lepidurus packardi*), which is not at variance with the listing petition's habitat descriptions. The reference to seasonal wetlands on the project site also supporting suitable habitat for these species was not specific to the Vineyard I parcel but to the project site as a whole, including the Aspen IV South and Aspen V South parcels. The seasonal wetlands on the Aspen IV South and Aspen V South parcels are the most likely candidates to be considered potential habitat for the listed invertebrate species since they are in relatively close proximity to the vernal pools identified on the project site and have some similar hydrologic and vegetative characteristics as the vernal pools.

GDT-12: Comment noted.

GDT-13: The plant list (Appendix B) in the EIR/EIS has been modified to reflect the changes in scientific names and addition of species.

GDT-14: There is no universal terminology for wetland types and that is why the Draft EIR/EIS described the vegetation composition of various types of seasonal wetlands. The term "seasonal wetlands" as used in the Draft EIR/EIS include a broad range of wetlands that are wet for only a portion of the growing season. Terms such as seasonal marsh and wetland swales fit within the

seasonal wetland category. Gibson and Skordal field reviewed the delineations and determined that combining various types of seasonal wetlands into one category would simplify the discussion of wetlands while providing an accurate description of them. Vernal pools were specifically excluded in the discussion of seasonal wetlands, and were discussed separately. The term swale is commonly used to describe a linear drainageway that is vegetated and contains no discernible banks, but is more characteristic of a flowing system rather than a ponding condition.

GDT-15: The EIR/EIS analysis of existing wildlife resources and potential impacts relied on reconnaissance-level field inspections, information provided by previously prepared reports (submitted as part of the project application process), review of other existing literature and consultation with various resource agencies. The characteristics of the existing habitat were used to describe known and potential wildlife use on the project site. The EIR/EIS necessarily describes the project site as a whole and does not segregate existing conditions or project impacts into the individual parcels for general wildlife use (although this is done for mitigation purposes per the request of the applicants – see Table ES-1 in the EIR/EIS for additional information).

GDT-16: The EIR/EIS preparers agree that the creek would not be used by burrowing animals when it is inundated. However, the EIR/EIS states that it is when it is dry that the creek bed offers habitat for burrowing animals; therefore, the statement in the EIR/EIS is appropriate. However, the EIR/EIS has been revised to clarify that it is the creek bed and banks which could be used by burrowing animals and that the soils there are sandy loam (i.e., Columbia sandy loam and Hedge loam) and not just sandy soils. This clarification is made because sandy loam soils would be friable without collapsing on a burrowing animal. In regard to the comment about western gray squirrels, the commentor is referred to response to comment GDT-15 above.

GDT-17: The discussion of invertebrates on page 5-44 of the Draft EIR/EIS references species generally found in the types of habitats occurring on the project site, as well as some reference to species observed on the nearby Morrison Creek North project site. See also response to comment GDT-15.

GDT-18: Yellow-rumped warbler (*Dendroica coronata*) was observed on the project site on the Aspen IV South parcel (Sugnet & Associates, 1991a). The discussion referenced on page 5-44 of the Draft EIR/EIS mentions passerine birds (a classification of which the yellow-rumped warbler is a member) which use the project site for feeding, not just for breeding. See also response to comment GDT-15.

GDT-19: The EIR/EIS has been corrected to indicate that the results of the Zentner and Zentner surveys are provided in the Appendices of the document. The EIR/EIS has also been revised to specifically state that the use of the 10-mile radius in making the foraging habitat determination for Swainson's Hawk is based on the California Department of Fish and Game's criteria. In regards to the comment referencing valley elderberry longhorn beetle (*Desmocerus californicus dimorphous*), the EIR/EIS indicates that elderberry bushes were identified during field surveys and that exit holes of the valley elderberry longhorn beetle were present. Presence of exit holes is indicative of the beetles occurrence (Barr, 1991) and thus the EIR/EIS appropriately treats this as a significant impact of the project.

GDT-20: See response to comment GDT-11.

GDT-21: Impacts 5 and 6 on page 5-54 of the Draft EIR/EIS makes specific reference to disruption of the movement of wildlife and disturbance by human activity, while impact 4 on page 5-53 deals with the loss of habitat. Clearly, the loss of habitat is the significant impact.

GDT-22: Comment noted. Item # 5 under "Recommendations/Requirements of Various Agencies" in Section 5.7.3, states that Section 7 consultation will be done, if needed, through the US Army Corps of Engineers. As of the date of this report, Section 7 consultation has not been completed.

GDT-23: Mitigation Measure Number 5 on page 5-62 of the EIR/EIS requires replacement of all landmark size (19 dbh or greater) native trees (except cottonwoods and willows) removed as a result of the project on an in-kind and inch-for-inch basis. The following compensation ratio may be considered equivalent to inch-for-inch replacement: one 15-gallon tree equals 1-inch dbh; one 24-inch box tree equals 2 inches dbh; one 36-inch box tree equals 3 inches dbh.

GDT-24: The commentor notes that a number of the special status plant and animal species mentioned in the Draft EIR/EIS would not occur on the project site, particularly not on the Vineyard I parcel. The purpose of the information presented in the EIR/EIS was to disclose the potential impacts of the proposed project. To achieve this, a list of the special status plant and animal species potentially occurring on the project site was compiled from information provided by a variety of sources, reconnaissance-level field surveys, and information submitted by the proponents as part of the project application process. These species were identified as being reasonable to consider as potentially occurring on the project site, given the project site's regional setting and existing habitat. The EIR/EIS does not suggest that any of these species necessarily do occur on the project site. Based on the analysis contained in the EIR/EIS, it is concluded that the project would not significantly impact any special status plant species. Special-status wildlife species identified in the Draft EIR/EIS as not being significantly impacted by the project due to a low probability of their occurrence within the area, include yellow warbler (*Dendroica petichia*) and giant garter snake (*Thamnophis couchi gigas*). See also response to comment GDT-15.

GDT-25: Comment noted. Please refer to response to comments TA-4 and T&H-5 related to the rate of overburden removal.

GDT-26: The rate of aggregate hauling associated with the proposed Vineyard I processing plant presented in the Draft EIR/EIS was provided by the project applicant at the time the study was conducted. Since release of the Draft EIR/EIS, the applicants have reached an agreement that would allow conveyor access such that an on-site processing plant is no longer necessary and is not being proposed by the applicants. In addition, a new mitigation measure has been added to Section 5.8.3 that restricts overburden hauling to a maximum of 30 trips per hour during the peak periods. Mitigation measure #10 in the Draft EIR/EIS (Section 5.8.3) was developed to provide the County with some flexibility to regulate the amount of traffic on the roadways around the project site if some of the planned roadway improvements do not occur. An alternative mitigation measure would be for the applicant to provide funding for some or all of the roadway improvements identified in the General Plan (widening Jackson, Bradshaw and Watt Avenue to six lanes).

GDT-27: Figures 5-21 and 5-22 in the Draft EIR/EIS show the projected noise contours over the project site under both military and civilian use. As can be seen from these figures, the project site was located primarily within the 80 CNEL under military operations and would be primarily within the 60 and 65 CNEL contours under civilian use.

GDT-28: Following circulation of the Draft EIR/EIS, the proponents were able to successfully negotiate easements necessary to allow conveyor access to an existing processing plant, thereby removing the need to construct an on-site processing plant on Vineyard I. The proponents have withdrawn their application for the processing plant and have indicated that the "Proposed Project Without Vineyard I Processing Plant Alternative" is preferred. As a result, the referenced mitigation would no longer be required.

GDT-29: Comment noted.

GDT-30: Comment noted.

March 20, 1998

Honorable Don Nottoli, Fifth District Supervisor
County Board of Supervisors
700 H Street, Suite 2450
Sacramento, CA 95814

Honorable Patricia Shelby, Chairperson
Policy Planning Commission
700 H Street, Room 1450
Sacramento, CA 95814

Dennis Yeast, Director
Department of Environmental Review and Assesment
827 Seventh Street, Room 1450
Sacramento, CA 95814

Jeff Gamel, Associate Planner
Planning and Community Development
827 Seventh Street, Room 101
Sacramento, CA 95814

Re: Morrison Creek Mining Reach Downstream (South) of Jackson Highway, 94-UPB-0484 (Aspen III South); 91-CZB-UPB-0118 (Vineyard I); 90-CZB-UPB-1607 (Aspen IV South); 91--CZB-UPB-0671 (Aspen V South).

Dear Sirs:

We are writing on behalf of the residential community of the above project. We are concerned about the negative environmental impacts that this project would bring to our community. Because the County has permitted residential dwellings to be built within or close to the areas zoned Industrial Reserve/Surface Mining, we feel that

the County should work for the best interest of the community in its decission making. Should the County approve the mining application, we ask that our proposals be heard for the following mitigation measures:

1.	Processing Plant:	Absolutely not compatible with residential living, this is not acceptable as an alternative during any phase of any mining project in the area. If mining is approved, our recommendation is that conveyor belts be used. This item would have to be negotiated between Granite Construction and Teichert to move the aggregates to their present plants.	MCMPOC-1
2.	Overburden:	We request that the overburden from the projects in the entire area be stored on site until needed for reclamation. This would eliminate the truck traffic problem.	MCMPOC-2
3.	Traffic:	We request that ingress and egress to the aggreates project site for vehicles, should be limited to the east side of Vineyard I, north side of Aspen III, south and west side of Aspen IV South, as presently specified in the Draft EIR, and that all aggregate related traffic should flow north on Mayhew Road, and remain off of Elder Creek Road or Hedge Avenue. Furthermore, we do not agree with the County's standard that 2 cars equal one truck, we feel this should be changed to at least 4 cars to equal one truck.	MCMPOC-3

4. Air Quality and Dust Control:

We feel it is crucial that the air quality does not deteriorate because of air pollutants produced by aggregate mining. Our air quality and dust control must remain up to residential standards. MCMPOC-4

5. Noise:

We request that all necessary mitigation techniques be implemented to ensure that noise levels do not exceed those allowed for residential standards MCMPOC-5

6. Setbacks:

Our request is that setbacks of a minumum of 25 feet be established, except where present buildings on properties adjacent to mining areas are located 100 feet or less from the property line; then the setback should be a minimum of 50 feet. We feel that the current County zoning ordinances for aggregate mining is not sufficient for a mining project planned so close to an urban area or residential uses. MCMPOC-6

7. Screening:

We request that visual screening such as non-toxic shrubery and evergreens be planted inside a cyclone fence on the setback of undisturbed ground. Furthermore, all trees and shrubs are to be planted immediately upon approval of the use permit granted to the aggregate mining project proponents, so that these plants have several years growth before aggregate mining starts. MCMPOC-7

8. Slopes:

Slopes should be a minimum of 3:1 ration from the undisturbed setback after reclamation, conducted in such a manner to leave contoured slopes ranging fram 3:1 to 5:1 ratios. MCMPOC-8

9. Water Quality: We request that the quality of our water does not deteriorate due to pollutant sources related to aggregate mining. Furthermore, we request water testing quarterly by an expert independent company, this testing would have to be at the cost and expense of the aggregate companies. MCMPOC-9

10. Operating Hours: Because the County has permitted residential dwellings within or close to areas zoned for Industrial Reserve/Surface Mining use, we request that the hours of operation contemplated in the Draft EIR be limited to the following hours on any of the days given: MCMPOC-10

Days of Operation:	Times of Operation:
Monday -Friday	7:00 am to 9:00 pm
Saturday	8:00 am to 3:00 pm
Sunday	no mining or operation
Holidays	no mining or operation

11. Maintenance: If maintenance of machinery or equipment is necessary, we request that the noise level be such that it comforms to residential standards. MCMPOC-11

12, Drainage: The mining companies should provide and maintain for drainage to replace present natural drainage unto their property in such a manner that people adjacent to the mining properties are not flooded. MCMPOC-12

13.	Morrison Creek	We strongly feel that the aggregate companies should not destroy Morrison Creek. We are opposed to the mining and devastation of this creek.	MCMPOC-13
14.	Enforcing:	We request that the appointment of an Agent of Agents be established to enforce permits, rules and agreements. We need to have at all times, a single point of contact on any given day to bring concerns or complaints with the assurance that our phone calls will be returned in a timely manner. We feel that we need to have an Agency to oversee the proper operation of the pits and that they adhere to the use permit.	MCMPOC-14

Since the County's previous actions have permitted this adverse condition for our community, we would greatly appreciate your time in evaluating the health, welfare and quality of life issues that our residents are facing, not to mention the devastating effect on our property values.

We are requesting that this letter be posted in the Public Record and the EIR. Let it be posted in the Public Records as well, that we support all letters and requests submitted by our fellow residents, Mr. Kevin Smith and his wife, Mrs. Divi Smith.

Sincerely.

Morrison Creek Mining Project Opposition Commitee

cc: Roger Dickinson
Ila Collin
Muriel P. Johnson
Dave Cox
Don Nottoli

cc: U.S. Army Corp of Engineers
Granite Construction
Teichert Aggregates

Susan Brandt-Hawley
Attorney At Law

MCMPOC, Letter from Morrison Creek Mining Project Opposition Committee dated 3/2/98

MCMPOC-1: The Vineyard I processing plant alternative has been removed from further consideration by the project proponents. Please refer to response to comment T&RN-1 for additional information.

MCMPOC-2: The project proponents have indicated that partial removal of overburden is necessary to implement the proposed project. However, during the Policy Planning Commission Hearings several requests from the public, including the commentors, were made and responded to by the proponents in the form of new conditions of approval aimed at minimizing traffic impacts associated with the project. Specifically, the proponents have agreed to restrict truck traffic on Elder Creek Road and have also reached agreement to allow conveyor access to an existing off-site processing plant such that the "Proposed Project With a Vineyard I Processing Plant" has been removed as the preferred alternative. The "Proposed Project Without Vineyard I Processing Plant" is now the preferred alternative, and will eliminate the need for truck trips to and from the project site associated with plant operations. Please refer to Section 5.8.3 for additional information on traffic mitigation.

MCMPOC-3: Please refer to response to comment AP-1, below. For the purposes of capacity analysis the use of 2 passenger cars as equivalent to 1 heavy vehicle is supported by the Transportation Research Board's Highway Capacity Manual. The HCM uses 2 passenger car equivalents (PCEs) for heavy vehicles at signalized intersections (pages 9-14 through 9-17) and recommends use of 1.5 PCEs for roadways with grades less than 2 percent (pages 3-13 through 3-14).

MCMPOC-4: Implementation of the mitigation measures and requirements/recommendations of public agencies presented in Section 5.4.3 of the Draft EIR/EIS would reduce the potential air quality impacts of the project to a less-than-significant level.

MCMPOC-5: Comment noted. Please refer to Section 5.10.3 of the Final EIR/EIS.

MCMPOC-6: Comment noted.

MCMPOC-7: As shown in Section 5.12.3 of the Final EIR/EIS, the project proponent has agreed to the request of the commentor related to landscaping and it has been incorporated into the Final EIR/EIS.

MCMPOC-8: Please refer to Section 5.5.3 of the Final EIR/EIS (Geology and Slope Stability) which describes the requirements/recommendations of public agencies and the mitigation measures for the project. As described in this section, slopes will have a maximum ratio of 1.5:1.

MCMPOC-9: The commentor's request is noted. Mitigation measures have been incorporated into the EIR/EIS to reduce potential water quality impacts to a less-than-significant level.

MCMPOC-10: The commentor's request is noted. Mitigation measures have been incorporated into the EIR/EIS to reduce potential land use impacts to a less-than-significant level.

MCMPOC-11: Any future maintenance activities will be required to comply with the standards set forth in the zoning code, including those for adjacent residential uses if applicable.

MCMPOC-12: The intent of the Drainage Mitigation Plan for the Morrison Creek Mining Reach is to provide for the long-term safe conveyance of Morrison Creek flows through and around the proposed mining and reclamation area.

MCMPOC-13: The Committee's opposition to mining within Morrison Creek is noted. This is the applicant's proposal. Other alternatives, which may be the permitting action, avoid the creek. The application could also be denied.

MCMPOC-14: The County of Sacramento, in its role as Lead Agency under the California Environmental Quality Act, is required to adopt a mitigation monitoring or reporting program to ensure that the required mitigation measures are implemented. As described in Section 15097 of the State CEQA Guidelines, a Lead Agency may delegate this responsibility to another public agency or to a private entity; however, until the mitigation measures have been completed the County will remain responsible for ensuring that such measures are implemented.

SBH

Brandt-Hawley & Zola
An Association of Attorneys

Chanvet House
Post Office Box 1659
Glen Ellen, California 95442
(707) 938-3908 • 576-0198
Fax (707) 576-0175
econet: bhz@igc.apc.org

Susan Brandt-Hawley
Rose M. Zola

Legal Assistant
Sara Hews

June 10, 1998

By mail and fax: 916-874-7593

Chairperson Patricia Shelby and Commissioners
Policy Planning Commission
700 H Street
Room 1450
Sacramento, CA 95814

Re: *Morrison Creek Mining Reach Downstream (South) of Jackson Highway*
Draft EIR/EIS Comments

Dear Chairperson Shelby and Commissioners:

On behalf of the Morrison Creek Mining Project Opposition Committee, I am writing to comment on the inadequacy of the Draft EIR. Our firm has just been retained in this matter and has not yet fully reviewed the environmental document; we may submit additional comments in the future.

The EIR fails to consider numerous mitigation measures already pointed out to you in correspondence from the Committee and also from the Chua Dieu Quang Vietnamese Buddhist Community Temple. The EIR is also blatantly inadequate in its failure to analyze and mitigate numerous project impacts, which it has improperly deferred to future study. Among the areas of improperly deferred analysis are drainage plans, delineation of wetlands and wetland mitigation plans, design of flood control detention and water quality facilities, bypass channel design, plans for preservation and salvage of topsoil resources, noise investigation, and placement of sewage utility corridors.

SBH-1

SBH-2

A separate critical issue not adequately addressed in the EIR is the risk of flow capture from Morrison Creek into gravel extraction pits and disruption of downstream flows. The vague and generalized requirement of construction of berms, armored weirs and drop structures, inlet work, and erosion control and repair plans fail to assess the impacts of pit capture, the effectiveness of mitigation, or the impacts of the mitigation measures. Impacts on Jackson Highway Bridge and roadway must be fully assessed and mitigation measures designed and reviewed by state agencies, including Caltrans, as part of this EIR/EIS process. Deferral of this review until after completion of the

SBH-3

SBH

SBH-3

EIR process is improper under CEQA

SBH-4

The EIR analysis of alternatives is cursory and inadequate, and is also very difficult to understand since it is spread throughout the document. The EIR section on alternatives should more fully explain the logistics of alternatives, particularly the deletion of the processing plant.

I will look forward to providing further comments in the future, even if they are not in time for entitlement to written responses in the Final EIR. I would like to be placed on the mailing list for notices for this project.

Thank you.

Sincerely,

Susan Brandt-Hawley

SBH, Letter from Susan Brandt-Hawley Attorney At Law dated 6/10/98

SBH-1: Following the close of the review period on the Draft EIR/EIS, several Policy Planning Commission hearings were held to receive additional input on the project and EIR/EIS from the community and other agencies. Through that process a number of the mitigation measures referenced by the commentor, although not necessary to reduce the project's effect to a less-than-significant level, were agreed to by the project proponent and have been voluntarily included in the Final EIR/EIS as conditions of approval for the project. Please refer to response to comments MCMPOC-1 through 14 above for additional detail.

SBH-2: In accordance with the California Environmental Quality Act and the National Environmental Policy Act, the EIR/EIS provides full disclosure of the project's potential environmental effects for consideration of the Corps and County decision-makers and the public. The drainage facilities proposed by the project were identified as part of comprehensive drainage and hydrologic study of the Morrison Creek Mining Reach. The commentor is referred to the *Drainage Mitigation Plan for the Morrison Creek Mining Reach* (Montgomery Watson, August 1995) for additional detail, and to response to comment ECS-4 which provides a summary of the plan history and objectives. Wetland delineation and subsequent verification by the US Army Corps of Engineers was conducted for the project. The commentor is referred to Section 5.7 and Appendix B of the EIR/EIS for additional information on the wetland delineation and proposed wetland mitigation plans for the project. As required by the Surface Mining and Reclamation Act and mitigation established in the EIR/EIS, the proponents will be required to salvage, stockpile, and replace top soil resources as part of the project implementation (please refer to Section 5.9.3 of the EIR/EIS for a description of this requirement). Similarly, an analysis of the project's potential to generate noise and impact private and public infrastructure is included in the EIR/EIS (Sections 5.10 and 5.13, respectively) as well as identification of mitigation measures that would reduce these effects to a less-than-significant level.

SBH-3: The commentor is referred to the responses to comments presented in the Caltrans 2 letter that address these same issues.

SBH-4: The description of alternatives in the EIR/EIS is not spread throughout the document, it is presented in Chapter 4. The environmental analysis of the alternatives and the proposed project are presented in Chapter 5, specifically in Sections 5.X.2. Additional background on the formation and selection of alternatives can be found in the alternatives analysis submitted as part of the Section 404(b)(1) submittal (refer to pages B-91 through B-119). In regard to the processing plant, the EIR/EIS evaluates two scenarios for the proposed project: with on-site processing and without. The proponents' "preferred alternative" was originally the option that included an on-site processing plant (on the Vineyard I). Following release of the Draft EIR/EIS; however, this other option (without on-site processing) has been identified as the preferred alternative as described in response to comment T&RN-1 and responses to the Smith family letters (SHS, DKS, DKS-2, & DKS-3).

AP

ANTHONY J. PALIK
ATTORNEY AT LAW
400 CAPITOL MALL, SUITE 900, SACRAMENTO, CALIFORNIA 95814
E-MAIL: 74230.213@COMPUSERVE.COM
916-449-3928

March 9, 1998

Honorable Don Nottoli, Fifth District Supervisor
County Board of Supervisors
700 H Street, Suite 2450
Sacramento, CA 95814

Honorable Keith Bray, Chairperson
Policy Planning Commission
700 H Street, Room 1450
Sacramento, CA 95814

Mr. Dennis Yeast, Director
Department of Environmental Review and Assessment
827 Seventh Street, Room 220
Sacramento, CA 95814

Mr. Jeff Gamel, Associate Planner
Planning and Community Development
827 Seventh Street, Room 101
Sacramento, CA 95814

Re: Morrison Creek Mining Reach Downstream (South) of Jackson Highway, 94-UPB-0484 (Aspen III South); 91-CZB-UPB-0118 (Vineyard I); 90-CZB-UPB-1607 (Aspen IV South); 91-CZB-UPB-0671 (Aspen V South).

Dear Sirs:

On behalf of the the Chùa Diêu Quang Vietnamese Buddhist Community Temple, I am writing this letter to express our concerns over the proposed aggregate mining project referenced above. Established in 1984, the Temple serves a vital community interest, both to its laity and to the surrounding community. The small size of the member groups who may attend services at any one time should not mislead the casual observer to underestimate the Temple's importance to the larger community. In addition to the individual visitors who may stop by at the Temple from time to time, many small groups may meet in a consecutive fashion throughout the day. Although the size of these groups at any given time may be relatively small, the Temple's total membership exceeds 2300

families, most of whom live in the greater Sacramento metropolitan area, and the services it performs are absolutely vital to the health and well-being of the community it serves. Among the many services it performs are weddings, funerals, dedications, business blessings, counseling and mediation, assistance to the economically disadvantaged (limited to small and sporadic disbursements of food and clothing - no monetary gifts are permitted), medical and social advocacy, holiday celebrations, dinners, graduation and other rite-of-passage ceremonies, etc. Because our youth are the promise of the future, the one function most valued by the Temple is the role it plays in shaping the values and character of our youth, so they may become upright and moral citizens who make a valuable contribution to the community. In short, the Temple is a living, vital community and cultural center.

Furthermore, the Temple's membership is not exclusively limited to the Vietnamese-American population of the greater Sacramento area. The Temple is interested in serving any persons who are respectful of its role and might inquire about its functions and desire to be included. Among the many other nationalities from which its membership descend include persons of Thai, Chinese, Laotian, Hmong, Japanese, British, Mexican, Spanish, and Italian descent. The Temple's function is essentially inclusive of the larger community and it welcomes anyone who might wish to respectfully participate in its religious services, youth groups, relief societies, study groups, clubs, merchant organizations, or simply associate among friends. The artwork, sculptures, and gardens at the Temple are a source of pride and reverence for its membership. Anyone desiring to visit their grounds is welcome to contact the Temple and schedule a tour.

The Temple is also home to ten professed nuns and one professed monk, as well as four members of the laity who assist the clergy with their religious observances. As the Governing Abbess of all Vietnamese Buddhist nuns throughout the world, the Temple's Abbess Superior, the Reverend Master Ni Su Thich Nu Diêu Tu, is internationally known and a highly respected member of the world religious community. As such, the Temple acts as an embassy of goodwill, not only to visitors from the surrounding community, but also to travelers and dignitaries from all around the world - sometimes arriving in Sacramento for the sole purpose of visiting the Reverend Master and her members' Temple.

It should also be mentioned that the Temple is located where it is because it seeks to provide its membership and visitors with a peaceful oasis of solitude, away from the noise and distractions of urban living. This peacefulness and solitude are also critical to the clergy in the observance of their spiritual and religious programs. The clean air and pure water of country living are also important to the Temple, not only for health reasons, but because cleanliness and the purity of air and water are very important to the observance of Temple religious functions. Buddhist canonical law, a set of more than 300 laws which strictly govern and regiment nearly every detail of monastic life, require that the Temple facilities be kept extremely clean from dust and debris and that all foods must be washed three times with the purest water available before they may be eaten.

Although the Temple is mindful of the value of an aggregate mine to the entire community, both as a material resource and as a potential employer, the Temple is very concerned about the

negative environmental impacts it might experience as the result of being surrounded on two sides by the aggregate mining project proposed for our area. In addition, although the Temple is not the representative of its neighbors in this matter, it shares their concerns in regard to these potential negative environmental impacts. Although the Temple would prefer that no aggregate mining operation be approved, if the County should determine that such an operation is in the best interests of the community, the Temple asks that the County hear its proposals in regard to the following requested mitigation measures:

1. **Truck Traffic:** Because of the potential presence of traffic to and from the Temple by members of its clergy and laity, the Temple requests that ingress and egress to the aggregate project site for trucks hauling overburden, sand, and/or gravel should be limited to the east side of Vineyard I, north side of Aspen III South, and west side of Aspen IV South, as presently specified in the Draft EIR, and that all aggregate-related traffic should flow north on Mayhew Road and remain off of Elder Creek Road or Hedge Avenue. **AP-1**

2. **Noise:** Because serenity and peacefulness are extremely valuable qualities offered by the Temple to its members and for the religious practices of its clergy, and because they are among the primary motivating factors for locating the Temple in the countryside, not too far from its membership, the Temple requests that all necessary mitigation techniques be implemented to ensure that noise levels do not exceed the following levels, as measured at any point located fifty feet outside the boundary of any property owned or used by an aggregate mining proponent, where said property is located adjacent to the Temple property: **AP-2**

Duration of Noise	7 a.m. - 9 p.m.	9 p.m. - 7 a.m.
≤ 30 Min/Hr	58 dBA	50 dBA
≤ 15 Min/Hr	63 dBA	55 dBA
≤ 5 Min/Hr	68 dBA	60 dBA
≤ 1 Min/Hr	70 dBA	65 dBA

Furthermore, the Temple is requesting that noise levels not exceed 80 dBA, as measured at any time and at any point located fifty feet outside the boundary of any property owned or used by an aggregate mining proponent, where said property is located adjacent to the Temple property. The Temple requests that it be provided with a properly calibrated

and functioning, portable, noise measuring device, capable of graphically recording ambient noise levels for later reference, and capable of a specified frequency response not less than 5 hertz to 20 kilohertz, and that said noise measuring device be provided to and maintained for the Temple at the sole cost and expense of the aggregate mining project proponents. AP-2

The Temple believes that the above-given noise level specifications are reasonable considering the fact that the county has permitted residential dwellings and places of worship to be built and used within or close to areas zoned for industrial reserve-surface mining uses, and that the noise levels requested by the Temple exceed noise levels already permitted by the county for residential areas.

3. **Light:**

The Temple requests that any artificial light used for mining operations, whether by floodlight, vehicle headlights, or from any other man-made source, should never shine directly upon the Temple or over or upon the property upon which it is located, with reasonable allowance given for inadvertently reflected light, and any use of artificial lighting should cease after 10:00 p.m. AP-3

4. **Operating Hours:**

Because the county has permitted residential dwellings and places of worship to be built and/or used within or close to areas zoned for industrial reserve-surface mining uses, the Temple requests that the hours of operation for any aggregate mining operations contemplated in the Draft EIR be limited to the following hours on any of the days given: AP-4

Days of Operation	Times of Operation
Monday through Friday:	7:00 a.m. until 9:00 p.m.
Saturday:	8:00 a.m. until 3:00 p.m.
Sunday and union holidays:	no mining or processing

5. **Air Quality:**

The temple requests that air quality at the Temple does not deteriorate such that levels of air pollutants produced by artificial or man-made sources related to aggregate mining, including, but not limited to reactive organic gases, nitrogen oxides, ozone, sulfur oxides, lead, mercury, selenium, silica, AP-5

hydrocarbons, airborne particulate matter classified as PM-10 or smaller, or any other airborne gases, particles, or other debris produced from artificial or man-made sources related to aggregate mining that pose a serious risk of health to human beings, exceed five percent above a baseline level, adjusted for average levels of air pollutants already present in the air of the greater Sacramento metropolitan area for that month of the year, and where said baseline is to be established by the monitoring of air quality at four equidistant points located fifty feet within the boundaries of the Temple property, by an air quality monitoring expert chosen by written agreement of the Temple and the Granite Construction Company, and where any monitoring of air quality required by this paragraph is to be paid for and performed at least monthly at the sole cost and expense of the aggregate mining project proponents. AP-5

6. **Water Quality:** The Temple requests that the quality of water drawn from the Temple's wells does not deteriorate due to pollution produced by artificial or man-made sources related to aggregate mining, where said deterioration exceeds five percent above a baseline level to be established by the monitoring of water quality at any or all of the Temple's wells by a water quality testing expert, chosen by written agreement of the Temple and the Granite Construction Company, and where any testing of water quality required by this paragraph is to be paid for and performed at least monthly at the sole cost and expense of the aggregate mining project proponents. AP-6

7. **Mining Techniques:** The Temple requests that all mining of aggregate by the project proponents be conducted using the method of strip mining, without the use of explosives, and without mining underneath the Temple property or so close to the Temple property that it should create a subsidence of the Temple property or a loss of any lateral or subjacent support already existing for any improvements located on the Temple property or for any improvements that could be constructed on the Temple property in the future. AP-7

8. **Slope Stability and Erosion Control:** The Temple requests that all mining of aggregate be conducted in such a manner as to leave gently graded slopes at no more than a 5:1 ratio (horizontal:vertical) after mining AP-8

and that no mining be conducted in a manner so as to create a subsidence of the Temple property or a loss of any lateral or subjacent support already existing for any improvements located on the Temple property or for any improvements that could be constructed on the Temple property in the future. AP-8

9. **Security and Maintenance of Fences and Gates:**

The Temple requests that all areas of the proposed mining operation adjacent to the Temple property and located along Elder Creek Road and Hedge Avenue shall be adequately fenced with chain-link fencing, at least ten feet in height, and secured with locked gates, and that all fences and gates shal be installed, secured, and maintained at the aggregate mining proponents' sole cost and expense and in such a manner sc that no breach is ever present whereby access may be gainec by small children who might be traveling or playing nearby Furthermore, the Temple requests, for aesthetic reasons, tha a barbed wire fence approximately two and one-half feet i height, consisting of two strands of barbed wire strung alon redwood posts, be set up approximately five feet outside th perimeter established by the chain-link fence, and only alon the project's boundary where it faces Elder Creek Road an Hedge Avenue, in order to preserve the rural flavor of th area. The Temple does not desire that such a barbed wir fence be placed along the interior border of the Templ property where it adjoins the property to be used for th aggregate mine. AP-9

10. **Setbacks:**

The Temple requests that no mining be conducted by the project proponents anywhere within fifty feet of the Temple property. The Temple believes that such a request is reasonable because the county has permitted residential dwellings and places of worship to be built and/or used within or close to areas zoned for industrial reserve-surface mining uses. Furthermore, and because of said uses, the Temple believes that a five foot setback, as currently provided by county zoning ordinances for aggregate mining, is not sufficient for an aggregate mining project planned so close to an urban area or residential uses. AP-10

11. Visual Aesthetics: Because the visual aesthetics of a rural setting are so important to the role and functions of the Temple in the service of its community, the Temple requests that hardy, drought-resistant, evergreen trees and shrubs be planted outside the chain-link fencing to be provided by the project proponents along the boundaries of the Temple property adjacent to the project site, and pursuant to the terms of this letter, with trees and shrubs to be chosen by written agreement of the Temple and the Granite Construction Company, where the installation and maintenance of any or all landscaping is to be paid for at the sole cost and expense of the aggregate mining project proponents, and where said trees are to be planted at a distance of no more than ten feet apart, and bushes are to be planted at such distances that they completely cover the fence, with no visibility of the project site from outside it, within five years of planting. Furthermore, all trees and shrubs are to be planted immediately upon approval of the use permit granted to the aggregate mining project proponents so that they have ten to fifteen years of growth before the aggregate mining project reaches the boundaries of the temple property. **AP-11**

12. Meditation/Hiking Trail: Because the Temple desires to develop the use of its property to the fullest extent permitted by law for use by the Temple in religious observances and outdoor educational activities, the Temple requests that a hiking trail, approximately twenty five feet in width within the required setback area of the property used by the aggregate mining project proponents and with some minimal landscaping, be constructed along the perimeter of the Temple property where it adjoins the property used for the aggregate mining project. The Temple recognizes that any such use of the proponents' land would be by permission of the proponents and would not constitute an adverse possession of or the procurement of a prescriptive easement upon the proponents' land by the Temple, its members or visitors. **AP-12**

13. Pest Control: The Temple requests that the aggregate mining project proponents be responsible for any necessary pest control, including, but not limited to, any mosquito control that might be necessary as a consequence of the work done in the aggregate mining project. **AP-13**

14. Drainage: The Temple requests that any or all aggregate mining project work be conducted in such a manner as not to interfere with any existing drainage systems used for the drainage of surface waters from the Temple property, including, but not limited to, the drainage ditch located parallel to the western boundary of the Temple property, running approximately from north to south. **AP-14**

15. Reclamation Plan: The Temple requests that the use of any land reclaimed from the property used for aggregate mining be reclaimed to either agricultural or recreational uses, and that the reclaimed land be utilized in a manner consistent with the terms of this letter. The Temple prefers a recreational use over an agricultural use because there is a smaller chance of the contamination of its wells due to the use of herbicides, pesticides, or fertilizers. **AP-15**

16. Order of Mining Locations: The Temple requests that the order in which different portions of the area designated for aggregate mining are mined remain in the same sequence specified in the Draft EIR, and that this ordering should not delay the planting of trees and shrubs used as mitigation as soon as the use permit for the project is granted to the aggregate mining proponents. In this way, the Temple and its neighbors are best assured that the trees and shrubs will have approximately ten to fifteen years of growth and thereby further mitigate any negative visual impact caused by the aggregate mining operation. **AP-16**

17. Appointment of an Agent to Enforce Permits: The Temple requests that the County create a position, independent of any particular person who might fill it, with specific authority and responsibility for overseeing the enforcement of all laws, regulations, and permits relating to the above-referenced aggregate mining projects and that the County authorize this person to receive service of process for all matters in this regard. **AP-17**

The Temple is taking the Draft Environmental Impact Report (EIR) filed for these projects at face value and assumes that all environmental impacts of the project have been identified and accurately characterized with respect to their nature and magnitude. Should unidentified

environmental impacts be experienced once the project is under way, or should identified environmental impacts be greater than forecasted (following implementation of mitigation), the Temple reserves the right to challenge the adequacy of the EIR and/or any permit authorizing the project proponents to continue their work in spite of any unmitigated impacts to our community.

