



TRIANGLE ROCK CULVERTS PROJECT

DRAFT INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

AUGUST 2022

PREPARED FOR:

San Luis Water District
1015 Sixth Street
Los Banos, CA 93635

PREPARED BY:

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TABLE OF CONTENTS

Chapter 1 Introduction	1-1
1.1 Regulatory Information	1-1
1.2 Document Format	1-1
Chapter 2 Project Description	2-1
2.1 Project Background	2-1
2.1.1 Project Title	2-1
2.1.2 Lead Agency Name and Address	2-1
2.1.3 Contact Person and Phone Number	2-1
2.1.4 Project Location	2-1
2.1.5 General Plan Designation and Zoning	2-1
2.1.6 Description of Project	2-2
2.1.7 Site and Surrounding Land Uses and Setting	2-5
2.1.8 Other Public Agencies Whose Approval May Be Required	2-5
2.1.9 Consultation with California Native American Tribes	2-5
Chapter 3 Determination	3-1
3.1 Potential Environmental Impacts	3-1
3.2 Determination	3-2
Chapter 4 Environmental Impact Analysis	4-1
4.1 Aesthetics	4-1
4.1.1 Baseline Conditions	4-1
4.1.2 Impact Analysis	4-1
4.2 Agriculture and Forestry Resources	4-3
4.2.1 Baseline Conditions	4-3
4.2.2 Applicable Regulations	4-3
4.2.3 Impact Analysis	4-4
4.3 Air Quality	4-7
4.3.1 Baseline Conditions	4-7
4.3.2 Impact Analysis	4-10
4.3.2.1 Short-Term Construction-Generated Emissions	4-10
4.3.2.2 Long-Term Operational Emissions	4-10
4.3.2.3 Thresholds of Significance	4-10
4.4 Biological Resources	4-13

4.4.1	Baseline Conditions	4-13
4.4.2	Applicable Regulations	4-25
4.4.3	Impact Analysis	4-30
4.4.4	Mitigation.....	4-34
4.5	Cultural Resources.....	4-40
4.5.1	Baseline Conditions.....	4-40
4.5.2	Impact Analysis	4-40
4.5.3	Mitigation.....	4-41
4.6	Energy.....	4-42
4.6.1	Baseline Conditions.....	4-42
4.6.2	Impact Analysis	4-42
4.7	Geology and Soils	4-43
4.7.1	Baseline Conditions.....	4-43
4.7.2	Impact Analysis	4-44
4.7.3	Mitigation Measures	4-45
4.8	Greenhouse Gas Emissions.....	4-46
4.8.1	Baseline Conditions.....	4-46
4.8.2	Thresholds.....	4-47
4.8.3	Impact Analysis	4-48
4.9	Hazards and Hazardous Materials	4-49
4.9.1	Baseline Conditions.....	4-49
4.9.2	Impact Analysis	4-50
4.10	Hydrology and Water Quality	4-52
4.10.1	Baseline Conditions.....	4-52
4.10.2	Impact Analysis	4-53
4.10.3	Mitigation.....	4-55
4.11	Land Use and Planning	4-57
4.11.1	Baseline Conditions.....	4-57
4.11.2	Impact Analysis	4-57
4.12	Mineral Resources.....	4-58
4.12.1	Baseline Conditions.....	4-58
4.12.2	Impact Analysis	4-58
4.12.3	Baseline Conditions.....	4-59
4.12.4	Impact Analysis	4-59
4.13	Population and Housing	4-61

4.13.1	Baseline Conditions.....	4-61
4.13.2	Impact Analysis	4-61
4.14	Public Services	4-62
4.14.1	Baseline Conditions.....	4-62
4.14.2	Impact Analysis	4-62
4.15	Recreation	4-63
4.15.1	Baseline Conditions.....	4-63
4.15.2	Impact Analysis	4-63
4.16	Transportation.....	4-64
4.16.1	Baseline Conditions.....	4-64
4.16.2	Impact Analysis	4-64
4.17	Tribal Cultural Resources.....	4-65
4.17.1	Baseline Conditions.....	4-65
4.17.2	Impact Analysis	4-66
4.17.3	Mitigation.....	4-66
4.18	Utilities and Service Systems	4-67
4.18.1	Baseline Conditions.....	4-67
4.18.2	Impact Analysis	4-67
4.19	Wildfire.....	4-69
4.19.1	Baseline Conditions.....	4-69
4.19.2	Impact Analysis	4-69
4.20	CEQA Mandatory Findings of Significance	4-71
4.20.1	Statement of Findings	4-71
Chapter 5	Mitigation, Monitoring, and Reporting Program	5-1
Chapter 6	References	6-1

LIST OF APPENDICES

Appendix A: CalEEMod Output Files.....	A-1
Appendix B: Biological Resources Technical Report	B-1
Appendix C: Cultural Resources Information.....	C-1
Appendix D: Los Banos Creek Culverts Project Hydraulic Modeling Memo	D-1

LIST OF FIGURES

Figure 2-1: Regional Location Map.....	2-6
Figure 2-2: Topographic Quadrangle Map	2-7
Figure 2-3: Site Map	2-8

Figure 2-4: General Plan Land Use Designation Map	2-9
Figure 2-5: Zone District Map	2-10
Figure 4-1: Farmland Designation Map	4-6
Figure 4-2: FEMA Flood Map	4-56

LIST OF TABLES

Table 2-1: Existing Uses, General Plan Designation, & Zone Districts of Surrounding Properties	2-5
Table 4-1: Aesthetics Impacts.....	4-1
Table 4-2: Agriculture and Forest Impacts	4-3
Table 4-3: Air Quality Impacts	4-7
Table 4-4: Ambient Air Quality Monitoring Summary	4-8
Table 4-5: Summary of Ambient Air Quality Standards and Attainment Designation	4-9
Table 4-6: Unmitigated Short-Term Construction-Generated Emissions of Criteria Air Pollutants	4-11
Table 4-7: Biological Resources Impacts.....	4-13
Table 4-8: Special Status animal species and their potential in the Project Area.....	4-17
Table 4-9: Special Status plant species and their potential within the Project Area	4-23
Table 4-10: Cultural Resources Impacts	4-40
Table 4-11: Energy Impacts	4-42
Table 4-12: Geology and Soils Impacts	4-43
Table 4-13: Greenhouse Gas Emissions Impacts	4-46
Table 4-14: Short-Term Construction-Generated GHG Emissions.....	4-48
Table 4-15: Hazards and Hazardous Materials Impacts.....	4-49
Table 4-16: Hydrology and Water Quality Impacts.....	4-52
Table 4-17: Land Use and Planning Impacts.....	4-57
Table 4-18: Mineral Resources Impacts	4-58
Table 4-19: Noise Impacts	4-59
Table 4-20: Population and Housing Impacts.....	4-61
Table 4-21: Public Services	4-62
Table 4-22: Recreation Impacts.....	4-63
Table 4-23: Transportation Impacts	4-64
Table 4-24: Tribal Cultural Resources Impacts	4-65
Table 4-25: Utilities and Service Systems Impacts.....	4-67
Table 4-26: Wildfire Impacts	4-69
Table 4-27: CEQA Mandatory Findings of Significance.....	4-71
Table 5-1: Mitigation, Monitoring, and Reporting Program	5-2

ACRONYMS

AB	Assembly Bill
BMP	Best Management Practices
Cal/OSHA	California Occupational Safety and Health Administration
CalEEMod	California Emissions Estimator Modeling (software)
CARB	California Air Resources Board
CCAA	California Clean Air Act
CCIC	Central California Information Center
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFGF	California Fish and Game Code
CFR	Code of Federal Regulations
CFS	cubic feet per second
CH ₄	Methane
CHRIS	California Historical Resources Information System
CNDDDB	California Natural Diversity Database
CO	Carbon Monoxide
CO ₂	Carbon dioxide
County	Merced County
CWA	Clean Water Act
dBA	A-weighted decibels
DMC	Delta-Mendota Canal
DPM	diesel particulate matter
EFH	Essential Fish Habitat
EIR	Environmental Impact Report
EPA	Environmental Protection Agency
ESA	(Federal) Endangered Species Act
FEMA	Federal Emergency Management Agency
FMMP	Farmland Mapping and Monitoring Program
GHG	Greenhouse Gas

GIS	Geographic Information System
GWP	global warming potential
HUC	Hydrologic Unit Code
IS	Initial Study
IS/MND	Initial Study/Mitigated Negative Declaration
ITP	Incidental Take Permit
LSA	Lake and Streambed Alteration
km	kilometers
MMRP	Mitigation Monitoring and Reporting Program
MND	Mitigated Negative Declaration
MTCO ₂ e	Metric tons of carbon dioxide equivalent
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCCP	Natural Community Conservation Plan
ND	Negative Declaration
NMFS	National Marine Fisheries Service
NO _x	Nitrogen oxides
NO ₂	Nitrogen Dioxide
N ₂ O	Nitrous oxide
NOAA	National Oceanic and Atmospheric Administration
NPAA	(California) Native Plant Protection Act
NRCS	Natural Resources Conservation Service
O ₃	Ozone
OHWM	ordinary high water mark
PM ₁₀	particulate matter 10 microns in size
PM _{2.5}	particulate matter 2.5 microns in size
ppb	parts per billion
ppm	parts per million
Project	Triangle Rock Culverts Project
ROG	Reactive Organic Gases
RWQCB	Regional Water Quality Control Board
SJVAPCD	San Joaquin Valley Air Pollution Control District
SJVAB	San Joaquin Valley Air Board

SMAQMD.....	Sacramento Metro Air Quality Management District
SO _x	Sulfur Oxide
SO ₂	Sulfur Dioxide
Sq. ft	square feet
SR	State Route
SWPPP	Storm Water Pollution Prevention Plan
SWRCB.....	State Water Resources Control Board
TAC	toxic air contaminants
TOB	top of bank
TPY	tons per year
USACE.....	United States Army Corps of Engineers
USFWS.....	United States Fish and Wildlife Service
USGS.....	United States Geological Survey
µg/m ³	micrograms per cubic meter
WEAP.....	Worker Environmental Awareness Program
WRA	WRA, Inc. Environmental Consultants

CHAPTER 1 INTRODUCTION

Provost & Pritchard Consulting Group (Provost & Pritchard) has prepared this Initial Study/Mitigated Negative Declaration (IS/MND) on behalf of the San Luis Water District (District) to address the potential environmental effects of the Triangle Rock Culverts Project (Project). This document has been prepared in accordance with the California Environmental Quality Act (CEQA), Public Resources Code Section 21000 et seq. The District is the CEQA lead agency for this Project.

The site and the Project are described in detail in [Chapter 2 Project Description](#).

1.1 REGULATORY INFORMATION

An Initial Study (IS) is a document prepared by a lead agency to determine whether a project may have a significant effect on the environment. In accordance with California Code of Regulations Title 14 (Chapter 3, Section 15000, *et seq.*)-- also known as the CEQA Guidelines--Section 15064 (a)(1) states that an environmental impact report (EIR) must be prepared if there is substantial evidence in light of the whole record that the Project under review may have a significant effect on the environment and should be further analyzed to determine mitigation measures or project alternatives that might avoid or reduce project impacts to less than significant levels. A negative declaration (ND) may be prepared instead if the lead agency finds that there is no substantial evidence in light of the whole record that the project may have a significant effect on the environment. A ND is a written statement describing the reasons why a proposed Project, not otherwise exempt from CEQA, would not have a significant effect on the environment and, therefore, why it would not require the preparation of an EIR (CEQA Guidelines Section 15371). According to CEQA Guidelines Section 15070, a ND or *mitigated* ND shall be prepared for a project subject to CEQA when either:

- a. The IS shows there is no substantial evidence, in light of the whole record before the agency, that the proposed Project may have a significant effect on the environment, or
- b. The IS identified potentially significant effects, but:
 1. Revisions in the project plans or proposals made by or agreed to by the applicant before the proposed MND and IS is released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur is prepared, and
 2. There is no substantial evidence, in light of the whole record before the agency, that the proposed Project as *revised* may have a significant effect on the environment.

1.2 DOCUMENT FORMAT

This IS/MND contains six chapters and four appendices. [Chapter 1 Introduction](#), provides an overview of the Project and the CEQA process. [Chapter 2 Project Description](#), provides a detailed description of proposed Project components and objectives. [Chapter 3 Determination](#), the Lead Agency's determination based upon this initial evaluation. [Chapter 4 Environmental Impact Analysis](#) presents the CEQA checklist and environmental analysis for all impact areas, mandatory findings of significance, and feasible mitigation measures. If the Project does not have the potential to significantly impact a given issue area, the relevant section provides a brief discussion of the reasons why no impacts are expected. If the Project could have a potentially significant impact on a resource, the issue area discussion provides a description of potential impacts, and appropriate mitigation measures and/or permit requirements that would reduce those impacts to a less than significant level. [Chapter 5 Mitigation, Monitoring, and Reporting Program](#) (MMRP),

provides the proposed mitigation measures, implementation timelines, and the entity/agency responsible for ensuring implementation. [Chapter 6 References](#) details the documents and reports this document relies upon to provide its analysis.

The CalEEMod Output Files, Biological Resources Technical Report, Cultural Resources Information, and Los Banos Creek Culvert Project Hydraulic Modeling Memo are provided as technical [Appendix A](#), [Appendix B](#), [Appendix C](#) and [Appendix D](#), respectively, at the end of this document.

CHAPTER 2 PROJECT DESCRIPTION

2.1 PROJECT BACKGROUND

2.1.1 Project Title

Triangle Rock Culverts Project

2.1.2 Lead Agency Name and Address

San Luis Water District
1015 Sixth Street
Los Banos, CA 93635

2.1.3 Contact Person and Phone Number

Lead Agency Contact

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District Engineer
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CEQA Consultant

Provost & Pritchard Consulting Group
Amy Wilson, Environmental Project Manager
(559) 636-1166

2.1.4 Project Location

The Project is located in Merced County, California, approximately 111 miles south of Sacramento (see [Figure 2-1](#) and [Figure 2-2](#)). The Project Area is located approximately on Assessor's Parcel Number(s) 083-210-022, and 088-070-002. The proposed culvert locations are located within the existing Triangle Rock Plant/Facility/Quarry. The centroid of the northwest culvert Project Area is 37° 01' 09.77" N, 120° 53' 51.94" W. The centroid of the southeast culvert Project Area is 37° 00' 36.69" N, 120° 54' 16.66" W.

2.1.5 General Plan Designation and Zoning

Project Area	General Plan Designation	Zoning District
ONSITE	Agriculture	A1 - General Agriculture
ADJACENT LANDS	Agriculture	A1 - General Agriculture

2.1.6 Description of Project

Project Overview

The area surrounding the Project was developed as a quarry around the 1950's. The proposed activities for this Project will improve two existing road crossings over Los Banos Creek, located in an unincorporated area of Merced County. The improved road crossings will facilitate continuous vehicle transport over Los Banos Creek from permitted and existing mineral resource recovery sites to the processing plant at all times of the year. While the Project will facilitate continuous transport over Los Banos Creek, the total number of truck trips would not be increased as facility production is limited by Triangle Rock's air permits. As an ancillary benefit, the Project will also facilitate permitted and existing water management activities in the region.