We hope this letter has proved helpful in your evaluation of the project's potential impact upon the Temple. We appreciate your attention to this matter and request that you recommend the mitigation measures suggested by us in this letter. If you have any further questions or concerns, please do not hesitate contacting me.

Sincerely,

Anthony J. Palik, Esq.

AJP/ajpBuddhist Temple - Letter re Concerns Over the Aggregate Mining Project - 3-9-98.wpd

Cc: Scott Wolcott - Granite Construction
Rob Wainwright - Teichert Aggregates.

AP, Letter from Anthony J. Palik Attorney At Law dated 3/9/98

AP-1: The County has added a condition of approval that states in part that all overburden removed from the site by trucks shall be routed onto Mayhew Road north to Jackson Road via an on site crossing of Morrison Creek. Please refer to Section 5.8.3 in the Final EIR/EIS for additional information.

AP-2: Comment noted. Please refer to Sections 5.9.3 and 5.10.3 for additional discussion. Mitigation measures have been incorporated into the EIR/EIS to reduce potential noise and land use impacts to a less-than-significant level.

AP-3: Please refer to mitigation measure #3 in Section 5.12.3 of the EIR/EIS.

AP-4: Please refer to Response to Comment AP-2.

AP-5: Please refer to response to comment MCMPOC-4 which addresses this same issue (proposed air quality monitoring).

AP-6: The Planning Commission, as part of their Conditions of Approval (refer to Appendix E), recommends that a water quality monitoring program, which monitors all water wells on adjacent properties, should be implemented. The wells should be tested on a quarterly basis during mining and reclamation. The operator shall continue to test the wells for constituents that may result from the proposed agricultural reclaimed use and which may adversely affect groundwater. The constituents to be tested for will be determined by the Environmental Management Department. Testing will be conducted on an annual basis for 5 years after reclamation. An analysis of the test results shall be provided to the owner of the above parcel and the County Environmental Management Department within one month of tests. Testing at the wells shall begin before mining to establish existing water quality standards.

AP-7: No explosives would be used in the mining operations proposed for the project site. Please refer to Section 5.5 of the FEIR/FEIS.

AP-8: Please refer to response to comment MCMPOC-8 which addresses the same issue (slope ratio).

AP-9: Please refer to the mitigation and "requirements/recommendations of public agencies" discussion in Sections 5.11.3 and 5.12.3 which address this issue.

AP-10: Please refer to Response to Comment AP-2 and Section 5.9.3 of the EIR/EIS.

AP-11: Refer to mitigation measures in Section 5.12.3 of the Final EIR/EIS.

AP-12: Please refer to response to comment UCC-3 which addresses this same issue (provision of a public trail/easement through the project site).

AP-13: Guidelines from the Sacramento-Yolo Mosquito & Vector Control District were used in the development of the proposed wetland mitigation plans. The District's guidelines are specific to wetland restoration projects and have been adopted as part of the wetland mitigation plans

proposed by the project. Refer to pages B-48 and B-49 in Appendix B of the EIR/EIS for additional information on this subject.

AP-14: The proposed drainage facilities were identified as part of a comprehensive drainage study for the area and have been designed to safely provide for long-term drainage needs. Refer to the Drainage Mitigation Plan for the Morrison Creek Mining Reach (Montgomery Watson, August 1995) for additional information. A copy of the plan is available for review at the Sacramento County Department of Environmental Review and Assessment.

AP-15: The commentors' suggestions for potential post-reclamation uses are noted. These are consistent with those proposed as part of the project.

AP-16: No changes in the proposed phasing of the project are being proposed.

AP-17: Please refer to response to comment MCMPOC-14.

AP2

ANTHONY J. PALIK
ATTORNEY AT LAW
400 CAPITOL MALL, SUITE 900, SACRAMENTO, CALIFORNIA 95814
E-MAIL: apalik@lps.net
916-449-3928
FAX: 916-447-4019

June 3, 1998

Honorable Don Nottoli, Fifth District Supervisor
County Board of Supervisors
700 H Street, Suite 2450
Sacramento. CA 95814

Honorable Keith Bray, Chairperson
Policy Planning Commission
700 H Street, Room 1450
Sacramento, CA 95814

Mr. Dennis Yeast, Director
Department of Environmental Review and Assessment
827 Seventh Street, Room 220
Sacramento, CA 95814

Mr. Jeff Gamel, Associate Planner
Planning and Community Development
827 Seventh Street, Room 101
Sacramento, CA 95814

Re: Morrison Creek Mining Reach Downstream (South) of Jackson Highway, 94-UPB-0484 (Aspen III South); 91-CZB-UPB-0118 (Vineyard I); 90-CZB-UPB-1607 (Aspen IV South); 91-CZB-UPB-0671 (Aspen V South).

Dear Sirs:

At the request of Teichert Aggregates, I am submitting this letter on behalf of my client, the Chua Dieu Quang Vietnamese Buddhist Community Temple, to clarify our position in regard to the above-referenced project. Although most of the concerns stated in our letter to you dated March 9, 1998, specifically identify Granite Construction Incorporated as the interested party, it has been brought to our attention that some portions of the letter refer more generally to the "project proponents" and do not specifically identify one proponent or the other. In consideration of the fact that my client's property does not directly adjoin, and is not located very near to, the Teichert Aggregates project site, we are asking you to take this fact into consideration when evaluating those concerns addressed by the Temple in the aforementioned correspondence. AP2-1

AP2

Although we maintain our position that Teichert Aggregates should continue to take responsibility for any environmental impacts that are proximately caused by it, we want to emphasize with this letter that we are looking primarily to Granite Construction Incorporated as the project proponent who will most directly affect the environmental conditions at the Buddhist Temple. In this regard, we ask the policy decision-makers in this matter to take all the facts of this situation into consideration before making a decision as to which project proponent should take responsibility for mitigating particular environmental impacts at the Temple site. AP2-1

Thank you very much for your attention to this matter. Should you have any questions in this regard, please do not hesitate contacting me at your earliest convenience.

Sincerely,

Anthony J. Palik, Esq.

AJP/ajp Buddhist Temple - Letter to Sacramento County - 6-3-98.wpd

Cc: Sister Tinh Quang, Sacramento Vietnamese Buddhist Temple
Mr. Scott Wolcott, Granite Construction Inc.
Mr. Rob Wainwright, Teichert Aggregates

AP2, Letter from Anthony J. Palik Attorney At Law dated 6/3/98

AP2-1: Comment noted.

SBH2

Brandt-Hawley & Zolin
An Association of Attorneys

Chauvet House
Post Office Box 1659
Glen Ellen, California 95442
(707) 938-3908 • 576-0198
Fax (707) 576-0175
econet: bhz@igc.apc.org

Susan Brandt-Hawley
Rose M. Zoia

Legal Assistant
Sara Hews

August 12, 1998

HAND-DELIVERED
The Honorable Patricia Shelby, Chairperson, and Commissioners
Sacramento County Planning Commission
700 H Street, Room 1450
Sacramento, CA 95814

Re: *Morrison Creek Mining Reach Downstream (South) of Jackson Highway*
Draft EIR/EIS Comments

Dear Chairperson Shelby and Commissioners:

Our client, the Morrison Creek Mining Project Opposition Committee, respectfully submits these comments on the inadequacy of the Draft EIR in the above-referenced project. Please also refer to the Committee's letter to county officials, including you, dated March 20, 1998. SBH2-1

Inadequacies of the EIR with Respect to Mitigation Measures

The EIR fails to consider numerous mitigation measures suggested by the Committee. *See* letter dated March 20, 1998. The California Environmental Quality Act (CEQA) requires a discussion of each potential mitigation measure and the reasons for choosing one over the others.[1]

The EIR also is inadequate in its failure to analyze and mitigate numerous project impacts, which it has improperly deferred to future study. In *Sundstrom v. Mendocino County* (1988) 202 Cal.App.3d 296, the court held that, since the success of the proposed mitigations was uncertain, it could not have been determined that significant effects would not occur. The court held that the deferral of environmental assessment until *after* project approval violated CEQA's policy that impacts must be identified before project momentum reduces or eliminates the agency's flexibility to subsequently change its course of action.[2] Although *Sundstrom* involved a negative declaration, the legal principles apply here. SBH2-2

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[1] CEQA Guidelines, § 15126(c).

[2] *See id.* at 306-308; *see also Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 727-728.

Among the areas of improperly deferred analysis are drainage plans, delineation of wetlands and wetland mitigation plans, design of flood control detention and water quality facilities, bypass channel design, plans for preservation and salvage of topsoil resources, noise investigation, and placement of sewage utility corridors. For example, mitigation number 6 for drainage impacts, EIR page 5-6, defers the preparation of a drainage master plan and approval of flood control detention until after environmental review. SBH2-2

Inadequate Discussion of Impacts Related to Risk of Flow Capture from Morrison Creek into Gravel Extraction Pits

A separate critical issue not adequately addressed in the EIR is the risk of flow capture from Morrison Creek into gravel extraction pits and disruption of downstream flows. This is a very real and serious issue related to pit mining and has occurred, and created serious problems, in Sonoma County. The vague and generalized requirement of construction of berms, armored weirs and drop structures, inlet work, and erosion control and repair plans fail to assess the impacts of pit capture as well as the effectiveness of these mitigations or the impacts of the mitigation measures themselves. SBH2-3

Impacts on Jackson Highway Bridge and roadway must be fully assessed and mitigation measures designed and reviewed by state agencies, including Caltrans, as part of this EIR/EIS process. The EIR improperly deferred this review until after completion of environmental review. This is a clear violation of CEQA. *See* Sundstrom, *supra*. SBH2-4

Thank you for your attention to the Committee's concerns and for your consideration of these issues.

Sincerely,

Rose M. Zoia

cc: Morrison Creek Mining Project Opposition Committee

e:\granite\plancman.ltr

SBH2, Letter from Rose M. Zola Attorney At Law dated 8/12/97

SBH2-1: Please refer to response to comment SBH1-1, which addresses this same issue.

SBH2-2: The commentor presents several issues that are claimed to be "improperly deferred" to future analysis. Each of the issues raised by the commentor were similarly raised in comment SHB-2. Therefore, the commentor is referred to the response to comment SHB-2. In addition, the commentor specifically references a "mitigation" on page 5-6 of the Draft EIR/EIS that requires preparation of a "drainage master plan." This requirement falls under the heading "Recommendations/Requirements of Public Agencies" and was referring to a standard requirement of the Sacramento County Public Works Agency, Water Resources Division and is not a "mitigation measure" identified to reduce the effect of a significant impact. As explained in the response to comment SBH-2, a drainage mitigation plan has already been prepared for the project (and is the basis for the proposed flood control facilities). In addition, please note that the referenced agency requirement/recommendation has been removed from the Final EIR/EIS at the request of the County based on changes in the SCWA code (refer to comment WRD-2).

SBH2-3: The risk of pit capture is evaluated in Section 5.1 of the EIR/EIS. As previously explained, the flood control facilities being proposed as part of the project were developed through years of study and assessment. Hydrologic and hydraulic modeling was conducted for the entire Morrison Creek Mining Reach, including assumptions for current and future land use conditions. This analysis considered the probable maximum flood event within the reach and correspondingly recommended a series of drainage alternatives that were designed to safely convey flood events through reach. Included in the analysis were plans specifying the location and design of the facilities proposed. For additional information on this subject, please refer directly to the *Drainage Mitigation Plan for the Morrison Creek Mining Reach* (Montgomery Watson, August 1995).

SBH2-4: State agencies including Caltrans have provided review comments on the EIR/EISDEIR/DEIS for the proposed project. The Jackson Highway Bridge was designed to accommodate truck traffic.

Individuals

DB

April 28, 1997

SUBJECT: DRAFT ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL IMPACT STATEMENT FOR THE MORRISON CREEK MINING REACH DOWNSTREAM (SOUTH) OF JACKSON HIGHWAY

Dennis E. Yeast
County of Sacramento
Department of Environmental Review
and Assessment
827 Seventh Street, Room 220
Sacramento, CA 98814

I would respectfully offer several comments concerning the Draft EIR/EIS for the Morrison Creek Mining Reach Downstream of Jackson Highway.

1. By relocating the Morrison Creek drainage into a drainage channel a riparian zone will never be possible along this stretch of Morrison Creek. Mitigation by the planting of trees in the quarry would seem to be a very poor substitute. The trees will require irrigation into perpetuity. The natural interaction of a meandering and moving stream with a wooded periphery of valley oaks and willows will not be equated with a stagnant pond and some plantings. DB-1

2. The concept of perching a stream on what is essentially a levee section appears to be a bold step in new-age engineering for Sacramento.

Surface water in Sacramento is contaminated with volatile-organic contaminants. The USGS has prepared a fact sheet NATIONAL WATER-QUALITY ASSESSMENT PROGRAM-THE SACRAMENTO RIVER BASIN:

"Urban runoff and volatile-organic-chemical contamination__Urban runoff from the metropolitan area of Sacramento is a potential source of contaminants that enter the lower Sacramento River. Contamination by volatile organic compounds, especially contamination of groundwater, can occur in any large urban setting." DB-2a

Sacramento County and aggregate miners intend to divert flood flows into the confined quarry which lies directly above the groundwater aquifer. How do you assure the safety and integrity of such a groundwater supply? Is this not the same aquifer that much of Southern Sacramento County depends on?

Upon completion of the aggregate extraction the Sacramento community is left with a channel narrowly squeezed between gaping pits. If we later decide that groundwater contamination is a problem who is going to maintain the channel into perpetuity? Is the applicant willing to post a performance bond for the next 100 years? 1000 years? DB-2b

3. What are the present aggregate resources or inventory in the Greater Sacramento Region? Do the applicant's competitors have adequate supplies to meet Sacramento's needs? Mining operations appear to be widespread in the Jackson Road vicinity. Are we actually addressing the specific economic needs of one particular applicant? DB-3

4. Recognizing aggregate mining as a necessity in the Sacramento region how can we best meet the needs of the community in an environmental, economical and civic manner? It would appear that avoiding the riparian and floodplain corridor along Morrison Creek would be part of this mix. Future generations of people deserve better than concrete channels and strip mines on what were once streams with all their attendent beauty. DB-4

Sincerely,

David Breinke

David Breinke
3000 Crestholm Drive
Sacramento CA 95821

DB-1, Letter from David Breinke dated 4/28/97

DB-1: The commentor's opinion regarding the success of the proposed wetland mitigation plan is noted. Please refer to Appendix B of the EIR/EIS for additional detail on the proposed plans, including performance standards, monitoring requirements and design criteria for the proposed wetland mitigation areas.

DB-2: Groundwater contamination has occurred in the subject aquifer as a result of land uses at the former Mather AFB and is in the process of a 15-year cleanup effort. Potential contamination sources associated with the proposed operations will subject to safety and preventative measures and existing regulatory requirements for the use of hazardous materials as described in Sections 5.1.3 and 5.2.3 of the EIR/EIS. Among the mitigation presented in the aforementioned sections, are restrictions for the use and storage of hazardous materials on the pit floor and requirements to implement a management plan for post-reclamation uses that shall be approved by the County Environmental Management Department. Note that the Sacramento Metropolitan Area is primarily west (down the groundwater gradient) of the project site and the Morrison Creek watershed.

DB-3: The commentor is referred to Section 4.6.2 for an overview of the available aggregate resources within the Region, as determined by the California Department of Conservation, Division of Mines and Geology, in their report entitled *Mineral Land Classification: Portland Cement Concrete-Grade Aggregate in the Sacramento-Fairfield Production-Consumption Region (Special Report 156).* Additional detail may also be found in Appendix B of the EIR/EIS (beginning with page B-96).

DB-4: As part of the EIR/EIS process, both the County and the Corps of Engineers have required the applicants to consider and evaluate alternatives. The Final EIR/EIS evaluates several alternatives, including two that are specifically focused on avoiding the riparian and floodplain corridor: 100-Year Floodplain Protection Alternative and a modification of that alternative, the Creek Buffer Alternative, which was added to the EIR/EIS per the request of commentors (see comment letters from the United States Environmental Protection Agency and the Urban Creeks Council). The analysis of these alternatives, along with the other project and the "No Project Alternative" provide the decision-makers with a comparative analysis of the environmental effects of the project. The decision-makers will use the EIR/EIS during their consideration and review of the project.

April 20, 1997

DEPARTMENT OF ENVIRONMENTAL REVIEW AND ASSESSMENT
County of Sacramento
827 Seventh Street, Room 220
Sacramento, California 95814
ATTENTION: MR. DENNIS E. YEAST

Dear Mr. Yeast:

We are writing this letter in response to the latest plan dated February 1997 by the Aaggregates, Granite and Teichart, to destroy Morrison Creek, the attendant habitat and wildlife that live in this last virgin environment. Additionally, we strongly object to the intrusion into our piece of Eden of an obscene industrial plant at Elder Creek and Mayhew by Granite. Third, we strongly object to Strip Mining in the 100 year flood plain.

Instead of implementing ways of getting people out of their cars and into public transit, van pools, bicycles, work places closer to home and so on . . .Government at all levels in California are hell-bent on digging up our wilderness and optimum living areas with the resultant loss of habitat of our wildlife, and we humans, in the pursuit of "Holy Gravel."

The deck has been stacked against the few of us who have been trying to stop the destruction of this lovely part of Sacramento with its native plants and animals and pleasant and convenient places to live. SHS-1

The Aggregates have been leap-frogging over this agricultural and bedroom community from Mather to South Watt, presenting their various proposals piece-meal, thereby by-passing the citizens involved, whenever possible.

In the fall of 1996, when the residents along Elder Creek and Hedge discovered the plan to stick this industrial plant with all its attendant noise, horrendous traffic of gravel trucks into their midst, they responded with a clamor that received immediate attention. It goes without saying that the intrusion of the industrial complex that produces 1,000 tons per hour with an annual production of 2 million tons, **does not belong in a residential neighborhood.**

This operation cannot help but affect the full use and enjoyment of these heavily invested homes, as well as rendering a negative impact on the property values of the homes on Elder Creek and Hedge. In fact, it was because of the vociferous reaction of these

SHS

homeowners, and the 1000 members of the local temple, that produced the previous proposal, which varies little from the present one, and resulted in the 1996 proposal being taken off the table in order to avoid a negative vote. Of course, the homeowners thought they had won. Little do they know. The Strip Miners simply came up with a new 127 Page tome dated February 1997, and I doubt that the homeowners even have a copy. The Strip Miners and the Board of Supervisors do not want to deal with an aroused citizenry. Who knows, someone might decide to sue.

Let us be very clear, if this latest proposal is approved the people responsible will be those that have allowed and have permited it to happen, the people who permit, and allow are the Board of Supervisors, our County Government.

In our case, at 9400 Fruitridge, we were never informed, before, during or after of the County action that changed our zoning from A-2 to Industrial Reserve.

SHS-1

At this time, we most vigorously oppose the proposal in this latest Coummunity plan to **REZONE OUR PROPERTY FROM INDUSTRIAL RESERVE TO SURFACE MINING.** The only reason we are still enjoying our property is that our daughter-in-law, Divi, has spent hundreds of hours diligently researching the mass of paperwork generaged by the gravel people and has communicated with persons at all levels of County Government and the Aggregates throughout these many years.

When Mr. Freitas, an enlightened man, was the point man for the environment, we thought we had finally won, that the Creek was saved, as he recommended that the Strip Miners stay out of the 100 year Flood Plain. See: **Morrison Creek Mining Reach, Identification of Environmentally Superiior Alternative, p.6-8, Section 6.7.** Unfortunately, Mr. Freitas is no longer in that very key position.

Responding to the question as to which proprosal is acceptable:

BY ALL MEANS WE VOTE FOR NO PROJECT ALTERNATIVE!

SUGGESTION #1: The Aggregates move to Marysville and build their plant, thus no need to fill our roadways with gravel trucks and accompanying negatives.

DEPARTMENT OF ENVIRONMENTAL REVIEW AND ASSESSMENT
April 20, 1997
ATTENTION: MR. DENNIS E. YEAST
Page -3-

SUGGESTION #2: Sacramento proposes to send trash to Nevada - great idea - trucks with trash to Nevada and trucks with gravel back to California. As I have indicated before, Nevada has miles of ugly terrain, fit for gravel cratering, unfit for housing, man or beast.

The idea of destroying this Creek which is a sanctuary for all of the creatures listed in the Special Status Animal Species in your own report as well as the pheasants, quail, and valley oaks, in order to apply more asphalt to this lovely valley boggles the mind!

I first moved to the Sacramento area as a toddler in 1927 when this was a mecca for agriculture, wildlife, miles of poppies, and a 7 cent streetcar line. Then, our City fathers bought the bill of goods from the automobile industry ...eliminating the street cars, ripping up the tracks, and bringing in polluting noisey and inconvenient buses, increasing smog, crowding, traffic, noise, pollution, and ugliness with the resulting loss of habitat, open spaces, pleasant, convenient and comfortable home sites. This proposal is surely in the same vein. SHS-1

These modern day Strip Miners are the direct descendants of the hydralic miners who washed away whole mountainsides in pursuit of gold. Those early strip miners were finally stopped at the turn of the century when the famers along the Yuba and the Feather had "enough" of ruined waterways and landscrapes. The town of Sheldon at the corner of Grant Line & Wilton Roads is named for the man who was murdered by the miners for his efforts at stopping the depradations of these people and before laws were passed to out-law hydraulic mining. Unfortunately, in these modern times, the strip miners have powerful allies in their corner - Government, at every level, in the name of the New Golden ore -- **GRAVEL**.

We will repeat again out strong objections to the industrial crushing plant proposed for the property abutting our property to the south. The continuous noise, dirt, ugliness, the terrible impact of those trucks on our inadequate road will spoil forever the full use of our country home and quality of life. Will there be sufficient set back from our roadway so that it will not cave into the pit in the event that this current proposal is approved.

DEPARTMENT OF ENVIRONMENTAL REVIEW AND ASSESSMENT
April 20, 1997
ATTENTION: MR. DENNIS E. YEAST
Page -4-

In closing, two points are brought to your attention:

(1) Note figure 3-5b Reclamation Plan - Vineyard I Proposed Project. The Re-aligned Morrison Creek Corridor wipes out our entire section of creek including all of the habitat and creek bed. It even impinges on the adjoining property.

(2) In these Aggregate proposals over the years we have gone from: NO RECOGNITION OF OUR PROPERTY; TO WELL AND SEPTIC IN INCORRECT LOCATIONS; TO FINALLY, THE COMPLETE PICTURE WITH OUR ACCESS ROAD BEING ACKNOWLEDGED. SHS-1

This observation was re-enforced when we attended the March 1997 Vineyard Community Council meeting where we asked how they could have recommended the Strip Mining of our home place? We learned that the Council had been told that the area where our family has lived since 1961 was "open space." Touche!

Sincerely,

Stan and Hazel Smith

STAN AND HAZEL SMITH
9400 Fruitridge Road
Sacramento, California 95826
(916) 387 1876

cc: Larry Vinzant
Members of the Board of Supervisors

Divi and Kevin Smith
9400 Fruitridge Road
Sacramento, California, 95826

Dennis E. Yeast
County of Sacramento
Department of Environmental Review and Assesment
827 Seventh Street Rm. 220
Sacramento, California

Sir:

Concerning the Draft Environmental Impact Statement for Morrison Creek Mining Reach Downstream (South) of Jackson Highway, (control numbers: 94-UPB-0484 [Aspen III South], 91-CZB-UPB-0118 [Vineyard I], 90-CZB-UPB-1607[Aspen IV south] and 94-CZB-UPB-0671[Aspen V South]) we submit the following: Since no relocation of satisfactory equivalence has been extended by involved company(ies), the location of our home and property at the approximate center of Vineyard I and Aspen III sites(see figure 3-2,enclosed), which includes our portion of the creek on our eastern border and a long driveway thru the sites, will require more thorough mitigation measures and conditions. These will need to ensure the protection, implementation and enforcement of RESIDENTIAL standards for noise levels, air quality, water purity aesthetics, all-weather erosion controls, riparian rights (including habitat and foliage preservation on our portion of the creek) and compensation for the effects these projects have had and will have on ours and our neighbors property values and quality of life.

We advocate, above all, the "No Project Alternative" due to our respect for the environment. Considering the facts that the County rezones have changed the areas outside the creek corridor from rural/residential to industrial-reserve/strip- mining (without the knowledge or consent of the residents in the area), that the systematic purchasing over the years have put the bulk of the land in this quadrant in the hands of the aggragate companies and that the county has already granted, without compunction, permits for the massive cratering and destruction of the creek in the quadrant directly upstream from us, we hold little hope for a "No Project" decision. DKS-1

It is our sincere desire that a small glimmer of enlightenment and wisdom will prevail and the aggragates' application to rezone the creek and creek corridor from industrial reserve to strip mining will not be granted, allowing the "100-Year Flood Plain Alternative" to stand, thus sparing the destruction of the creek here.

The stretch of creek that flows through these sites is one of the very last parts of Morrison Creek that has not been vandalized by cementing and denuded by carelessness. (See photo set view A-1), It is a beautiful place, teeming with wildlife that has, does and should continue to exist now and for the generations to come. Proposing to destroy it for gravel and replace it with a landscaped ditch at the bottom of a crater will stand as yet another

example of the short-sighted attitude that nature, our habitat, is there to be abused and exploited to the contrived needs of the moment. Continued tar and graveling of our planet should not be the focus. Instead, such things as rethinking the lay-outs of communities, improved alternate methods of transport, employer sponsored shuttles, etc., should be.

By happenstance of ownership or position, we are vested with authority over areas of this planet. Remembering that we are only tenants here, not owners, (with an average lease of 80 or so years), will help to keep perspective about what we should and shouldn't do, for the time when we, individually, settle accounts with the actual Landlord. For all records we wish to register our adamant and absolute opposition to the destruction of the creek. The many massive, unsightly craterings in this area are already an outrage.

Aggragate processing plants are completely incompatible with residential properties. The "Proposed Project Without The Vineyard Processing Plant" in conjuntion with the "100-year Floodplain Protection Alternative" is the lesser of the proposed evils. It is also the only possibly livable one for the residences in and around the sites. This is assuming that the present unacceptable and inadequate standards for: noise barriers-(4x8 plywood leaned against cylclone fences), dust controls-(4x8 plywood boards with sporadic,partial smatterings of a water truck), visual screening-(slats in cyclone fences, plywood boards, knee-high oleander lines or permanent earthen berms), erosion controls, and insuring of well safety and water purity are all upgraded. (see photo sets A-2 thru A-4 of examples of present conditions we are being subjected to and pages 4 & 5 for proposed measures to reduce impacts.)

DKS-1

In figure 3-5b (enclosed) does section "D-D" continue on all four sides of our property? If so, how is our portion of the creek going to hold water? Where will the water come from? (Please see, enclosed, highlighted portion of November 15, 1995 letter that, to date, is still unanswered). How does this plan come to trespass on our property and alter our part of the creek without our consent and without compensation? Why does section c-c show 5 feet of "undisturbed soil" inside their fence and only about 3 feet or less is being left now?

Please, also note, in figure 3-6a, we seem to have become part of Granites' proposed Vineyard I Wetland Mitigation Plan. Again, this is without our consent and without compensation. We have not consented to the de-watering, de-foliaging or removal of our portion of the creek. If this plan moves forward, it will have to do so without the infringment on, or alteration of our property. This will, among other things, require a perpetual, natural water source to keep it watered, now and for generations to come. This creek is, and has been , one of the most beloved and special features of our property for four generations, three of which live here.

Years ago, we answered Granite Construction Company's interest in our property with a proposal to allow them to uproot our four-generation homestead. We suggested their Hedge and Osage property on the creek at edge of their dig site. This would have gotten us, our residence, our creek portion and our access road out of their way, thus preventing most of the problems that now present themselves. They refused this concession and did not extend an offer that would enable us to replicate what we have here. (3.6 acres, a creek, house, well, septic, utilities, fencing, extensive mature landscaping, privacy, rural open-space setting, central location close to schools, medical facilities, freeway accesses,

2

shopping, theaters, recreation, libraries, museums, post offices, etc, etc). Equitable compensation for what is taken does not seem to be their goal. Subsequently, if these projects move forward, we, here, place on the involved government agencies, the responsibility of considering our interests and properites since they will be the ones giving the authorization.

Please find enclosed:

1) Letters (I-VII) we have written on these same projects, submitted under different varied and numbers and dates. They involve the same issues, are to the same involved agencies in the same area-ours. None, except for II, have been answered or addressed, to date.
2) List of "Proposed Measures to Reduce Impacts." (pages 4 & 5)
3) Copies of referenced EIR's-Figures " 3-2, 3-5a, and 3-6a"
4) Photographs sets views A-1 thru A-4

DKS-1

We feel the proponents proposals in this EIR are submitted on the general premise that we don't actually exist, we will disappear, or are just incidental. We hope this letter and enclosures corrects this. Pursuant to provisions in CEQA we request this correspondence, in it's entirety, be included in the final EIR/EIS for the public record. Thank You.

Sincerely,

DIVI N. SMITH
KEVIN F. SMITH

cc: Policy Planning Commision - Mr. Hutchins
US Army Corps of Engineers - Mr. Vinzant
Sacramento County Board of Supervisors - Mr. Nottoli

3

PROPOSED MEASURES TO REDUCE IMPACTS

NOISE BARRIERS: Effective 10'-12', actual sound barrier walls. Light weight, all-weather, aesthetically acceptable, modular units with easy set-up and take-down features are available (details of examples currently on the market can be provided). The initial financial out-lay incurred by the proponents for these re-usable units is more than a reasonable expectation considering the very disruptive, destructive and offensive nature of their business. This is particulary true near and around peoples homes. (the option of adding TEMPORARY earthen berms should be provided to the prospective victim by the proponents-to be set up and removed at their request). Dig sequences should be scheduled so a residence is not completely surrounded or all closed in.

DUST CONTROL: Same as for noise barriers with the addition of EFFECTIVE water truck usage. Currently the pit at the begining of our driveway does not run the water trucks on all perimeters, (especially needed on sides where no barriers of any kind are provided), nor, at all, after dark. This creates dirt and dust problems that are already manifesting themselves in respiratory problems among us. We now contend with a persistent dust haze in our home , gardens, and cars. These conditions will surely worsen if digging continues to move more closer to us.

VISUAL SCREENING: Planting nontoxic trees and foliage well in advanced of actual digging, of a size to provide actual screening. Properly watered and maintained landscape designs providing variety and staggered in undulation patterns to provide a more natural effect. DKS-1

EROSION CONTROLS: Any digging that is permitted by the County of Sacramento and/ or The Army Corps of Engineers, and subsequent slopings done on the sides of our property and access road will need to include all weather erosion prevention measures, including levee standard ones to withstand standing waters of flood retention basin. (i.e. re-inforcements at base of slope; erosion control grasses and foliage; softening angle of slopes; replacing our access road's surface, crown and drainage ditches; re-enforcing road edges, etc). Worst case scenario, our property will be left a singular butte about 30 to 40 feet in the air, with the road the only access. We will need mitigation to provide absolute assurance from the County and State Agencies, who will be the ones granting permits to allow these alterations, that they never compomise or prevent our driving in and out of our proptery. The dire consequences failure of this road could manifest by preventing an emergency vehicle from reaching us, getting to and from work etc. points to the need for proponents to provide on alternate emergency route including, possibly, in the case of a flood retension basin lake, an over water one (power boat?) These responsibilities will need to be assigned, accepted and maintained on a "perpetual" basis. Companies come and go, but the impacts these projects have had and are going to have on us will not. To assure that our property will be maintained intact for our sons and their posterity will require a bond or trust fund from proponents or a government agency's guarantee that they will assume burden of maintenance and repairs.

4

WELL SAFETY AND WATER PURITY: Figure 5-18: note our well is on the western edge of our property line. Set backs, to protect it and the purity of our drinking water are needed. By-annual routine testing paid by proponents need to be scheduled to ensure continued safe water supply. Contamination factors caused by their operations and or their removal of the filtration strata to be remedied by them, assuring a CONSTANT, safe water supply for our residential and agricultural needs. Currently, we know of at least one well on their property that has been left open and exposed near us. This presents serious health threats. DKS-1

PROPERTY VALUE LOSSES: Compensation

QUALITY OF LIFE DECLINES: Compensation

5

Kevin and Divi Smith
9400 Fruitridge Road
Sacramento, Ca.95826
14 June 1996

County of Sacramento
Board of Supervisors
700 H Street, Suite 1450
Sacramento, Calif. 95814

Dear Mr. Nottoli

Concerning Granite Construction Company's Surface Mining Use Permits for Vineyard II Project (Control # 94-UPB-0772) and Vineyard I project (Control # 91-UPB-0118) we wish to submit the following:

The Sacramento County department of Public Works-Water Resources Division's Morrison Creek Mining Reach Drainage Master Plan, and Teichert Aggregate's and Granite Construction Company's use permit applications, that have been prepared and submitted over the past years in fragmented, scattered sections within the total dig site (see enclosed map) have, are and will effect us and our property then, now and in the near and distant future. We have attempted to voice our concerns by spoken and written word to the many agencies and people involved during the varied Notices of preparation, Planning Hearings, U.S. Army Corps of Engineers Public Notices etc., without seeming to strike a central or overseeing person or agency that would apply our concerns to the whole matter in an effective and timely manner.

A brief overview begins with the approach by Granite to purchase our property for well below what it would cost to come near to replicating what we have, i.e., 3.6 acres, extensive mature landscaping; utilities; well; privacy; storage; schools close by; fencing; 3 bedroom house; creek; location near all amenities; freeways; etc., etc.

We submitted a hand written proposal to relocate us at the edge of their dig site. The suggested site was located on Hedge Avenue and Osage with Morrison's Creek small fork-off stream running through it. We felt this would keep us near the original four generation homestead and would be freeing up the Creek ownership rights, access road maintenance, the need for a bridge over the water re-conveyance structure and the added requirements that would arise because our property and access road would be inside their pit. The proposal was declined on the premise that they needed to extract the resources from the Osage-Hedge site. The logic in that eluded us because it would have been compensated by the trade-off anyway.

Next came the permitting of Teichert's Aspen III South (Control # 90-UPB-CZB-1084) which borders our access road on two sides. This brought large equipment scraping the top and crown off our road, which has never been replaced. This has subjected us to conditions that

threatened to make it inpassable due to eroding and flooding. They also put their fence on the road side of the drainage ditch blocking drainage on that side. Repeated communications have brought only incomplete and temporary gestures leaving the problems uncorrected.

Recently the Morrison Creek Mining Reach Upstream North of Jackson Highway Plan was approved by you. This set a precedent for massive cratering around us, creek destruction, threat to riparian, and property rights, and proposed water releases of overflows into the pit floor, bringing stability problems for our road and property.

Now pending is Granite's Vineyard II project(Control # 94-UPB-0772) which, if approved, with on-site plant(which we adamantly oppose), puts us a stone's throw from some of the most annoying facets of their operations ,i.e. noise, dust, truck emissions, unsightliness, and threat to our water purity, etc. It also impacts the other side of our access road and judging from our past experience with the aggregrate companies and our road, indignation looms. DKS-1

At the heels of all this comes Granite's Vineyard I Project (Control # 91-UPB-0118) which if permitted in the fashion it is presented, will have us in the middle of a crater, with as-yet-unknown road conditions and the destruction of one of the most beautiful and dearest features of our area-*the creek*. The mitigation offered of a landscaped ditch, dead ending into a stagnant puddle that could easily become fetid and malarious is hardly compensation for a living, viable, and natural creek, teeming with a marvelous array of plant and animal life.

This does not address all the concerns and impacts these projects have and will cause us. Enclosed are copies of letters that collectively present some of them. It is our hope that by submitting them to you, the others on the Board and lead agencies that our concerns will be addressed, considered and protected.

Sincerely,

Divi N. Smith

Kevin F. Smith

cc.. Mr. Roger Dickinson
Mr. Illa Collin
Ms. Muriel Johnson
Mr. Dave Cox
Mr. Dennis E. Yeast
Mr. Jeff Gamel
Ms. Kate Gonzales
Mr. Larry Vinzant
and Sacramento County Planning Commission

Morrison Creek between – Smith [illegible] and Hooker [illegible]

4

A-2

Looking south (Acoa III site)

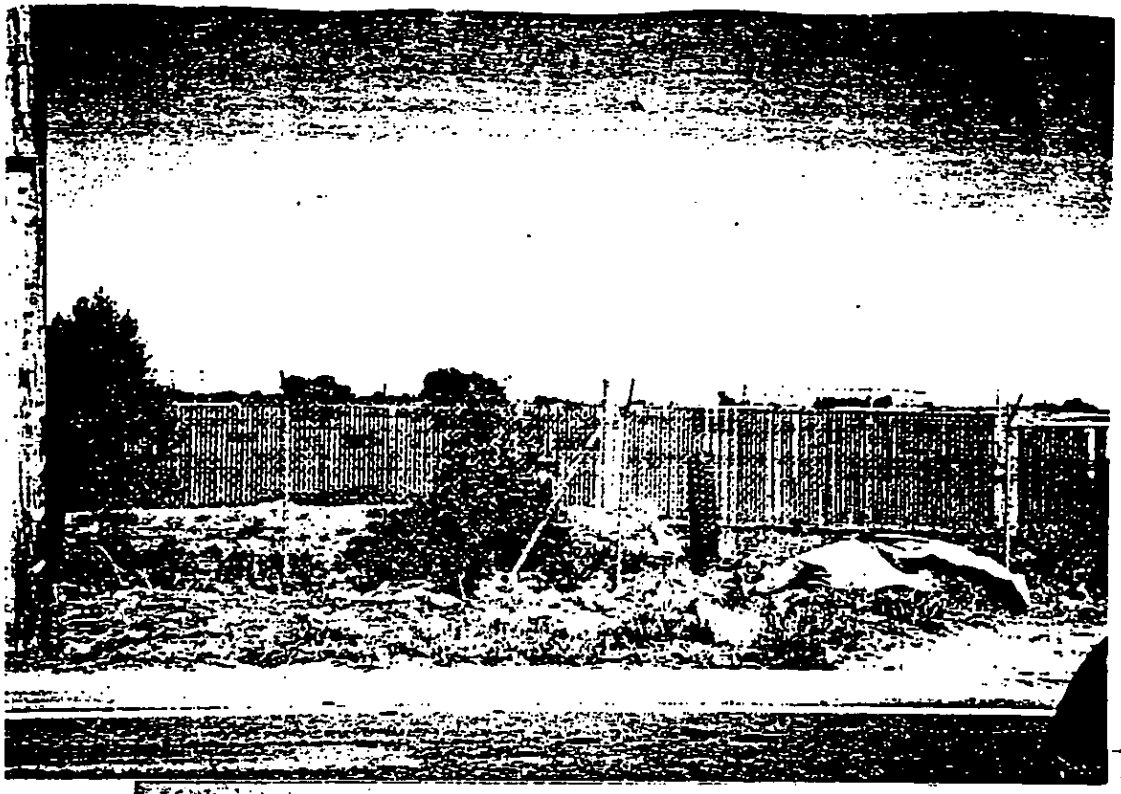
63

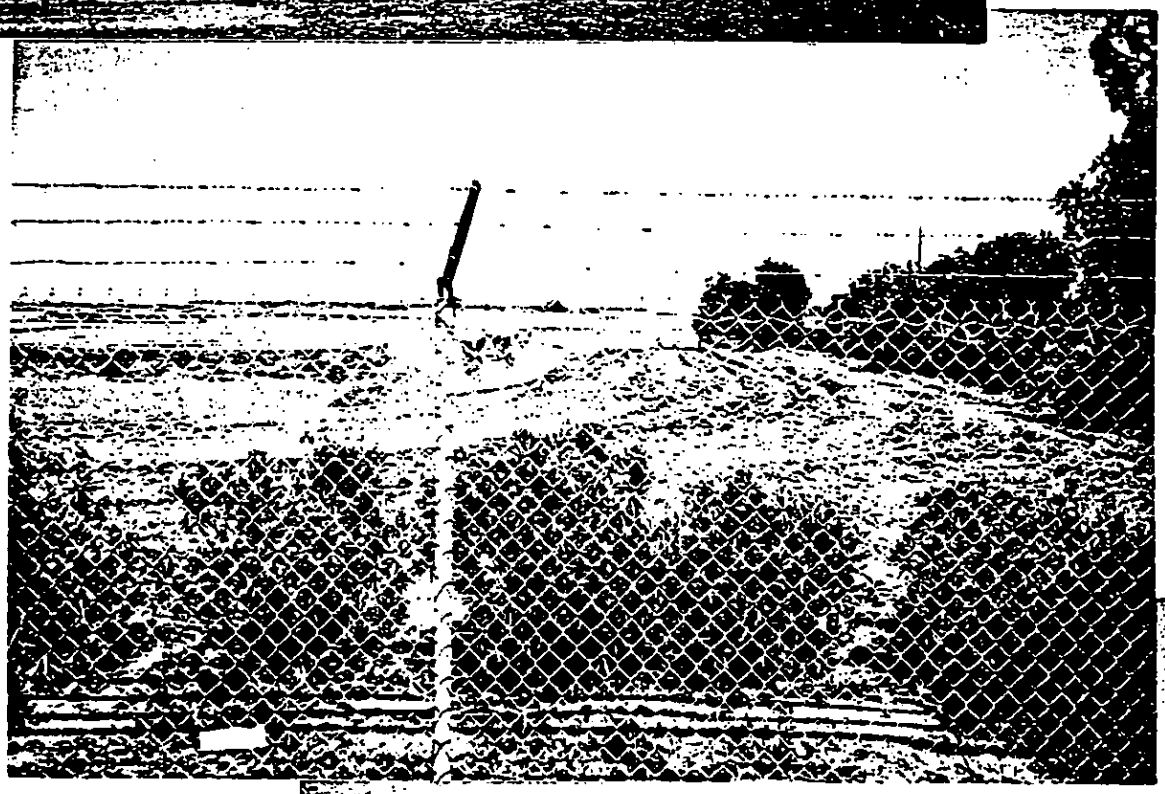
RC-178

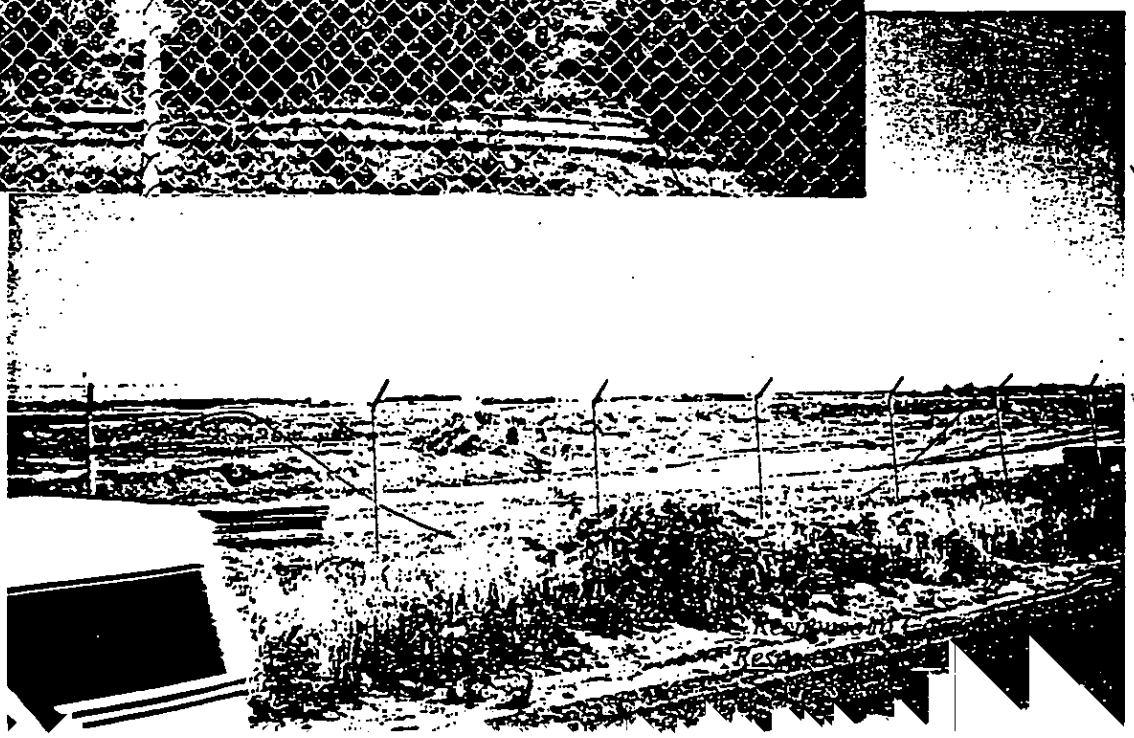
A-3

"Circuit Crack and Dust Barrier")

A-4

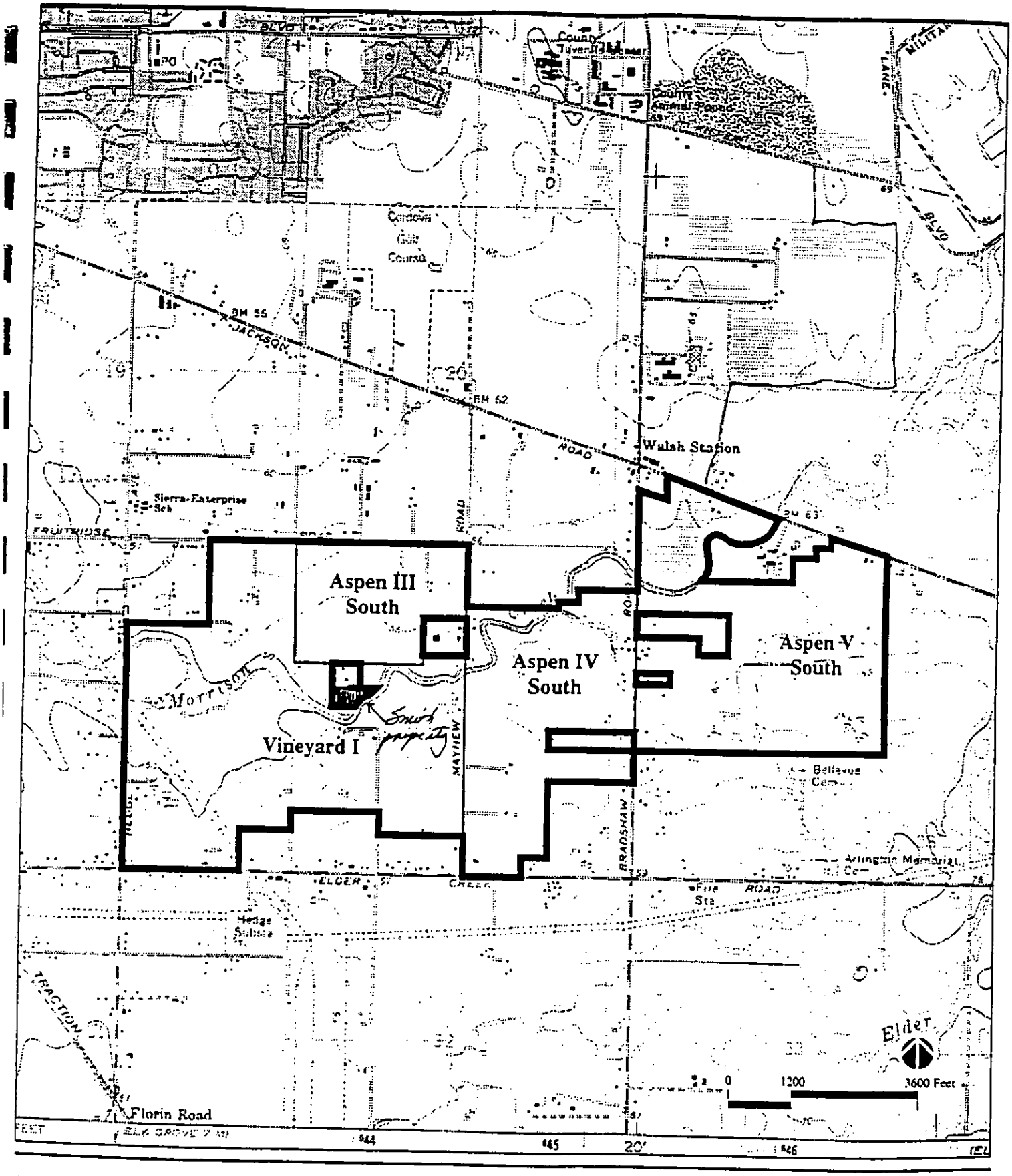






RC-180

65



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Project Boundary

Figure 3-2
Project Site Location
RC-181

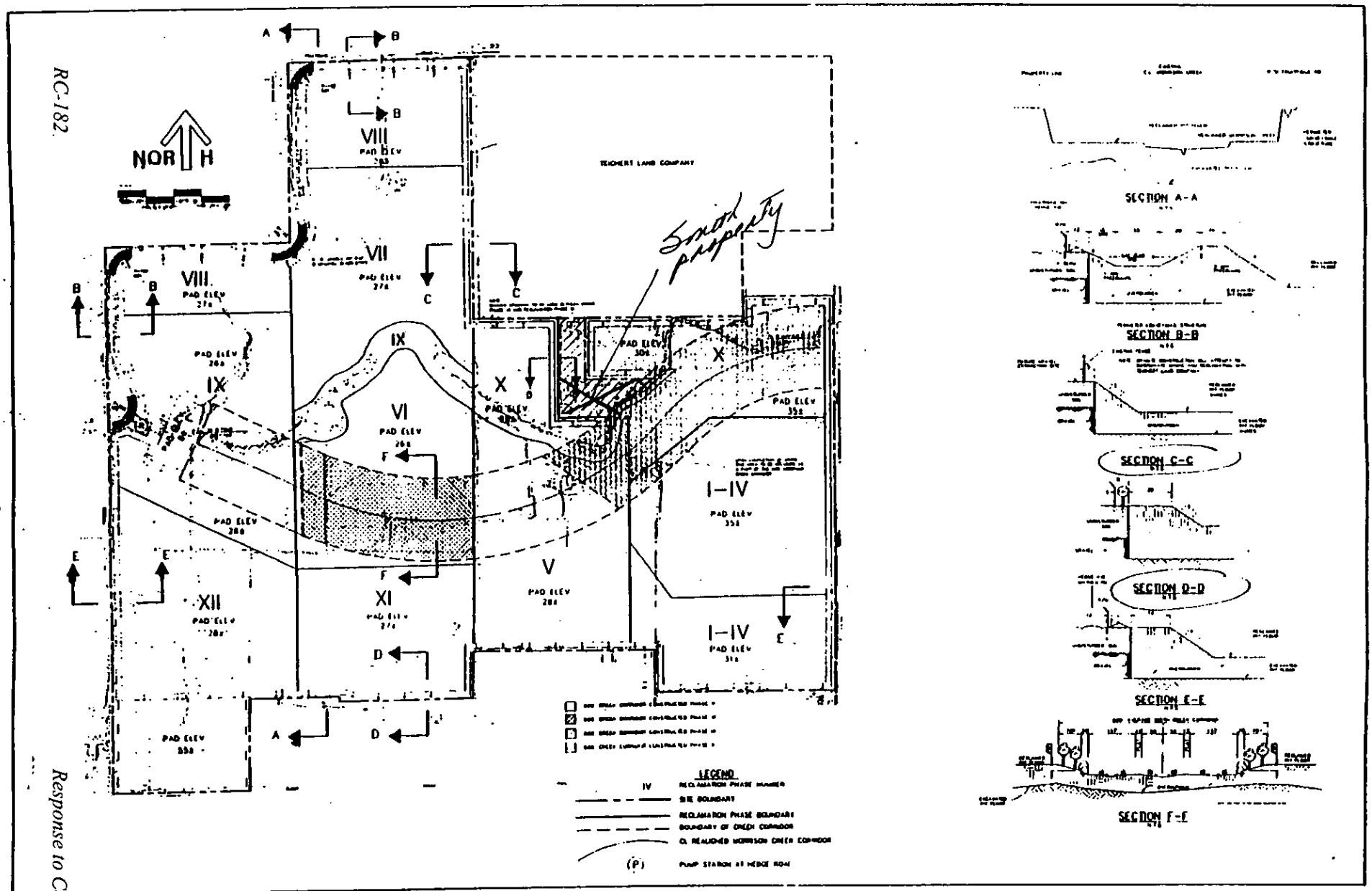
Source: USGS, 1980

Response to Comments

EDAW Inc.

N:5a052:001

66



RC-182.

Response to Comment

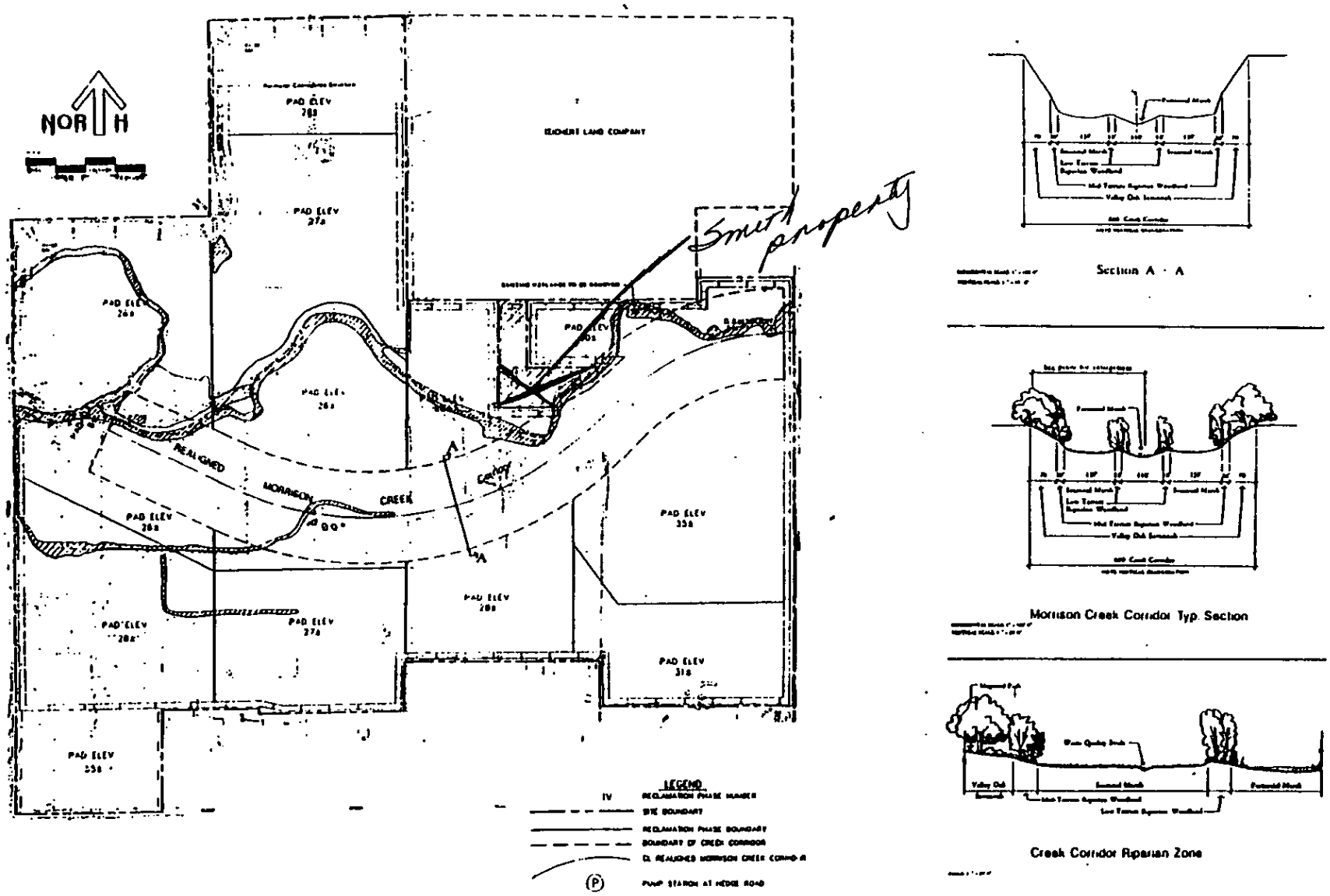
Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 3-5b
Reclamation Plan—Vineyard I
Proposed Project

Source: Robert B. Young Engineers, 1994

BRAW Inc.

N:3x053:011



Morrison Creek Mining Reach,
Downstream (South) of Jackson Highway EIR/EIS

Figure 3-6a
Wetland Mitigation Plan-Vineyard I
Proposed Project

Source: Robert B. Young Engineers, 1994

FRAW Inc.

H:\a052:01\3

DKS

D. N. & K. Smith
9400 Fruitridge Rd.
Sacramento, CA 95826
August 10, 1991

COUNTY OF SACRAMENTO
12 1991
DEPARTMENT OF
ENVIRONMENTAL REVIEW & ASSESSMENT

Dept. of Environmental Review and Assessment
827 7th St. Rm. 220
Sacramento, CA 95814

Subject: Draft Environmental Impact Report for Aspen III South Use Permit, Community Plan Amendment and Rezone (Control Number: 90-UPB-CZB-1084)

Dear Sir or Madam:

Pursuant to my August 9, 1991 conversation with Mr. Dennis Yeast, I am submitting my comments in writing concerning Aspen III South Use Permit Project, Control Number: 90-UPZ-CZB-1084.

Please be advised that the site includes an approximately 3/4 mile deeded access easement through it leading to private residential properties with household traffic of three families, including children walking to their school bus stop on Fruitridge Road. See Plate 5, Pg. 17E (map copies enclosed).

Zoning Code Standards for public safety, visual impacts, well water quality, noise levels, air quality, etc. for family residences and their driveways have not been addressed. Please note enclosed map copy of Plate 9, Pg 44A showing driveway which traverses directly through the full length of the proposed dig site for which these zoning standards are requested and need to be met. DKS-1

Please note that Ballantine Street as shown in the map on Pg. 44A (copy enclosed) does not presently extend southerly across Fruitridge Rd, and that Cook Lane, which is our driveway, on site map Pg. D8 (copy enclosed) is across Fruitridge Rd on the south side, not on the north side, and it is east of Ballantine Street, not on west side of Ballantine as shown on this map.

Please advise and inform us of date, time, and place of the Public Hearing. Thank you.

Sincerely,

K. E. Smith
D. N. Smith
Property Parcel #063-0090-009

Enclosures

DKS

III-a

Kevin and Divi Smith
9400 Fruitridge Road
Sacramento, Ca. 95826
15 November 1995

County of Sacramento
Department of Environmental Review and Assessment
827 Seventh Street, Room 220
Sacramento, Ca. 95814

Dear Mr. Yeast:

In response to ~~notice #1995100102~~ of preparation for a draft eir/eis for the Morrison Creek Mining Reach South (Downstream) of Jackson Highway we submit the folowing:

We are a fourth generation homestead located near the center of the proposed Teichert/Granite dig sites west of Bradshaw Road(see enclosed project site location map). As such, residential standards for noise levels, air quality, and ground water quality and safety, private property boundaries, fencing, buffers, visual screenings, set backs, sloping, errosion protections, riparian rights, property value losses and general quality of life issues need to be considered, addressed and protection measures assured and enforced. According to the " Initial Study Checklist", numbers 2,4,5,6,8,20,21,22,24,27, and 30 are **NOT** "maybes". They are definite affirmatives for us and our neighbors in and around these proposed sites. DKS-1

Of the proposed processing facility, the proximity (see exhibit "E", mining Option 1 On-site processing plant-mining plan) to our property would most definitely (not "maybe" as Initial Study Checklist states) be disruptive, aesthetically objectionable, create noise, dust (i.e. increased particulate and diesel emissions) and ground water contamination from settling ponds and plant operations by-products that would seriously effect health and general well-being. Therefore, option 1 (on-site plant) is totally unacceptable to residents here. Option 2 (extraction only) with transport to their already existing processing plant in the area(i.e., Granite Construction Company's facility located on the North side of Kiefer Bvld, East of Bradshaw Road) would at least, not add insult to injury.