Project Description

The Triangle Rock Products Los Banos facility currently uses and maintains two existing dry creek crossings over Los Banos Creek. The dry creek crossings are permitted via an existing Streambed Alteration Agreement (SAA; File No. R4-2001-0098D). The creek crossings can only be used when the creek is dry pursuant to the terms of the existing SAA. Periodic water releases from Los Banos Creek Detention Dam between September and March close the creek crossings, and cut off vehicle access between resource recovery sites and the processing facility when the road is inundated by creek flow. The proposed Project will install two culvert pipes at the south crossing and three culvert pipes at the north crossing to divert flow under the improved access road to facilitate year-round vehicle use of the road.

The construction of the culverts will occur at the two locations (Project Area) where the access roads for the existing quarry intersect with Los Banos Creek. The Project will install culverts at each location to divert flow under the road. These culverts will be designed to handle a capacity of 450 cubic feet per second (cfs) at the southern crossing and 150 cfs for the northern crossing. The difference in the design flow between the two crossings is associated with the diversion into the Delta Mendota Canal located upstream of the northern crossing.

Project construction will occur within the existing road, the Ordinary High Water Mark (OHWM) and top of bank (TOB) of Los Banos Creek. The construction staging area will be outside of any sensitive habitat areas or waterways. Temporary access within the watercourse will be required for the grading of the road and installation of the culverts. The Project will generally require minor grading and excavation of earth in Los Banos Creek in order to prepare the Project Area for construction of culverts under the road crossing. The amount of earthwork will require a Stormwater Pollution Prevention Plan (SWPPP).

A subbase will be installed to support the culvert. The pipes will be lifted into place and then backfilled to the roadway grade. Lastly the roadway surface will be installed. The road will be bermed with the placement of fill and raised banks will be approximately three feet high from the road surface. The road edges bound by Los Banos Creek will be reinforced and improved with rock and gravel to prevent the creek from overtopping the road. Installation of corrugated metal culverts will require excavation of the road for improvements, placement of fill to elevate the road, installation of culverts and placement of gravel and rock along road edges for reinforcement. The Project will require the use of a backhoe, excavator, trenchers, crawler tractors, and dump trucks, which will be staged outside of Regional Water Quality Control Board (RWQCB) and United States Army Corps of Engineers (USACE) jurisdiction in developed areas of the existing facility.

Culvert Details

The installation of corrugated metal culvert crossings will occur within the Project Area. The north crossing improvements include the installation of three corrugated metal pipe culverts approximately 86-foot long, 8-foot diameter that are sized/designed to facilitate releases from the upstream reservoir dam. The completed north creek crossing will be approximately 30 feet wide. Upstream culvert inlets and downstream culvert outlets will be installed with a rip-rap apron within the the top of bank (TOB).

The south crossing improvements include the installation of two corrugated metal pipe culverts approximately 8-foot diameter, one approximately 119 feet in length and the other approximately 124 feet in length, that are sized/designed to facilitate releases from the upstream reservoir dam. The completed south creek crossing will be approximately 15 feet wide. Upstream culvert inlets and downstream culvert outlets will be installed with a rip-rap apron between the boundaries of the TOB.

Culvert installation, Project Area access, and placement of riprap will result in a total of approximately 0.47 acres (20,652 sq. ft.) of direct impact to waters of the United States within the boundaries of the OHWM (USACE jurisdiction). Of those direct impacts, 0.06 acres (2,952 sq. ft.) will be temporary, and 0.41 acres (17,915 sq. ft.) will be permanent. The area of disturbance within the boundaries of the TOB (CDFW jurisdiction) of Los Banos Creek is approximately 0.81 acres (35,054 sq. ft.) and approximately 528 linear feet. The total area of disturbance both in and adjacent to Los Banos Creek is approximately 1.4 acres. Approximately 4,400 cubic yards of fill material will be placed as part of the Project. All infill material will come from the gravel operation on site. Typical construction sequencing for culvert installation includes the following;

- The area of the new culverts will be graded and leveled;
- Upgrade and stabilize banks to support the new culvert and provide optimal stabilization of erosion and sediment.
- A subbase will be installed at the proposed crossing location to support the culvert(s);
- The new pipes (and flared end section, where applicable) will be lifted into place and secured;
- Stabilization rock aprons will be installed upstream and downstream;
- The area over the culverts will be backfilled to the roadway grade; and
- The roadway surface will be constructed overhead

The new culverts will utilize riprap to stabilize sediment, prevent erosion, and dissipate energy around the construction of permanent features. Riprap will be placed within the streambed below TOB at the riprap aprons of culvert outlets to provide protection against re-concentration of flows, high velocities, and outlet scour. The size of rock material will be the minimum required in order to provide sufficient stabilization.

Construction Schedule

Project construction is anticipated to start in October of 2022. However, initiation of the Project will begin as soon as feasible after issuance of the necessary agency permits. Installation of the culverts will take approximately 12 weeks. Construction activities would be limited to Monday through Friday between the hours of 7:00 a.m. and 6:00 p.m. Construction noise would comply with County Ordinance 10.60.030 (5) and would be consistent with noise that is currently generated from the adjacent mining operations.

The Los Banos Creek Detention Reservoir and Dam stores water from April to August. If Project work is anticipated outside of those dates, flood control releases are made from the Los Banos Detention Dam by the California Department of Water Resources according to USACE flood control criteria between September 20 and March 15. It is not anticipated that water will be flowing in the channel at the time of Project work. Work will occur when the Creek is dry or during low flow conditions.

In the unlikely event of major stormflows during Project activities or when the reservoir is releasing water, crews will not work in the channel until major flows have subsided. The contractor will monitor weather conditions throughout the Project. If more than 0.5 inch of rain is forecast within two days, the contractor will cease work within the channel and stabilize the site. The contractor will continue work 24 hours after the end of the precipitation event.

The Project may construct in no-flow or low-flow conditions, when there are small amounts of water in Los Banos Creek. Sediment and erosion control best management practices (BMPs), appropriate to aquatic conditions will be employed when working in no-flow or low-flow conditions.

Temporary Cofferdam Upstream of the Project

Project work is anticipated to be started within the dry season. However, in the unlikely event that work may need to occur when normal flows are present within the work area, a flow bypass system will be installed. The bypass piping will be routed around the channel of Los Banos Creek and will extend the length of planned work area.

Flow will be collected at the upstream end of the bypass system by constructing a temporary cofferdam using appropriate materials such as sandbags or clean gravel bags and vinyl sheeting. The cofferdam will have a crest elevation high enough above the channel bottom to provide enough pressure head and freeboard for the bypass pipe inlet, with the bypass pipe set in the channel invert, for gravity flow bypassing the portion of the Project Area where earthwork and culvert installation will occur. The flow bypass will maintain natural creek flow and will include energy dissipation features downstream on the outlet of the diversion pipe.

Dewatering will convey base flows only, not stormflows. The contractor will be required to monitor and maintain all components of the dewatering system throughout the construction period. As described above rainfall runoff events that happen during the in-channel work window will not be controlled by the cofferdams. In the unlikely event of stormflows in Los Banos Creek in the summer months or early fall, crews will not work in the creek until flows have subsided.

Equipment

Equipment used for excavation and grading for the restoration work may include a small backhoe, excavator, tiller, and dump truck. Equipment will be staged in the developed areas of the facility. All equipment refueling and maintenance will occur outside of standing water and appropriate measures will be implemented to prevent the discharge of fuels or other contaminants into waterways in the event a spill. Refueling or maintenance will not occur within 100 feet of standing water. All equipment will be maintained free of petroleum leaks. All vehicles operated will be inspected daily for leaks and, if necessary, repaired. Inspections will be documented in a record that is available for review on request. Vehicle and equipment measures are further described in Section 4.4, Biological Resources.

Operation and Maintenance

The culverts will be operated and maintained by Triangle Rock. Triangle Rock will be responsible for performing regular maintenance activities, such as keeping the inlets and outlets clear of debris. All maintenance activities will be performed in accordance with applicable permit conditions.

2.1.7 Site and Surrounding Land Uses and Setting

Table 2-1: Existing Uses, General Plan Designation, & Zone Districts of Surrounding Properties

Direction from Project Area	Existing Use	General Plan Designation	Zone District
NORTH	Agriculture	Agriculture	A1- General Agriculture
EAST	Mining Facilities	Agriculture	A1- General Agriculture
SOUTH	Mining Facilities/Agriculture	Agriculture	A1 -General Agriculture
WEST	Agriculture	Agriculture	A1- General Agriculture

2.1.8 Other Public Agencies Whose Approval May Be Required

California Department of Fish and Wildlife (CDFW), Regional Water Quality Control Board (RWQCB), United States Army Corps of Engineers (USACE), and United States Fish and Wildlife Service (USFWS).

2.1.9 Consultation with California Native American Tribes

Public Resources Code Section 21080.3.1, *et seq.* (codification of Assembly Bill (AB) 52, 2013-14)) requires that a lead agency, within 14 days of determining that it will undertake a project, must notify in writing any California Native American Tribe traditionally and culturally affiliated with the geographic area of the project if that Tribe has previously requested notification about projects in that geographic area. The notice must briefly describe the project and inquire whether the Tribe wishes to request formal consultation. Tribes have 30 days from receipt of notification to request formal consultation. The lead agency then has 30 days to initiate the consultation, which then continues until the parties come to an agreement regarding necessary mitigation or agree that no mitigation is needed, or one or both parties determine that negotiation occurred in good faith, but no agreement will be made.

The San Luis Water District has not received any written correspondence from a Tribe pursuant to Public Resources Code Section 21080.3.1 requesting notification of the proposed Project.