The statement in " Initial Study Checklist" numbers 27/28 reads: "Potential for nuisance effects(i.e. noise,dust) on nearby uses. Mining operators would provide fiscal compensation for affected/displaced

DKS

III b

residents. Only properties under the direct control and ownership of the mining operators are included in the project. "If only properties under mining operators ownership are to be included in the project, then why are our ownership, property boundries and riparian rights infringed and overlooked without regard, consent or compensation? (See Exhibit F and I). Please note our property, which includes Morrison Creek to the far bank on East side, seems to have become part of these mining operators aspirations, to which they have no right. We have not been approached nor have we consented to being fenced off from our portion of the creek, or to the dewatering of it, nor the diverting of our portion of it, or the excavation of it, or the defoliation or alterations of any kind on our property. We need clarification as to how these matters are to be resolved, particularly on the creek side of our property (Incidentally, on exhibit 'F' section 'B-B' on the Fruitridge Road side goes to the edge of the entrance to our 1/2 mile long driveway thru the dig sites. Will it continue thru our driveway? And if so, how, without obstructing or impeding access? And if the new 600' creek corridor is going to be on the pit floor, how will water be conducted in and out?) Please include these matters in your considerations and notify us of any public hearings or any further developments regarding these proposals. DKS-1

Thank you,

Divi N. Smith

(Kevin F. Smith)

c/t US Army Corps of Engineers- Mr. L. Vinzant
Mr. J. N. Reese

DKS

IV-a

Kevin and Divi Smith
9400 Fruitridge Road
Sacramento, Ca. 95826
21 November 1995

U.S. Army Corps of Engineers
Sacramento District
1325 J Street
Sacramento, Ca. 95814-2922

Dear Mr. Reese:

We are submitting our comments and concerns regarding the application(s) to mine aggregate in the Morrison Creek Watershed (Public Notice #199400102), that you are considering in conjunction with Sacramento County's EIR/EIS as proposed by Granite Construction Company and Teichert Aggregates Company.

In reading the enclosed letters we wrote to the Department of Environmental Review and Assessment, you will note, among many other things, that we are a 3.6+/- acre family residence located near the center of their proposed dig site in the Mayhew-Fruitridge-Hedge-Elder Creek Quadrant. (map enclosed).

Because of our location and the nature of this project- destruction of the existing creek, displacement and/or destruction of wildlife, huge open pits, reduction of filtering earth on water table, potential nuisance factors associated with operations of large equipment and mining activities, etc., all the factors stated in your Puplic Notice #199400102, page 2, paragraph 7, are relevant to us and our neighbors in and around the dig site(s). DKS-1

This project endangers our general quality of life (i.e. air quality, water levels and purity, noise levels, aesthetic values, wildlife, plant life, public safety, etc.) and threatens to violate property rights, (i.e., riparian rights, water rights, ownership rights, property values,

rights of way, boundaries, etc.). This is particularly so on our parcel (#063-0090-009) which has creek rights in the middle of theirs, which we have not surrendered nor have consented to having fanced off, excavated, dewatered or altered in any way. DKS-1

If satisfactory solutions cannot be devised and implemented on our behalf, regarding these issues, we request a Public Hearing to help to do so. To present a more complete picture of the many aspects for concern this combined project(s) presents to us, please find enclosed copies of letters to the varied notices we have had to reply to during the different phases of this proposed project(s). We regret burdening you with extra reading, but the peacemeal way this project(s) has been presented leaves little alternative.

We would appreciate any clarifications you could provide and please advise us of your comments and determinations and the time and place of the Public Hearing regarding these matters. Thank you,

Sincerely,

Divi N. Smith

Kevin F. Smith

Enclosures: map, 4 letters

cc State Water Resources Control Board
Division of Water Rights

DKS

Kevin and Divi Smith
9400 Fruitridge Road
Sacramento, Ca. 95826
21 November 1995

U.S. Army Corps of Engineers
Sacramento District
1325 J Street
Sacramento, Ca. 95814-2922

Dear Mr. Vinzant:

Thank-you for the map and detail sheet you sent. In reviewing the detail sheet, I am still unclear about the projects exact boundaries on the Morrison Creek side of our property. (Map enclosed). Could you tell me how the proposed realignment of the Morrison Creek Corridor could be implemented without infringing and ignoring our property rights? As we stated in our letter (copy enclosed) to Mr. Yeast of the Department of Environmental Review and Assessment concerning this proposal, we have **NOT** consented being fenced off from our portion of the creek, or the dewatering of it, nor the diverting of our portion of it, nor the excavation of it, nor alterations of any kind on it. The detail sheet does not show how our portion of the creek will be preserved and maintained and what the ends and outside bank will be like in the context of the aggregate companies' plans. Do you know? These matters, as well as many others (detailed in enclosed letter) need to be considered, addressed and resolved as stated on page two, paragraph 7 of your Public Notice #199400102. DKS-1

We are appreciative and grateful for your time and effort in providing answers, advise and clarifications regarding our questions and concerns. Also, would you please have us notified when the Public Hearing regarding this application(s) will be considered? Thank-you very much.

Sincerely,

Divi N. Smith

Enclosures: map and letter

cc Mr. Reese - Army Corps of Engineers, Sacramento District
and
State Water Resources Control Board - Division of Water Rights

DKS

Kevin and Divi Smith
9400 Fruitridge Road
Sacramento, Ca. 95826
23 December 1995

County of Sacramento
Department of Environmental Review and Assessment
827 Seventh Street, Room 220
Sacramento, Ca. 95814

Dear Mr. Yeast:

Concerning notice of preparation for a draft EIR/EIS for the Morrison Creek Mining Reach North of Jackson Highway we wish to register that decisions made by you and other agencies will have an effect on us, our residence and our property which is downstream, on the creek, in the Mayhew-Fruitridge Road-Hedge-Elder Creek quadrant. (Map enclosed-see highlighted area.)

Most of the same concerns addressed in our November 15, 1995 letter to you regarding the draft EIR/EIS for the Morrison Creek Mining Reach South (downstream) of Jackson Highway apply. Particulary the last paragraph.(copy enclosed)

DKS-1

What is decided and permitted in this quadrant (generally bounded by Jackson Highway to the south, Kiefer Bvld. to the north, Excelsior Road to the east and Bradshaw Road to the west) will effect our property (i.e. water supplies to our part of the creek, possible defoliation of it, impact on the wildlife here, aesthetics, etc.) and set a precedent for what might be allowed next in the quadrant we are in. Therefore, the fact that the next quadrant is not wholly owned by the mining companies, the property, environmental and riparian rights of the other owners (ourselves and our neighbors) need to be taken into consideration, addressed and protected. Thank-you

Sincerely,

Divi N. Smith

Kevin F. Smith

Enclosures

c.c. Sacramento County Department of Public Works
Water Resources Division
and
Ms. Terry Wagner
State Water Resources Control Board
Division of Water Rights

DKS

Kevin and Divi Smith
9400 Fruitridge Road
Sacramento, Ca. 95826
23 December 1995

U.S. Army Corps of Engineers
Sacramento District
1325 J Street
Sacramento, Ca. 95814-2922

Dear Mr. Reese:

In response to Public Notice #198900074 and permit of application #198900076 concerning notice of preparation for a draft EIR/EIS for the Morrison Creek Mining Reach North of Jackson Highway we wish to register that decisions made by you and other agencies will have an effect on us, our residence and our property, which lies downstream on the creek, in the Mayhew-Fruitridge Road-Hedge-Elder Creek quadrant. (Map enclosed, see highlighted area.)

Most of the same concerns addressed in our November 21, 1995 letter to you regarding the draft EIR/EIS for the Morrison Creek Mining Reach South (downstream) of Jackson Highway apply. (copy enclosed)

DKS-1

What is decided and permitted in this quadrant (generally bounded by Jackson Highway to the south, Kiefer Bvld. to the north, Excelsior Road to the east and Bradshaw Road to the west) will effect our property (i.e. water supplies to our part of the creek, possible defoliation of it, impact on the wildlife here,aesthetics, etc.) and set a precedent for what might be allowed next in the quadrant we are in. Therefore, the fact that the next quadrant is not wholly owned by the mining companies, the property, environmental and riparian rights of the other owners (ourselves and our neighbors) need to be taken into consideration, addressed and protected.

We request a public hearing if one has not already been set, to help settle our concerns on these matters. Please notify us of place, date and time when they will be held. Thank-you.

Sincerely,

Divi N. Smith

(Kevin F. Smith)

Enclosures

c.c. Sacramento County Department of Public Works
Water Resources Division
and
Ms. Terry Wagner
State Water Resources Control Board
Division of Water Rights

Divi & Kevin Smith
9400 Fruitridge Road
Sacramento, California 95826

3 March 1998

County of Sacramento
Department of Environmental Review and Assessment
827 Seventh Street, Room 220
Sacramento, Ca. 95814

Dear Ms. Hack,

Regarding staff recommendations for the Vineyard.I project (control number 91-CZB-UPB-0118), page 36, item "K', paragraph 1, lines 12-15, titled "Residential Interface-Smith Property" (APN-063-0090-009) states that the water / riparian rights that will be lost if mining is approved as proposed should be compensated as a civil matter between us and the mining operators. This will not be a civil matter because it is the County of Sacramento who will be granting permits to allow destruction or alterations to the creek, in as such, these permits must include mitigation and conditions to prevent, minimize and reduce impacts to the portion that runs through our property. As stated in previous letters (enclosed), we do not consent to the dewatering, the defoliation, or the altering of our portions of the creek. For the proponents proposals to go forward as presented, mitigation needs to be in place that will provide a natural and adequate amount of circulating water to our remaining portion of the creek (possibly by setting up windmill pumps and water wheels). DKS2-1

Also stated on page 36, (item "K", lines 10-12) is that our "access will be via the pit floor and may be somewhat steep as it traverses the side slopes of the pit." It has been dramatically proven this year that these pits can suddenly turn into lakes, therefore, our road cannot be on the pit floor. It must also be all-weather construction and under the "retention pond" scenario, it will also have to meet levee standards. It is essential that any gradient be modified to safely convey and accommodate family traffic.

Pursuant to provisions in CEQA we request this correspondence be addressed and included in the final EIR/EIS for the public record. Thank you.

Sincerely,

Divi Smith

Kevin Smith

Cc: Mr. Gammel-Sacramento County Planning Department
Mr. Nottoli-Board of Supervisors
Mr. Brae-Policy Planning Commission

Kevin and Divi Smith
9400 Fruitridge Road
Sacramento, CA 95826

County of Sacramento
Board of Supervisors
Policy Planning Comission
700 H Street, Room 2450
Sacramento, CA 95814-1298

Re: Granite Construction Company
Vineyard 1 (91-CZB-UPB-0118)
Alternative Mitigation Proposal

Dear Commissioners:

Proponent's proposal to replace the natural water sources of the creek on our property with a completely artificially generated one, on their property, under their control, is unacceptable. Leaving an assault victim's life support system in the hands of the assailant would be a reprehensible dereliction. At least 80% of water should be provided by a more naturally-generated energy source - i.e. windmill pump or solar-powered system with back-ups and storage tanks or leaving the creek undisturbed upstream, without waterflow interruptions, to insure that the portion on our property remains intact. DKS3-1

Water source structures need to be at grade on the Preserved Reach of Morrison Creek, (figure 1); not under exclusive jurisdiction of proponents, preferably on the Smith property; if not, then, on undisturbed ground on the border, with mutual access.

All structural & mechanical placements need to have a 99-year warranty bond or other provision assuring perpetuity. It must remain intact for generations to come.

Additonal points that need to be addressed or clarified:

1. Page 1, paragraph 2, lines 4-5:
Our portion has water thru July into August.

2. Page 1, paragraph 2, lines 6-7:
Our portion overflows it's banks in the rainy season, adding alluvial enrichment to our soil.

3. Page 2, paragraph 3, lines 2-5:
During their various stages of upstream disruptions, our portion's water level needs to be maintained. How does proponent plan to accomplish this? Where is the perpetuity factor for all their sumping and pumping and structures? This creek was here before these companies, this county and this generation and should remain so.

4. Page 2, paragraph 3, line 6:
We need clarification on how 1 cubic per second equals 30 gallons per minute and a correction on water flows here - they go well into late summer here.

5. Page 2, paragraph 3, line 7:
The average annual water depths here range from 3' to 7'. Will a two-foot weir allow for this? DKS3-1

6. Page 2, paragraph 3, line 3:
This portion has water in it through August and needs to continue to do so.

7. Page 2, paragraph 5, line 4:
Inventory needs to include edges of the creek for the plants and trees it now supports.

8. Page 2, paragraph 5, line 5:
Monitoring also needs to be done during construction when the greatest disruptions will occur. Daily penalties need to be imposed and collected from proponents for the property owner by an agency that is available on a daily basis.

9. Page 3, paragraph 1, line 2:
If it is not maintained accordingly, how & when will we be compensated? The perpetuity factors are not in place here. There are no maintenance bonds to ensure water flows and maintenance. Five years is not sufficient (and five years from when? First phase? Last phase?).

10. Page 2, paragraph 3, line A & B:
What is the compensation to us for the 20% loss?

11. Page 3, paragraph 3, line C:
What is their version of "sufficient depth & duration?"

The disruptive and destructive impacts these projects will have on our lives and properties will be massive.

The county must insure that residents are protected and that all necessary mitigation is in place to assure liveability, health, well-being and compensation for losses before any permits are granted. DKS3-1

12. Plan view; figure 1:

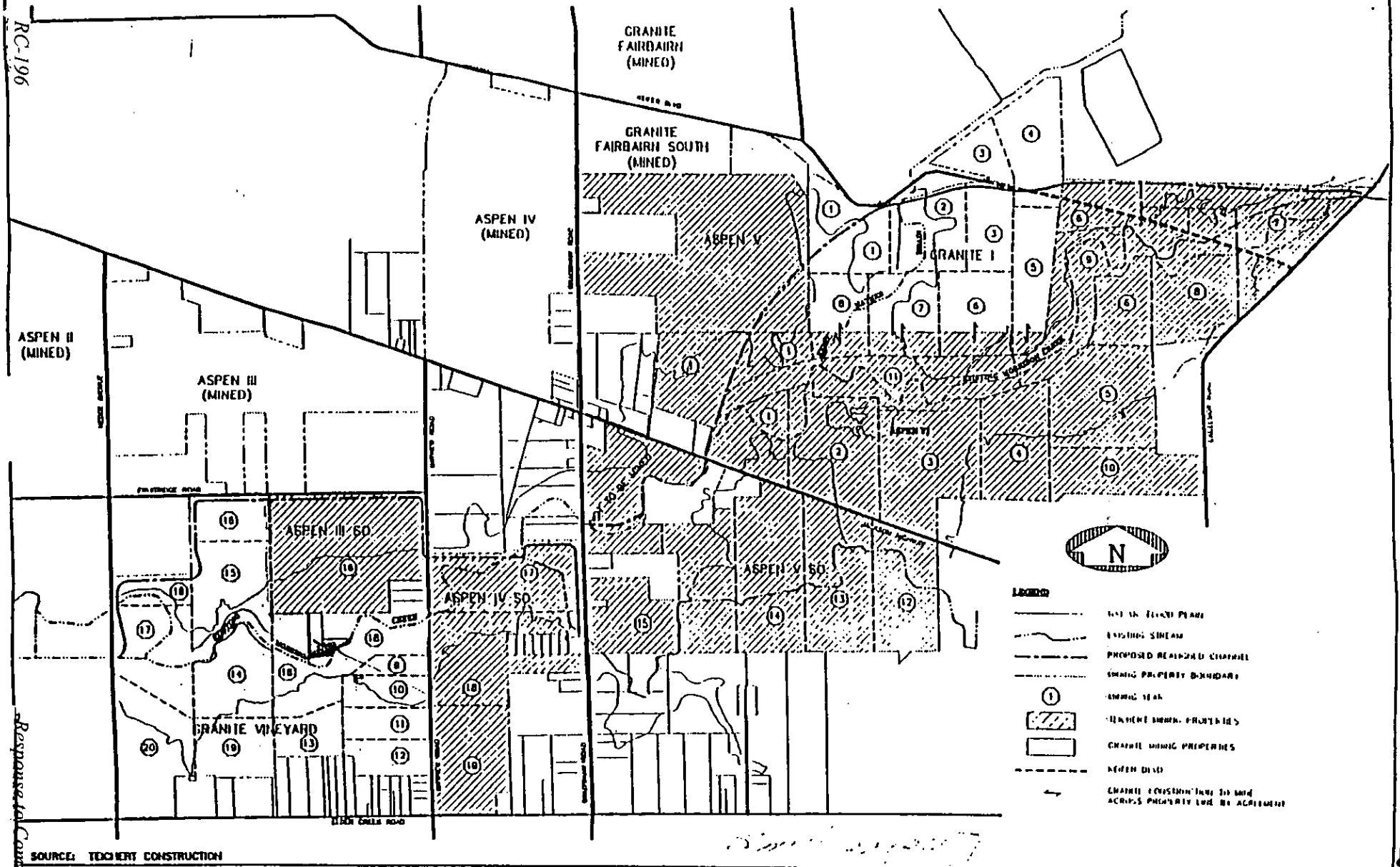
Our deeded access road on the north side (easterly edge) has not been figured in. It needs to be at grade to meet the part through Teichert's project site and it needs to be bonded.

Pursuant to provisions in CEQA, we request this correspondence be addressed, considered and included in the final EIR/EIS for the public record. Thank you.

Sincerely,

Bill and Kevin Smith

cc: Board of Supervisors
Planning Department
Department of Environmental Review and Assessment
Ms. Susan Brandt-Hawley



County of Sacramento Water Resources Division	Morrison Creek Mining Reach Drainage Mitigation Plan	Figure 1–3 Mining Phasing Map

RC-196

Response to Comments

SHS, Letter from Stan and Hazel Smith dated 4/20/97; DKS, Letter from Divi and Kevin Smith dated 4/26/97; DKS2, Letter from Divi and Kevin Smith dated 3/3/98; and DKS3, Letter from Divi and Kevin Smith dated 8/98

The comments presented in the above 4 letters are addressed in a comprehensive response provided below. The commentors owned and lived on a piece of land that is surrounded by the project site. Many of the concerns raised in the letters are directly related to the commentors' close proximity to the proposed mining and reclamation activities. Following the release of the Draft EIR/EIS, the commentors agreed to sell their property to the project proponents. Although many of the concerns raised by the commentors would no longer be applicable as they would no longer reside in such close proximity to the proposed project site, some of the issues raised could be relevant to other residences/land uses in the area. Such environmental issues have been listed and addressed below. As with all comments on the EIR/EIS, a response to issues related to personal preferences for the project or other opinions that are not related to environmental issues do not require a written response. Rather, such comments are included in the record for review and consideration by the decision-makers in their review of the project and EIR/EIS.

- **Processing Plant & Associated Impacts:** The commentors requested that a processing plant not be approved for the project site based on potential environmental impacts and nuisances, including dust generation, noise, and traffic, that would affect surrounding uses. Following the close of the comment period on the Draft EIR/EIS, the project proponents were able to successfully negotiate the easements needed to eliminate the need for an on-site processing facility (formerly part of the proposed project). As a result, the proponents have indicated that their new preferred alternative is the "Proposed Project Without Vineyard I Processing Plant" as evaluated in the Draft EIR/EIS. Under this alternative, aggregate would be transferred from the project via conveyor systems to existing (off-site) processing plants. As discussed throughout the EIR/EIS, this alternative would reduce the amount of truck trips, reduce noise, air quality and other potential effects associated with the construction and operation of a processing plant.

- **Noise Impacts:** If approved, the proposed project would be subject to the Sacramento County Zoning Code Sections 235-60 and 235-53 which set forth noise standards and operating hours for sand and gravel mining operations. More stringent controls would be required by the Exterior Noise Standard of the Sacramento County Noise Ordinance (SCC 6.68.070) in those areas where adjacent land is zoned for residential uses. The Noise Ordinance is intended to limit noise by establishing specific noise standards that the proponents would be required to meet for adjacent residential properties. In general, levels are limited to 55 dBA [7 a.m.-10 p.m.] and 50 dBA (10 p.m.-7 a.m.), with violations occurring if standards are exceeded in any one hour, as specified in the Ordinance. In addition, the EIR/EIS identifies a series of mitigation measures focused on reducing noise generation at the project site. Included in these measures is the construction of sound barriers along the project site edge and movement of proposed operations such that noise is not concentrated in one location. Refer to Sections 5.9 and 5.10 of the Final EIR/EIS.

- **Air Quality & Dust Generation:** The project would be subject to the Sacramento Metropolitan Air Quality Management District Rules and Regulations, including Rules 402 and 403 which require avoidance of nuisance and control of fugitive dust related to mining

operations. In addition, Section 5.4.3 of the EIR/EIS identifies mitigation for potential air quality and dust generation resulting from the proposed mining and reclamation activities. Included in these measures, are requirements to minimize carry-out of mud and dirt onto public roads, watering of unpaved roadways, and techniques for maintaining stockpiles to reduce erosion and for dust suppression. For additional information on this subject, refer to Section 5.4 of the Final EIR/EIS and response to comments

- **Visual Screening:** The proponents would be required to implement visual screening along the project site periphery by establishing a 25-foot minimum landscaped setback from adjoining rural residential uses, with the first 10-feet consisting of undisturbed land The proponents will be required to maintain landscaping, including provision of irrigation, throughout the life of the project. Refer to Sections 5.9 and 5.11 of the Final EIR/EIS for additional information on this subject.

- **Erosion Controls:** If approved, the project and proposed slopes and post-reclamation design would be subject to a series of existing regulatory requirements for slope stability and erosion control, as well as the mitigation measures identified in the Final EIR/EIS. As discussed in Section 5.5 of the EIR/EIS, these controls and mitigation measures would reduce potential geologic impacts to a less than significant level. Included in these controls and mitigation are restrictions on post-reclamation slopes, requirements for planting side slopes to reduce erosion, and preparation and implementation (at the direction of the County) of an Erosion Control Plan for the project. For additional information on this subject also see Section 5.7.3 of the Final EIR/EIS.

- **Water Quality:** If approved, the project proposes to implement several mitigation measures that would effectively reduce all potential water quality impacts to a less-than-significant level. Please refer to Sections 5.1.3, 5.2.3, and 5.7.3 of the EIR/EIS.

April 23,1997

Dennis E. Yeast
County of Sacramento
Department of Environmental Review
and Assessment
827 Seventh Street, Room 220
Sacramento, CA. 95814

RE: DRAFT ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL IMPACT STATEMENT FOR THE MORRISON CREEK MINING REACH DOWNSTREAM (SOUTH) OF JACKSON HIGHWAY : Control Numbers: 94-UPB-0484 (Aspen III South), 91 CZB-UPB-0118 (Vineyard I), 90-CZB-UPB-1607 (Aspen IV South) and 94-CZB-UPB0671 (Aspen South)

We are property owners in the immediate area of the proposed project captioned above.

We are writing to you to let you know of our interest and concerns with the Draft EIR/EIS report. We must be included in all phases of any planning committee meetings and outcomes. We also seek the right to attend these meetings and be heard.

This project will be a very significant impact on our property and our human rights as well as health & safety.

We will be continuing to study the reports available and hope to have the opportunity to get involved in working through some of the mitigation sections proposed.

Cordially,

TSM-1

NEIGHBORHOOD COMMUNITY

Signatures attached

TONY & SHAY MELVOLD
9307 Elder Creek Road
Sacramento, CA. 95829

cc: Larry Vinzant
U.S. Army Corps of Engineers
Sacramento District

TSM, Letter from Tony & Shay Melvold dated 4/23/97

TSM-1: The commentors' request to be included and heard at future hearings and their interest in the project is noted.

George Waegell
7700 Eagles Nest Road
Sacramento, CA 95830
(916) 423-1771

April 28 1997

Dennis E. Yeast, Environmental Coordinator
County of Sacramento
DERA
827 7th Street, Room 220
Sacramento, CA 95814

Re: Morrison Creek Mining Reach downstream south of Jackson Highway.

Control No.	94-UPB 0484	Aspen 3 South
	91-CZB-UPB-0118	Vineyard 1
	90-CZB-UPB-1607	Aspen 4 South
	94-CZB-UPB-0671	Aspen 5 South

Dear Mr. Yeast,

Sacramento County just celebrated "Creek Week." Given the proposed destruction of 4 miles of Morrison Creek a funeral would have been more in order. This proposed channelization will be an eye sore forever. Future generations will look at this project and wonder about our sanity. We are not a third world country and yet our county is laced with these dead, open concrete sewers where living streams once meandered.

Having explored miles of creek, wet and dry, I see them as wonderful living oases for all the life in an area. There are trees, plants, animals, birds, reptiles, fish and insects all interacting together in a fascinating, meandering slice of geology. It should be the birthright of every child to enjoy this. Morrison Creek preserved and treasured will add much to the enrichment of our community. Laguna Creek at Bond and Elk Grove-Florin Roads offers a quiet retreat from the bustle of urban development. Compare this to the gunite lined, chain linked, open ditch that was once Florin Creek at Kara Drive and Florin Road. GW-1

The politics of the gold/aggregate industry has been one of false promises and real consequences to the detriment of our community. Pit reclamation is non-existent. One has only to look at the moonscapes the gold/aggregate industry leaves behind. Straight, steep sided, treeless cliffs festooned with chain link, oleander and rip rap. These

hideous gold/aggregate pits cry out for serious reclamation. If we cared for our environment they could become contoured, tree lined valleys instead of the devastation visited on Perkins and Walsh Station which constantly bombards our sensibilities.

Concrete is a permanent soil sterilant that given a gold subsidy has been liberally slathered over our 5 county area. Like lava it has covered the irreplaceable soils of the Pocket, River Park and Natomas. These lands will never absorb water, grow a crop or nurture a tree and all of it in a flood plain.

We are told that our supply of PC grade rock must be protected at all costs. We are told that the 27 square miles of dredger tailings are only fill quality rock and yet when the county approved a leapfrog, 272 acre pit at Jackson and Sunrise there was no concern that the million year old rock might not meet PC grade. At that point a rational person would ask, "Why do we not use the dredger tailings as American River Aggregates is doing. Why dig one hole to fill another?". GW-1

Instead of being ashamed at the way we have channelized Morrison Creek down stream we arrogantly propose to do the same to all of it.

Please preserve the last pristine 4 miles of Morrison Creek from Excelsior to Hedge from becoming a concrete lined ditch.

Sincerely,

George Waegell

George Waegell

cc Sacramento County Board of Supervisors
Larry Vinzant, US Army Corp of Engineers
Tom Hutchings, Planning Director, Sacramento County
Cay Goude, U.S.Fish & Wildlife Service

GW, Letter from George Waegell dated 4/28/97

GW-1: The commentors' opinions regarding the project are noted and will remain part of the administrative record for consideration by the decision-makers during their review of the proposed project.

George Waegell
7700 Eagles Nest Road
Sacramento, CA 95830
916 423-1771

June 9, 1998

Policy Planning Commission,
Sacramento County,
700 H Street, Rm. 2450
Sacramento, CA, 95814 - 1298

Dear Commissioners,

Re: Morrison Creek Mining Reach Downstream of Hwy. 16.

The late County Supervisor Henry Kloss once mused that newly married couples should file an EIR. Given the effects we see of exponential population growth on the environment he was ahead of his time. There is hope! I picked up a flyer in the Board of Supervisors chambers showing Tony Lopes, the boxer, dukeing it out with an un-spayed dog. Mr. Lopes needs to realize that creatures lower on the food chain are not the cause of our environmental problems. We are! Exponential population growth plus unsustainable consumerism equal environmental disaster. You can't eat concrete! GW2-1

Why is it that the County and the gold aggregate industry are the only ones permitted to dig in Morrison Creek? Are we to trust them in the flood plain given their uncanny knack for turning creeks into concrete ditches? Creeks are a cultural and environmental resource in our community, not a commodity. Please save the last two miles of Morrison Creek from the callous destruction going on north of Jackson Road.

Why has it been impossible to get independent water quality tests of the aquifer under these sixty-five foot deep gold/aggregate pits? What are the effects of pit agriculture and mining activity on water quality? What effect do nitrates, produced in the gravel washing process, have on the quality of water in our aquifer? Why was this problem not addressed in the EIR? Letting the gold aggregate industry test the community water supply is like letting the fox tend the chickens. GW2-2

In using these pits as retention basins to prevent flooding of housing built on prime agricultural land in the flood plane will we not contaminate our aquifer with surface runoff from urban and industrial uses? i.e. Mather Field? The EIR should give specific examples of where pits have been used as retention basins and what the effects were on the aquifer?

Traffic impacts in Sacramento County for its gold/aggregate strip mines are assessed using a model which equates one gravel truck to two passenger cars. This is ludicrous! It's like saying an elephant is the same as a mouse because they both have four legs! If we continue to use this inadequate model in the EIR we will certainly not accurately assess the impact of heavy trucks on urban roadway traffic. DERA lamely states that this is a national standard. No wonder we have GW2-3

George Waegell
7700 Eagles Nest Road
Sacramento, CA 95830
916 423-1771

June 9, 1998

such bad traffic problems! The hideous mining facility at Sunrise and Jackson would not exist today if the EIR had used an accurate traffic model. We have asked the county to address this serious issue and to date no corrective action has been taken. Please tell us why?

We are told that trucking aggregate forty miles from Yuba City is too expensive, yet with a gold subsidy aggregates from our community flow into a five county area. No one seems to know how much gold these pits produce. Do none of us know our assay from a hole in the ground? This unknown gold subsidy makes us very competitive with those who would use dredger tailings or hard rock as an aggregate source. In light of this could it be that we are tearing up our community for gold rather than for rock? Please think about this! GW2-3

When Sacramento County permitted the leapfrog 272 acre "Los Angeles" Aggregate plant at Sunrise and Jackson to dig million year old rock there was no independent test done on rock quality. What was the percentage of waste? Would it meet Portland Cement grade? Why wasn't this in the EIR? If this is only fill quality rock why not use dredger tailings? Was gold a deciding factor in this? GW2-4

The gold/aggregate industry has a very destructive long term economic and social effect on any community in which it operates. When these private concerns move into our community property values are reduced and there is no restitution. The environment is drastically altered. Reclamation is nonexistent. Oleanders, chain link fencing, and berms are rapidly replacing the beautiful open space values in the area. Look at the hideous fencing blighting our roadways. Out of sight and out of mind is not reclamation. To hide the ugly moonscapes they are creating in the middle of our community they put oleander blinders on us and have the gall to call it landscaping. Bradshaw, Hedge, Florin Perkins, Jackson and Fruitridge are of a litany of unreclaimed pits within twenty minutes of Capitol Park. GW2-5

We must care for our community. These pits must be reclaimed with contoured tree lined slopes to reflect the beautiful hills in the Sloughouse area. Chain link fences, berms and oleanders belong in the dust bin of bad dreams. We should reclaim and preserve these lands as open space, agriculture and recreation. From their blighted past they can become islands of sanity in a sea of urbanization the land was destroyed to create. Please care for the environment?

Sincerely,

George Waegell

George Waegell

2

GW, Letter from George Waegell dated 4/28/97

GW-1: The commentors' opinions regarding the project are noted and will remain part of the administrative record for consideration by the decision-makers during their review of the proposed project.

GW2, Letter from George & Judith Waegell dated 6/9/98

GW2-1: Comments noted.

GW2-2: Comments noted. Please refer to response to comment SW3-3 that addresses the request for water quality monitoring.

GW2-3: Please refer to response to comment MCMPOC-3 which addresses the basis for developing the truck trip assumption used in the EIR/EIS. No other specific references to aspects of the model that are not "accurate" are provided. With regard to the cost of aggregate transportation, please refer to response to comment EPA-14. Additional information on alternative sources of supply is provided in Section 4.6 of the EIR/EIS and in Appendix B (beginning with page B-91).

GW2-4: The commentor's opinion regarding other mining projects is noted. With regard to the quality of aggregate on the proposed project site, the California Department of Conservation, Division of Mines and Geology has identified the project site as an area containing Portland Cement Concrete-Grade quality aggregate. For additional information refer directly to the CDMG's report entitled *Mineral Land Classification: Portland Cement Concrete-Grade Aggregate in the Sacramento-Fairfield Production-Consumption Region* (Special Report 156) and Section 4.6 in the EIR/EIS.

GW2-5: The commentor's opinions and requests are noted and will be provided to the County decision-makers for their consideration during review of the Final EIR/EIS and project.

GW3

George & Judith Waegell
7700 Eagles Nest Road
Sacramento, CA 95830
(916) 423-1771
judith_waegell@bbs.macnexus.org

September 3,1998

Sacramento Co., Board of Supervisors.
700 H Street,
Sacramento Calif. 95814

Re: Planning Commission and Other Government Agencies Failure to Address Community Concerns With Gold/Aggregate Operation and Reclamation.

Dear Board:

On Feb. 23, 1998. Keri Butler of the Planning Department chaired a public meeting at Wilton Firehouse to gather data on the impacts that gold/aggregate mining operations have on our community. Present were members of the Planning Department, Supervisor Don Nottoli, representatives of Granite and Teichert, the Vietnamese Buddhist Temple, our Coalition and other concerned citizens.

There was considerable discussion and our inputs were written down by Planning. We felt that the meeting was productive and were told that there would be more meetings in the immediate future.

We feel that open honest communication is needed if serious conflicts between the area's citizens and the gold/ aggregate industry are to be resolved. With rapid growth in the County we cannot ignore the gold/aggregate industry's impacts on traffic, water and air quality, noise and rapidly diminishing open space values.

Contrary to planning staff's statements there were no subsequent public meetings held. GW3-1

On the other hand we understand that a committee representing the gold/ aggregate industry and chaired by Mr. Wainright of Teichert meets regularly with the county.

On June 10, 1998, the Vineyard South proposal came before the Planning Commission. Lawyers and spokesmen for Teichert and Granite presented their project. The public was given no opportunity to comment but was told that the next Planning Commission meeting would be devoted entirely to hearing community concerns.

On August 12, 1998, the Vineyard South proposal again came before the Planning Commission. At this meeting representatives of Granite and their attorney were given the first half of the meeting to present their project. At no time were they limited by the three minute rule.

When people in the community got up to speak they were routinely limited to three minutes and herded through like a band of sheep at shearing time. This treatment of citizens by county government was doubly egregious given County failure to hold promised public hearings to initiate much needed mining changes.

This meeting ended with Granite telling the community what they would get and the planning commission acceding to it. We have the right to voice our opinion but if we do not have a lawyer speaking for us our time is cut short and our contribution is discounted. Is this democracy to have our concerns ignored while our very community is being sold to the highest bidder?

Following are some questions we kindly beg answers to:

1. Why were our written concerns about an inadequate truck traffic model not discussed? Please explain how 2 cars equal 1 truck given speed, weight, size, maneuverability, noise and emission differences? GW3-2

George & Judith Waegell

2. Why have our repeated requests for INDEPENDENT water quality tests of the aquifer under the gold aggregate pits been ignored? Is agricultural, industrial and urban runoff 65 feet closer to the aquifer not a matter of concern? With the aquifer falling an average of a foot and a half every year why has the effect of gold/aggregate water use on residential and agricultural wells not been addressed? How much do they use? This information is available and we desire to have it. GW3-3

3. Does the County ever consider the environmental damage concrete does to farmland? One square mile of aggregate pit will cover 40 square miles of Pocket and Natomas soil with a foot of rock. To compensate for this loss the pit floor will be returned to agriculture. Why has the county not required a four foot minimum of rock- free top soil if they are serious about reclaiming this land? GW3-4

4. Why did Planning not discuss our written request for 3 to 1 and 5 to 1 contoured pit slopes as an option to the hideous chainlink and oleander bomb craters that line our roads? Why has this environmentally superior option of gentle oak lined valleys with cattle fences not been considered? Why have government agencies persisted on inflicting oleander berms and chainlink on their citizens when they have the responsibility to drag the gold/aggregate industry into the reality of twentieth century environmentalism? Why are contoured slopes not dug first so native trees can be planted early in the mining process? What are the reclamation standards in other strip mining states? May we have some examples. GW3-5

5. Chainlink fence is very destructive of community and open space values and yet the County allows miles of it around these unsightly gold/aggregate pits, adding insult to injury. Please give reasons why so much is needed. Why is it not removed or replaced with lighter cattle fencing as sections are completed? GW3-6

Why aren't lower fences with larger mesh and no concertina wire ever considered? What security concerns does the gold/aggregate industry have that other businesses do not?

6. Why isn't government protecting the last of Morrison Creek from becoming a concrete channel? Haven't they seen the gunited chainlink ditches that have so ravaged this precious heritage? Please explain how the County permitted destruction of Morrison Creek north of Jackson Road will be an improvement to the Hedge Avenue area? What recourse do citizens have to violations of noise, setback, dust or drainage regulations when government agencies seem so toothless in their oversight of this industry? Why is it so difficult to get help and information from the very agencies charged with their regulation? GW3-7

In a democracy informed citizens are good citizens!

The gold/aggregate industry comes into our community and destroys our quality of life, devalues our property and leaves us with unreclaimed pits. And all of this is done with the permission or acquiescence of government agencies. This is wrong! Government agencies should be responsible for the long term health and well being of our environment and not act as procurers for the gold aggregate industry. It is long past time to think valleys not bomb craters and oaks not oleanders!

Sincerely,

George Waegell Judith Waegell

George & Judith Waegell

cc: Jeff Gamel
Dennis Yeast
Peter Rooney
Susan Brandt-Hawley

cc: Kit Gonzalez
Catherine Hack
Anthony Palik
Keri Butler

GW3, Letter from George & Judith Waegell dated 9/3/98

GW3-1: The County of Sacramento Board of Supervisors adopted Resolution 90-0279, which initiates proceedings to amend the Sacramento County Code and the Sacramento County Zoning Code to include development standards and guidelines for mining contiguous to residential lots and lots with residences.

GW3-2: Please refer to response to comment MCMP.OC-3, which addresses the same issue raised by the commentor.

GW3-3: Comment noted. With regard to general impacts to ground and surface water quality, the EIR/EIS does assess these potential effects in Sections 5.1 and 5.2. Mitigation measures and other regulatory requirements that would be implemented if the project is approved include: restrictions on the use of on-site hazardous materials during mining, reclamation, and post-reclamation (including the preparation of an agricultural management for post-reclamation uses); and erosion control plans. Water usage at the site with implementation of the proposed project would be minimal.

GW3-4: Section 5.9.2 in the Draft EIR/EIS identifies the disturbance of "...31 acres of Prime Farmland, 435 acres of Farmland of Statewide Importance, and 419 acres of Farmland of Local Importance..." as a significant impact of the proposed project. Existing requirements of the State Mining and Geology Board as well as mitigation proposed in the EIR/EIS will require the applicants to salvage, maintain and replace the topsoil resources on the project site following its reclamation. Agriculture is one of the primary post-reclamation uses proposed for the site. Refer to Section 5.9 for additional detail (and 5.9.3 for information on the requirements and mitigation for topsoil preservation).

GW3-5: Comments and recommendations for the treatment of exterior berms and required landscaping are noted. The commentor is referred to Section 5.12.3 for additional information.

GW3-6: The purpose of the fencing requirements at the project site is to foster public safety. These requirements are established in the Sacramento County Zoning Code Sections 235-54 and 235-55. Please refer to Section 5.11 of the EIR/EIS for additional information.

GW3-7: The commentor's opinion and request for consideration by the County decision-makers of such comments is noted.

To: Dennis E. Yeast
County of Sacramento
Dept. of Environmental Review and Assessment
827 Seventh Street, Room 220
Sacramento, CA. 95814

April 28, 1997

From: The Niles Family
9298 Elder Creek Rd
Sacramento, CA. 95829

Dear Mr. Yeast,

I'm writting you because of my great concern regarding the Morrison Creek Mining Reach Downstream (South) of Jackson Highway(Control Numbers: 94-UPB-0484 [Aspen III South], 91-CZB-UPB-0118 [Vineyard I], 90-CZB-UPB-1607[Aspen IV South] and 94-CZB-UPB-0671[Aspen V South]). My family own a home and live on Elder Creek between Hedge and Mayhew.

I am not an expert on all of the details of the proposed project, however, after reading through the draft EIR I believe my family as well as all of the other families in the area will be adversely affected from economic, health and moral standpoints. I believe we will be affected by the following:

1. NOISE - We will be severely affected by the noise from:
   a) The mining operation
   b) The proposed gravel crusher
   c) Concrete plant
   d) The increased truck traffic in front of our home

T&RN-1

In the proposal, sound barriers are mentioned and granted I have seen some asthetic and effective barriers, but I have also seen where in the interest of expedience the sound barriers were sheets of plywood fastened to cyclone fence.(See Bradshaw just North of Jackson Hwy.) I am also concerned because sometimes the noise berm is also used as an access road which increases dust.

2. DUST - All aspects of this operation will create more dust.(Again see Bradshaw North of Jackson Hwy. to see the dirt brought out onto the road) T&RN-2

3. INCREASED TRAFFIC - Depending on the number of hours of operation there could be approximately one truck going up our road every minute. This will cause several problems:
   a) Our road is already conjested and this will increase the potential for accidents. Please note the traffic figures in the EIR are grossly outdated.
   b) This increased traffic could facilitate the requirement for a wider road ie. taking part of my front yard and increasing my taxes.
   c) The proposal lists the routes the truck will take(maybe), I believe the trucks will take the most expeditious route.

T&RN-3

4. SMELL - An asphalt plant emits a noxious odor! T&RN-4

5. VIBRATION - The mining process and the gravel crusher litterally shake the surrounding neighborhood. T&RN-5

6. ENFORCEMENT - If you look at other similar projects you will see that the prescribed proceedures are not always followed. The county is short handed; therefore, these requirements go unenforced. Those items which will likely be abused are as follows:
   a) Trucks not using prescribed routes
   b) Sound berms less than prescribed
   c) Hours of operation extended
   d) Noise and Dust level outside of established parameters

T&RN-6

7. I am also concerned how this operation may affect the quality, purity, and flow of the local domestic water wells. T&RN-7

8. FIGURE 6-1 Cumulative projects include private property not owned by Granite or Teichert Companies. T&RN-8

9. My family and all of my neighbors are totally against ANY processing plant on proposed Morrison Creek Mining Reach Downstream(South) of Jackson Highway Project. T&RN-9

Thank you for your attention to this matter.

Cordially yours,

Ted Niles and Robin Niles
916-386-2665

T&RN, Letter from Ted and Robin Niles dated 4/28/97

T&RN-1: The commentors concerns regarding noise, dust and traffic are noted. With regard to on-site noise sources, since release and review of the Draft EIR/EIS the applicants have successfully negotiated the easements necessary to allow conveyor access from the Vineyard I site to an existing processing plant north of Jackson Highway. As a result, the applicants have removed the on-site processing plant as the preferred option and the associated environmental impacts would not occur if the project is approved. In addition, several other conditions have been added to the project as a result of ongoing consultation with the surrounding community and the applicants. Included in such conditions, is the restriction of traffic from Elder Creek and requirement that all project-generated truck traffic exit and enter the site via Mayhew north to Jackson Highway. These modifications in the project design and related conditions, as well as the existing mitigation measures proposed in the EIR/EIS for air quality, noise and traffic, are intended to reduce the impacts noted by the commentor to a less-than-significant level.

T&RN-2: Mitigation measures specifically aimed at reducing dust and other particulate matter during operation would be required if the proposed project were approved. For detailed information on these measures, refer to Section 5.4.3 of the EIR/EIS.

T&RN-3: Please refer to response to comment AP-1 which addresses this same issue.

T&RN-4: Please refer to response to comment T&RN-1 which explains that the proposed Vineyard I processing plant option has been removed from further consideration by the project proponents.

T&RN-5: See response to comment T&RN-4 above.

T&RN-6: Comment noted. The proposed project, if implemented, will be actively monitored and regulated by the Public Works Department and the Department Environmental Review and Assessment in order to assure that all agency requirements and mitigation measures are adhered to during project development.

T&RN-7: Please refer to response to comment DB-2b which addresses this same issue.

T&RN-8: Comment noted. The list of cumulative projects is not restricted by property ownership. Please refer to Section 6.1 of the EIR/EIS for an explanation of cumulative impacts.

T&RN-9: The commentor's objection to an on-site processing plant is noted. Please refer to response to comment T&RN-1.

To: Dennis E. Yeast
County of Sacramento
Dept. of Environmental Review and Assessment
827 Seventh Street, Room 220
Sacramento, CA. 95814

April 28, 1997

From: The Scott Family
9427 Elder Creek Rd
Sacramento, CA. 95829

Dear Mr. Yeast,

I'm writing you because of my great concern regarding the Morrison Creek Mining Reach Downstream (South) of Jackson Highway(Control Numbers: 94-UPB-0484 [Aspen III South], 91-CZB-UPB-0118 [Vineyard I], 90-CZB-UPB-1607[Aspen IV South] and 94-CZB-UPB-0671[Aspen V South]). My family own a home and live on Elder Creek between Hedge and Mayhew.

I am not an expert on all of the details of the proposed project, however, after reading through the draft EIR I believe my family as well as all of the other families in the area will be adversely affected from economic, health and moral standpoints. I believe we will be affected by the following:

1. NOISE - We will be severely affected by the noise from:
   a) The mining operation
   b) The proposed gravel crusher
   c) Concrete plant
   d) The increased truck traffic in front of our home

In the proposal, sound barriers are mentioned and granted I have seen some asthetic and effective barriers, but I have also seen where in the interest of expedience the sound barriers were sheets of plywood fastened to cyclone fence.(See Bradshaw just North of Jackson Hwy.) I am also concerned because sometimes the noise berm is also used as an access road which increases dust. G&SS-1

2. DUST - All aspects of this operation will create more dust.(Again see Bradshaw North of Jackson Hwy. to see the dirt brought out onto the road). Those of us that have swimming pools would end up having mud pools. G&SS-2

3. INCREASED TRAFFIC - Depending on the number of hours of operation there could be approximately one truck going up our road every minute. This will cause several problems:
   a) Our road is already conjested and this will increase the potential for accidents. Please note the traffic figures in the EIR are grossly outdated. There was a lady just killed at Bradshaw road and Elder Creek a couple weeks ago.
   b) This increased traffic could facilitate the requirement for a wider road ie. taking part of my front yard and increasing my taxes.
   c) The proposal lists the routes the truck will take(maybe), I believe the trucks will take the most expeditious route.
   d) Traffic Studies Are Out Dated - No physical count on Elder Creek Road between Hedge and Bradshaw road in the past 2 years.

G&SS-3

4. SMELL - An asphalt plant emits a noxious odor! G&SS-4

5. VIBRATION - The mining process and the gravel crusher litterally shake the surrounding neighborhood. G&SS-5

6. ENFORCEMENT - If you look at other similar projects you will see that the prescribed proceedures are not always followed. The county is short handed; therefore, THESE REQUIREMENTS GO UNENFORCED. Those items which will likely be abused are as follows:
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9. My family and all of my neighbors are totally against ANY processing plant on proposed Morrison Creek Mining Reach Downstream(South) of Jackson Highway Project. G&SS-9

Dennis E. Yeast, Thank you for your attention to this matter.

Sincerely,

Gary B. Scott

Gary B. Scott
916-383-8326

Susana Scott

Susana Scott

G&SS, Letter from Gary and Susana Scott dated 4/28/97

G&SS-1 through G&SS-9: The comments raised in this letter are addressed in responses to comments T&RN-1 through T&RN-9.

October 26, 1997

COUNTY OF SACRAMENTO
BOARD OF SUPERVISORS
PLANNING COMMISSION
701 H Street Room 2450
Sacramento, CA 95814-1298

RE: Control Nos. 94-UPB-0484; 90-CZB-UPB-1607; 94-CZB-UPB-0671 (JG)

Dear Supervisors & Planners,

For sometime now my family and myself have been laboring under the pressures of a rather uncertain future regarding your future plans to allow large scale (gold mining) aggregate operation to spread out in the area of Mayhew Road and Elder Creek Road.

My property is located at 6350 Mayhew Road, directly in the path of Granite's march down Mayhew Road to Elder Creek Road. Recently, Granite leapfrogged over our property, purchased the adjacent parcel directly to the South and leveled the house. There only remains one more property between Granite's acquisition and Elder Creek Road.

Directly across the street (Mayhew Road) Teichert, until recently, had owned everything except the 31 acre corner parcel which fronts Mayhew and Elder Creek Road. I understand that the hearing that is scheduled to take place on October 30, 1997 had the blessings of the planners and Teichert and Granite will now own all the adjacent parcels except mine and one other on this side of the road.

If you were to look at the acquisitions of Granite and Teichert as a real estate chess board or a monopoly game, it appears that Loretta Johnson and her family have been check mated. LJ-1

Are we to now wait until someone decides that it is time to make an offer of some paltry sum to get the Johnson family "out of the way of progress?"

We are very concerned that two large entrepreneurial enterprises who have never voted in this district are now is the process, with the help of our local supervisors and planners, of quietly boxing in and quieting any possible opposition.

The rural nature of this area which contains by state definition "prime agricultural land" is about to be turned into a gold mining

operation to the benefit of who knows what other entities (limited partnerships, perhaps). Due to the scant population, it appears that our supervisor isn't really concerned that there is a family in his district who would either like to stay here or move on and can do neither.

My family and I have an investment here in more than just money. Several years ago, there was a court action to clean up the boundary between my neighbors and myself. I'm speaking of the parcel next door to us that Granite just recently acquired and leveled.

The court decreed that the adjustment would increase the size of our parcel and reduce the size of their parcel. The neighbors became angry. They began to harass us. One of them even came onto the property wearing a gun and tried to get my son to confront them. We didn't fight them back. They eventually broke into my home while I was gone, removed everything, including my jewelry, china and other valuables. The sheriff eventually caught up with at least one of them and he went to jail for several years.

While it may not seem like much to some of you, to us it was a fight. We have a lot of memories here. Our roots are here and we are confused as to just what it is you are doing to us.

All of you took an oath of office to uphold our constitution which guarantees all of us the right to "life, liberty, and the pursuit of happiness. From where we sit right now it looks like any equity we may have had in those rights have been erased by big government and big corporate friends of government. LJ-1

We're not trying to be unreasonable but don't you think someone should take the responsibility to explain what it is we are supposed to do. We can't sell our property to some one who is seeking a small parcel of prime agricultural land to enjoy the peace and quiet of a rock crushing plant and hundreds of trucks rumbling past from next door every day.

We challenge the adequacy, legality and validity of every action taken, hearing, proceeding, document, report and recommendation pertaining to this project, as well as Granite's project (we understand Teichert and Granite are partners in this project), as well as the endorsements of every so called "Community Planning Advisory Council's Recommendation" as being not in the public interest and destructive to the environment, water resources, and related eco-systems.

We believe in the old axiom "gold brings out the worst in people" and there may be more here in the way of partnerships than meets the eye.

If this project were to get underway in any neighboring county such as Nevada, Placer, El Dorado, or Sierra, I believe there would have to be a disclosure that this was a gold mining operation not

operation to the benefit of who knows what other entities (limited partnerships, perhaps). Due to the scant population, it appears that our supervisor isn't really concerned that there is a family in his district who would either like to stay here or move on and can do neither.

My family and I have an investment here in more than just money. Several years ago, there was a court action to clean up the boundary between my neighbors and myself. I'm speaking of the parcel next door to us that Granite just recently acquired and leveled.

The court decreed that the adjustment would increase the size of our parcel and reduce the size of their parcel. The neighbors became angry. They began to harass us. One of them even came onto the property wearing a gun and tried to get my son to confront them. We didn't fight them back. They eventually broke into my home while I was gone, removed everything, including my jewelry, china and other valuables. The sheriff eventually caught up with at least one of them and he went to jail for several years.

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We believe in the old axiom "gold brings out the worst in people" and there may be more here in the way of partnerships than meets the eye.

If this project were to get underway in any neighboring county such as Nevada, Placer, El Dorado, or Sierra, I believe there would have to be a disclosure that this was a gold mining operation not

an aggregate operation. Correct me if I am wrong but it appears the rules are considerably different in Sacramento County for gold mining than any other county.

We would like for this letter to be entered as a matter of public record in the regular proceedings of the policy planning commission at the evidencuiary hearing scheduled for Thursday, October 30, 1997 at 6:00 pm and the regular meeting of the County Board of Supervisors and all subsequent hearings should either or both of the above hearings related to this matter be continued, postponed or both. LJ-1

Sincerely,

Loretta Johnson
P.O. Box 293133
Sacramento, CA 95829
(916) 731-2252

LJ, Letter from Loretta Johnson dated 10/26/97

LJ-1: The commentor's opinions and requests are noted and will be provided to the County decision-makers for their consideration during review of the Final EIR/EIS and project.

Policy Planning Commission Hearings

PUBLIC COMMENT:

SACRAMENTO COUNTY PLANNING COMMISSION HEARINGS ON THE MORRISON CREEK MINING REACH DOWNSTREAM (SOUTH) OF JACKSON HIGHWAY PROJECTS

PREFACE

Public testimony on the Morrison Creek Mining Reach Downstream of Jackson Highway Community Plan Amendment, Rezone, Use Permit, Amendment to Existing Use Permit and Section 404 (Wetlands) Permit DEIR/EIS was heard before the Sacramento County Policy Planning Commission on three dates: October 30, 1997, June 10, 1998, and August 12, 1998. The following lists all members of the general public that offered testimony on the project. The EIR/EIS preparers have summarized comments submitted by those members of the general public. This summary focuses on only those issues of substance to the adequacy of the EIR/EIS, although some statements of opinion concerning the projects are presented. The summaries of comments from each public member are followed by responses to those comments. In most cases, the comments made by the speakers are substantially the same as written comments submitted on the DEIR/EIS. Where this occurs, the reader is referred to responses prepared for those written comments.

October 30, 1997 Planning Commission Hearing

Stuart Helfand, Vineyard Area Community Planning Advisory Council Chair

Comments on the DEIR/EIS:

The following is a summary of the speaker's comments:

- The processing plant should remain at its existing location. To ensure that this occurs, the two mining companies should be required to work together to resolve conveyor easement issues. **SH-1**
- Truck traffic from overburden removal on the Vineyard site should be routed north, rather than south, on Mayhew Road. **SH-2**

Responses:

SH-1: As discussed in the Final EIR/EIS, the project proponents were able to successfully negotiate easements necessary to allow conveyor access to an existing processing plant thereby removing the need to construct an on-site processing plant on Vineyard I. As a result, the proponents have indicated that the "Proposed Project Without Vineyard I Processing Plant Alternative" already evaluated in the Draft EIR/EIS (see Section 4.2) is now the preferred project.

SH-2: Please refer to revised mitigation measures in Section 5.8.3 of the Final EIR/EIS.

Divi Smith

Comments on the DEIR/EIS:

The following is a summary of the speaker's comments:

- Truck traffic from overburden removal on the Vineyard site should be routed north, rather than south, on Mayhew Road. **DS-1**
- Dust control measures are not effective during the windy period after mining has occurred but before hydroseeding. **DS-2**
- The use of plywood barriers for noise and dust control is not effective and is aesthetically displeasing. **DS-3**
- The project will result in the destruction of Morrison Creek in the project vicinity. **DS-4**
- Additional mitigation is needed to address impacts on neighboring properties. **DS-5**
- The speaker is concerned that access will not continue to be provided to the Smith property across the Aspen III South project site. **DS-6**
- Water at the bottom of the mining pit could create erosion problems, potentially undermining the Smith property and the access road. **DS-7**

Responses:

DS-1: Please refer to revised mitigation measures in Section 5.8.3 of the Final EIR/EIS.

DS-2: Please refer to revised mitigation measures in Section 5.4.3 of the Final EIR/EIS.

DS-3: As indicated in the EIR/EIS (Section 5.10.3) 3/4-inch plywood noise barriers, as currently practiced, are subject to weather damage, and lack of maintenance severely limits their effectiveness and aesthetic appeal. Therefore, the EIR/EIS recommended that alternatives which provide durability and improved aesthetics for nearby residents and passerby should be explored prior to implementation.

DS-4: The EIR/EIS identified significant impacts to hydrology and water quality (Section 5.1.2) and biological resources (Section 5.7.2) associated with the proposed alteration of Morrison Creek. Mitigation measures were incorporated within the EIR/EIS in order to reduce potential impacts to a less-than-significant level.

DS-5: Comment noted. The Planning Commission voted unanimously to recommend approval of the proposed project with Conditions of Approval set form in the Planning Staff Report. Please refer to Appendix E.

DS-6: As a result of the Smith property buy-out, as described in the Executive Summary, access to the Smith property via the Aspen III site is no longer an issue.

DS-7: Ponded water at the bottom of the mining pit would not move with sufficient velocity to result in erosion of mining pit walls. As a result, the Smith Property and associated access road would not be compromised during mining operations.

Hazel Smith

Comments on the DEIR/EIS:

- There is a safety problem associated with large gravel trucks. The speaker referenced 3 people killed by gravel trucks within 1 mile of the Smith property in the past several years. **HS-1**
- The speaker suggested that a weir could be used to feed the Smith's section of Morrison Creek from the bypass channel. **HS-2**

Responses:

HS-1: Section 5.8.2 of the EIR/EIS identifies significant traffic safety impacts associated with the proposed project. Mitigation measures are recommended (see Section 5.8.3) to reduce traffic safety impacts to a level of less than significant.

HS-2: The commentor's recommendation is noted.

Ray Smith

Comments on the DEIR/EIS:

- The speaker disagrees with the evaluation that the creek is "degraded". **RS-1**
- The speaker is concerned regarding possible loss of water rights.

Responses:

RS-1: The commentor's disagreement with the evaluation that the creek is "degraded" is noted. Also, water rights are a jurisdictional matter rather than an environmental issue, so the EIR/EIS does not include resolution of water rights concerns.

Kevin Smith

Comments on the DEIR/EIS:

The speaker expressed opposition to the project. **KS-1**

Responses:

KS-1: The commentor's opposition to the proposed project is noted.

Kevin Faeth

Comments on the DEIR/EIS:

The speaker expressed opposition to the project. **KF-1**

Responses:

KF-1: The commentor's opposition to the proposed project is noted.

Carol Ring

Comments on the DEIR/EIS:

The speaker expressed opposition to the project, in particular to the proposed on-site processing facility. **CR-1**

Responses:

CR-1: The commentor's opposition to the proposed project is noted. Please refer to response to comment SH-1.

Scott French

Comments on the DEIR/EIS:

The speaker expressed concern that dust from the proposed project would affect his nearby business, which includes engine assembly, etc. **SF-1**

Responses:

SF-1: Please refer to the mitigation measures in Section 5.4.3 of the EIR/EIS.

Darrel Finch

Comments on the DEIR/EIS:

The speaker has water rights on the old channel of Morrison Creek, near the northwest corner of the site, and expressed concern that the project could cut off water to that portion of the creek. **DF-1**

Responses:

DF-1: In order to re-direct flows from the old channel of Morrison Creek, a pipe outlet sized to accommodate historical flows will divert existing water flows to the main channel of Morrison Creek. As a result, water supplies would continue to be provided to that portion of the creek. Final design and implementation would be subject to approval by WRD.

<u>Kristina Russell</u>, on behalf of the American Buddhist members of the Chua Dieu Quang Vietnamese Buddhist Community Temple

Comments on the DEIR/EIS:

The following is a summary of the speaker's comments:

- The Buddhist temple is a valuable part of the community, especially to the Vietnamese population.
- The project would affect the temple's abilities to hold services, which occur any day of the week and at all times throughout the day. **KR-1**
- The speaker expressed concern regarding economic injustice (Executive Order 15828).

Responses:

KR-1: The EIR/EIS indicates that, as a result of the proposed project, significant and unavoidable land use conflicts will occur with onsite and surrounding land uses. The EIR/EIS recommends that the proponents be required to fully comply with mitigation measures identified in the Noise, Traffic and Circulation, Air Quality, and Visual Resources sections of this EIR/EIS. These mitigation measures employ state of the art techniques for erosion control, reclamation, nuisance prevention and environmental impact mitigation relative to surface mining operations. However, even with mitigation, impacts remain significant and unavoidable.

<u>Sister Tinh Quang</u>, representing the Chua Dieu Quang Vietnamese Buddhist Community Temple

Comments on the DEIR/EIS:

The speaker provided pictures of various temple functions, most of which are held outdoors, and expressed concern that the proposed project would adversely affect the temple. **STQ-1**

Responses:

STQ-1: Comment noted. Please refer to Response to Comment KR-1.

<u>George Waegell</u>

Comments on the DEIR/EIS:

The speaker read the contents of his April 28, 1997 letter (Comment GW-1), and provided the following additional comment:

- The traffic analysis assumed no difference between a 4,000 pound car and a 40 ton truck. **GW-1**

Responses:

GW1-1: The commentor is correct to state that the project traffic analysis assumed no difference between a 4,000-pound car and a 40-ton truck in the determination of level of service. Automobile weight is not a factor in the analysis used to determine the Level of Service (See Section 5.8.1 for a full description) for roadways. Instead, roadway traffic volumes were and are counted for the morning and evening peak commute hours with two passenger cars equaling one truck. However, heavy truck traffic would be increased as a result of the proposed project and may contribute to additional deterioration of the pavement on roadways. Mitigation was included in the EIR/EIS that requires the proponents to repair damages to structural paving material along sections of project site roadway segments upon which loaded trucks are routed, to the extent such damage is caused by traffic which occurs during the period of hauling operations (Please refer to Section 5.8.3, Mitigation Measure No.8).

Ted Niles

Comments on the DEIR/EIS:

The speaker stated that there is an existing traffic safety problem in the area, with an accident occurring at least once a week, and that an additional truck per minute would exacerbate the existing problem. **TN-1**

Responses:

TN-1: Please refer to response to comment HS-1..

Gary Scott

Comments on the DEIR/EIS:

The following is a summary of the speaker's comments:

- The speaker expressed concern that dust from the mining operation would adversely affect use of his swimming pool. **GS-1**
- Traffic in the area is already excessive. **GS-2**
- The speaker asks whether the mining companies have tested the quality of aggregate material at the site. **GS-3**
- The speaker opposes the proposed processing plant, and recommends that the project be put on "hold" until conveyor access issues can be worked out. **GS-4**

Responses:

GS-1: As discussed in Section 5.4.3, mitigation measures would require that all unpaved haul roads be regularly sprayed with water or treated with non-toxic chemical dust suppressants either mixed into the road surface or added to the water being applied to the road surface. The frequency of application can vary according to the weather and moisture level of the soils on the site, but shall be frequent enough to avoid visible dust plumes.

GS-2: Comment noted.

GS-3: In 1988, the California Department of Conservation, Division of Mines and Geology published the report entitled *Mineral Land Classification: Portland Cement Concrete Grade Aggregate in the Sacramento-Fairfield Production-Consumption Region (Special Report 156).* This report identifies known high-grade aggregate resources. The project site was identified to be located within Sector F-6 which is an area that contains the second highest amount of high grade (Portland Cement Concrete-Grade) aggregate resources in the Sacramento-Fairfield Region (1988).

GS-4: The commentor's opposition to the proposed processing plant is noted. Please refer to response to comment SH-1.

David Hueseman

Comments on the DEIR/EIS:

The following is a summary of the speaker's comments:

- The speaker indicated agreement with the recommendations expressed by the Vineyard Area Community Planning Advisory Council chair (above) | **DH-1**
- Vibration from the processing facility should be considered. | **DH-2**
- Truck traffic should exit the site via Jackson Road. | **DH-3**

Responses:

DH-1: Comment noted.

DH-2: Comment noted. Please refer to response to comment SH-1.

DH-3: Please refer to the revised mitigation measures in Section 5.8.3 of the Final EIR/EIS.

Carolyn Stark

Comments on the DEIR/EIS:

The following is a summary of the speaker's comments:

- The speaker expressed concern regarding the health effects of dust from the mining operation. **CS-1**

Responses:

CS-1: In order to eliminate potential adverse health effects due to fugitive dust emissions from material handling, loading and conveying, mitigation measures have been incorporated into the EIR/EIS which would reduce adverse health impacts to a less-than-significant level. Please refer to Section 5.4.3 of the EIR/EIS for a full description.

Roger Moyher

Comments on the DEIR/EIS:

The following is a summary of the speaker's comments:

- The speaker expressed concern regarding the health effects of dust from the mining operation. **RM-1**
- The mining operation would constitute an attractive nuisance for children living in the vicinity. **RM-2**
- The speaker recommended a number of measures to reduce impacts to his residence (located between the mined and not-mined portions of Aspen V South, adjacent to Bradshaw Road). These include: **RM-3**
  1. The access point on Aspen V South should be located at the southernmost corner of the pit and/or access should be allowed only off of Jackson Highway.
  2. No mining should occur between 5 p.m. and 8 a.m.
  3. Assurances should be provided that fences and sound barriers will be properly maintained.
  4. Watering of exposed surfaces should be done on all windy days.
  5. Landscaping should be installed along the entire perimeter of his property.

Responses:

RM-1: The commentor's concerns are noted. Please refer to response to comment CS-1.

RM-2: The proponents will be required to install fences and provide warning/trespass signs, which will deter/prevent locals from trespassing onto project property, to comply with Sections 235-54 and 235-55 of the Zoning Code.

RM-3: Please refer to mitigation measures provided in Sections 5.4.3, 5.8.3, 5.9.3, and 5.10.3. With implementation of the proposed project all potential air quality, land use, and noise impacts would be reduced to a less-than-significant level.