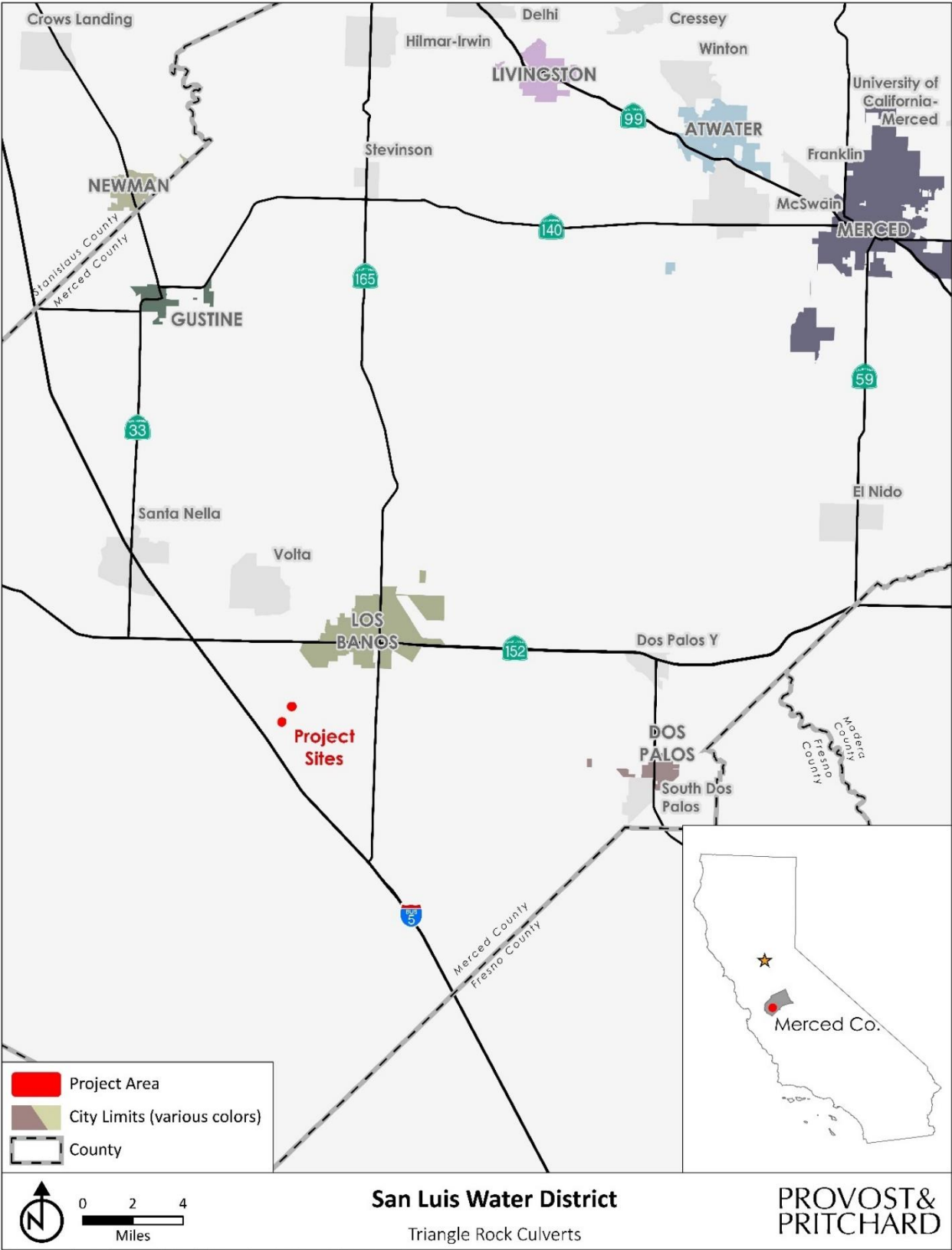


Figure 2-1: Regional Location Map

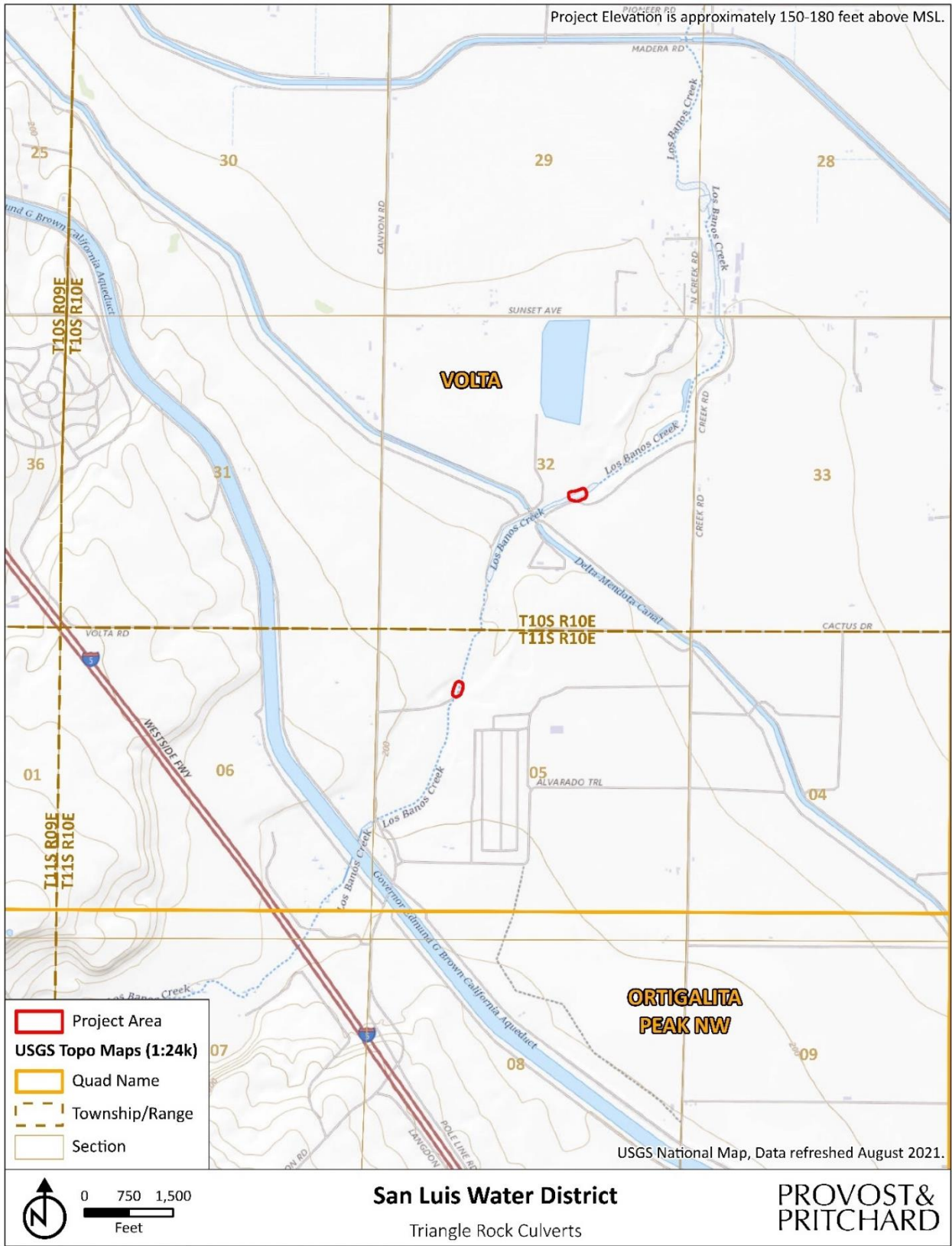


Figure 2-2: Topographic Quadrangle Map



Figure 2-3: Site Map

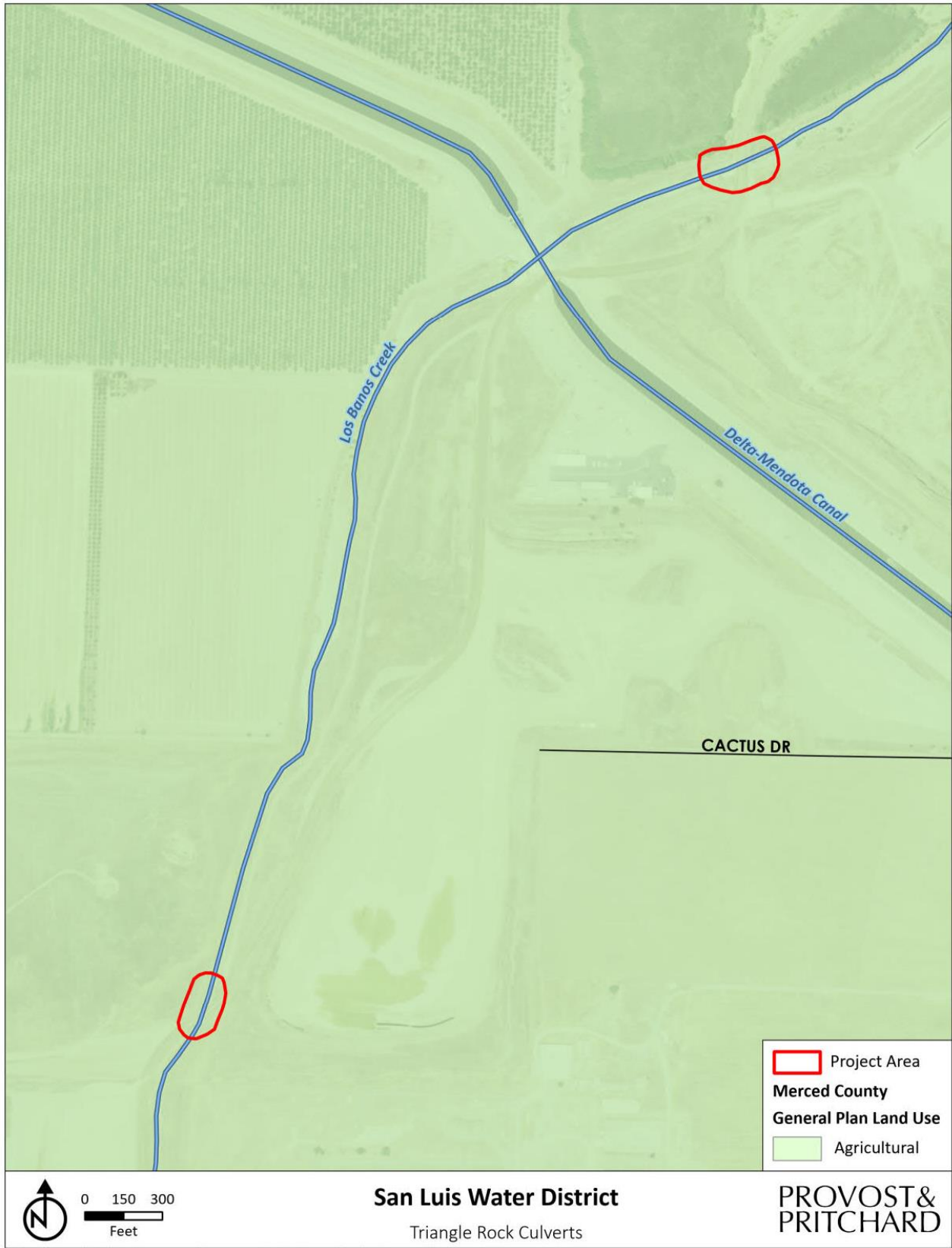


Figure 2-4: General Plan Land Use Designation Map

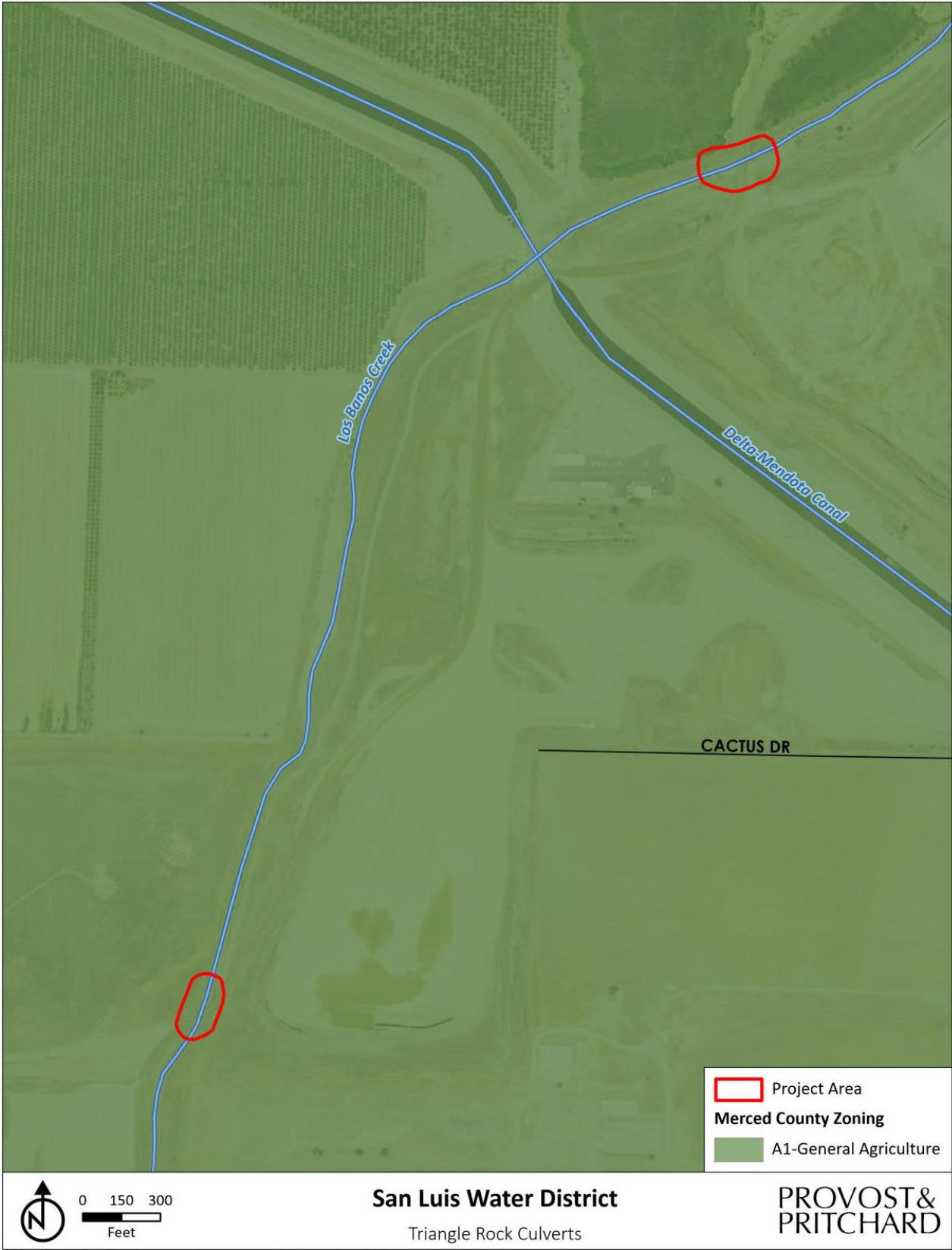


Figure 2-5: Zone District Map

CHAPTER 3 DETERMINATION

3.1 POTENTIAL ENVIRONMENTAL IMPACTS

As indicated by the discussions of existing and baseline conditions, and impact analyses that follow in this Chapter, environmental factors not checked below would have no impacts or less than significant impacts resulting from the project. Environmental factors that are checked below would have potentially significant impacts resulting from the project. Mitigation measures are recommended for each of the potentially significant impacts that would reduce the impact to less than significant.

- | | | |
|---|---|--|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture and Forestry Resources | <input type="checkbox"/> Air Quality |
| <input checked="" type="checkbox"/> Biological Resources | <input checked="" type="checkbox"/> Cultural Resources | <input type="checkbox"/> Energy |
| <input checked="" type="checkbox"/> Geology/Soils | <input type="checkbox"/> Greenhouse Gas Emissions | <input type="checkbox"/> Hazards and Hazardous Materials |
| <input checked="" type="checkbox"/> Hydrology / Water Quality | <input type="checkbox"/> Land Use/Planning | <input type="checkbox"/> Mineral Resources |
| <input type="checkbox"/> Noise | <input type="checkbox"/> Population/Housing | <input type="checkbox"/> Public Services |
| <input type="checkbox"/> Recreation | <input type="checkbox"/> Transportation | <input checked="" type="checkbox"/> Tribal Cultural Resources |
| <input type="checkbox"/> Utilities and Service Systems | <input type="checkbox"/> Wildfire | <input checked="" type="checkbox"/> Mandatory Findings of Significance |

The analyses of environmental impacts in **Chapter 4 Impact Analysis** result in an impact statement, which shall have the following meanings.

Potentially Significant Impact. This category is applicable if there is substantial evidence that an effect may be significant, and no feasible mitigation measures can be identified to reduce impacts to a less than significant level. If there are one or more “Potentially Significant Impact” entries when the determination is made, an EIR is required.

Less than Significant with Mitigation Incorporated. This category applies where the incorporation of mitigation measures would reduce an effect from a “Potentially Significant Impact” to a “Less than Significant Impact.” The lead agency must describe the mitigation measure(s), and briefly explain how they would reduce the effect to a less than significant level (mitigation measures from earlier analyses may be cross-referenced).


Less than Significant Impact. This category is identified when the proposed Project would result in impacts below the threshold of significance, and no mitigation measures are required.

No Impact. This category applies when a project would not create an impact in the specific environmental issue area. “No Impact” answers do not require a detailed explanation if they are adequately supported by the information sources cited by the lead agency, which show that the impact does not apply to the specific project (e.g. the project falls outside a fault rupture zone). A “No Impact” answer should be explained where it is based on project-specific factors as well as general standards (e.g. the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

3.2 DETERMINATION

On the basis of this initial evaluation (to be completed by the Lead Agency):

- ☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- ☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- ☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- ☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- ☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.


Signature

August 17, 2022
Date

Steven Stadler, P.E.

Steven Stadler, PE/District Engineer

CHAPTER 4 ENVIRONMENTAL IMPACT ANALYSIS

4.1 AESTHETICS

Table 4-1: Aesthetics Impacts

Except as provided in Public Resources Code Section 21099, would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Have substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.1.1 Baseline Conditions

The Project Area is within Los Banos Creek and is largely surrounded by agricultural land used for crops and the Triangle Rock gravel mining operation. In addition, Interstate 5 (I-5), rural roadways, Los Banos Creek and Los Banos Creek Reservoir, and the Delta-Mendota Canal (DMC) lie within the vicinity of the Project Area. The nearest scenic highway segment is at the intersection of Interstate 5 and State Route 152, approximately 4.7 miles northwest of the proposed culvert improvements. The proposed Project and creek is completely surrounded by the existing mining operation and highly disturbed. See [Figure 2-3](#).

4.1.2 Impact Analysis

a) Have substantial adverse effect on a scenic vista?

Less than Significant Impact. Los Banos Creek is recognized as a scenic resource by the Merced County General Plan. However, the construction and operation of the proposed culverts would not have an adverse effect as the nature and aesthetic of the creek would not be significantly changed. The culverts

would be constructed on already established crossings in the creek bed that is part of an active, permitted surface mining operation. Therefore, any impact would be less than significant.

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

No Impact. The Scenic Highway Program was created to preserve and protect designated scenic highway corridors from change that would diminish the aesthetic value of lands adjacent to highways. A highway may be officially designated “scenic” depending upon how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes upon the traveler’s enjoyment of the view. There are no trees, rock outcroppings, or historical buildings that would be substantially damaged by the Project. The nearest scenic highway segment is approximately 4.7 miles northwest of the Project. There would be no impact.

c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

Less than Significant Impact. The project involves the construction of two culverts to facilitate travel across Los Banos Creek. The Project is not located in an urbanized area and therefore, would not conflict with zoning or scenic regulations within an urban area. Following construction of the Project, the visual character of the site would not be significantly changed, as the culverts would be constructed to replace the existing gravel crossings. Culverts and creek crossings are common visual occurrences within Los Banos Creek. Therefore, the Project would not degrade the existing visual character or public views of the site and any impacts would be less than significant.

d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

No Impact. The Project does not involve the installation of any lights; therefore, no new source of light or glare is associated with the Project. No nighttime construction is proposed that would create a temporary source of light or glare. Therefore, there would be no impact.