June 10, 1998 Planning Commission Hearing

Roger Moyher

Comments on the DEIR/EIS:

The speaker indicated that his previous concerns regarding the Teichert project (see above) have been resolved. **RM1-1**

Responses:

RM1-1: Comment noted.

Gary Scott

Comments on the DEIR/EIS:

The following is a summary of the speaker's comments:

- The speaker requested clarification between the "Aggregate" designation on the project site and the AR zoning on his property on Elder Creek Road. **GS1-1**
- The speaker questioned Teichert's ability to go north on Mayhew Road across Morrison Creek. **GS1-2**

Responses:

GS1-1: As defined in the County of Sacramento General Plan (1993), AR represents an Agricultural-Residential land use designation. This designation provides for rural residential uses, such as animal husbandry, small-scale agriculture, and other limited agriculture activities. "Aggregate Resource Area" is a combining Land Use designation, which identifies areas with valuable mineral resources and protects those resources as open space until the area is mined. Specific policies apply to these areas that encourage the conservation and efficient use of mineral resources, while ensuring the maximum feasible protection of the environment. This land use designation is combined with designations such as Industrial Extensive, Agricultural-Urban Reserve, Agricultural Cropland, and General Agriculture (20 and 80 acres). These areas may be ultimately reclaimed for residential, industrial, or other uses.

GS1-2 Please refer to the mitigation measures in Section 5.8.3 in the EIR/EIS.

August 12, 1998 Planning Commission Hearing

Alta Tura, president, Urban Creeks Council

Comments on the DEIR/EIS:

The following is a summary of the speaker's comments:

- Written comments already submitted. **AT-1**
- The 150-foot stream corridor should be considered a viable option, with a plan for that alternative designed to succeed, not set up to fail. The alternatives analysis should include ideas to help it succeed. **AT-2**
- General Plan Policy CO-49, regarding the recycling of aggregate, was passed over in the EIR as not feasible. It should be looked at more seriously. **AT-3**

Responses:

AT-1: Comment noted.

AT-2: As a result of response to comments on the Draft EIR/EIS and based on public input received during the review period and during the Policy Planning Commission's hearings on the project, the Final EIR/EIS has incorporated a modified flood-plain protection alternative referred to as the "Creek Buffer Alternative", which requires a 150-foot buffer area on either size of Morrison Creek. Please refer to Chapter 5 for the complete evaluation of the alternative.

AT-3: Although the Recycling Alternative was rejected for its inability to materially satisfy current and future project demand for aggregates in the Draft EIR/EIS, the County is proactively pursuing several recycling programs which would meet the Conservation Element objective in the the *Sacramento County General Plan*. These programs include using recycled aggregate materials as aggregate base, aggregate subbase, and shoulders, in gravel roads as surfacing, as base for building foundations, and as fill for utility trenches.

Dorothy Hrepich

Comments on the DEIR/EIS:

The speaker expressed opposition to the project. **DH1-1**

Response:

DH1-1: The commentor's opposition to the project is noted.

Ray Smith

Comments on the DEIR/EIS:

The following is a summary of the speaker's comments:

- The speaker doesn't find Granite's proposal to pump water up from the pit floor to the creek channel on the Smith property acceptable due to the fact that it would create an artificial system and destroy valley oaks and other habitat. **RS1-1**
- Granite's proposal also has many technical problems, including the potential for mosquito problems if the pump breaks down. **RS1-2**

Responses:

RS1-1: As a result of the Smith property buy-out, as described in the Executive Summary, Granite's proposal to pump water up from the pit floor to the creek channel would no longer apply to the proposed project. Water supply to the property is no longer an issue.

RS1-2: Please refer to response to comment RS1-1.

Divi Smith

Comments on the DEIR/EIS:

The following is a summary of the speaker's comments:

- A letter summarizing the speakers concerns was submitted. **DS1-1**
- County standards for dust control are grossly inadequate. With a 50-foot setback and pluming dust, neighbors will be eating dust unless there is regular use of a watering truck. **DS1-2**
- Granite's proposal to mitigate the loss of the creek with 2 feet of water is unacceptable and would result in the loss of numerous fish and crawdads. **DS1-3**
- If the County chooses to let project go forward, the water level needs to be higher, year round, with a windmill or other natural source of energy for the pump.
- The issue of the access road to the Smith property was not addressed. **DS1-4**

Responses:

DS1-1: Comment noted. Please refer to Response to Comments DKS-1, DKS-2, and DKS-3.

DS1-2: Please refer to response to comment GS-1.

DS1-3: Please refer to response to comment RS1-1.

DS1-4: As explained in the Executive Summary, the Smith property has been purchased by the proponents and no longer presents access issues.

Ted Niles

Comments on the DEIR/EIS:

The following is a summary of the speaker's comments:

- The speaker expressed opposition to the project, based on concerns relating to traffic, dust, noise, setbacks and water quality. **TN1-1**
- A letter (from Brandt-Hawley & Zola) summarizing the speaker's concerns was submitted. **TN1-2**

Responses:

TN1-1: The commentor's opposition to the proposed project is noted.

TN1-2: Comment noted. Please refer to Response to Comments SBH-1 and SBH-2.

Susana Scott

Comments on the DEIR/EIS:

The speaker expressed opposition to the project, based on concerns relating to truck traffic, dust and noise.

Responses:

SS-1: The commentor's opposition to the proposed project is noted. **SS-1**

Gary Scott

Comments on the DEIR/EIS:

The following is a summary of the speaker's comments:

- The speaker indicated that he and other neighbors were primarily opposed to the processing facility. **GS2-1**
- The speaker expressed concern regarding the length of time the mining will occur adjacent to residential properties. **GS2-2**
- The County is supposed to be considering new standards relative to surface mining, but the meeting that was to be scheduled for this summer never happened. **GS2-3**
- The rezone to M-2 should be dropped from the project. **GS2-4**
- There is a drainage problem that Granite had agreed to fix, but the speaker's property was almost flooded before the work was done. **GS2-5**
- There should be an off-hours contact person for violations. **GS2-6**

Responses:

GS2-1: Please refer to Response to comment SH-1.

GS2-2: Please refer to Response to Comment DS-5.

GS2-3: Please refer to Response to Comment GW3-1

GS2-4: Comment noted.

GS2-5: Comment noted. This drainage problem does not relate to the current project.

GS2-6: Comment noted.

George Waegell

Comments on the DEIR/EIS:

The following is a summary of the speaker's comments:

- The speaker expressed opposition to the project. **GW1-1**
- The state's mining regulations are 20+ years old and should be updated. **GW1-2**

Responses:

GW1-1: The commentor's opposition to the proposed project is noted.

GW1-2: Please refer to response to comment GW3-1.

Carol Ring

Comments on the DEIR/EIS:

The following is a summary of the speaker's comments:

- The speaker expressed concern relating to drainage, noise, setbacks and loss of the Morrison Creek resource. **CR1-1**
- The speaker currently has a use permit to operate a business on nearby agricultural-residential property and would like to have the land rezoned to industrial (M-1) to allow the business to continue to run at minimal cost. **CR1-2**

Responses:

CR1-1: The commentor's concerns are noted.

CR1-2: The commentor's request is noted. However, issues of rezoning other properties are not part of the scope of this project and should be directed to the County.

<u>Anthony Palik</u>, attorney-at-law, representing the Chua Dieu Quang Vietnamese Buddhist Community Temple

Comments on the DEIR/EIS:

The following is a summary of the speaker's comments:

- The County of Sacramento has the responsibility to restrict the residential uses in the vicinity of aggregate mining. **AP-1**
- A 50-foot setback required along the 10,000 foot length of the Granite property would result in a reduction in mineable area of only about 50 acres, less than 1% of the overall property. **AP-2**
- Screening plantings should occur within 1 year. These plantings should also occur along Hedge Avenue, which is where the entrance to the temple is located. **AP-3**
- The temple has international significance.
- Mining should be restricted on the temple's holy days, which are mostly on Sundays except Chinese New Year. **AP-4**
- The mining operation presents a danger of silicosis. Silica in the air should be measured on an on-going basis and mitigation should be required as necessary. Watering exposed surfaces may be appropriate mitigation. **AP-5**
- The temple is one of, if not the, lowest properties in the neighborhood and could be adversely affected by changes in drainage. **AP-6**
- No storage of hazardous substances should be allowed on the mining site in order to protect water quality. **AP-7**

Responses:

AP-1: Comment noted.

AP-2: Comment noted.

AP-3: Please refer to response to comment RM-3.

AP-4: Comment noted.

AP-5: As discussed in the DEIR, the inhalation of airborne particulates (including silica) may aggravate or contribute to the development of chronic lung disease. The lung disease "Silicosis", as mentioned by the commentor, is caused by the inhalation of airborne silica dust which in turn damages the air sacs of the lungs and results in the development of scar tissue. This scar tissue limits the ability of the lungs to stretch, thereby reducing lung capacity. Silicosis typically develops only after long term exposure (typically 10 or more years) to high levels of airborne silica dust. Exposure to airborne silica is typically controlled by limiting the generation of inhalable airborne particulate matter (NJSDH 1989).

In compliance with Sacramento Metropolitan Air Quality Management District (SMAQMD) rules and regulations, several mitigation measures have been included in the DEIR to reduce airborne particulate matter to a less than significant level. These control measures include the use of water or chemical dust suppressants for controlling fugitive dust emissions generated during excavation and material handling, as well as fugitive dust emissions generated from exposed surfaces and storage piles. The incorporation of these mitigation measures would reduce airborne fugitive dust emission by as much as 75 percent (SMAQMD 1994). Additional dust control measures, such as filtering and water spraying devices, for stationary equipment will also be incorporated, in accordance with SMAQMD permitting requirements. Stationary source dust control measures are effective in reducing airborne particulate emissions by approximately 80 to 99 percent (US EPA 1995).

In addition to the control measures discussed above, an air quality monitoring program has been recommended as a condition of approval by the Planning Commission. The air quality monitoring program would include monitoring of airborne particulate levels for the purpose of evaluating the effectiveness of the control measures implemented and to ensure that human exposure to airborne particulates, including silicates, remain at a less than significant level.

Sources:

New Jersey State Department of Health (NJSDH). Division of Occupational and Environmental Health. June 1989. *Silicosis and Your Health.* Information Bulletin.

Sacramento Metropolitan Air Quality Management District (SMAQMD). December 1994. *Air Quality Thresholds of Significance. First Edition.*

United States Environmental Protection Agency (USEPA). January 1995. *Compilation of Air Pollutant Emission Factors. Volume I: Stationary Point and Area Sources. Fifth Edition.*

AP-6: The *Morrison Creek Mining Reach Drainage Mitigation Plan* was submitted to the County. The intent of the drainage mitigation plan is to mitigate the drainage impacts of mining on the Morrison Creek 100-year floodplain, as required by the county floodplain management policies. As a result, the temple would not be adversely impacted by changes in local drainage.

AP-7: Mitigation measure 4 (Section 5.1.3) requires that an aggressive policy be implemented to restrict use of toxic contaminants within the project site to those absolutely necessary to conduct operations. Storage of toxic materials will only be allowed in restricted upland areas where the opportunity for containment over less permeable ground exists.

Hoang Nguyen

Comments on the DEIR/EIS:

The speaker stressed the importance of the Chua Dieu Quang Vietnamese Buddhist Community Temple to the Vietnamese community and expressed concern that the proposed project would adversely affect the temple. **HN-1**

Response:

HN-1: Comment noted.

Minh Thompkins

The speaker stressed the importance of the Chua Dieu Quang Vietnamese Buddhist Community Temple in many family's lives and expressed concern that the negative environmental impacts associated with the proposed project would significantly affect the temple. **MT-1**

Responses:

MT-1: Comment noted.

Cuong Truong

Comments on the DEIR/EIS:

The speaker stressed the importance of the Chua Dieu Quang Vietnamese Buddhist Community Temple in providing youth activities and expressed concern that the proposed project would adversely affect the health of young people engaged in outdoor activities at the temple. **CT-1**

Responses:

CT-1: Comment noted.

Cao Nguyen

Comments on the DEIR/EIS:

The speaker stated that large quantities of food are sun-dried at the Chua Dieu Quang Vietnamese Buddhist Community Temple in preparation for festival activities and expressed concern that dust from the proposed mining operation would affect the temple's ability to preserve food in this manner. **CN-1**

Responses:

CN-1: Comment noted.

Margaret Lam

Comments on the DEIR/EIS:

The speaker indicated that many people travel a long way to experience the calm atmosphere of the Chua Dieu Quang Vietnamese Buddhist Community Temple and expressed concern that the proposed mining operation would eliminate the existing tranquility. The speaker recommended that mining setbacks of at least 50 feet be required adjacent to habitable areas in order to protect the temple. **ML-1**

Responses:

ML-1: Comment noted.

Kristina Russell

Comments on the DEIR/EIS:

The following is a summary of the speaker's comments:

- The speaker expressed concern that the proposed 5-foot mining setbacks would adversely affect the nuns' sleeping and meditation at the Chua Dieu Quang Vietnamese Buddhist Community Temple and recommended a 50-foot minimum setback along the temple's perimeter. **KR1-1**
- The speaker noted that the temple should not have to work around the proposed mining operation's hours of operation, but that the reverse should be the case. **KR1-2**

Responses:

KR1-1: In accordance with the commentor's request, the Planning Commission's Conditions of Approval (Appendix E) requires a 25-foot minimum landscaped setback from adjoining rural residential land uses, the first 10 feet of which shall consist of undisturbed land, no mining may occur within 50 feet of an habitable structures in existence on the adjacent properties at the time of mining, and no mining may occur within 50 feet of the west property line of the Buddhist Temple (APN: 063-0110-008).

KR1-2: Comment noted.

Sister Tinh Quang

Comments on the DEIR/EIS:

The following is a summary of the speaker's comments:

- The speaker stated that the Chua Dieu Quang Vietnamese Buddhist Community Temple tries to teach good moral conduct and productivity. In considering the proposed project, the hearing body should remember that everything is impermanent and that profit is not the only thing to be considered. **STQ1-1**
- A 50-foot mining setback should be required on the west side of the temple and a 25 foot setback should be required on the north side. **STQ1-2**
- Air quality monitoring should be required. **STQ1-3**

Responses:

STQ1-1: Comment noted.

STQ1-2: Please refer to response to comment KR1-1.

STQ1-3: Please refer to the Planning Commission's Recommended Conditions of approval, included in Appendix E of this FEIR/FEIS.

Stuart Helfand

Comments on the DEIR/EIS:

The following is a summary of the speaker's comments:

- The speaker expressed concern regarding water quality.
- The speaker recommended that, as was done in the past, the mining operators should include in their project request the rezoning of any interested nearby properties to help mitigate for the effects of the mining operation on those properties. **SH1-1**

Responses:

SH1-1: Comment noted.

RECORDING REQUESTED

WHEN RECORDED MAIL TO:

County of Sacramento, Department of
Environmental Review and Assessment
827 Seventh Street, Room 220
Sacramento, CA 95814

CONTACT PERSON: Dennis E. Yeast
TELEPHONE: (916) 874-7914

GRANITE CONSTRUCTION CO.

OCT 17 2001

SACRAMENTO DEPARTMENT
RECEIVED

FILED

JAN 14 2000

MARK NORRIS, CLERK-RECORDER
By _____ DEPUTY

0000032A

SPACE ABOVE THIS LINE RESERVED FOR RECORDER'S USE

NOTICE OF DETERMINATION

SUBJECT: FILING OF NOTICE OF DETERMINATION IN COMPLIANCE WITH SECTION 21108 OR 21152 OF THE PUBLIC RESOURCES CODE

PROJECT TITLE: MORRISON CREEK MINING REACH DOWNSTREAM (SOUTH) OF JACKSON HIGHWAY (GRANITE CONSTRUCTION COMPANY) COMMUNITY PLAN AMENDMENT, REZONE AND USE PERMIT FOR VINEYARD I SITE CONTROL NUMBER(S): 91-CZB-UPB-0118 STATE CLEARINGHOUSE NUMBER (IF SUBMITTED): 95102057
PROJECT LOCATION: The property is located at the northeast corner of Elder Creek Road and Hedge Avenue, in the Vineyard community planning area.
ASSESSOR'S PARCEL NUMBER(S): 063-0080-010, 011, 012, 013; 063-0090-001, 002, 003, 006, 010, 011, 015, 016, 017, 019; and 063-0110-001, 002, 003, 004, 005, 006, 012, 028, 029
DESCRIPTION OF PROJECT: (See Attached Sheet)

This is to advise that the County of Sacramento (_X_ Lead Agency ___Responsible Agency) has approved the above described project on January 12, 2000 and has made the following determinations concerning the above described project:

1. The project [_X_ will ___will not] have a significant effect on the environment.
2. _X_ An Environmental Impact Report was prepared for this project pursuant to the provisions of CEQA.
   ___A Negative Declaration was prepared for this project pursuant to the provisions of CEQA.
3. Mitigation measures [_X_ were ___were not] made a condition of the approval of the project.
4. A mitigation monitoring and reporting program [_X_ was ___was not] adopted.
5. A statement of Overriding Considerations [_X_ was ___was not] adopted for this project.
6. Findings [_X_ were ___were not] made pursuant to the provisions of CEQA.
7. California State Department of Fish and Game Fees (AB 3158)
   a. [ ] The project has been found to be de minimis thus not subject to the provisions of AB 3158.
   b. [X] The project is not de minimis and is, therefore, subject to the following fees:
      [ ] $1,250 for review of a Negative Declaration
      [X] $ 850 for review of an Environmental Impact Report
      [X] $ 25 for County Fish and Game program processing fees.

( ) That, acting as a Responsible Agency, the Environmental Documentation as prepared by the Lead Agency has been considered in this action.

This is to certify that the environmental document and record of project approval is available to the General Public at: 827 Seventh Street, Room 220, Sacramento, CA 95814.

ENVIRONMENTAL COORDINATOR OF
SACRAMENTO COUNTY
STATE OF CALIFORNIA

BY: Robert J. DeMoales
for Dennis E. Yeast
Environmental Coordinator

Copy To: _X_ State of California
400 Tenth Street, Room121
Sacramento, CA 95814

_X_ County of Sacramento
600 8th Street, Room 101
Sacramento, CA 95814

(rodmaster)

POSTED BY SACRAMENTO CO. CLERK-RECORDER
FROM: JAN 18 2000 TO: MAR 13 2000

The proposed project consists of the following:

Vineyard I (Control No. 91-CZB-UPB-0118)

1. A *Community Plan Amendment* to change the land use designation on 413± acres from Industrial Reserve (Flood Combining), Industrial Reserve (Surface Mining Combining) and Light Industrial (Flood Combining) to Industrial Reserve (Flood Combining), Industrial Reserve (Surface Mining Combining), Light Industrial (Flood Combining) and Light Industrial (Surface Mining Combining).

2. A corresponding *Rezone* from IR(F), IR(SM) and M-1 (F) to IR(F)(SM), M-1(F)(SM).

3. A *Use Permit* to conduct surface mining (sand and gravel) on the 413± acre site.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W2605
Sacramento, California 95825-1846

IN REPLY REFER TO:
1-1-00-F-0179

March 18, 2002

Mr. Michael Finan
Chief, Delta Office
U.S. Army Engineer District, Sacramento
Corps of Engineers
1325 J Street
Sacramento, California 95814-2922

Subject: Review of the Proposed Granite Construction Vineyard I Aggregate Mining Project [U.S. Army Corps of Engineers (Corps) File #199400102] in Sacramento County, California for Inclusion with the Vernal Pool Crustaceans Programmatic Consultation of February 28, 1996 (Service File 1-1-96-F-1), and the Valley Elderberry Longhorn Beetle Programmatic Consultation of September 19, 1996 (Service File 1-1-96-F-66)

Dear Mr. Finan:

This letter is in response to the U.S. Army Corps of Engineers' (Corps) August 17, 1999, request for formal consultation, pursuant to section 7(a) of the Endangered Species Act, as amended (16 U.S.C. 1531 *et seq.*)(Act), on the proposed Granite Construction Vineyard I Aggregate Mining project in Sacramento County, California. The U.S. Fish and Wildlife Service (Service) has reviewed the biological information submitted by the Corps, Granite Construction Company (applicant), and ECORP Consulting, Inc. (consultant) describing the effects of the proposed project on the endangered vernal pool tadpole shrimp (*Lepidurus packardi*), threatened vernal pool fairy shrimp (*Branchinecta lynchi*), and threatened valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)(beetle). The proposed project may adversely affect the vernal pool fairy shrimp and the beetle through the destruction of their habitat, as suitable habitat and evidence of these two species were identified in the project area. However, the proposed project is not likely to adversely affect the vernal pool tadpole shrimp because no vernal pool tadpole shrimp or their cysts were found in potential shrimp habitat during two wet-season and one dry-season surveys.

The findings and recommendations in this consultation are based on: (1) the Corps' August 17, 1999, request for formal consultation and accompanying documents; (2) a September 2, 1999, site visit conducted by Brian Twedt of the Service; (3) information provided by Zentner and Zentner (consultant for the applicant) on November 10, 1999; (4) information provided by the Corps on December 22, 1999, and January 20, February 17, March 2, and August 3, 2000; (5) information provided by Gregory D. Thatch (attorney for Granite Construction Company) on March 3, 2000, and January 30, March 4, and March 12, 2002; (6) information provided by ECORP Consulting, Inc. (ECORP) on January 4, February 5, March 11, and March 14, 2002; (7) information provided on behalf of the Morrison Creek Mining Opposition on February 15, April 17, and April 25, 2000; (8) information provided on behalf of Teichert Aggregates on February 1, 2000; (9) telephone conversations with Gregory D. Thatch on February 16 and February 29, 2000; (10) telephone conversations with Jennifer Meffe (ECORP) on January 31, March 6, and March 14, 2002; (11) a telephone conversation with Mike Finan (Corps) on March 5, 2002; (12) telephone conversations with Grant Williams (Granite Construction Company) on March 6 and March 14, 2002; (13) an April 12, 2000, beetle survey conducted by Zentner and Zentner; (14) a spring (May - June) 2000, special status plant survey conducted by Zentner and Zentner; (15) wet season vernal pool crustacean surveys conducted by Zentner and Zentner (2000) and ECORP (2001); (16) a dry season vernal pool crustacean survey conducted by ECORP on September 21, 2000; (17) a February 5, 2002, site visit conducted by Craig Aubrey and Jason Douglas of the Service; and (18) a March 11, 2002, telephone conference between the Service (Jason Douglas and Craig Aubrey), ECORP (Bjorn Gregorson, Jennifer Meffe, and Pete Balfor), and Granite Construction Company (Grant Williams). A complete administrative record is on file at the Sacramento Fish and Wildlife Office (SFWO).

Description of the Proposed Action

The proposed project site is located south of Fruitridge Road, north of Elder Creek Road, east of Hedge Avenue, and west of Mayhew Road. The site is located in portions of Sections 29 and 30, Township 8 North, Range 6 East on the Carmichael, California 7.5-minute quadrangle map.

The proposed project site was historically used for agricultural practices such as livestock grazing, irrigated pasture and dryland farming. Today, the primary land use is livestock grazing. Morrison Creek is the site's dominant wetland feature, bisects the project site from east to west, and accounts for 12.24 of the site's total 17.22 acre of wetlands. Other wetland features include 3.54 acres of shallow linear depressions classified by Zentner and Zentner as "tributary" and 1.14 acre of seasonal marshes.

Granite Construction Company proposes to mine 23.6 million tons of aggregate from a 407.5 acre site located in the Vineyard community planning area of Sacramento County. Mining and reclamation include removing 5-10 feet of clay/silt overburden overlying the sand and gravel (aggregate), extracting the aggregate (depth = 20-30 feet), and reclaiming the overburden following aggregate extraction. Following removal, overburden will be used for sidesloping and pit floor renovation behind the mining operation. Mining will occur in 50-75 acre phases. Two

phases (100-150 acre) will be subject to mining operations at a time (one for mining and one for overburden storage). Internal drainage will be retained on-site. Water will be obtained from existing and proposed on-site wells, will only be use for dust control, and will not be treated. Water that would normally traverse through Morrison creek will be diverted through an elevated unlined trapezoidal bypass channel bordering the project site. Placer gold will be recovered through the operation of a mechanical "jig" system. Operations will require a minimum of 12 years to complete.

Mining operations will disturb all ground and remove all on-site vegetation. Morrison Creek and all potential plant and wildlife habitat within the project area will be destroyed. A complete description of the mining and reclamation process is provided in Chapter 3 of the final environmental impact report for the *Morrison Creek Mining Reach Downstream (South) of Jackson Highway.*

Valley Elderberry Longhorn Beetle

Effects of the Proposed Action:

The proposed action will adversely affect the beetle by removing seven elderberry shrubs (*Sambucus* spp.) with stems greater than one inch in diameter at ground level from the project site. Elderberry shrubs are obligate habitat of the beetle. Three of the shrubs are located in riparian habitat. Four of the shrubs contain beetle exit holes, which indicate use of the shrub by the beetle (Table 1).

Description of the Proposed Conservation Measure:

Granite Construction Company proposes to transplant seven elderberry shrubs with stems greater than one inch in diameter at ground level to a Service-approved off-site conservation area. In addition, Granite Construction Company proposes to establish and monitor at least 410 elderberry seedlings or cuttings and 782 associated native plants at a Service-approved off-site conservation area (Table 1).

Appendage to the Programmatic Biological Opinion:

The Service has determined that it is appropriate to append this project to the Service's September 19, 1996, *Programmatic Formal Consultation Permitting Projects with Relatively Small Effects on the Valley Elderberry Longhorn Beetle Within the Jurisdiction of the Sacramento Field Office, California* (Programmatic Consultation) (Corps File #199600065). This letter is an agreement by the Service to append the proposed Granite Construction Vineyard I Aggregate Mining project to the Programmatic Consultation and represents the Service's biological opinion on the effects of the action. Compensation for projects appended to the Programmatic Consultation involves adhering to the Service's July 9, 1999, *Conservation Guidelines for the Valley Elderberry Longhorn Beetle* (Guidelines), except as approved by the

Service. Compensation implemented through the Guidelines should lead to the development of protected habitat areas distributed across the landscape. These protected areas can then be used as foundations for future habitat conservation plans by local communities. A copy of the Guidelines is found as an appendix to the Programmatic Consultation.

The Service is tracking losses of beetle habitat permitted under the Programmatic Consultation, and compensation for those losses in each county under the jurisdiction of the Sacramento Fish and Wildlife Office and within the range of the beetle. The Service reevaluates the effectiveness of this Programmatic Consultation at least every six (6) months to ensure continued implementation will not result in unacceptable impacts to the beetle or the habitats upon which it depends.

Compensation

In accordance with the Programmatic Consultation, projects that are appended to that biological opinion will be compensated according to these Guidelines unless otherwise approved by the Service. The compensation identified in the Programmatic Consultation includes the following:

1. transplantation of affected elderberry plants to the Service-approved conservation area(s);

2. planting of additional elderberry seedlings or cuttings and planting of associated native species at the Service-approved conservation area(s);

3. management and monitoring of the Service-approved conservation area(s) for either ten (10) consecutive years or seven (7) years over a 15-year period with monitoring reports submitted for each monitoring year; and

4. a management plan for long-term protection of the Service-approved conservation area(s) to protect the area(s) in perpetuity as habitat for the valley elderberry longhorn beetle.

The proposed project may incidentally take all valley elderberry longhorn beetles inhabiting seven elderberry plants consisting of a total of 100 stems measuring between one and three inches in diameter, 41 stems measuring between three and five inches in diameter, and no stems measuring greater than five inches in diameter on the proposed project site. Consistent with the Guidelines, Granite Construction agrees to either: (1) purchase beetle credits at a Service-approved conservation bank equivalent to compensate for 410 elderberry plantings and 782 associated native plant plantings or (2) establish a Service-approved beetle conservation area that contains at least 410 elderberry plantings and 782 associated native plant plantings within at least 4.93 acres. Table 1 illustrates the required compensation for impacts associated with the proposed project. The compensation responsibilities of the applicant are as follows:

1. Granite Construction Company shall implement the proposed conservation measures described on page 3.

2. Granite Construction Company shall transplant the seven elderberry shrubs at the proposed project site to a Service-approved conservation site between November 1, 2002, and February 15, 2003. Granite Construction Company shall not conduct any project activities within 100 feet of the location any elderberry shrubs prior to their transplantation.

3. (A) Prior to any ground breaking activities at the proposed project site, Granite Construction Company shall purchase beetle units sufficient to establish 410 elderberry plantings and 782 associated native plant plantings at a Service-approved conservation bank.

   Or

   (B) Prior to any ground breaking activities at the project site, Granite Construction Company shall establish a Service-approved conservation area at least 4.93 acre in size, and containing at least 410 elderberry plantings and 782 associated native plant plantings.

4. The conservation area shall be managed and monitored in perpetuity as outlined in the Guidelines.

Vernal Pool Fairy Shrimp

Effects of the Proposed Action:

The proposed action will adversely affect the vernal pool fairy shrimp by destroying a 0.53 acre wetland formation (Wetland # 6). Wetland # 6 is suitable habitat for the vernal pool fairy shrimp. It functions as a vernal pool and is inhabited by vernal pool flora and fauna. According to a special status plant survey conducted by Zentner and Zentner, Wetland # 6 "closely resembles a natural vernal pool in its general morphology, hydroperiod, and biota." In addition, ECORP identified branchiopod cysts (*Branchinecta* and *Linderiella* spp.) in Wetland # 6 during a September 21, 2000, dry-season vernal pool crustacean survey. Lastly, records of the vernal pool fairy shrimp within the California Natural Diversity Database (CNDDB 2001) surround the proposed project site, except to the north. One of these records is less than 1.5 kilometers from the proposed project site. Ultimately, unless the cysts are cultured to hatching or adults are captured during a wet season survey, it is not possible to conclusively determine the specific identity of the *Branchinecta* cysts. In this case, Granite Construction Company has stated they are assuming presence of the vernal pool fairy shrimp.

Description of the Proposed Conservation Measure:

Granite Construction proposes to purchase 1.06 acre of vernal pool preservation credits and 0.53 acre of vernal pool creation credits from a Service-approved conservation bank.

Appendage to the Programmatic Biological Opinion:

The Service has determined that the proposed Granite Construction Vineyard I Aggregate Mining project is suitable for appendage to the February 28, 1996, *Programmatic Formal Endangered Species Act Consultation on Issuance of 404 Permits for Projects with Relatively Small Effects on Listed Vernal Pool Crustaceans Within the Jurisdiction of the Sacramento Field Office, California* (Crustacean Programmatic Opinion)(File Number 1-1-96-F-1). Compensation for projects appended to the Crustacean Programmatic Opinion involves the exclusive use of vernal pool preservation and creation banks or Service approved non-bank sites. The Service has determined that by using banks or non-bank sites protected and managed in perpetuity, implemented compensation will lead to the development of protected habitat areas distributed across the landscape that local communities can use as foundations for future habitat conservation plans.

The Service is tracking losses of habitat permitted under the Crustacean Programmatic Opinion in each County under the jurisdiction of the SFWO and within the ranges of the listed vernal pool crustaceans covered by the Programmatic Opinion. The Service reevaluates the effectiveness of the Crustacean Programmatic Opinion at least every six (6) months to ensure continued implementation will not result in unacceptable impacts to the ecosystem upon which the listed species depend.

Compensation

In accordance with the Crustacean Programmatic Consultation, projects that are appended to that biological opinion will be compensated according to these guidelines unless otherwise approved by the Service. The compensation identified in the Crustacean Programmatic Consultation includes the following:

1. **Preservation component.** For every acre of habitat directly or indirectly impacted, at least two vernal pool credits will be dedicated within a Service-approved ecosystem preservation bank, or, based on Service evaluation of site-specific conservation values, three acres of vernal pool habitat may be preserved on the project site or another non-bank site as approved by the Service.

2. **Creation component.** For every acre of habitat directly impacted, at least one vernal pool creation credit will be dedicated within a Service-approved vernal pool creation bank, or, based on Service evaluation of site-specific conservation values, two acres of vernal pool habitat will be created and monitored on the project site or another non-bank site as approved by the Service.

3. Listed vernal pool crustacean habitat and associated uplands utilized as on-site compensation will be protected from adverse impacts and managed in perpetuity or until the Corps, the applicant, and the Service agree on a process to exchange such areas for credits within a Service-approved conservation banking system. Off-site conservation at a Service-approved non-bank location will be protected and managed in perpetuity through a Service-approved conservation easement, Service-approved management plan, and an endowment fund of sufficient size to manage the site in perpetuity in accordance with the management plan.

The proposed project may incidentally take all vernal pool fairy shrimp inhabiting a single 0.53 acre wetland on the proposed project site. Consistent with the Crustacean Programmatic Consultation, Granite Construction agrees to purchase 1.06 acre of vernal pool preservation credits and 0.53 acre of vernal pool creation credits from a Service-approved conservation bank. The compensation responsibilities of the applicant are as follows:

1. Prior to ground breaking, Granite Construction Company shall purchase at least 1.06 credits from a Service-approved ecosystem *preservation* bank within Sacramento County.

2. Prior to ground breaking, Granite Construction Company shall purchase at least 0.53 credits from a Service-approved vernal pool *creation* bank within Sacramento County.

Reinitiation and Closing Statement

This concludes the Service's review of the actions outlined in the request. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law) and if (1) the amount or extent of incidental take is exceeded, (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion, (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion, or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

This biological opinion does not supercede comments previously provided by the Department of the Interior, Office of Environmental Policy and Compliance on May 9, 1997, regarding the wetland and cumulative impacts of the proposed project. This biological opinion addresses only

federally listed species within the jurisdiction of the Service. Compliance with section 404 of the Clean Water Act is still necessary.

If you have any questions or concerns about this biological opinion or the consultation process in general, please contact Craig Aubrey or Justin Ly at (916) 414-6645.

Sincerely,

for Jan C. Knight
Chief, Endangered Species Division

cc:
ARD (ES), Portland, OR
Granite Construction, Sacramento, California (Attn: Grant Williams)
ECORP Consulting, Inc., Roseville, California (Attn: Jennifer Meffe)
Law Offices of Gregory D. Thatch, Sacramento, California (Attn: Greg Thatch)

LITERATURE CITED

California Department of Fish and Game. 2001. California Natural Diversity Database: RareFind 2. Sacramento, California.

Mr. Michael Finan

Table 1: Elderberry Shrubs Present on the Project Site and Proposed Compensation.

Shrub Number	Stems (Maximum Diameter at Ground Level)			Exit Holes?	Riparian?	Compensation	
	1"-3"	3"-5"	>5"			Elderberry Seedling	Native Plant
1	4	0	0	N	N	4	4
2	9	8	0	Y	N	50	100
3	1	16	0	Y	Y	100	200
4	50	15	0	Y	N	160	320
5	10	0	0	N	Y	20	20
6	14	1	0	Y	Y	62	124
7	12	1	0	N	N	14	14
Total	**100**	**41**	**0**			**410**	**782**

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO CA 95814-2922

REPLY TO
ATTENTION OF

November 7, 2013

Regulatory Division SPK-1994-00102

Granite Construction Company
Attn: Mr. Yasha Saber
Post Office Box 15287
Sacramento, California 95851

Dear Mr. Saber:

We are responding to your October 17, 2013, request to modify your Department of the Army permit number SPK-1994-00102 for the Granite Vineyard Mining project. The permit was issued on April 16, 2004, for the discharge of fill material into 17.22 acres of waters of the United States, including approximately 1.5 miles of Morrison Creek. The permitted project included construction of an enhanced Morrison Creek bypass channel and on-site wetland mitigation. The permit was modified on July 3, 2007, July 25, 2007, and March 12, 2010. As part of the modifications, special conditions 1-15 of the April 16, 2004, permit were superseded, and the current March 12, 2010, modified permit has 18 special conditions. The project is located west of Mayhew Road, east of Hedge Avenue, south of Fruitridge Road, and north of Elder Creek Road, in Sections 29 and 30, Township 8 North, Range 6 East, Mount Diablo Meridian, Latitude 38.54534° North, Longitude 121.32900° West, in Sacramento County, California. The modification request involves a modification to General Condition 1 of the April 16, 2004, permit, and a modification to Special Condition 3, 4, and 11, of the March 12, 2010, permit modification.

General Condition 1 of the April 16, 2004, permit is hereby modified to state: The time limit for completing the work authorized ends on November 30, 2015. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.

Special Conditions 3, 4, and 11, of the March 12, 2010, permit modification are hereby modified to state:

3. Construction of the compensatory aquatic habitats required by special condition 2 shall be completed in accordance with the phases shown in the *Conceptual Construction Schedule, Morrison Creek Realignment* figure, contained in the MMP.

4. You shall establish and maintain vegetated buffers, consisting of native vegetation, including native riparian and upland trees as shown in the MMP, of at least 78-feet from the outer limit of all created wetlands or the ordinary high water mark, whichever is greater. The average buffer width shall be 243-feet and be contained entirely within a 650-foot wide preserve corridor. In the event the created wetland habitats naturally expand over time into the buffer, the buffer areas and legal descriptions need not be modified. Appropriate permanent fencing and signage shall be constructed and maintained along the outside perimeter of all upland

buffers and along any authorized publicly accessible trails within the preserve. Locking gates or bollards shall be placed at either end of the south levee maintenance road or any non-public access trails to prohibit any access not required for preserve management or monitoring. Fencing and signage must be installed within 90 days of completion of the Morrison Creek replacement corridor or by November 30, 2015, whichever comes first. The preserve signs shall reference DA permit number 199400102 and shall identify the area as a wetland and wildlife preserve.

11. By November 30, 2015, you shall:

    a. Establish an endowment to provide for maintenance and monitoring of the on-site mitigation preserve. If agreeable to the preserve manager, the endowment may be funded gradually over a ten year period.

    b. Record the Corps-approved permanent conservation easement(s) maintaining the approximately 89-acre preserve corridor as wetland preserve and wildlife habitat in perpetuity.

All other terms and General Conditions of the April 16, 2004, permit and all Special Conditions of the March 12, 2010, permit modification, except those modified herein, remain in full force and effect. Failure to comply with the terms and conditions of this authorization may result in the suspension or revocation of your permit.

Please refer to identification number SPK-1994-00102 in any correspondence concerning this project. If you have any questions, please contact Ms. Lisa M. Gibson at 1325 J Street, Room 1350, Sacramento, California 95814, by email at *Lisa.M.Gibson2@usace.army.mil*, or telephone at 916-557-5288. For more information regarding our program, please visit our website at *www.spk.usace.army.mil/Missions/Regulatory.aspx*.

Sincerely,

Mary R. Poleharn-Weh

for Kathleen A. Dadey
Chief, California South Branch

cc:

Ms. Kellie Berry, Sacramento Valley Branch, Endangered Species Division, U.S. Fish and Wildlife Service, 2800 Cottage Way, Suite W2605, Sacramento, California 95825-3901
Mr. Paul Jones, U.S. Environmental Protection Agency, Region IX, Wetlands Regulatory Office (WTR-8), 75 Hawthorne Street, San Francisco, California 94105-3901
Ms. Elizabeth Lee, Storm Water and Water Quality Certification Unit, Central Valley Regional Water Quality Control Board, 11020 Sun Center Drive #200, Rancho Cordova, California 95670-6114
Ms. Tina Bartlett, California Department of Fish and Wildlife, Region 2, 1701 Nimbus Road, Rancho Cordova, California 95670-4599

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO CA 95814-2922

RECEIVED
MAR 18 2010
Granite-Cal Center

March 12, 2010

Regulatory Division (SPK-1994-00102)

GRANITE CONSTRUCTION COMPANY
MAR 17 2010
Sacramento Area
RECEIVED

Peter C. Dwelley
Granite Construction Company
P.O. Box 15287
Sacramento, California 95851-0287

Dear Mr. Dwelley:

We have reviewed your November 11, 2009, requested revisions to Department of the Army (DA) Permit Number SPK-1994-00102 for the Vineyard I mining project. Specifically, you have requested that we revise a general condition and special conditions of your permit to reflect timing modifications. Based on our review of this permit, we have determined that since your permit remains valid for approximately four (4) years an extension at this time is not appropriate. If the proposed activity in waters of the U.S. are not completed by the beginning of January 2013, we recommend you request a review of potentially extending the expiration date of this permit at that time. This letter supersedes our July 25, 2007, permit modification letter.

In consideration of your request, the following special conditions hereby supersede all special conditions of DA Permit Number SPK-1994-00102 and our July 25, 2007, modification letter (copies of original attached):

1. You shall implement the July 20, 2007, revision of the *Wetland, Oak Woodland, and Riparian Mitigation Monitoring Plan for the Granite Vineyard I Project* (MMP), with the exception of Section 8.2.3 (see special condition 18) and with an open channel connecting the ox-bow by-pass to the main creek channel. Prior to initiation of any work within 150 feet of Morrison Creek, including the ox-bow, you shall provide to the Corps a revised graphic showing an open channel connection between the main channel and the ox-bow by-pass and a description of how the ox-bow by-pass channel design would provide adequate flows to ensure no adverse effect on the downstream portion of the ox-bow channel. The purpose of this requirement is to insure replacement of functions and services of the aquatic environment that would be lost through project implementation.

2. As mitigation for the loss of 17.22 acres of waters of the United States, and in addition to the 3.79 acres of seasonal wetland/marsh and 0.53 acres of vernal pool habitat credits you have already purchased, you shall, in accordance with the MMP, construct at minimum a 13.33-acre Morrison Creek replacement channel, including an ox-bow diversion channel, a 1.65-acre ephemeral drainage, and 1.11 acres of in-channel and/or emergent seasonal and perennial wetland habitats within an approximately 89-acre and 650-foot wide on-site preserve corridor.

3. Construction of the compensatory aquatic habitats required by special condition 2 shall be completed in accordance with the phases and dates shown in the *Conceptual Construction Schedule, Morrison Creek Realignment* figure, contained in the MMP.

4. You shall establish and maintain vegetated buffers, consisting of native vegetation, including native riparian and upland trees as shown in the MMP, of at least 78-feet from the outer limit of all created wetlands or the ordinary high water mark, whichever is greater. The average buffer width shall be 243-feet and be contained entirely within a 650-foot wide preserve corridor. In the event the created wetland habitats naturally expand over time into the buffer, the buffer areas and legal descriptions need not be modified. Appropriate permanent fencing and signage shall be constructed and maintained along the outside perimeter of all upland buffers and along any authorized publicly accessible trails within the preserve. Locking gates or bollards shall be placed at either end of the south levee maintenance road or any non-public access trails to prohibit any access not required for preserve management or monitoring. Fencing and signage must be installed within 90 days of completion of the Morrison Creek replacement corridor or by November 30, 2013, whichever comes first. The preserve signs shall reference DA permit number 199400102 and shall identify the area as a wetland and wildlife preserve.

5. You shall establish and maintain on the project site an approximately 650-foot wide and 89-acre preserve containing the 16.09 acres of created waters required by special condition 2 and the buffers required by special condition 4, in perpetuity. The purpose of this preserve is to ensure that functions and values of the aquatic environment are protected.

6. To ensure that the preserve is properly managed, you shall implement the July 20, 2007, revision of the *Operations and Management Plan for the Morrison Creek Nature Preserve* (OMP).

7. To provide a permanent record of the completed mitigation work, you shall provide two complete sets of as-builts of the completed work within the on-site mitigation area to the Corps. The as-builts shall indicate changes made from the original plans in indelible red ink. As-builts shall be provided to this office for both the Morrison Creek replacement corridor, including in-channel and emergent wetlands, and the ephemeral or intermittent drainage no later than 60 days after the completion of construction of each component of the compensatory mitigation.

8. To ensure that mitigation is completed as required, you shall notify the Corps of the start date and the completion date of each phase of the mitigation construction, in writing and no later than ten (10) calendar days after each date.

9. As shown in the OMP, you may establish two decomposed granite bike trail crossings of the main preserve, one vehicle bridge over the ox-bow diversion channel, one restricted access gravel maintenance road along the southern levee crest, 3 storm water conveyance pipelines, a water slurry line, and 3 utility lines within the preserve. No other roads, utility lines, trails, benches, equipment or fuel storage, grading, firebreaks, mowing, grazing, planting, discing, pesticide use, burning, or other structures or activities shall be constructed or occur within the on-site mitigation preserve without specific, advance written approval from the Corps.

10. Prior to initiating any activity within the ordinary high water mark of the Morrison Creek main channel you shall:

a. Submit and obtain Corps approval of the proposed language for the required conservation easement(s).

b. Designate a Corps-approved conservation-oriented third party entity to function as preserve manager and to hold the required conservation easements. The preserve manager entity shall be accredited or actively pursuing accreditation through the Land Trust Alliance (LTA) and must demonstrate compliance with the LTA's *Land Trust Standards and Practices*.

11. By November 30, 2013, you shall:

a. Establish an endowment to provide for maintenance and monitoring of the on-site mitigation preserve. If agreeable to the preserve manager, the endowment may be funded gradually over a ten year period.

b. Record the Corps-approved permanent conservation easement(s) maintaining the approximately 89-acre preserve corridor as wetland preserve and wildlife habitat in perpetuity.

12. To ensure mitigation success, you shall monitor the compensatory mitigation, avoidance, and preservation areas for ten years or until the success criteria described in the MMP are met, whichever is greater. The first period shall commence upon completion of the construction of the Morrison Creek replacement channel and wetlands. The second period will start upon completion of the intermittent/ephemeral drainage. Additionally, continued success of the mitigation wetlands, without human intervention, must be demonstrated for three consecutive years, once the success criteria have been met. The mitigation plan will not be deemed successful until this criterion has been met and you have been notified by the Corps.

13. You shall submit annual monitoring reports to this office for the ten (10) year monitoring period, and for each additional year, if remediation is required, by December 31st of each year. You shall submit an additional monitoring report at the end of the three (3) year period demonstrating continued success of the mitigation program without human intervention. The only exception to this last requirement shall be if the three (3) year period occurs wholly within the ten (1) year monitoring period. In which case, the ten (10) year report may be used to meet this requirement.

14. This Corps permit does not authorize you to take an endangered species, in particular (the vernal pool fairy shrimp (Branchinecta lynchi), valley elderberry longhorn beetle (Desmocerus californicus dimorphus), or designated critical habitat. In order to legally take a listed species, you must have separate authorization under the Endangered Species Act (e.g., an Endangered Species Act Section 10 permit, or a Biological Opinion under Endangered Species Act Section 7, with "incidental take" provisions with which you must comply). The enclosed Fish and Wildlife Service Biological Opinion and amendment (Numbers 1-1-02-F-0161 and

1-1-00-F-0179), dated March 18, 2002, and April 26, 2002, contains mandatory terms and conditions to implement the reasonable and prudent measures that are associated with "incidental take" that is also specified in the Biological Opinion. Your authorization under this Corps permit is conditional upon your compliance with all of the mandatory terms and conditions associated with incidental take of the attached Biological Opinion, which terms and conditions are incorporated by reference in this permit. Failure to comply with the terms and conditions associated with incidental take of the Biological Opinion, where a take of the listed species occurs, would constitute an unauthorized take, and it would also constitute non-compliance with your Corps permit. The Fish and Wildlife Service is the appropriate authority to determine compliance with the terms and conditions of its Biological Opinion, and with the Endangered Species Act. You must comply with all conditions of this Biological Opinion, including those ascribed to the Corps.

15. To assure the endowment is fully and adequately funded, you shall post a performance bond in the amount of $1,126,000 with a Federally approved surety for the approximate cost to conduct maintenance and monitoring of the created habitats and preserve in-perpetuity. With written Corps approval, the bond amount may be incrementally released as the endowment is funded. Additionally, with written Corps approval, a portion of the bond may be released if it is in excess of the agreed upon endowment amount. The draft performance bond must be submitted to this office for review and approval prior to posting. The performance bond must be posted prior to the start of any work within 150-feet of the ordinary high water mark of Morrison Creek, including the ox-bow.

16. You must allow representatives from the Corps to inspect the authorized activity and any mitigation, preservation, or avoidance areas at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

17. You shall design and construct all crossings of waters of the United States to retain a natural substrate, to not require within channel footings, and to accommodate all reasonably foreseeable wildlife passage and expected high flows without vegetative removal.

18. You are fully responsible for maintaining the recreated stream channel and aquatic habitats within the preserve in perpetuity, except for damage or non-compliance caused by events of force majeure. For such an exception to apply you bear the burden of demonstrating that the damage or non-compliance was caused by circumstances beyond your control or the control of any of your agents, employees, contractors, or consultants; and that neither you nor any individual under you control, including your agents, employees, contractors, or consultants could have reasonably foreseen and prevented such damage or non-compliance; that the period of damage or non-compliance was caused by such circumstances. In the case of an event of force majeure you shall meet with representatives of the Corps to discuss the course of action in response to such occurrence. In the meantime, you shall continue to manage and maintain the created aquatic habitats within the preserve in accordance with the approved MMP and OMP to the extent practicable.

The general conditions of the attached permit remain in full force and effect.

Please refer to identification number SPK-1994-00210 in any correspondence concerning this project. If you have any questions, please contact Angela L. De Paoli Conn at our California Delta Branch, 1325 J Street, Rm 1480, email angela.l.conn@*usace.army.mil*, or telephone 916-557-6782. You may also use our website: *www.spk.usace.army.mil/regulatory.html*.

Sincerely,

Michael S. Jewell,
Chief, Regulatory Division

Enclosures

Copy Furnished without enclosures

Paul Jones, U.S. Environmental Protection Agency, 75 Hawthorne Street (WTR-8), San Francisco, California 94105-3901

Water Quality Certification Unit, Central Valley Regional Water Quality Control Board, 11020 Sun Center Drive #200, Rancho Cordova, California 95670-6114

Ms. Jana Affonso, Sacramento Valley Branch, Endangered Species Division, U.S. Fish and Wildlife Service, 2800 Cottage Way, Suite W2605, Sacramento, California 95825-3901

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO CA 95814-2922

REPLY TO ATTENTION OF

July 25, 2007

Regulatory Branch (199400102)

Grant Williams
Granite Construction Company
P.O. Box 15287
Sacramento, California 95851-0287

Dear Mr. Williams:

We have reviewed your requested revisions to Department of the Army (DA) Permit Number 199400102 for the Vineyard I mining project. Specifically, you have requested that we revise the special conditions of your permit to reflect your current compensatory mitigation proposal for impacts to Morrison Creek, including the ox-bow. This letter supersedes our July 3, 2007, permit modification letter.

In consideration of your request, the following special conditions hereby supersede all special conditions of DA Permit Number 199400102 (copy of original attached):

1. You shall implement the July 20, 2007, revision of the *Wetland, Oak Woodland, and Riparian Mitigation Monitoring Plan for the Granite Vineyard I Project* (MMP), with the exception of Section 8.2.3 (see special condition 19) and with an open channel connecting the ox-bow by-pass to the main creek channel. Prior to initiation of any work within 150 feet of Morrison Creek, including the ox-bow, you shall provide to the Corps a revised graphic showing an open channel connection between the main channel and the ox-bow by-pass and a description of how the ox-bow by-pass channel design would provide adequate flows to ensure no adverse effect on the downstream portion of the ox-bow channel. The purpose of this requirement is to insure replacement of functions and values of the aquatic environment that would be lost through project implementation.

2. As mitigation for the loss of 17.22 acres of waters of the United States, and in addition to the 3.79 acres of seasonal wetland/marsh and 0.53 acres of vernal pool habitat credits you have already purchased, you shall, in accordance with the MMP, construct at minimum a 13.33-acre Morrison Creek replacement channel, including an ox-bow diversion channel, a 1.65-acre ephemeral drainage, and 1.11 acres of in-channel and/or emergent seasonal and perennial wetland habitats within an approximately 89-acre and 650-foot wide on-site preserve corridor..

3. Construction of the compensatory aquatic habitats required by special condition 2 shall be completed in accordance with the phases and dates shown in the *Conceptual Construction Schedule, Morrison Creek Realignment* figure, contained in the MMP.

4. You shall establish and maintain vegetated buffers, consisting of native vegetation, including native riparian and upland trees as shown in the MMP, of at least 78 feet from the outer limit of all created wetlands or the ordinary high water mark, whichever is greater. The average buffer width shall be 243 feet and be contained entirely within a 650-foot wide preserve corridor. In the event the created wetland habitats naturally expand over time into the buffer, the buffer areas and legal descriptions need not be modified. Appropriate permanent fencing and signage shall be constructed and maintained along the outside perimeter of all upland buffers and along any authorized publicly accessible trails within the preserve. Locking gates or bollards shall be placed at either end of the south levee maintenance road or any non-public access trails to prohibit any access not required for preserve management or monitoring. Fencing and signage must be installed within 90 days of completion of the Morrison Creek replacement corridor or by December 31, 2010, whichever comes first. The preserve signs shall reference DA permit number 199400102 and shall identify the area as a wetland and wildlife preserve.

5. This condition has been deleted.

6. You shall establish and maintain on the project site an approximately 650-foot wide and 89-acre preserve containing the 16.09 acres of created waters required by special condition 2 and the buffers required by special condition 4, in perpetuity. The purpose of this preserve is to insure that functions and values of the aquatic environment are protected.

7. To insure that the preserve is properly managed, you shall implement the July 20, 2007, revision of the *Operations and Management Plan for the Morrison Creek Nature Preserve* (OMP).

8. To provide a permanent record of the completed mitigation work, you shall provide two complete sets of as-builts of the completed work within the on-site mitigation area to the Corps. The as-builts shall indicate changes made from the original plans in indelible red ink. As-builts shall be provided to this office for both the Morrison Creek replacement corridor, including in-channel and emergent wetlands, and the ephemeral or intermittent drainage no later than 60 days after the completion of construction of each component of the compensatory mitigation.

9. To insure that mitigation is completed as required, you shall notify the Corps of the start date and the completion date of each phase of the mitigation construction, in writing and no later than ten (10) calendar days after each date.

10. As shown in the OMP, you may establish two decomposed granite bike trail crossings of the main preserve, one vehicle bridge over the ox-bow diversion channel, one restricted access gravel maintenance road along the southern levee crest, 3 storm water conveyance pipelines, a water slurry line, and 3 utility lines within the preserve. No other roads, utility lines, trails, benches, equipment or fuel storage, grading, firebreaks, mowing, grazing, planting, discing, pesticide use, burning, or other structures or activities shall be constructed or occur within the on-site mitigation preserve without specific, advance written approval from the Corps.

11. Prior to initiating any activity within the ordinary high water mark of the Morrison Creek main channel you shall:

a. Submit and obtain Corps approval of the proposed language for the required conservation easement(s).

b. Designate a Corps-approved conservation-oriented third party entity to function as preserve manager and to hold the required conservation easements. The preserve manager entity shall be accredited or actively pursuing accreditation through the Land Trust Alliance (LTA) and must demonstrate compliance with the LTA's *Land Trust Standards and Practices.*

12. By January 1, 2010, you shall:

a. Establish an endowment to provide for maintenance and monitoring of the on-site mitigation preserve. If agreeable to the preserve manager, the endowment may be funded gradually over a ten year period.

b. Record the Corps-approved permanent conservation easement(s) maintaining the approximately 89-acre preserve corridor as wetland preserve and wildlife habitat in perpetuity

13. To insure mitigation success, you shall monitor compensatory mitigation, avoidance, and preservation areas for ten years or until the success criteria described in the MMP are met, whichever is greater. The first period shall commence upon completion of the construction of the Morrison Creek replacement channel and wetlands. The second period will start upon completion of the intermittent/ephemeral drainage. Additionally, continued success of the mitigation wetlands, without human intervention, must be demonstrated for three consecutive years, once the success criteria have been met. The mitigation plan will not be deemed successful until this criterion has been met and you have been notified by the Corps.

14. You shall submit annual monitoring reports to this office for the ten (10) year monitoring period, and for each additional year, if remediation is required, by December 31st of each year. You shall submit an additional monitoring report at the end of the three (3) year period demonstrating continued success of the mitigation program without human intervention. The only exception to this last requirement shall be if the three (3) year period occurs wholly within the ten (1) year monitoring period. In which case, the ten (10) year report may be used to meet this requirement.

15. This Corps permit does not authorize you to take an endangered species, in particular (the vernal pool fairy shrimp (*Branchinecta lynchi*), valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), or designated critical habitat. In order to legally take a listed species, you must have separate authorization under the Endangered Species Act (e.g., an Endangered Species Act Section 10 permit, or a Biological Opinion under Endangered Species Act Section 7, with "incidental take" provisions with which you must comply). The enclosed Fish and Wildlife Service

Biological Opinion and amendment (Numbers 1-1-02-F-0161 and 1-1-00-F-0179), dated March 18, 2002, and April 26, 2002, contains mandatory terms and conditions to implement the reasonable and prudent measures that are associated with "incidental take" that is also specified in the Biological Opinion. Your authorization under this Corps permit is conditional upon your compliance with all of the mandatory terms and conditions associated with incidental take of the attached Biological Opinion, which terms and conditions are incorporated by reference in this permit. Failure to comply with the terms and conditions associated with incidental take of the Biological Opinion, where a take of the listed species occurs, would constitute an unauthorized take, and it would also constitute non-compliance with your Corps permit. The Fish and Wildlife Service is the appropriate authority to determine compliance with the terms and conditions of its Biological Opinion, and with the Endangered Species Act. The permittee must comply with all conditions of this Biological Opinion, including those ascribed to the Corps.

16. To assure the endowment is fully and adequately funded, the permittee shall post a performance bond in the amount of $1,126,000 with a Federally approved surety for the approximate cost to conduct maintenance and monitoring of the created habitats and preserve in-perpetuity. With written Corps approval, the bond amount may be incrementally released as the endowment is funded. Additionally, with written Corps approval, a portion of the bond may be released if it is in excess of the agreed upon endowment amount. The draft performance bond must be submitted to this office for review and approval prior to posting. The performance bond must be posted prior to the start of any work within 150 feet of the ordinary high water mark of Morrison Creek, including the ox-bow.

17. You must allow representatives from the Corps to inspect the authorized activity and any mitigation, preservation, or avoidance areas at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

18. You shall design and construct all crossings of waters of the United States to retain a natural substrate, to not require within channel footings, and to accommodate all reasonably foreseeable wildlife passage and expected high flows without vegetative removal.

19. You are fully responsible to maintain the recreated stream channel and aquatic habitats within the preserve in perpetuity, except for damage or non-compliance caused by events of force majeure. For such an exception to apply you bear the burden of demonstrating that the damage or non-compliance was caused by circumstances beyond your control or the control of any of your agents, employees, contractors, or consultants; and that neither you nor any individual under you control, including your agents, employees, contractors, or consultants could have reasonably foreseen and prevented such damage or non-compliance; and that the period of damage or non-compliance was caused by such circumstances. In the case of an event of force majeure you shall meet with representatives of the Corps to discuss the course of action in response to such occurrence. In the meantime, you shall continue to manage and maintain the created aquatic habitats within the preserve in accordance with the approved MMP and OMP to the extent practicable.

The general conditions of the attached permit remain in full force and effect.

Please refer to identification number 199400210 in any correspondence concerning this project. If you have any questions, please contact William Ness at our Sacramento Office, 1325 J Street, Rm 1480, email william.w.ness@*usace.army.mil*, or telephone 916-557-5268. You may also use our website: *www.spk.usace.army.mil/regulatory.html*.

Sincerely,

Michael Jewell
Chief, Regulatory Branch

Enclosure:

Copy Furnished w/o enclosure:

Heidi Krolick, ECORP Consulting, Incorporated, 2525 Warren Drive, Rocklin, California 95667-2167

Elizabeth Goldman, U.S. Environmental Protection Agency, 75 Hawthorne Street (WTR-8), San Francisco, California 94105-3901

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO, CALIFORNIA 95814-2922

REPLY TO
ATTENTION OF

Regulatory Branch (199400102)

APR 16 2004

Scott Wolcott
Granite Construction
P.O. Box 15287
Sacramento, California 95851-0287

Dear Mr. Wolcott:

We are enclosing your copy of Department of the Army Permit 199400102. Please note you are only authorized to complete the work described in the permit.

If you sell the property associated with this permit, the terms and conditions of this permit will continue to be binding on the new owner. To validate the transfer of this permit, have the succeeding party sign the permit transfer section at the end of the permit and forward a copy to this office, along with their printed name, address, telephone number, and other contact information.

The time limit for completing the work is specified in General Condition 1. If the work will not be completed prior to that date, you may request a time extension. Your request for an extension must be received by this office for consideration at least 30 days before the time limit date.

My staff has reviewed your April 7, 2004, Wetland Contingency Mitigation Plan for the off-channel wetlands. The plan is generally consistent with the provisions of the permit and addresses most of the items in our preliminary response. However, the timing and mitigation ratios in Contingency Measures 1 and 3 are not adequate to offset temporal losses of aquatic functional values. We believe this aspect of the plan can be easily rectified by including a phased approach, with mitigation ratios increasing with time from the date the specific wetlands are impacted. Please contact my regulatory staff to discuss this issue in more detail and finalize this plan.

Please refer to identification number 199400102 in any correspondence concerning this project. If you have any questions, please contact Michael Finan at our Delta Office, 1325 J Street, Room 1480, Sacramento, California 95814-2922, email *Michael.C.Finan@usace.army.mil*, or telephone 916-557-5324. You may also use the Regulatory Permits link on our website: *www.spk.usace.army.mil*.

Sincerely,

Michael Gnadoney

for Michael J. Conrad, Jr.
Colonel, US Army
District Engineer

Enclosure(s)

Copy furnished without enclosure(s):

Grant Williams, Granite Construction, P.O. Box 15287, Sacramento, California 95851-0287
Tim Vendlinski, U.S. Environmental Protection Agency, Region IX, Wetlands Regulatory Office (WTR-8), 75 Hawthorne Street, San Francisco, California 94105

DEPARTMENT OF THE ARMY PERMIT

Permittee: Scott Wolcott
Granite Construction Company
Sacramento Branch
P.O. Box 15287
Sacramento, California 95851

Permit Number: 199400102

Issuing Office: U.S. Army Engineer District, Sacramento
Corps of Engineers 1325 "J" Street
Sacramento, California 95814-2922

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work, in accordance with the terms and conditions specified below.

Project Description: To discharge dredged or fill material into waters of the United States on the 407.5-acre Granite Vineyard project site to mine gravel. This work will result in adverse impacts to approximately 17.22 acres of waters of the United States, including approximately 1.5 miles of Morrison Creek, between Mayhew Road and Hedge Avenue. The project includes construction of an enhanced Morrison Creek bypass channel and on-site wetland mitigation. All work is to be completed in accordance with the permit conditions. This permit does not authorize any work outside of the Vineyard project site as shown on the attached site map.

Project Location: The project site is bordered by Mayhew Road on the east, Hedge Avenue on the west, Fruitridge Road on the north and Elder Creek Road on the south, as shown on the above site map, in Sections 29 and 30, Township 8 North, Range 6 East, MDBM, in Sacramento County, California as shown on the attached Vineyard I Site and Vicinity map (Exhibit 1).

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on November 30, 2013. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.

2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

Special Conditions:

1. You shall develop a final comprehensive mitigation and monitoring plan for the enhanced Morrison Creek bypass channel (bypass channel) and pit-bottom wetland mitigation. To mitigate for impacts to fish and aquatic life movement and migration in Morrison Creek, you shall design, construct and maintain a portion of the bypass channel to incorporate suitable habitat features, ensuring that aquatic resources impacted by the project are replaced and sustained in perpetuity. The bypass channel shall support low and mid-terrace wetland and riparian habitat adjacent to the low-flow channel in an overall channel wide enough to pass expected high flows. The bypass channel shall be a minimum of 125 feet in width and include wetlands and native woody riparian vegetation adjacent to the low-flow channel. The unmaintained area of the bypass channel shall be no less than 62 feet in width and shall include native riparian/upland buffers no less than 25 feet wide with a vegetated low flow channel no less than 10 feet wide at the ordinary high water mark. No armoring shall occur within the unmaintained area of the bypass channel. The plan shall include plan and profile drawings [similar to the October 3, 2003 *Vineyard Site-Enhanced Bypass Channel and Mitigation Corridor* (Exhibit A) but with adequately sized buffers and trees shown on both sides of the preserve], detailed planting plans with species to be planted, permanent fencing (e.g., post and cable), appropriate signage, and final success criteria. The plan shall be in the format of the Sacramento District's October 25, 1996, *Habitat Mitigation and Monitoring Proposal Guidelines* and generally incorporate the mitigation described in Zentner and Zentner's January 18, 1994, *Granite Vineyard Wetland Mitigation Plan*, as modified in ECORPS' August 9, 2001, *Mitigation Summary*. The plan must be approved by this office,

in coordination with Sacramento County, the U.S. Fish and Wildlife Service (FWS), the U.S. Environmental Protection Agency (EPA), and the California Department of Fish and Game (DFG). No mining within 150-feet from the ordinary high water mark of Morrison Creek, including the "oxbow" channel, may occur until the final plan has been approved. Mining may commence in the off-channel wetlands before approval of the final plan, following Corps receipt and acceptance of a contingency mitigation plan for the off-channel wetlands, which will be implemented if mitigation in the final plan is not initiated within five (5) years.