4.2 AGRICULTURE AND FORESTRY RESOURCES

Table 4-2: Agriculture and Forest Impacts

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.2.1 Baseline Conditions

Agricultural land is the predominant open space landscape and surrounds the Project Area from all sides. In the immediate vicinity of the Project Area are access roads, Triangle Rock's mining operation, and some scattered rural residences. While land uses on surrounding properties include various types of agricultural uses and are designated as Prime Farmland and Farmland of Local Importance, the Project Area is designated as Vacant or Disturbed Land under the Important Farmland Mapping and Monitoring Program (FMMP)¹.

4.2.2 Applicable Regulations

Farmland Mapping and Monitoring Program (FMMP): The FMMP produces maps and statistical data used for analyzing impacts to California's agricultural resources. Agricultural land is rated according to soil quality and irrigation status; the best quality land is called Prime Farmland. The maps are updated every two years with the use of a computer mapping system, aerial imagery, public review, and field reconnaissance.

¹ (California Department of Conservation 2022)

The California Department of Conservation's 2012 FMMP is a non-regulatory program that produces "Important Farmland" maps and statistical data used for analyzing impacts on California's agricultural resources. The Important Farmland maps identify eight land use categories, five of which are agriculture related: prime farmland, farmland of statewide importance, unique farmland, farmland of local importance, and grazing land – rated according to soil quality and irrigation status. Each is summarized below:

- **PRIME FARMLAND (P):** Farmland with the best combination of physical and chemical features able to sustain long term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.
- **FARMLAND OF STATEWIDE IMPORTANCE (S):** Farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.
- **UNIQUE FARMLAND (U):** Farmland of lesser quality soils used for the production of the state's leading agricultural crops. This land is usually irrigated but may include non- irrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the four years prior to the mapping date.
- **FARMLAND OF LOCAL IMPORTANCE (L):** Land of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee.
- **GRAZING LAND (G):** Land on which the existing vegetation is suited to the grazing of livestock. The minimum mapping unit for Grazing Land is 40 acres.
- **URBAN AND BUILT-UP LAND (D):** Land occupied by structures with a building density of at least 1 unit to 1.5 acres, or approximately 6 structures to a 10-acre parcel. This land is used for residential, industrial, commercial, institutional, public administrative purposes, railroad and other transportation yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, water control structures, and other developed purposes.
- **OTHER LAND (X):** Land not included in any other mapping category. Common examples include low density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry or aquaculture facilities; strip mines, borrow pits; and water bodies smaller than 40 acres. Vacant and nonagricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land.
- **WATER (W):** Perennial water bodies with an extent of at least 40 acres.

4.2.3 Impact Analysis

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

No Impact. The Project Area is designated as Vacant or Disturbed Land by the FMMP of the California Resources Agency. The area surrounding the Project Area is part of an active quarry that was established

in the 1950's. As such, the Project would not convert any existing Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. There would be no impact.

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

No Impact. As per the Merced County zoning ordinance the Project Area is zoned A-1 for General Agriculture. Additionally, the site is not under a Williamson Act contract. The Project will construct two culverts through existing creek crossings. No land within the Project construction area is actively farmed or used for agriculture; therefore, no land will be removed from agriculture use. There would be no impact.

c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))? And;

d) Result in the loss of forest land or conversion of forest land to non-forest use? And;

e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

No Impacts. There are no forestry lands or timberland within or adjacent to the Project Area that would be affected by the construction of the Project. The Project will construct two culverts and would not result in the conversion or loss of farmland or forested lands. There would be no impacts to agricultural or forest lands.

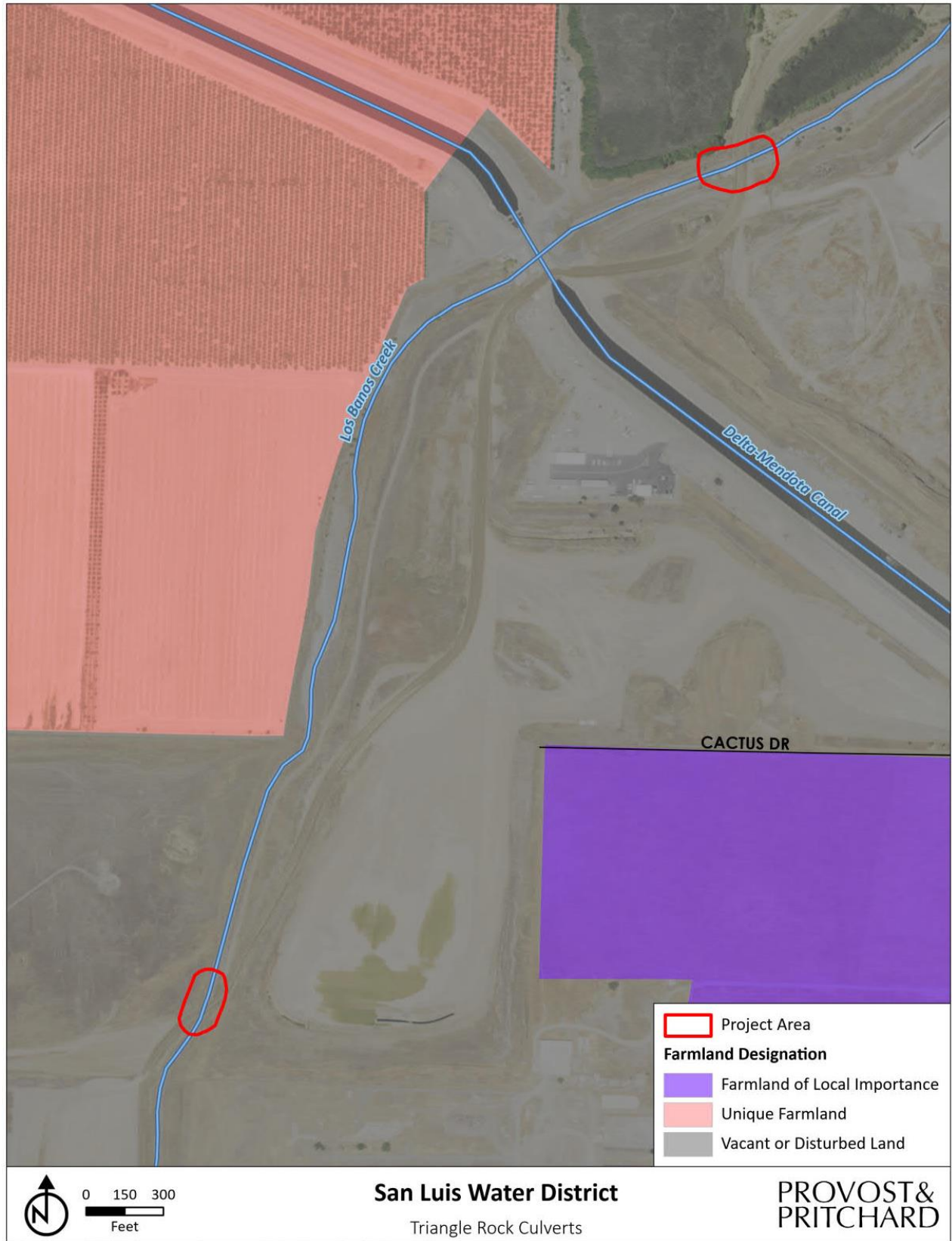


Figure 4-1: Farmland Designation Map

4.3 AIR QUALITY

Table 4-3: Air Quality Impacts

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.3.1 Baseline Conditions

Under the California Clean Air Act (CCAA), the California Air Resources Board (CARB) is required to designate areas of the State as attainment, nonattainment, or unclassified with respect to applicable standards. An “attainment” designation for an area signifies that pollutant concentrations did not violate the applicable standard in that area. A “nonattainment” designation indicates that a pollutant concentration violated the applicable standard at least once, excluding those occasions when a violation was caused by an exceptional event, as defined in the criteria. Depending on the frequency and severity of pollutants exceeding applicable standards, the nonattainment designation can be further classified as serious nonattainment, severe nonattainment, or extreme nonattainment, with extreme nonattainment being the most severe of the classifications. An “unclassified” designation signifies that the data does not support either an attainment or nonattainment designation. The CCAA divides districts into moderate, serious, and severe air pollution categories, with increasingly stringent control requirements mandated for each category.

The Environmental Protection Agency (EPA) designates areas for ozone, CO, and NO₂ as “does not meet the primary standards,” “cannot be classified,” or “better than national standards.” For SO₂, areas are designated as “does not meet the primary standards,” “does not meet the secondary standards,” “cannot be classified,” or “better than national standards.” However, the CARB terminology of attainment, nonattainment, and unclassified is more frequently used. The EPA uses the same sub-categories for nonattainment status: serious, severe, and extreme. In 1991, EPA assigned new nonattainment designations to areas that had previously been classified as Group I, II, or III for particulate matter 10 microns in size (PM₁₀) based on the likelihood that they would violate national PM₁₀ standards. All other areas are designated “unclassified.”

The State and national attainment status designations pertaining to the San Joaquin Valley Air Board (SJVAB) are summarized in [Table 4-4](#). The SJVAB is currently designated as a nonattainment area with respect to the State PM₁₀ standard, ozone, and particulate matter 2.5 microns in size (PM_{2.5}) standards. The SJVAB is designated nonattainment for the National Ambient Air Quality Standards (NAAQS) 8-hour ozone and PM_{2.5} standards. On September 25, 2008, the USEPA re-designated the San Joaquin Valley to attainment status for the PM₁₀ NAAQS and approved the PM₁₀ Maintenance Plan. California’s ambient air

monitoring network is one of the most extensive in the world, with more than 250 sites and 700 individual monitors measuring air pollutant levels across a diverse range of topography, meteorology, emissions, and air quality. Existing levels of ambient air quality and historical trends and projections in the Project are best documented by measurements made by these monitoring sites. The nearest monitoring site to the Project is Merced-S Coffee Avenue location in the City of Merced at 385 S. Coffee Avenue. The site measures O₃. The nearest monitoring site that measures PM₁₀, and PM_{2.5}, is the Merced-2334 M Street location in the City of Merced at 2334 M Street. Data presented in [Table 4-4](#) summarize monitoring data from the CARB's Aerometric Data Analysis and Management System for locations, published from 2018 to 2020.

Table 4-4: Ambient Air Quality Monitoring Summary²

Air Pollutant	Averaging Time	Item	2018	2019	2020
Ozone	1-hour	Max 1 Hour (ppm)	0.104	0.087	0.100
		Days > State Standard (0.09 ppm)	4	0	2
	8-hour	Max 8 Hour (ppm)	0.084	0.077	0.088
		Days > State Standard (0.070 ppm)	23	6	21
		Days > National Standard (0.070 ppm)	21	6	20
		Days > National Standard (0.075 ppm)	7	1	5
Inhalable coarse particles (PM ₁₀)	Annual	National Annual Average (µg/m ³)	34.1	29.2	41.6
	24-hour	National 24 Hour (µg/m ³)	137.0	96.1	210.7
		Days > State Standard (50 µg/m ³)	10	9	13
		Days > National Standard (150 µg/m ³)	0	0	1
Fine particulate matter (PM _{2.5})	Annual	National Annual Average (µg/m ³)	14.2	9.6	15.5
	24-hour	24 Hour (µg/m ³)	94.7	41.6	86.0
		Days > National Standard (35 µg/m ³)	10	1	9

² (California Air Resources Board 2022)

Table 4-5: Summary of Ambient Air Quality Standards and Attainment Designation

Pollutant	Averaging Time	California Standards*		National Standards*	
		Concentration*	Attainment Status	Primary	Attainment Status
Ozone (O ₃)	1-hour	0.09 ppm	Nonattainment/ Severe	–	No Federal Standard
	8-hour	0.070 ppm	Nonattainment	0.070 ppm	Nonattainment (Extreme)**
Particulate Matter (PM ₁₀)	AAM	20 µg/m ³	Nonattainment	–	Attainment
	24-hour	50 µg/m ³		150 µg/m ³	
Fine Particulate Matter (PM _{2.5})	AAM	12 µg/m ³	Nonattainment	12 µg/m ³	Nonattainment
	24-hour	No Standard		35 µg/m ³	
		1-hour	20 ppm	Attainment/ Unclassified	35 ppm
Carbon Monoxide (CO)	8-hour	9 ppm	9 ppm		
	8-hour (Lake Tahoe)	6 ppm	–		
Nitrogen Dioxide (NO ₂)	AAM	0.030 ppm	Attainment	53 ppb	Attainment/ Unclassified
	1-hour	0.18 ppm		100 ppb	
Sulfur Dioxide (SO ₂)	AAM	–	Attainment	--	Attainment/ Unclassified
	24-hour	0.04 ppm		--	
	3-hour	–		0.5 ppm	
	1-hour	0.25 ppm		75 ppb	
Lead (Pb)	30-day Average	1.5 µg/m ³	Attainment	–	No Designation/ Classification
	Calendar Quarter	–		--	
	Rolling 3-Month Average	–		0.15 µg/m ³	
Sulfates (SO ₄)	24-hour	25 µg/m ³	Attainment	No Federal Standards	
Hydrogen Sulfide (H ₂ S)	1-hour	0.03 ppm (42 µg/m ³)	Unclassified		
Vinyl Chloride (C ₂ H ₃ Cl)	24-hour	0.01 ppm (26 µg/m ³)	Attainment		
Visibility-Reducing Particle Matter	8-hour	Extinction coefficient: 0.23/km-visibility of 10 miles or more due to particles when the relative humidity is less than 70%.	Unclassified		

* For more information on standards visit: <https://ww3.arb.ca.gov/research/aqqs/aqqs2.pdf>

** No Federal 1-hour standard. Reclassified extreme nonattainment for the Federal 8-hour standard [date].

***Secondary Standard

Source: CARB ; SJVAPCD , accessed May 2022

4.3.2 Impact Analysis

4.3.2.1 Short-Term Construction-Generated Emissions

Short-term construction emissions associated with the Project were calculated using California Emissions Estimator Modeling (software) CalEEmod, Version 2016.3.2. These output files can be found in [Appendix A](#). The sections below detail the methodology of the air quality and greenhouse gas emissions analysis and its conclusions.

The emissions modeling includes emissions generated by off-road equipment, haul trucks, and worker commute trips. Emissions were quantified based on anticipated construction schedules and construction equipment requirements provided by the Project applicant. All remaining assumptions were based on the default parameters contained in the model. Localized air quality impacts associated with the Project would be minor and were qualitatively assessed.

4.3.2.2 Long-Term Operational Emissions

Once constructed the Project would not emit long-term operational emissions. The constructed culverts may occasionally require maintenance which would utilize maintenance trucks. Any emissions resulting from this would be very minimal. Therefore, operational emissions were not analyzed.

4.3.2.3 Thresholds of Significance

To assist local jurisdictions in the evaluation of air quality impacts, the San Joaquin Valley Air Pollution Control District (SJVAPCD) has published the *Guide for Assessing and Mitigating Air Quality Impacts*. This guidance document includes recommended thresholds of significance to be used for the evaluation of short-term construction, long-term operational, odor, toxic air contaminant, and cumulative air quality impacts. Accordingly, the SJVAPCD-recommended thresholds of significance are used to determine whether implementation of the proposed Project would result in a significant air quality impact. Projects that exceed these recommended thresholds would be considered to have a potentially significant impact to human health and welfare. The thresholds of significance are summarized, as follows:

Short-Term Emissions of Particulate Matter (PM₁₀): Construction impacts associated with the proposed Project would be considered significant if the feasible control measures for construction in compliance with Regulation VIII as listed in the SJVAPCD guidelines are not incorporated or implemented, or if project-generated emissions would exceed 15 tons per year (TPY).

Short-Term Emissions of Ozone Precursors (ROG and NO_x): Construction impacts associated with the proposed Project would be considered significant if the Project generates emissions of Reactive Organic Gases (ROG) or Nitrogen oxides (NO_x) that exceeds 10 TPY.

Long-Term Emissions of Particulate Matter (PM₁₀): Operational impacts associated with the proposed Project would be considered significant if the Project generates emissions of PM₁₀ that exceed 15 TPY.

Long-Term Emissions of Ozone Precursors (ROG and NO_x): Operational impacts associated with the proposed Project would be considered significant if the Project generates emissions of ROG or NO_x that exceeds 10 TPY.

Conflict with or Obstruct Implementation of Applicable Air Quality Plan: Due to the region's nonattainment status for ozone, PM_{2.5}, and PM₁₀, if the project-generated emissions of either of the ozone precursor

pollutants (i.e., ROG and NO_x) or PM₁₀ would exceed the SJVAPCD's significance thresholds, then the project would be considered to conflict with the attainment plans. In addition, if the project would result in a change in land use and corresponding increases in vehicle miles traveled, the project may result in an increase in vehicle miles traveled that is unaccounted for in regional emissions inventories contained in regional air quality control plans.

Local Mobile-Source CO Concentrations: Local mobile source impacts associated with the proposed Project would be considered significant if the project contributes to CO concentrations at receptor locations in excess of the California Ambient Air Quality Standards (i.e. 9.0 ppm for 8 hours or 20 ppm for 1 hour).

Exposure to toxic air contaminants (TAC) would be considered significant if the probability of contracting cancer for the Maximally Exposed Individual (i.e., maximum individual risk) would exceed 10 in 1 million or would result in a Hazard Index greater than 1.

Odor impacts associated with the proposed Project would be considered significant if the project has the potential to frequently expose members of the public to objectionable odors.

- a) Would the project conflict with or obstruct implementation of the applicable air quality plan? And;
- b) Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

Less than Significant Impacts. Estimated construction-generated emissions are summarized in **Table 4-6** below and will be less than the SJVAPCD established thresholds of significance. Construction-related air quality emissions are below the SJVAPCD Rule 9510 threshold to reduce construction emissions. Impacts would be less than significant.

Table 4-6: Unmitigated Short-Term Construction-Generated Emissions of Criteria Air Pollutants

Source	Annual Emissions (Tons/Year) ⁽¹⁾					
	ROG	NO _x	CO	PM ₁₀	PM _{2.5}	SO _x
2022	0.04	0.33	0.28	0.04	0.03	<0.01
2023	<0.01	0.03	0.05	<0.01	<0.01	<0.01
Maximum	0.04	0.33	0.28	0.04	0.03	<0.01
SJVAPCD Significance Thresholds:	10	10	100	15	15	27
Exceed SJVAPCD Thresholds?	No	No	No	No	No	No

1. Refer to **Appendix A** for modeling results and assumptions. Totals may not sum due to rounding.

- c) Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Less than Significant Impact. Implementation of the Project would not result in the long-term operation of any major onsite stationary sources of TACs. However, construction of the Project may result in temporary increases in emissions of diesel particulate matter (DPM) associated with the use of off-road diesel equipment. Health-related risks associated with diesel-exhaust emissions are primarily associated with long-term exposure and associated risk of contracting cancer. As such, cancer risks associated with exposure of to TACs are typically calculated based on a long-term (e.g., 70-year) period of exposure. However, the use of diesel-powered construction equipment would be temporary and episodic.

Construction activities would occur over approximately 12 weeks, which would constitute approximately 0.33 percent of the typical 70-year exposure period. Construction activity will take place in a rural area with no sensitive receptors adjacent to the Project Area. For these reasons and given the relatively high dispersive properties of DPM, exposure to construction generated DPM would not be anticipated to exceed applicable thresholds (i.e., incremental increase in cancer risk of 10 in one million).

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

No Impact. Land uses that commonly emit odorous compounds include dairies, agricultural uses, wastewater treatment plants, chemical plants, food processing facilities, composting, refineries, and fiberglass molding facilities. The Project includes the construction of two culverts at an existing creek crossing. These activities would not result in the emission of odorous compounds. The operational phase of the Project would not emit any odorous compounds. There would be no impact.

4.4 BIOLOGICAL RESOURCES

Table 4-7: Biological Resources Impacts

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly 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 Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) 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 Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Have a 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.4.1 Baseline Conditions

Los Banos Creek is located in the inland region of Los Banos in Merced County within in the San Joaquin Valley. Like most of California, this area experiences a Mediterranean climate. Warm, dry summers are followed by chilly, moist winters. The average summertime monthly temperature for the area ranges from highs of 95 Fahrenheit (°F) and lows around 60 °F. Average winter monthly temperatures reach highs of 55 °F on average to lows of 40 °F. Predominantly, precipitation falls as rainfall between November and April with an annual average precipitation of 11 inches.

The overall topography of the area is flat with elevations ranging from approximately 180 to 240 feet above sea level. The Central Valley is bordered by the Sierra Nevada Mountain Range to the east, the Coast Range

to the west, the Klamath Mountains and Cascade Range to the north, and the Transverse Ranges and Mojave Desert to the south.

The majority of the area is industrial use ruderal/ developed land which is primarily unvegetated and consists of the mine access road for Triangle Rock Products operation. Undeveloped areas consist of nonnative annual grassland and Los Banos Creek. Surrounding land use is predominantly undeveloped land and agricultural land³. Historically, the area assessed was used for agricultural uses and was developed as a quarry around the 1950's (See [Appendix B](#)).

The local watershed is Los Banos Creek (Hydrologic Unit Code (HUC) 12: 180400011902; Natural Resources Conservation Service (NRCS) 2021) and the regional watershed is Middle San Joaquin-Lower Chowchilla (HUC 8: 18040001; NRCS 2021). Los Banos Creek originates from the Coast Range and flows east towards the Central Valley. The segment of the Los Banos Creek assessed lies between the California Aqueduct and the DMC, flowing over the DMC and northeast through the industrial gravel mining property. Los Banos Creek occurs within an engineered channel with high banks. It has a distinct bed and bank and indicators of ordinary high water mark (OHWM) such as scour, sediment sorting, and mud cracks. Los Banos Creek is listed on the Clean Water Act Section 303(d) list as an impaired waterway for sediment and water toxicity.

The Los Banos Creek hydrology is complicated by the fact that flows are mostly controlled by the Los Banos Detention Dam, located approximately two miles southwest of the southern portion of the assessed Creek segment. The Los Banos Creek was dammed to detain floodwater to protect the San Luis Canal, the DMC, the City of Los Banos and adjacent areas from damaging floods. Flood control releases from the Los Banos Creek Detention Reservoir are made according to USACE flood control releases between September 20 and March 15. Waters are stored in the Los Banos Creek Detention Reservoir from November 1 to April 30.

The Triangle Rock Products mining facility currently uses and maintains two existing dry creek crossings over Los Banos Creek. The dry creek crossings are permitted via an existing Lake or Streambed Alteration (LSA) Agreement (R4-2001-0098D). The Los Banos Creek crossings can only be used when the creek is dry. Periodic water releases from Los Banos Creek Detention Dam between September and March close the creek crossings, and cut off vehicle access between mining sites and the processing facility when the road is inundated by creek flow.

4.4.1.1 Methodology

On July 16, 2021, WRA, Inc. Environmental Consultants (WRA) biologists visited the Project Area to map vegetation, aquatic communities, unvegetated land cover types, document plant and wildlife species present, and evaluate on-site habitat for the potential to support special-status species as defined by CEQA (see [Appendix B](#)). For the purposes of the field work the Study Area, which included site buffers of 50 feet, is identified as three acres. Prior to the site visit, WRA biologists reviewed literature resources and performed database searches to assess the potential for sensitive biological communities (e.g., wetlands) and special-status species (e.g., endangered plants), including:

- Soil Survey of Los Banos, California (United States Department of Agriculture 1952)
- Volta 7.5-minute United States Geological Survey (USGS) quadrangle (USGS 2018)
- Contemporary aerial photographs (Google Earth 2021)
- Historical aerial photographs (NETR 2021)
- National Wetlands Inventory (United States Fish and Wildlife Service (USFWS) 2021a)
- California Aquatic Resources Inventory (SFEI 2017)
- California National Diversity Database (CNDDDB) (CDFW 2021)

³ (Google Earth 2021). Los Banos Area: 37.010171°, -120.904615°. Image dates: 1985-2021.

- California Native Plant Society (CNPS) Inventory (CNPS 2021)
- Consortium of California Herbaria (CCH1 2021, CCH2 2021)
- USFWS List of Federal Endangered and Threatened Species (USFWS 2021b)
- Cornell Lab of Ornithology eBird Online Database (eBird 2021)
- CDFW Publication, California Bird Species of Special Concern in California (Shuford and Gardali 2008)
- CDFW and University of California Press publication California Amphibian and Reptile Species of Special Concern (Thomson et al. 2016)
- A Field Guide to Western Reptiles and Amphibians (Stebbins 2003)
- A Manual of California Vegetation, Online Edition (CNPS 2021)
- Preliminary Descriptions of the Terrestrial Natural Communities (Holland 1986)
- California Natural Community List (CDFW 2020)

Database searches (i.e., CNDDDB, CNPS) for special-status species focused on the *Volta* USGS 7.5-minute quadrangles. Following the remote assessment, WRA biologists completed a field review on July 16, 2021 to document: (1) land cover types (e.g., terrestrial communities, aquatic resources), (2) existing conditions and to determine if such provide suitable habitat for any special-status plant or wildlife species, (3) if and what type of aquatic natural communities (e.g., wetlands) are present, and (4) if special-status species are present.

Vegetation Communities and Other Land Cover Types

During the site visit, WRA evaluated the species composition and area occupied by distinct vegetation communities, aquatic communities, and other land cover types. Mapping of these classifications utilized a combination of aerial imagery and ground surveys. In most instances, communities are characterized and mapped based on distinct shifts in plant assemblage (vegetation) and follow the California Natural Community List (CDFW 2020) and A Manual of California Vegetation, Online Edition (CNPS 2021b). These resources cannot anticipate every component of every potential vegetation assemblage in California, and so in some cases, it is necessary to identify other appropriate vegetative classifications based on best professional judgment of WRA biologists.

The site was reviewed for the presence of wetlands and other aquatic resources on July 16, 2021 according to the methods described in the USACE Manual (Environmental Laboratory 1987), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West/Western Mountains and Valleys Region* (Arid West; Corps 2008/Western Mountains and Valleys Supplement; USACE 2010), *A Guide to Ordinary High Water Mark Delineation for Non-Perennial Streams in the Western Mountains, Valleys, and Coast Regions of the United States*, and *A Field Guide to the Identification of the Ordinary High Water Mark in the Arid West Region of the Western United States*. Areas meeting these indicators were mapped as aquatic resources and categorized using the vegetation community classification methods described above. Aquatic communities which are mapped in the National Oceanic and Atmospheric Administration (NOAA) Essential Fish Habitat (EFH) Mapper (NOAA 2021) or otherwise meet criteria for designation as EFH were also investigated. The presence of riparian habitat was evaluated based on woody plant species meeting the definition of riparian provided in *A Field Guide to Lake and Streambed Alteration Agreements*, Section 1600-1607, California Fish and Game Code (CDFG 1994) and based on best professional judgement of biologists completing the field surveys. (see [Appendix B](#))

Special Status Species

Potential occurrence of special-status species in the Project Area was evaluated by first determining which special-status species occur in the vicinity of the Project Area through a literature and database review as described above. Presence of suitable habitat for special-status species was evaluated during the site visit

based on physical and biological conditions of the site as well as the professional expertise of the investigating biologists.

The potential for each special-status species to occur in the Study Area was then determined according to the following criteria:

- No Potential: Habitat on and adjacent to the site is clearly unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).
- Unlikely: Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.
- Moderate Potential: Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.
- High Potential: All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.
- Present: Species is observed on the site or has been recorded (i.e. CNDDDB, other reports) on the site in the recent past.

Wildlife Corridors and Native Wildlife Nursery Sites

To account for potential impacts to wildlife movement/migratory corridors, biologists reviewed maps from the California Essential Connectivity Project (see [Appendix B](#)), and habitat connectivity data available through the CDFW Biogeographic Information and Observation System (see [Appendix B](#)). Additionally, aerial imagery for the local area was referenced to assess if local core habitat areas were present within or connected to the Project Area.⁴ This assessment was refined based on observations of on-site physical and/or biological conditions, including topographic and vegetative factors that can facilitate wildlife movement, as well as on-site and off-site barriers to connectivity.

The potential presence of native wildlife nursery sites was evaluated by WRA, Inc. biologists as part of the site visit and discussion of individual wildlife species below. Examples of native wildlife nursery sites include nesting sites for native bird species (particularly colonial nesting sites), marine mammal pupping sites, and colonial roosting sites for other species (such as for monarch butterfly [*Danaus plexippus*]).

4.4.1.2 Survey Results

Based upon a review of the resource databases listed in [Methodology 4.4.1.1](#), WRA biologists indicated that 25 of the 30 special-status wildlife species documented in the vicinity of the Project Area can be excluded from on a lack of habitat features or heavy human disturbance (See [Table 4-8: Special Status animal species and their potential in the Project Area](#)). Features not found within the Project Area that are required to support special-status wildlife species include:

- Vernal pools
- Perennial aquatic habitat (e.g. streams, rivers or ponds)
- Marsh areas
- Forest

⁴ (Google Earth 2021) Los Banos Area: 37.010171°,-120.904615°. Image dates: 1985-2021.

- Open annual grassland or scrub

The absence of such habitat features eliminates components critical to the survival or movement of most special-status species found in the vicinity.

There are five special-status species identified in the Biological Evaluation to have the potential to occur in the immediate vicinity of, or near portions of the Project Area: Swainson's Hawk (*Buteo swainsoni*), Burrowing Owl (*Athene cunicularia*), Northern Harrier (*Circus hudsonius*), Loggerhead Shrike (*Lanius ludovicianus*) and western red bat (*Lasiurus blossevillei*).

Northern harrier was the only special status species observed (outside of the Project Area) during the July 16, 2021 site visit.