2. To protect the engineering integrity of the bypass channel and provide maintenance access, a portion of the bypass channel, planted with native grasses, may be maintained (i.e., mowed) for the purpose of flood conveyance. Construction and long-term maintenance of the bypass channel must not prevent water from continuing to flow to both the north and south channels of Morrison Creek west of Hedge Avenue to sustain healthy riparian and wetland vegetation along these channels.

3. You shall design, construct and maintain any water conveyances from the bypass channel to downstream portions of Morrison Creek (north and south channels) and the pit-bottom wetland mitigation as open (non-piped) channels. Such conveyance must be a minimum of 10 feet wide at the ordinary high water mark. Water from the pit-bottom detention pond may be pumped back into the bypass channel. If it is established during the ten (10) year monitoring period that the pump is not necessary to successfully sustain the pit-bottom mitigation, the long-term operation and maintenance of the pump may be discontinued, following approval by this office.

4. You shall establish and maintain undisturbed, upland vegetated buffers, including native riparian trees, of at least twenty five (25) feet in width from the outer limit of all created wetlands or the ordinary high water mark, whichever is greater, within the pit-bottom mitigation, the bypass channel and any water conveyances addressed above. In the event the created wetlands naturally expand over time into the buffer, the buffer areas and legal descriptions need not be modified. Appropriate permanent fencing and signage shall be constructed and maintained at the outside perimeter of all-upland buffers (or expanded wetlands), except in the pit-bottom wetland mitigation where only signage at regular intervals is required. Fencing and signage must be installed within thirty (30) days of the completion of construction of the pit-bottom wetland mitigation, the bypass channel, and any other water conveyances.

5. You shall construct the mitigation prescribed by the final plan in special condition 1 concurrently with, or in advance of, initiating any activity authorized by this permit within 150 feet of Morrison Creek, including the oxbow channel. Construction of the pit-bottom wetland mitigation shall be completed by no later than two years following the completion of work in Morrison Creek, in accordance with the phases on your April 4, 2002, *Vineyard I Revised Reclamation Plan* drawing (Exhibit 5 attached). Construction of the bypass channel, including associated wetland and riparian habitat, shall be completed by no later than two years from initiating any diversion of Morrison Creek.

6. You shall establish and maintain the pit-bottom wetland mitigation and enhanced bypass channel riparian habitat corridor, including buffers, as wetland and wildlife habitat preserves (preserves) in perpetuity to insure that the functions and values of the aquatic environment are protected.

7. To insure the preserves are properly managed, you shall develop a preserve management plan for each area. The plans may be presented in one document and shall be submitted to and approved by this office prior to initiating any activities authorized by this permit within 150 feet from the ordinary high water mark of Morrison Creek, except the off-channel wetlands which may be mined upon Corps approval of a contingency mitigation plan for these wetlands. Each preserve management plan shall describe in detail all activities that are proposed within the preserve area and provide for long-term funding and maintenance of the preserve.

8. To provide a permanent record of the completed mitigation work, you shall provide two complete sets of as-builts for the preserves to this office indicating any changes made from the original plans. The as-builts shall be provided to this office no later than sixty (60) days after the completion of construction of the enhanced bypass channel and pit bottom-mitigation.

9. You shall not mine any area within one hundred and fifty (150) feet from the ordinary high water mark of Morrison Creek, except for the off-channel wetlands, until a detailed plan showing the work proposed to divert the creek, either on, or upstream of, the project site, has been approved by this office. Such work may also require separate authorization from DFG, FWS, Sacramento County and other agencies. You shall not mine any portions of Morrison Creek, except the "oxbow" in Phase V, until the bypass channel has been constructed in accordance with the final Corps approved mitigation plan and is carrying upstream flows into the north and south channels of Morrison Creek during any subsequent rainy season following initiating any activity in Morrison Creek.

10. You may establish two (2) permanent road crossings of the pit-bottom mitigation preserve and one (1) permanent road crossing of the enhanced bypass channel preserve. The preserve management plans and required deed restriction/conservation easements will acknowledge the locations of these permanent road crossings. The crossings will be constructed through the use of bridges or appropriately sized culverts to pass expected high flows. Detailed plans for these proposed crossings must be provided to this office for separate review and approval prior to construction. To protect the integrity of the preserves and avoid unanticipated future impacts, no other roads or trails, equipment or fuel storage facilities, grading, firebreaks, mowing, grazing, planting, discing, pesticide use, burning, or other activities shall be constructed or occur within the preserves without specific, advance written approval from this office. Areas which may need to be mowed as necessary to prevent flood or fire damage to adjacent properties shall be located outside of the preserve areas.

11. Prior to initiating any activity authorized by this permit within 150 feet of Morrison Creek, including the oxbow channel, you shall:

a. Receive Corps approval of the final comprehensive mitigation and monitoring plan.

b. Establish a fully funded endowment to provide for maintenance and monitoring of the bypass channel preserve.

c. Designate an appropriate conservation-oriented third party entity to function as

overseer during construction activities, preserve manager and holder of the required conservation easements for the bypass channel preserve.

d. Submit proposed permanent conservation easement and/or deed restriction language for both preserves for the Corps to review and approve prior to recordation.

12. No later than thirty (30) days following completion of construction of the preserve areas, you shall record and submit to this office the Corps-approved conservation easements and/or deed restrictions maintaining the preserves as wetland and wildlife habitat in perpetuity.

13. To insure mitigation success, you shall monitor the preserves in accordance with the final plan for ten years or until the success criteria described in the approved mitigation plan are met, whichever is greater. This period shall commence upon completion of construction of the enhanced bypass channel and mitigation wetlands. Continued success of the mitigation wetlands in the preserves, without human intervention, must be demonstrated for three (3) consecutive years, once the success criteria have been met. The mitigation will not be deemed successful until this criterion has been met.

14. You shall submit annual monitoring reports to this office for the ten (10) year monitoring period, and for each additional year, if remediation is required, by October 1 of each year. You shall submit an additional monitoring report at the end of the three (3) year period demonstrating continued success of the mitigation program without human intervention. The only exception to this last requirement shall be if the three (3) year period occurs wholly within the ten (10) year monitoring period. In which case, the ten (10) year report may be used to meet this requirement.

15. This permit does not authorize you to take an endangered species, in particular the vernal pool fairy shrimp (Branchinecta lynchi), valley elderberry longhorn beetle (Desmocerus californicus dimorphus), or designated critical habitat. In order to legally take a listed species, you must have separate authorization under the Endangered Species Act (e.g., an Endangered Species Act Section 10 permit, or a Biological Opinion under Endangered Species Act Section 7, with "incidental take" provisions with which you must comply). The enclosed Fish and Wildlife Service Biological Opinion and amendment (Number 1-1-02-F-0161 and 1-1-00-F-0179), dated March 18, 2002 and April 26, 2002, contain mandatory terms and conditions to implement the reasonable and prudent measures that are associated with "incidental take" that is also specified in the Biological Opinion. Your authorization under this Corps permit is conditional upon your compliance with all of the mandatory terms and conditions associated with incidental take of the attached Biological Opinion, which terms and conditions are incorporated by reference in this permit. Failure to comply with the terms and conditions associated with incidental take of the Biological Opinion, where a take of the listed species occurs, would constitute an unauthorized take, and it would also constitute non-compliance with your Corps permit. The Fish and Wildlife Service is the appropriate authority to determine compliance with the terms and conditions of its Biological Opinion, and with the Endangered Species Act. The permittee must comply with all conditions of this Biological Opinion, including those ascribed to the Corps.

Further Information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

( ) Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

(X) Section 404 of the Clean Water Act (33 U.S.C. 1344).

( ) Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this authorization.

a. This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed Federal projects.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data. The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant.

Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (see 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General Condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

Granite Construction Company
P.O. Box 15287
Sacramento, CA 95851

P. W. Cornelius 3-15-04

Permittee P.W. Cornelius Date
Branch Manager

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

Issued for and on behalf of Colonel Michael J. Conrad, Jr., District Engineer.

Michael Graham 4/16/04

for Mark W. Connelly Date
Lieutenant Colonel,
Corps of Engineers
Acting District Engineer

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

Transferee

Date

Attachment (4 Drawings)

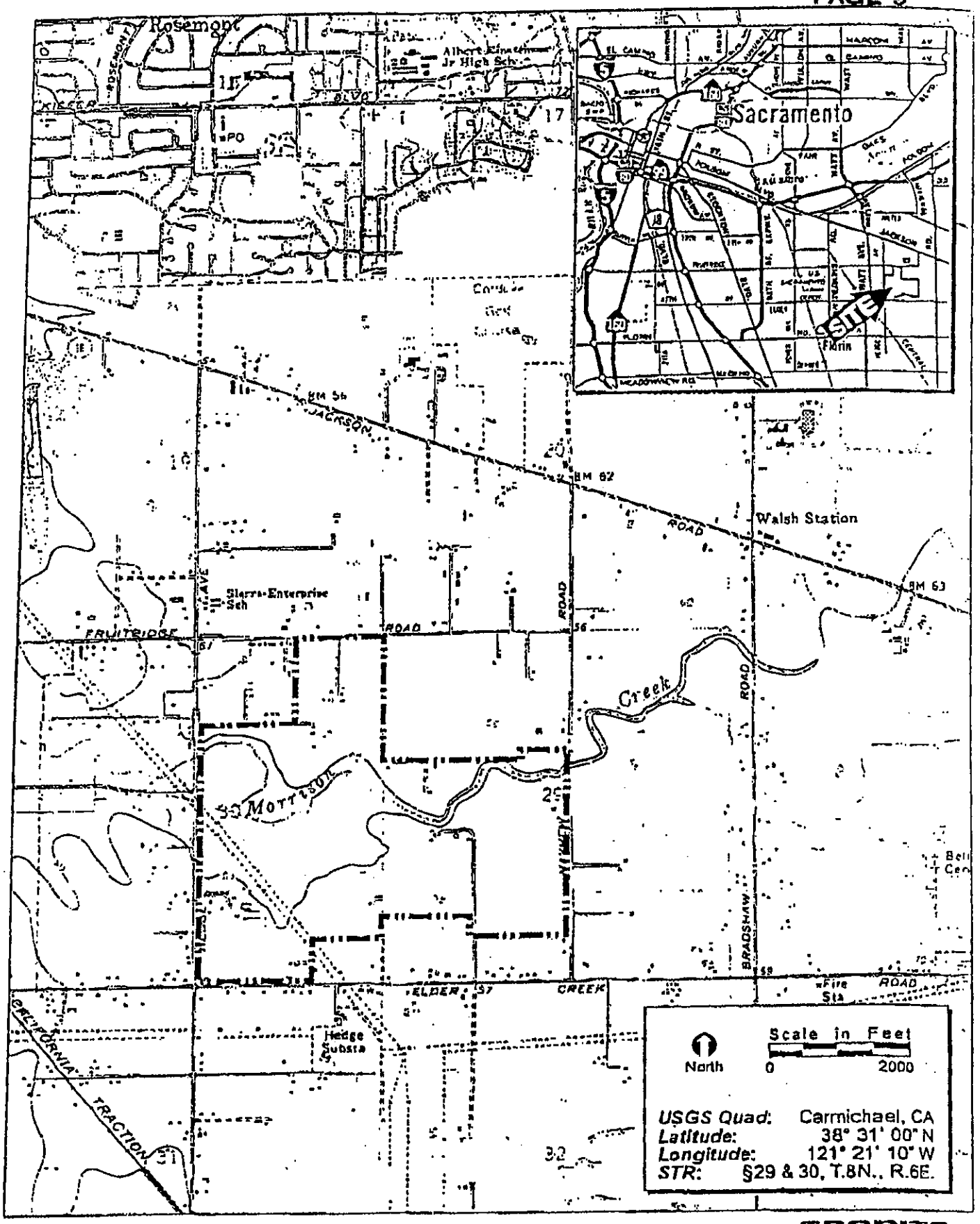


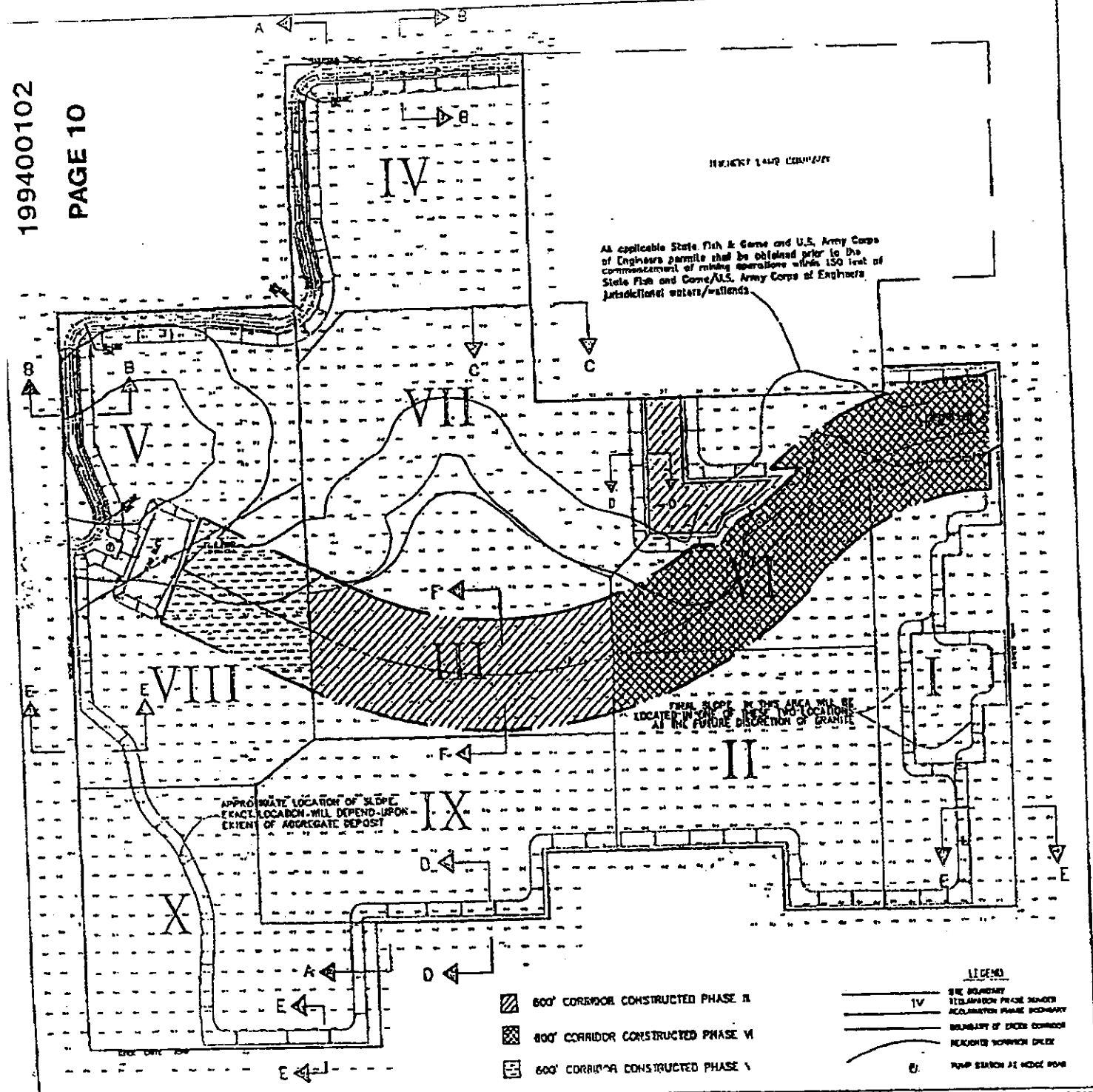
EXHIBIT 1. Vineyard I Site and Vicinity Map

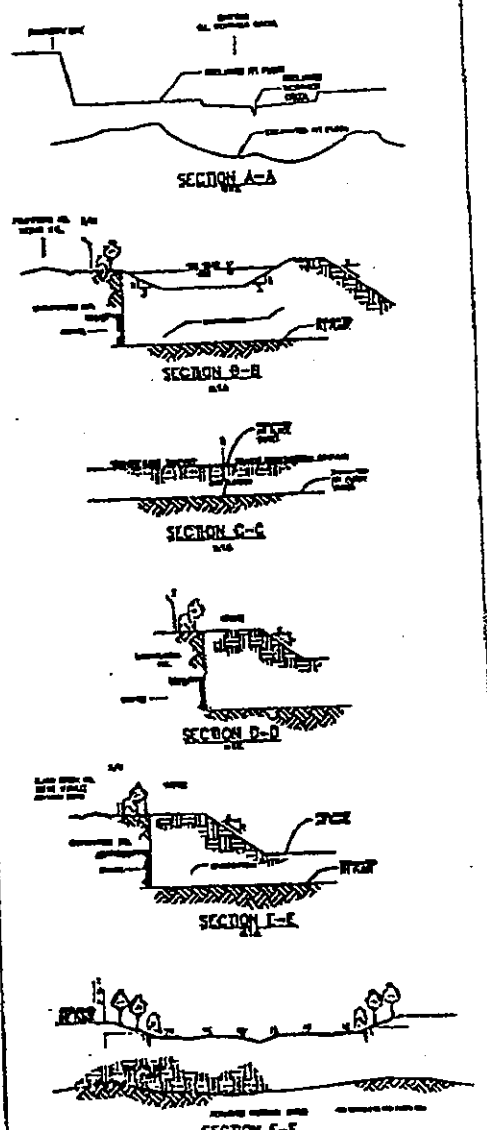
Prepared by
ECORP Consulting, Inc.

GRANITE CONSTRUCTION INCORPORATED

Vineyard I

RECLAMATION PLAN





GRANITE CONSTRUCTION COMPANY
VINEYARD I SITE

REVISED RECLAMATION PLAN
(per Conditions of Approval)

FILENAME: E60\\2001-071\gu-rec.dwg DATE: 4/24/02

Exhibit 5. Vineyard 1 Phasing and Reclamation Plan

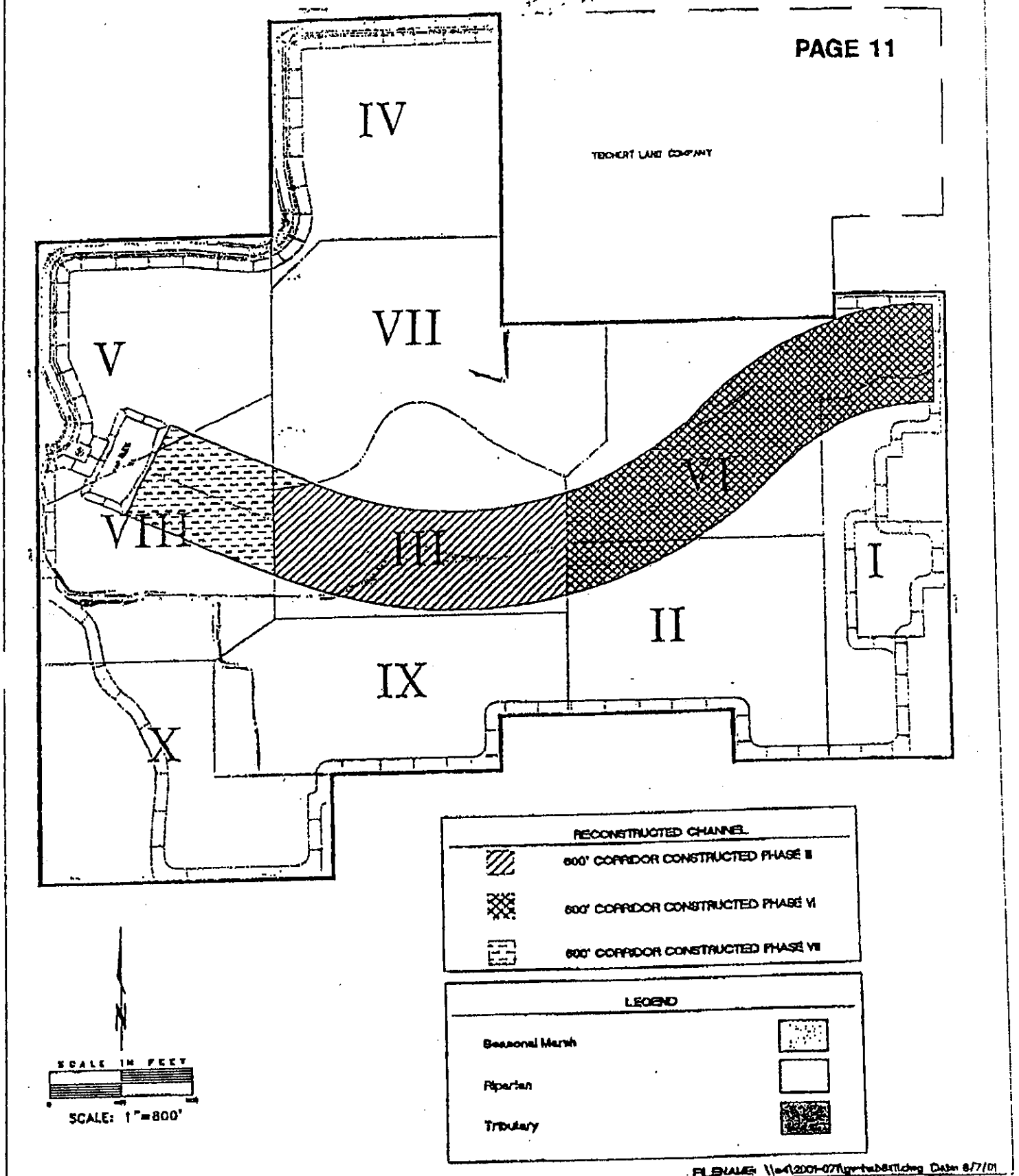


Figure 2. Habitat Impact and Creation Map

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO, CALIFORNIA 95814-2922

REPLY TO
ATTENTION OF

May 27, 2004

Regulatory Branch (199400102)

GRANITE CONSTRUCTION
MAY 28 2004
RECEIVED

Grant Williams
Granite Construction Company
4001 Bradshaw Road
Sacramento, California 95827

Dear Mr. Williams:

We have received and accept your May 25, 2004 "Vineyard I 'Off-Channel' Wetland Contingency Mitigation Plan"pursuant to Special Condition 1 of Department of the Army Permit 199400102 for your Vineyard I project. This plan applies only to the approximately 4.75 acres of wetlands which are outside of the 150-foot mining setback area from Morrison Creek. Implementation of this plan is a condition of this permit and all other terms and conditions of this permit remain in full force and effect. The entire area within the 150-foot setback area must be avoided and preserved until a final mitigation plan has been approved by the Corps as described in this permit. You must provide documentation, including a map and acreage of each off-channel wetland, along with evidence of compensatory mitigation completed, if any, to this office concurrently with each impact.

Prior to any work in waters of the United States, including these off-channel wetlands, you must provide evidence of compliance with Special Condition 15 (Endangered Species) of the permit, including completion of the mitigation identified in the enclosed copy of the U.S. Fish and Wildlife Service's April 26, 2002, letter modifying their Biological Opinion for this work. You must also insure the work complies with General Condition 5 (Water Quality Certification), and any other applicable conditions of the permit.

Please refer to identification number 199400102 in any correspondence concerning this project. If you have any questions, please contact Michael Finan at our Delta Office, 1325 J Street, Room 1480, Sacramento, California 95814-2922, email *Michael.C.Finan@usace.army.mil*, or telephone 916-557-5324. You may also use the Regulatory Permits link on our website: *www.spk.usace.army.mil*.

Sincerely,

Michael S. Jewell
Chief, Central California/Nevada
Section

Enclosure(s)

Copy furnished without enclosure(s):

Tim Vendlinski, U.S. Environmental Protection Agency, Region IX, Wetlands Regulatory Office (WTR-8), 75 Hawthorne Street, San Francisco, California 94105

Justin Ly, Endangered Species Division, U.S. Fish and Wildlife Service, 2800 Cottage Way, Room W2605, Sacramento, California 95825-1846

GRANITE CONSTRUCTION COMPANY SINCE 1922

NORTHERN CALIFORNIA

May 25th, 2004

VIA CERTIFIED MAIL

Mr. Michael Finan
Project Manager
USACE - Sacramento
1325 J Street, #1480
Sacramento, CA 95814

Mr. Michael Jewell
Chief, Regulatory Branch
USACE - Sacramento
1325 J Street, #1480
Sacramento, CA 95814

RE: GRANITE VINEYARD I (Corps File No. 199400102)

Dear Mr. Finan and Mr. Jewell:

Attached for your review and acceptance is a copy of the Vineyard I "Off-Channel" Wetland Contingency Plan.

The Corps recently issued Granite Permit No. 199400102 that allows Granite to impact and mitigate approximately 17.22 acres of waters of the United States. Special Condition #1 of the permit states, "No mining within 150-feet from the ordinary high water mark of Morrison Creek, including the oxbow channel, may occur until the final plan has been approved. Mining may commence in the off-channel wetlands before approval of the final plan, following Corps receipt and acceptance of a contingency mitigation plan for the off-channel wetlands, which will be implemented if mitigation in the final plan is not initiated within five (5) years." The attached Contingency Plan has been prepared in response to this condition.

Thank you for your time and consideration on this matter. Should you have any questions, feel free to me at 916-855-4472.

Regards,
GRANITE CONSTRUCTION COMPANY

Grant J. Williams
Project Manager
grant.williams@gcinc.com

Sacramento Area Office
4001 Bradshaw Road
Sacramento, CA 95827
P. O. Box 15287
Sacramento, CA 95851
916/855-4400
Fax 916/369-0429

North Bay Area Office
1500 Grove Street
Healdsburg, CA 95448
707/433-0299
Fax 707/433-1799

North Coast Area Office
1324 South State Street
Ukiah, CA 95482
707/467-4100
Fax 707/487-4154

Oroville Area Office
4714 Pacific Heights Road
P. O. Box 1630
Oroville, CA 95965
530/534-7616
Fax 530/534-9420

NORTHERN CALIFORNIA BRANCH OFFICE
4001 Bradshaw Road
Sacramento, CA 95827
P. O. Box 15287
Sacramento, CA 95851
916/855-4400
Fax 916/369-0429

Attachments: Vineyard I "Off-Channel" Wetland Contingency Plan

Cc: Greg Thatch, Law Offices of Gregory D. Thatch
Scott Horton, Plants Manager

VINEYARD I "OFF-CHANNEL" WETLAND CONTINGENCY MITIGATION PLAN

INTRODUCTION

Granite Construction Company ("Granite") is currently mining aggregate from the Vineyard I project site. The United States Army Corps of Engineers ("Corps") issued Granite a Department of the Army Permit (No. 199400102) that allows Granite to impact and mitigate approximately 17.22 acres of waters of the United States. Special Condition #1 of the permit states, "No mining within 150-feet from the ordinary high water mark of Morrison Creek, including the oxbow channel, may occur until the final plan has been approved. Mining may commence in the off-channel wetlands before approval of the final plan, following Corps receipt and acceptance of a contingency mitigation plan for the off-channel wetlands, which will be implemented if mitigation in the final plan is not initiated within five (5) years."

The "off-channel" wetlands include the seasonal marshes and channelized tributaries outside the 150-foot buffer around Morrison Creek (Figure 1 – *Vineyard 1 Off-Channel Wetlands/Mine Phasing*). The "final plan" is a comprehensive Wetland Mitigation and Monitoring plan (WMMP) for the full project, which is currently being developed, and will be submitted under a separate cover. The WMMP will include mitigation within the enhanced bypass channel (EBC) and the Mitigation Corridor, unless the Corps modifies the permit in the future. Prior to the Corps approval of the WMMP, Granite may impact the approximately 4.75 acres of "off-channel" wetlands, which are located outside of the 150-foot buffer around Morrison Creek and the oxbow channel. The Section 404 Jurisdictional Delineation (as Modified), originally prepared by *Zentner and Zentner* (1997), outlines approximately 4.98 acres of seasonal wetlands and channelized tributaries on the Vineyard I property. However, the delineation map

shows that approximately 0.23 acres of these wetlands lie inside the 150-foot buffer and will not be mined prior to the Corps approval of the WMMP.

CONTINGENCY MEASURES

The purpose of this Contingency Mitigation Plan (CMP) is to provide mitigation alternatives for the approximately 4.75 acres of "off-channel" wetlands if the final WMMP is not approved and initiated within five (5) years of impacts to the "off-channel" wetlands. In the context of this CMP, 'initiated' shall mean that construction of the EBC has commenced.

The first impacts to "off-channel" wetlands are planned for June 2004. Therefore, the final WMMP must be approved and initiated by June 1, 2009, or this CMP will go into effect. Accordingly, the requirements of the CMP are not binding as long as the final Corps approved WMMP is initiated prior to June 1, 2009. Granite will notify the Corps in writing of the date the "off-channel" wetlands are first impacted by mining operations. The following outlines the three contingency measures proposed.

Contingency Measure 1 – Purchase Of Mitigation Credits:

If the final WMMP is not approved and initiated within five (5) years of impacts to the "off-channel" wetlands, Granite will purchase wetland mitigation credits at a Corps approved "creation" or "compensatory" wetland mitigation bank. Approximately 4.75 acres of "off-channel" wetlands are expected to be impacted by June 1, 2009. Granite will keep an inventory of the amount of impacted wetlands outside the 150-foot buffer zone as mining progresses.

For impacts that occur to "off-channel" wetlands prior to June 1, 2009, or the initiation of the WMMP, mitigation ratios will increase by one (1) for each lost growing

season in which proper mitigation has not been procured. For example, if one (1) acre of wetlands is impacted in June of 2004, then one (1) credit (of a similar wetland type) must be purchased by June 1, 2005. If the credits are not secured by June 1, 2005, then the mitigation ratio will increase to 2:1. This mitigation ratio will continue to increase by one (1) on an annual growing season basis until the mitigation is secured or the WMMP is initiated. For example, if one (1) acre of wetlands is impacted in June 2004, then five (5) credits (1 acre x 5 years) must be purchased by June 1, 2009. The increased mitigation ratio offsets temporal losses of aquatic functional values.

The amount of mitigated wetlands included in the WMMP shall be reduced according the number of credits purchased prior to approval.

Contingency Measure 2 - Creation of Wetlands:

If the credits described above are unavailable for purchase, additional wetlands will be created or restored and protected on the project site or another nearby site deemed appropriate by the Corps. The wetlands will be created and protected at a 1:1 mitigation ratio for impacts provided they are created in the same growing season as the impacts occur. The mitigation ratio will increase on an annual growing season basis, similar to the examples described above. The design of wetland creation areas must be approved by the Corps and protected with a conservation easement or other Corps approved protective mechanism to maintain the area as a wetland and wildlife habitat in perpetuity. Creation or restoration of these new wetlands must be initiated in accordance with a Corps approved plan by June 1, 2009

Contingency Measure 3 - Other Mitigation:

Separately, with prior Corps approval, Granite may purchase credits, pay an in-lieu fee and/or create, restore and protect other wetland types that are considered to be of higher value to the region, as mitigation for the impacts to "off-channel" wetlands by

no later than June 1, 2009. The Corps would assess temporal losses if any and determine the mitigation ratio under this scenario.

CONCLUSION

Granite's Vineyard I site contains approximately 4.75 acres of "off-channel" wetlands consisting of channelized tributaries and seasonal marshes that may be mined prior to the Corps approval of the final WMMP. If the WMMP is not approved and initiated within five (5) years of impacts to the "off-channel" wetlands (June 1, 2009), then wetland creation credits will be purchased at a Corps approved "creation" or "compensatory" mitigation bank to mitigate the "off-channel" wetlands. If there are no credits available at the time of implementation, then Granite will construct new wetlands or protect existing wetlands, preferably on-site or at an appropriate nearby location, if practicable. If the purchase of mitigation credits, the construction of new wetlands, or a Corps approved plan (WMMP) has not been initiated by June 1, 2009; Granite will cease and desist from all work on the project site until all of the mitigation described above has been completed. Above all, Granite will pursue the Corps approval of a final comprehensive WMMP.