Table 4-8: Special Status animal species and their potential in the Project Area

Species	Status	Habitat	Occurrence on Project Area
American badger (<i>Taxidea taxus</i>)	CSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Requires friable soils and open, uncultivated ground. Preys on burrowing rodents.	Unlikely. The Project Area contains grassland. However, this species typically requires large, contiguous habitat for this species. The surrounding landscape is heavily disturbed through agricultural and quarry operations, further reducing potential for this species to occur within the Project Area. No suitably sized burrows were observed during the site visit. No species were observed onsite during the survey.
Blunt-nosed leopard lizard (<i>Gambelia sila</i>)	FE, CE, CFP	Resident of sparsely vegetated alkali and desert scrub habitats, in areas of low topographic relief. Seeks cover in mammal burrows, under shrubs or structures such as fence posts; they do not excavate their own burrows.	Unlikely. This species is documented in the hills west of the Project Area. However, the Project Area does not contain typical desert scrub habitat. The surrounding landscape is heavily disturbed through agricultural and quarry operations, further reducing potential for this species to occur within the Project Area. No species were observed onsite during the survey.
Burrowing Owl (<i>Athene cunicularia</i>)	CSC	Year-round resident and winter visitor. Occurs in open, dry grasslands and scrub habitats with low-growing vegetation, perches and abundant mammal burrows. Preys upon insects and small vertebrates. Nests and roosts in old mammal burrows, most commonly those of ground squirrels.	Moderate Potential. Ground squirrel activity and burrow complexes were observed approximately 250 feet south of the Project Area. No species were observed onsite during the survey. However, burrowing owls are not frequently observed in the vicinity. There are few documented occurrences within 5 miles (CDFW 2021, eBird 2021).
California red-legged frog (<i>Rana draytonii</i>)	FT, CSC	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11 to 20 weeks of permanent water for larval	Unlikely. The nearest documented occurrences are over 6 miles from the Project Area, west of the Los Banos Reservoir and are associated with ponded habitat in oak woodland and

Species	Status	Habitat	Occurrence on Project Area
		development. Associated with quiet perennial to intermittent ponds, stream pools and wetlands. Prefers shorelines with extensive vegetation. Disperses through upland habitats after rains.	grassland. Los Banos Creek in the vicinity of the Project Area is open and rocky, and lacks vegetative cover to support breeding or provide refugia for this species. The surrounding landscape is heavily disturbed through agricultural and quarry operations, further reducing potential for this species to occur within the Project Area. No species were observed onsite during the survey.
California tiger salamander – central California DPS (<i>Ambystoma californiense</i> pop. 1)	FT, CT, CWL	Populations in Santa Barbara and Sonoma counties currently listed as endangered; threatened in remainder of range. Inhabits grassland, oak woodland, ruderal and seasonal pool habitats. Adults are fossorial and utilize mammal burrows and other subterranean refugia. Breeding occurs primarily in vernal pools and other seasonal water features.	No Potential. The Project Area does not contain vernal pools, ponds or grassland to support this species. There are no documented occurrences of this species within the Volta or 8 surrounding USGS quadrangles (CDFW 2021). No species were observed onsite during the survey.
Conservancy fairy shrimp (<i>Branchinecta conservatio</i>)	FE	Endemic to the grasslands of the northern two-thirds of the Central Valley; found in large, turbid pools. Inhabit astatic pools located in swales formed by old, braided alluvium; filled by winter/spring rains, last until June.	Unlikely. The Project Area does not contain vernal pool habitat, and surrounding land is heavily disturbed through agricultural and quarry operations. The nearest documented occurrences are over 14 miles from the Project Area (CDFW 2021). No species were observed onsite during the survey.
Delta smelt (<i>Hypomesus transpacificus</i>)	FT, CE	Lives in the Sacramento-San Joaquin estuary in areas where salt and freshwater systems meet. Occurs seasonally in Suisun Bay, Carquinez Strait and San Pablo Bay. Seldom found at salinities > 10 ppt; most often at salinities < 2 ppt.	No Potential. The Project Area does not contain estuarine habitat. No species were observed onsite during the survey.
Foothill yellow-legged frog (<i>Rana boylei</i>)	CCT, CSC	Found in or adjacent to rocky streams in a variety of habitats. Prefers partly shaded, shallow streams and riffles with a rocky substrate; requires at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis. Feeds on both aquatic and terrestrial invertebrates.	Unlikely. Stream habitat within the Project Area is intermittent, and does not provide suitable shaded riffle habitat to support breeding by this species. No species were observed onsite during the survey.
Fresno Kangaroo rat (<i>Dipodomys nitratooides exilis</i>)	FE, CE	Alkali sink-open grassland habitats in western Fresno County. Bare alkaline clay-based soils subject to seasonal inundation, with more friable soil mounds around shrubs and grasses.	No Potential. The Project Area is outside of this species' known current range. No species were observed onsite during the survey.
Giant gartersnake (<i>Thamnophis gigas</i>)	FT, CT	Prefers freshwater marsh and low gradient streams. Has adapted to	Unlikely. The Project Area does not contain freshwater marsh, drainage

Species	Status	Habitat	Occurrence on Project Area
		drainage canals and irrigation ditches. This is the most aquatic of the garter snakes in California.	canals, or similar habitat to support this species. Aquatic habitat within the Project Area is an intermittent, rocky stream with little to no vegetative cover. Suitable habitat is not present within 5 miles of the Project Area. No species were observed onsite during the survey.
Giant kangaroo rat <i>(Dipodomys ingens)</i>	FE, CE	Annual grasslands on the western side of the San Joaquin Valley, marginal habitat in alkali scrub. Need level terrain and sandy loam soils for burrowing.	Unlikely. The Project Area is at the northern extent of this species' historic range. However, there are no recent documented occurrences in the vicinity (CDFW 2021). In addition, the Project Area does not contain gently sloped annual grassland to support this species, and the surrounding landscape is heavily disturbed through agricultural and quarry operations, further reducing potential for this species to occur within the Project Area. No species were observed onsite during the survey.
Golden Eagle <i>(Aquila chrysaetod)</i>	CFP	Occurs year-round in rolling foothills, mountain areas, sage-juniper flats, and deserts. Cliff-walled canyons provide nesting habitat in most parts of range; also nests in large trees, usually within otherwise open areas.	Unlikely. The Project Area does not contain open hills, cliffs, or other habitat typically used by this species for nesting. No species were observed onsite during the survey.
Loggerhead Shrike <i>(Lanius ludovicianus)</i>	CSC	Year-round resident in open woodland, grassland, savannah and scrub. Prefers areas with sparse shrubs, trees, posts, and other suitable perches for foraging. Preys upon large insects and small vertebrates. Nests are well-concealed in densely foliated shrubs or trees.	Moderate Potential. The Project Area contains grassland and nearby shrubs that may support nesting and/ or foraging. No species were observed onsite during the survey.
Longhorn fairy shrimp <i>(Branchinecta longiantenna)</i>	FE	Endemic to the eastern margin of the central coast mountains in seasonally astatic grassland vernal pools. Inhabit small, clear-water depressions in sandstone and clear-to-turbid clay/ grass-bottomed pools in shallow swales.	Unlikely. The Project Area does not contain vernal pool habitat, and surrounding land is heavily disturbed through agricultural and quarry operations. The Project Area is separated from the nearest known population (San Luis National Wildlife Refuge Complex) by dense development. No species were observed onsite during the survey.
Northern California legless lizard <i>(Anniella pulchra)</i>	CSC	Fossorial species, inhabiting sandy or loose loamy soils under relatively sparse vegetation. Suitable habitat includes dunes, stream terraces, and scrub and chaparral. Adequate soil moisture is essential.	Unlikely. The Project Area does not contain loose or sandy soils to support this species. No species were observed onsite during the survey

Species	Status	Habitat	Occurrence on Project Area
Nelson's antelope squirrel (<i>Ammospermophilus nelsoni</i>)	CT	Western San Joaquin Valley from 200 to 1200 feet elevation on dry, sparsely vegetated loam soils. Needs widely scattered shrubs, forbs, and grasses in broken terrain with gullies and washes. Digs burrows or uses kangaroo rat burrows for shelter.	Unlikely. The Project Area is in the historic range of this species. However, there are no recent documented occurrences in the vicinity (CDFW 2021). In addition, the Project Area does not contain scattered shrub habitat to support this species, and the surrounding landscape is heavily disturbed through agricultural and quarry operations, further reducing potential for this species to occur within the Project Area. No species were observed onsite during the survey.
Northern Harrier (<i>Circus hudsonius</i>)	CSC	Year-round resident and winter visitor. Found in open habitats including grasslands, prairies, marshes and agricultural areas. Nests on the ground in dense vegetation, typically near water or otherwise moist areas. Preys on small vertebrates.	Moderate Potential. There is not suitable densely vegetated, open habitat within the Project Area to support nesting by this species. However, open grassland is present within 500 feet of the southern portion of the Project Area. One individual was observed adjacent to the Project Area.
San Joaquin coachwhip (<i>Masticophis flagellum ruddocki</i>)	CSC	Found in valley grassland and saltbush scrub in the San Joaquin Valley in open, dry habitats with little or no tree cover. Requires mammal burrows for refuge and breeding sites.	Unlikely. This species is documented in the hills west of the Project Area. However, the Project Area does not contain typical open grassland or scrub habitat. The surrounding landscape is heavily disturbed through agricultural and quarry operations, further reducing potential for this species to occur within the Project Area. No species were observed onsite during the survey.
San Joaquin kit fox (<i>Vulpes macrotis mutica</i>)	FE, CT	Annual grasslands or grassy open stages with scattered shrubby vegetation. Need loose-textured sandy soils for burrowing, and suitable prey base.	Unlikely. This species has been documented in open habitat west of the Project Area. The Project Area is within this species dispersal range. However, land within and adjacent to the Project Area is disturbed through quarry operations and agricultural practices. The Project Area does not provide open annual grassland habitat suitable for San Joaquin kit fox. No species were observed onsite during the survey.
Steelhead – Central Valley DPS (<i>Oncorhynchus mykiss irideus</i> pop.11)	FT	Includes all naturally spawned populations (and their progeny) in the Sacramento and San Joaquin Rivers and their tributaries, excluding San Francisco and San Pablo bays and their tributaries. Preferred spawning habitat is in cool to cold perennial streams with high dissolved oxygen levels and	Unlikely. The stream within the Project Area is intermittent. Habitat in the hills upstream of the Project Area may have historically supported steelhead. However, the habitat is now inaccessible due to an impassible dam (Lindley et al. 2006). Steelhead are not known to occur in Los Banos Creek

Species	Status	Habitat	Occurrence on Project Area
		fast flowing water. Abundant riffle areas for spawning and deeper pools with sufficient riparian cover for rearing are necessary for successful breeding.	(U.C. Davis 2021). No species were observed onsite during the survey.
Swainson's Hawk <i>(Buteo swainsoni)</i>	CT	Summer resident in California's Central Valley and limited portions of the southern California interior. Nests in tree groves and isolated trees in riparian and agricultural areas, including near buildings. Forages in grasslands and scrub habitats as well as agricultural fields, especially alfalfa. Preys on arthropods year-round as well as smaller vertebrates during the breeding season.	Moderate Potential. Swainson's hawk has been documented nesting in the vicinity (CDFW 2021). However, the surrounding landscape is heavily disturbed through quarry operations, and few suitable nest trees are present within ¼ mile of the Project Area which reduces potential for this species to occur. No species were observed onsite during the survey.
Tricolored Blackbird <i>(Agelaius tricolor)</i>	CT, CSC	Nearly endemic to California, where it is most numerous in the Central Valley and vicinity. Highly colonial, nesting in dense aggregations over or near freshwater in emergent growth or riparian thickets. Also uses flooded agricultural fields. Abundant insect prey near breeding areas essential.	Unlikely. Riparian habitat and emergent vegetation is present adjacent to the northern extent of the Project Area. However, the emergent vegetation is dense and does not provide areas of open water to support foraging by this species. The nearest documented nesting colony is approximately 2 miles from the Project Area, by Los Banos Reservoir. This colony was most recently detected in 1999 (CDFW 20201). Given the lack of open water in the immediate vicinity or recent documented occurrences of nesting, this species is not likely to nest within or adjacent to the Project Area. However, tricolored blackbird may be observed wintering or foraging in nearby emergent vegetation or agricultural fields. As such, this species may occasionally fly though the Project Area. No species were observed onsite during the survey.
Valley elderberry longhorn beetle <i>(Desmocerus californicus dimorphus)</i>	FT	Occurs only in the central valley of California, in association with blue elderberry (<i>Sambucus</i> spp.). Prefers to lay eggs in elderberry 2 to 8 inches in diameter; some preference shown for "stressed" elderberry.	No Potential. No elderberry was observed within the Project Area during the survey.
Vernal pool fairy shrimp <i>(Branchinecta lynchi)</i>	FT	Endemic to the grasslands of the Central Valley, central coast mountains, and south coast mountains, in astatic rain-filled pools. Inhabit small, clear-water sandstone-depression pools and grassed swale, earth slump, or basalt-flow depression pools.	Unlikely. The Project Area does not contain vernal pool habitat, and surrounding land is heavily disturbed through agricultural and quarry operations. The nearest documented occurrences are over 14 miles from the Project Area (CDFW 2021).

Species	Status	Habitat	Occurrence on Project Area
Vernal pool tadpole shrimp (<i>Lepidurus packardii</i>)	FE	Inhabits vernal pools and swales in the Sacramento Valley containing clear to highly turbid water. Pools commonly found in grass bottomed swales of unplowed grasslands. Some pools are mud-bottomed and highly turbid.	Unlikely. The Project Area does not contain vernal pool habitat, and surrounding land is heavily disturbed through agricultural and quarry operations.
Western mastiff bat (<i>Eumops perotis californicus</i>)	CSC	Found in a wide variety of open, arid and semi-arid habitats. Distribution appears to be tied to large rock structures which provide suitable roosting sites, including cliff crevices and cracks in boulders.	Unlikely. The Project Area or adjacent land does not provide rocky outcrops, cliffs, or similar habitat for roosting by this species. No species were observed onsite during the survey.
Western pond turtle (<i>Emys marmorata</i>)	CSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches with aquatic vegetation. Require basking sites such as partially submerged logs, vegetation mats, or open mud banks, and suitable upland habitat (sandy banks or grassy open fields) for egg-laying.	Unlikely. Aquatic habitat within the Project Area is intermittent and does not provide aquatic vegetation, sandy banks, or other habitat components. No species were observed onsite during the survey.
Western red bat (<i>Lasiurus blossevillii</i>)	CSC	Highly migratory and typically solitary, roosting primarily in the foliage of trees or shrubs. Roosts are usually in broad-leaved trees including cottonwoods, sycamores, alders, and maples. Day roosts are commonly in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas.	Moderate Potential. This species may roost in riparian habitat within and adjacent to the Project Area. No species were observed onsite during the survey.
Western spadefoot (<i>Spea hammondi</i>)	CSC	Occurs primarily in grassland habitats, but can be found in valley-foothill hardwood woodlands. Shallow temporary pools formed by winter rains are essential for breeding and egg-laying.	Unlikely. While the Project Area contains grassland, the site is isolated from potential suitable habitat. The surrounding landscape is heavily disturbed through agricultural and quarry operations. As such, this species is unlikely to occur within the Project Area. No species were observed onsite during the survey.
Yellow Rail (<i>Coturnicops noveboracensis</i>)	CSC	Summer resident in eastern Sierra Nevada in Mono County, breeding in shallow freshwater marshes and wet meadows with dense vegetation. Also, a rare winter visitor along the coast and other portions of the state. Extremely cryptic.	No Potential. The Project Area is outside of this species breeding range. This species has not been documented in the vicinity since 1911 (CDFW 2021). No species were observed onsite during the survey.

STATUS CODES

FE	Federally Endangered	CE	California Endangered
FT	Federally Threatened	CT	California Threatened
FPE	Federally Endangered (Proposed)	CCT	California Threatened (Candidate)
FPT	Federally Threatened (Proposed)	CFP	California Fully Protected
FC	Federal Candidate	CSC	California Species of Concern
		CWL	California Watch List
		CCE	California Endangered (Candidate)
		CR	California Rare

Thirty-six special-status plant species have been documented in the region of the Project Area (See [Table 4-9: Special Status plant species and their potential within the Project Area](#) for list). All of these species are unlikely or have no potential to occur for one or more of the following reasons:

- Edaphic (soil) conditions (e.g., high alkalinity, serpentine) necessary to support the special-status plant species are not present in the Project Area;
- Associated natural communities (e.g., interior chaparral, tidal marsh, vernal pool) necessary to support the special-status plant species are not present in the Project Area;
- The Project Area is geographically isolated (e.g. below elevation, coastal environ) from the documented range of the special-status plant species;
- Land use history and contemporary management (e.g., quarrying operations) has degraded the localized habitat necessary to support the special-status plant species.

No special-status plants were observed during the July 16, 2021, site visit.

Table 4-9: Special Status plant species and their potential within the Project Area

Species	Status	Habitat	Occurrence on Project Area
Alkali milk-vetch (<i>Astragalus tener</i> <i>var. tener</i>)	CNPS 1B	Playas, valley and foothill grassland, vernal pools. Elevation ranges from 5 to 195 feet (1 to 60 meters). Blooms Mar-Jun.	No Potential. The Project Area does not contain vernal pools or other vernal mesic, alkaline habitats.
Alkali-sink goldfields (<i>Lasthenia chrysantha</i>)	CNPS 1B	Vernal pools. Elevation ranges from 0 to 655 feet (0 to 200 meters). Blooms Feb-Apr.	No Potential. The Project Area does not contain vernal pool habitat to support this species.
Arburua Ranch jewelflower (<i>Streptanthus insignis</i> ssp. <i>lyonia</i>)	CNPS 1B	Coastal scrub. Elevation ranges from 755 to 2805 feet (230 to 855 meters). Blooms Mar-May.	No Potential. The Project Area does not contain coastal scrub habitat to support this species.
California alkali grass (<i>Puccinellia simplex</i>)	CNPS 1B	Chenopod scrub, meadows and seeps, valley and foothill grassland, vernal pools. Elevation ranges from 5 to 3050 feet (2 to 930 meters). Blooms Mar-May.	No Potential. The Project Area does not contain seasonally mesic, alkaline substrate.
Chaparral ragwort (<i>Senecio aphanactis</i>)	CNPS 2B	Chaparral, cismontane woodland, coastal scrub. Elevation ranges from 50 to 2625 feet (15 to 800 meters). Blooms Jan-Apr(May).	No Potential. The Project Area does not contain chaparral, cismontane woodland or coastal scrub habitat to support this species.
Coulter's goldfields (<i>Lasthenia glabrata</i> ssp. <i>Coulteri</i>)	CNPS 1B	Marshes and swamps, playas, vernal pools. Elevation ranges from 5 to 4005 feet (1 to 1220 meters). Blooms Feb-Jun.	No Potential. The Project Area does not contain marsh, swamp, playa or vernal pool habitat to support this species.
Delta button-celery (<i>Eryngium racemosum</i>)	CNPS 1B	Riparian scrub. Elevation ranges from 10 to 100 feet (3 to 30 meters). Blooms (May)Jun-Oct.	No Potential. The Project Area does not contain riparian scrub habitat to support this species. No species were observed onsite during the survey.

Species	Status	Habitat	Occurrence on Project Area
Hall's bush mallow (<i>Malacothamnus hallii</i>)	CNPS 1B	Chaparral, coastal scrub. Elevation ranges from 35 to 2495 feet (10 to 760 meters). Blooms (Apr)May-Sep(Oct).	No Potential. The Project Area does not contain chaparral or coastal scrub habitat to support this species. No species were observed onsite during the survey.
Heartscale (<i>Atriplex cordulata</i> var. <i>cordulata</i>)	CNPS 1B	Chenopod scrub, meadows and seeps, valley and foothill grassland. Elevation ranges from 0 to 1835 feet (0 to 560 meters). Blooms Apr-Oct.	No Potential. The Project Area does not contain vernal pools or other vernal mesic, alkaline habitats. No species were observed onsite during the survey.
Hispid salty bird's-beak (<i>Chloropyron mole</i> ssp. <i>hispidum</i>)	CNPS 1B	Meadows and seeps, playas, valley and foothill grassland. Elevation ranges from 5 to 510 feet (1 to 155 meters). Blooms Jun-Sep.	No Potential. The Project Area does not contain vernal mesic, strongly alkaline habitat. No species were observed onsite during the survey.
Lesser saltscale (<i>Atriplex miniscula</i>)	CNPS 1B	Found in the San Joaquin Valley in sandy, alkaline soils in alkali scrub, valley and foothill grassland, and alkali sink communities at elevations below 750 feet. Blooms April–October.	No Potential. The Project Area does not contain vernal pools or other vernal mesic, alkaline habitats. No species were observed onsite during the survey.
Lemmon's jewelflower (<i>Caulanthus lemmonii</i>)	CNPS 1B	Pinyon and juniper woodland, valley and foothill grassland. Elevation ranges from 260 to 5185 feet (80 to 1580 meters). Blooms Feb-May.	Unlikely. Although the Project Area contains grassland habitat, it occurs on highly disturbed, altered terrain and is surrounded by active mining areas and similarly disturbed, altered terrain. As such, the grassland provides poor quality habitat.
Lost Hills crownscale (<i>Atriplex coronate</i> var. <i>vallicola</i>)	CNPS 1B	Chenopod scrub, valley and foothill grassland, vernal pools. Elevation ranges from 165 to 2085 feet (50 to 635 meters). Blooms Apr-Sep.	No Potential. The Project Area does not contain vernal pools or other vernal mesic, alkaline habitats. No species were observed onsite during the survey.
Munz's tidy-tips (<i>Layia munzii</i>)	CNPS 1B	Chenopod scrub, valley and foothill grassland (alkaline clay). Elevation ranges from 490 to 2295 feet (150 to 700 meters). Blooms Mar-Apr.	No Potential. The Project Area does not contain chenopod scrub or alkaline clay substrate.
Panoche pepper-grass (<i>Lepidium jaredii</i> ssp. <i>album</i>)	CNPS 1B	Valley and foothill grassland (clay, steep slopes, sometimes alkaline). Elevation ranges from 605 to 2445 feet (185 to 745 meters). Blooms Feb-Jun.	No Potential. The Project Area does not contain clay substrate and is highly disturbed.
Prostrate vernal pool navarretia (<i>Navaretia prostrata</i>)	CNPS 1B	Coastal scrub, meadows and seeps, valley and foothill grassland, vernal pools. Elevation ranges from 10 to 3970 feet (3 to 1210 meters). Blooms Apr-Jul.	No Potential. The Project Area does not contain vernal pools or other seasonal wetland habitats or alkaline substrate. No species were observed onsite during the survey.
Recurved larkspur (<i>Delphinium recurvatum</i>)	CNPS 1B	Chenopod scrub, cismontane woodland, valley and foothill grassland. Elevation ranges from 10 to 2590 feet (3 to 790 meters). Blooms Mar-Jun.	No Potential. The Project Area is highly disturbed and lacks suitably alkaline substrate.
Sanford's arrowhead	CNPS 1B	Occurs in marshes and swamps in standing or slow-moving freshwater	No Potential. The Project Area does not contain marsh or swamp habitat to

Species	Status	Habitat	Occurrence on Project Area
(<i>Sagittaria sanfordii</i>)		ponds and ditches 0 to 2135 feet (0-605 m) elevation. Blooms May-Oct(Nov).	support this species. No species were observed onsite during the survey.
Shining navarretia (<i>Navarretia nigelliformis</i> ssp. <i>radians</i>)	CNPS 1B	Cismontane woodland, valley and foothill grassland, vernal pools. Elevation ranges from 215 to 3280 feet (65 to 1000 meters). Blooms (Mar)Apr-Jul.	Unlikely. Although the Project Area contains grassland habitat, it occurs on highly disturbed, altered terrain and is surrounded by active mining areas and similarly disturbed, altered terrain. As such, the grassland provides poor quality habitat. Additionally, this species is known from clayey substrate, which is absent from the Project Area. No species were observed onsite during the survey.
Slender-leaved pondwood (<i>Stuckenia filiformis</i> ssp. <i>alpina</i>)	CNPS 2B	Marshes and swamps. Elevation ranges from 985 to 7055 feet (300 to 2150 meters). Blooms May-Jul.	No Potential. The Project Area does not contain marsh or swamp habitat to support this species. No species were observed onsite during the survey.
Spiny-sepaed button-celery (<i>Eryngium spinosepalum</i>)	CNPS 1B	Valley and foothill grassland, vernal pools. Elevation ranges from 260 to 3200 feet (80 to 975 meters). Blooms Apr-Jun.	No Potential. The Project Area does not contain vernal pools or other seasonal wetland habitats.
Vernal pool smallscale (<i>Atriplex persistens</i>)	CNPS 1B	Vernal pools. Elevation ranges from 35 to 375 feet (10 to 115 meters). Blooms Jun-Oct.	No Potential. There is no vernal pool habitat within the Project Area to support this species. No species were observed onsite during the survey.
Wright's trichocoronis (<i>Trichocoronis wrightii</i> var. <i>wrightii</i>)	CNPS 2B	Marshes and swamps, meadows and seeps, riparian forest, vernal pools. Elevation ranges from 15 to 1425 feet (5 to 435 meters). Blooms May-Sep.	No Potential. The Project Area does not contain marsh, swamp, meadow/seep, riparian forest or vernal pool habitat to support this species. No species were observed onsite during the survey.

CNPS LISTING

1A	Plants Presumed Extinct in California.	2A	Plants Presumed Extirpated in California, but more common elsewhere.
1B	Plants Rare, Threatened, or Endangered in California and elsewhere.	2B	Plants Rare, Threatened, or Endangered in California, but more common elsewhere.

4.4.2 Applicable Regulations

Threatened and Endangered Species

Specific species of plants, fish, and wildlife species may be designated as threatened or endangered by the federal Endangered Species Act (ESA), or the California Endangered Species Act (CESA). Specific protections and permitting mechanisms for these species differ under each of these acts, and a species' designation under one law does not automatically provide protection under the other.

The ESA (16 United States Code (USC 1531 et seq.) is implemented by the USFWS and the National Marine Fisheries Service (NMFS). The USFWS and NMFS maintain lists of endangered and threatened plant and animal species (referred to as "listed species"). "Proposed" or "candidate" species are those that are being considered for listing, and are not protected until they are formally listed as threatened or endangered. Under the ESA, authorization must be obtained from the USFWS or NMFS prior to take of any listed species.

“Take” under the ESA is defined as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct” (16 USC, Section 1532 (19), 50 Code of Federal Regulation, Section 17.3).

Take under the ESA includes direct injury or mortality to individuals, disruptions in normal behavioral patterns resulting from factors such as noise and visual disturbance, and impacts to habitat for listed species. Actions that may result in take of an ESA-listed species may obtain a permit under ESA Section 10, or via the interagency consultation described in ESA Section 7. Federally listed plant species are only protected when take occurs on federal land.

The ESA also provides for designation of critical habitat, which are specific geographic areas containing physical or biological features “essential to the conservation of the species”. Protections afforded to designated critical habitat apply only to actions that are funded, permitted, or carried out by federal agencies. Critical habitat designations do not affect activities by private landowners if there is no other federal agency involvement.

The CESA (CFGF 2050 et seq.) prohibits a take of any plant and animal species that the CFGF determines to be an endangered or threatened species in California. CESA regulations include take protection for threatened and endangered plants on private lands, as well as extending this protection to candidate species which are proposed for listing as threatened or endangered under CESA. The definition of a “take” under CESA (“hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill”) only applies to direct impact to individuals, and does not extend to habitat impacts or harassment. CDFW may issue an Incidental Take Permit under CESA to authorize take if it is incidental to otherwise lawful activity and if specific criteria are met. Take of these species is also authorized if the geographic area is covered by a Natural Community Conservation Plan (NCCP), as long as the NCCP covers that activity.

Specific plant and wildlife species are designated in the CFGF as protected even if not listed under CESA or ESA. Fully Protected Species includes specific lists of birds, mammals, reptiles, amphibians, and fish designated in CFGF. Fully Protected Species may not be taken or possessed at any time. No licenses or permits may be issued for take of fully protected species, except for necessary scientific research and conservation purposes. The definition of “take” is the same under the California Fish and Game Code and the CESA. By law, CDFW may not issue an Incidental Take Permit for Fully Protected Species. Under the California Native Plant Protection Act (NPPA), CDFW has listed 64 Designated Rare Plant Species, which prevents “take”, with few exceptions, of these species. CDFW may authorize take of species protected by the NPPA through the Incidental Take Permit process, or under a NCCP.

Sensitive Natural Communities

Sensitive natural communities include habitats that fulfill special functions or have special values. Natural communities considered sensitive are those identified in local or regional plans, policies, regulations, or by the CDFW. CDFW ranks sensitive communities as “threatened” or “very threatened” and keeps records of their occurrences in its California Natural Diversity Database ([Appendix B](#)). Vegetation alliances are ranked 1 through 5 in the CNDDDB based on NatureServe's (2021) methodology, with those alliances ranked globally (G) or statewide (S) as 1 through 3 considered sensitive. Impacts to sensitive natural communities identified in local or regional plans, policies, or regulations or those identified by the CDFW or U.S. Fish and Wildlife Service (USFWS) must be considered and evaluated under CEQA (CCR Title 14, Div. 6, Chap. 3, Appendix G). In addition, this general class includes oak woodlands that are protected by local ordinances under the Oak Woodlands Protection Act.

Species of Special Concern, Movement Corridors, and Other Special Status Species under CEQA

To address additional species protections afforded under CEQA, CDFW has developed a list of special species as “a general term that refers to all of the taxa the CNDDDB is interested in tracking, regardless of their legal or protection status.” This list includes lists developed by other organizations, including for example, the Audubon Watch List Species, the Bureau of Land Management Sensitive Species, and USFWS Birds of Special Concern. Plant species on the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants (Inventory) with California Rare Plant Ranks (Rank) of 1 and 2, as well as some with a Rank of 3, are also considered special-status plant species and must be considered under CEQA. Some Rank 3 species and all Rank 4 species are typically only afforded protection under CEQA when such species are particularly unique to the locale (e.g., range limit, low abundance/low frequency, limited habitat) or are otherwise considered locally rare. Additionally, any species listed as sensitive within local plans, policies and ordinances are likewise considered sensitive. Movement and migratory corridors for native wildlife (including aquatic corridors) as well as wildlife nursery sites are given special consideration under CEQA.

Migratory Birds

Most native birds in the United States, including non-status species, have baseline legal protections under the Migratory Bird Treaty Act of 1918 (MBTA) (16 USC 703-712) and CFGC, i.e., Sections 3503, 3503.5 and 3513. Under these laws/codes, killing, possessing, trading, intentional harm, or collection of adult birds as well as the intentional collection or destruction of active nests, eggs, and young is illegal. The name of the act is misleading, as it covers nearly all bird’s native to the United States, even those that are non-migratory. The MBTA encompasses whole birds, parts of birds, nests, and eggs. Additionally, California Fish and Game Code makes it unlawful to take or possess any non-game bird covered by the MBTA (Section 3513), as well as any other native non-game bird (Section 3800). (See [Appendix B](#))

Birds of Prey

The Bald Eagle (*Haliaeetus leucocephalus*) and Golden Eagle (*Aquila chrysaetos*) are afforded additional protection under the federal Bald and Golden Eagle Protection Act (16 USC 668), which makes it unlawful to kill, collect, or disturb birds or their eggs. The federal Bald and Golden Eagle Protection Act provides relatively broad protections to both of North America’s eagle species (bald eagle] and golden eagle [Aquila chrysaetos]) that in some regards are similar to those provided by the ESA. (See [Appendix B](#))

Nesting Birds and Bats

In California, protection is afforded to the nests and eggs of all birds. California Fish and Game Code (Section 3503) states that it is “unlawful to take, possess, or needlessly destroy the nest or eggs of any bird except as otherwise provided by this code or any regulation adopted pursuant thereto.” Breeding-season disturbance that causes nest abandonment and/or loss of reproductive effort is considered a form of “take” by the CDFW. For bat species, the Western Bat Working Group designates conservation status for species of bats, and those with a high or medium-high priority are typically given special consideration under CEQA. (See [Appendix B](#))

Jurisdictional Waterways, Wetlands, and Associated Riparian Habitat

Waters of the United States, Including Wetlands: The USACE regulates “waters of the United States” under Section 404 of the Clean Water Act (CWA). Waters of the United States are defined in the Code of Federal Regulations (CFR) as including the territorial seas, and waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, such as tributaries, lakes and ponds, impoundments of waters of the United States, and wetlands that are hydrologically connected with these

navigable features (33 CFR 328.3). Potential wetland areas, according to the three criteria used to delineate wetlands as defined in the USACE Wetlands Delineation Manual (Corps Manual; Environmental Laboratory 1987), are identified by the presence of (1) hydrophytic vegetation, (2) hydric soils, and (3) wetland hydrology. Unvegetated waters including lakes, rivers, and streams may also be subject to Section 404 jurisdiction and are characterized by an OHWM identified based on field indicators such as the lack of vegetation, sorting of sediments, and other indicators of flowing or standing water. The placement of fill material into waters of the United States generally requires a permit from the USACE under Section 404 of the CWA.

Waters of the State, Including Wetlands: The term “waters of the State” is defined by the Porter-Cologne Act as “any surface water or groundwater, including saline waters, within the boundaries of the state.” The State Water Resources Control Board (SWRCB) and nine RWQCB protect waters within this broad regulatory scope through many different regulatory programs. Waters of the State in the context of a CEQA Biological Resources evaluation include wetlands and other surface waters protected by the *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* (Appendix B). The SWRCB and RWQCB issue permits for the discharge of fill material into surface waters through the State Water Quality Certification Program, which fulfills requirements of Section 401 of the CWA and the Porter-Cologne Water Quality Control Act. Projects that require a Clean Water Act permit are also required to obtain a Water Quality Certification. If a Project does not require a federal permit, but does involve discharge of dredge or fill material into surface waters of the State, the SWRCB and RWQCB may issue a permit in the form of Waste Discharge Requirements.

Sections 1600-1616 of California Fish and Game Code: Streams and lakes, as habitat for fish and wildlife species, are regulated by CDFW under Sections 1600-1616 of California Fish and Game Code (CFGF). Alterations to or work within or adjacent to streambeds or lakes generally require a 1602 LSA Agreement. The term “stream”, which includes creeks and rivers, is defined in the California Code of Regulations (CCR) as “a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life [including] watercourses having a surface or subsurface flow that supports or has supported riparian vegetation” (14 CCR 1.72). The term “stream” can include ephemeral streams, dry washes, watercourses with subsurface flows, canals, aqueducts, irrigation ditches, and other means of water conveyance if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife. Riparian vegetation has been defined as “vegetation which occurs in and/or adjacent to a stream and is dependent on, and occurs because of, the stream itself”. Removal of riparian vegetation also requires a Section 1602 Lake and Streambed Alteration Agreement from CDFW. (See Appendix B)

Essential Fish Habitat

The Magnuson-Stevens Fishery Conservation and Management Act provides for conservation and management of fishery resources in the United States, administered by NMFS. This Act establishes a national program intended to prevent overfishing, rebuild overfished stocks, ensure conservation, and facilitate long-term protection through the establishment of EFH. EFH consists of aquatic areas that contain habitat essential to the long-term survival and health of fisheries, which may include the water column, certain bottom types, vegetation (e.g., eelgrass (*Zostera* spp.)), or complex structures such as oyster beds. Any federal agency that authorizes, funds, or undertakes action that may adversely affect EFH is required to consult with NMFS.

Merced County General Plan

The Merced County General Plan⁵ contains the following relevant policies pertaining to sensitive habitat, wetlands, streams, riparian, and aquatic areas:

- **Policy NR-1.1** - Identify areas that have significant long-term habitat and wetland values including riparian corridors, wetlands, grasslands, rivers and waterways, oak woodlands, and vernal pools, and provide information to landowners. (See [Appendix B](#))
- **Policy NR-1.2** - Identify and support methods to increase the acreage of protected natural lands and special habitats, including but not limited to, wetlands, grasslands, and vernal pools, potentially through the use of conservation easements. [Source: New Policy, Open Space/Habitat Focus Group Comment]
- **Policy NR-1.3** - Preserve forests, particularly oak woodlands, to protect them from degradation, encroachment, or loss. (See [Appendix B](#))
- **Policy NR-1.4** - Minimize the removal of vegetative resources which stabilize slopes, reduce surface water runoff, erosion, and sedimentation. (See [Appendix B](#))
- **Policy NR-1.5** - Identify wetlands and riparian habitat areas and designate a buffer zone around each area sufficient to protect them from degradation, encroachment, or loss. (See [Appendix B](#))
- **Policy NR-1.6** - Encourage property owners within or adjacent to designated habitat connectivity corridors that have been mapped or otherwise identified by the California Department of Fish and Game or U.S. Fish and Wildlife Service to manage their lands in accordance with such mapping programs. [Sources: New Policy, Open Space/Habitat Focus Group Comment, GPU Consultants]
- **Policy NR-1.11** – Cooperate with local, State, and federal agencies to ensure that adequate, on-going protection and monitoring occurs adjacent to rare and endangered species habitats or within identified significant wetlands. (See [Appendix B](#))
- **Policy NR-1.12** - Avoid or minimize loss of existing wetland resources by careful placement and construction of any necessary new public utilities and facilities, including roads, railroads, high speed rail, sewage disposal ponds, gas lines, electrical lines, and water/wastewater systems. (See [Appendix B](#))
- **Policy NR-1.13** - Require an appropriate setback, to be determined during the development review process, for developed and agricultural uses from the delineated edges of wetlands. (See [Appendix B](#))
- **Policy NR-1.15** - Protect existing trees and encourage the planting of new trees in existing communities. Adopt an Oak Woodland Ordinance that requires trees larger than a specified diameter that are removed to accommodate development be replaced at a set ratio. (See [Appendix B](#)).

⁵ (County, Merced 2030)

4.4.3 Impact Analysis

a) Would the project have a substantial adverse effect, either directly 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 Wildlife or U.S. Fish and Wildlife Service?

Less than Significant Impact with Mitigation Incorporated. Species identified as candidate, sensitive, or special status species in local or regional plans, policies, or regulations by CDFW or USFWS that have the potential to be impacted by the Project are identified below with corresponding mitigation measures. Species which may have the potential to occur within the Project Area or in the vicinity include: Burrowing Owl, Loggerhead Shrike, Northern Harrier, Swainson's Hawk, and Western red bat. The following discussions provide potential impacts to each species and mitigation measures found below in [Section 4.4.4](#) that would reduce impact to a less than significant level.

Potential Project-Related Mortality and/or Disturbance of Nesting Raptors, Migratory Birds, and Special Status Birds

The Project Area contains suitable nesting and/or foraging habitat for a variety of special status avian species. Birds nesting within the Project Area during construction have the potential to be injured or killed by Project-related activities. In addition to the direct "take," nesting birds within the Project Area or adjacent areas could be disturbed by Project-related activities resulting in nest abandonment.

Projects that adversely affect the nesting success of raptors and migratory birds or result in the mortality of individual birds is considered a violation of State and federal laws and are considered a potentially significant impact under CEQA. Mitigation Measures have been developed by WRA, Inc. biologists based on their evaluation of the Project Area and protected resources (see [Appendix B](#)) and would reduce the potential impacts to a less than significant impact with mitigation under CEQA.

- **Burrowing Owl (*Athene cunicularia*).** Burrowing Owl inhabits open areas with sparse or non-existent tree or shrub canopies. Typical habitat is annual or perennial grassland, although human-modified areas such as agricultural lands and airports are also used. This species is dependent on burrowing mammals to provide the burrows that are characteristically used for shelter and nesting, and in northern California is typically found in close association with California ground squirrels (*Otospermophilus beecheyi*). Manmade substrates such as pipes or debris piles may also be occupied in place of burrows. Breeding typically takes place from March to July. Ground squirrel activity and burrow complexes were observed approximately 250 feet south of the Project Area. However, burrowing owls are not frequently observed in the vicinity. There are few documented occurrences within 5 miles (see [Appendix B](#)).

Burrowing Owls may be present in agricultural land adjacent to the Project Area, and work could potentially indirectly impact Burrowing Owl through auditory, vibratory, and/or visual disturbance of a sufficient level to cause abandonment of the site or active nests.

The Biological Evaluation developed by WRA ([Appendix B](#)) identified that implementation of Mitigation Measures **BIO-1** (Avoidance) **BIO-2** (Pre-construction Surveys), **BIO-3** (Buffer), **BIO-4** (Exclusion Plan), and **BIO-5** (Consultation with CDFW) would reduce potential impacts to Burrowing Owls to a less than significant level under CEQA and would ensure compliance with State and federal laws protecting these avian species.

- **Swainson's Hawk (*Buteo swainsoni*).** Swainson's Hawk nest in trees located in otherwise largely open areas near the edge of narrow bands of riparian vegetation, isolated patches of oak

woodland, lone trees, and also planted and natural trees associated with roads, farmyards and sometimes adjacent residential areas. Foraging occurs in open habitats, including grasslands, open woodlands, and agricultural areas. There are several documented nesting occurrences of this species in the vicinity (see [Appendix B](#)), and trees suitable for nesting are present within ¼ mile of the proposed Project.

To avoid Project related impacts to Swainson's Hawk, such as nest abandonment from noise or disturbance, no trees or vegetation would be removed and implementation of mitigation measures **BIO-6** (Pre-construction Survey), **BIO-7** (Avoidance and minimization plan), **BIO-8** (Buffers), and **BIO-9** (CDFW Consultation) would reduce potential impacts to Swainson's Hawk to a less than significant level under CEQA and would ensure compliance with State and federal laws protecting this avian species.

- **Loggerhead Shrike (*Lanius ludovicianus*)**. This species is associated with open country with short vegetation and scattered trees, shrubs, fences, utility lines and/or other perches. Although they are songbirds, shrikes are predatory and forage on a variety of invertebrates and small vertebrates. Captured prey items are often impaled for storage purposes on suitable substrates, including thorns or spikes on vegetation, and barbed wire fences. Nests in trees and large shrubs; nests are usually placed three to ten feet off the ground. The Study Area contains grassland and nearby shrubs that may support nesting and/ or foraging. (See [Appendix B](#))
- **Northern Harrier (*Circus hudsonius [cyaneus]*)**. Northern Harriers typically nest in treeless areas within patches of dense, relatively tall, vegetation, the composition of which is highly variable; nests are placed on the ground and often located near water or within wetlands. Harriers are birds of prey and subsist on a variety of small mammals and other vertebrates. There is not suitable densely vegetated, open habitat within the Project Area to support nesting by this species. However, open grassland is present within 500 feet to the south. This species was observed adjacent to the Project Area during the July 16, 2021 site visit. (See [Appendix B](#))

Special-status birds (Northern Harrier and Loggerhead Shrike) and non-status nesting birds are protected under the California Fish and Game Code and have the potential to nest in trees, shrubs, herbaceous vegetation, and on bare ground within the Project Area. The following measures, including those found identified in the Biological Evaluation developed by WRA, include **BIO-10** (Avoidance), **BIO-11** (Pre-construction Survey), and **BIO-12** (Buffers), and **BIO-13** (CDFW Consultation) would reduce potential impacts to Northern Harrier, Loggerhead Shrike, and nesting birds to a less than significant level under CEQA and would ensure compliance with State and federal laws protecting these avian species.

Potential Project-Related Mortality and/or Disturbance of Bats

In reviewing the CNDDb, the following special status bat species were identified with potential to occur within or adjacent to the Project Area: Western red bat (*Lasiurus blossevillii*). They are typically solitary, roosting primarily in the foliage of broad-leaved trees or shrubs. Day roosts are commonly in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas possibly and association with riparian trees (particularly willows, cottonwoods, and sycamores). Roosting habitat becomes especially sensitive to bat populations during the maternity season (March 1 to September 30) while pups are maturing. This species may roost in riparian habitat within and adjacent to the Project Area.

Special-status bats, including western red bat, have potential to occur in riparian habitat within the Project Area. To avoid Project related impacts to roosting bats, implementation under mitigation measures **BIO-14** (Operational hours), **BIO-15** (Pre-construction survey), **BIO-16** (Buffers), and **BIO-17**

(Monitoring) would reduce potential impacts to a less than significant level under CEQA and would ensure compliance with State and Federal laws protecting this species.

Project-Related Impacts to Special Status Animal Species Absent From, or Unlikely to Occur on, the Project Area

Of the 28 regionally occurring special status animal species, 23 are considered absent from or unlikely to occur within the Project Area due to past or ongoing disturbance and/or the absence of suitable habitat. These species include: American badger, blunt-nosed leopard lizard, California red-legged frog, California tiger salamander, conservancy fairy shrimp, foothill yellow-legged frog, Fresno kangaroo rat, giant kangaroo rat, giant gartersnake, Golden Eagle, longhorn fairy shrimp, Nelson's antelope squirrel, Northern California legless lizard, San Joaquin coachwhip, San Joaquin kit fox, Tricolored Blackbird, Valley elderberry longhorn beetle, vernal pool fairy shrimp, vernal pool tadpole shrimp, Yellow Rail, western mastiff bat, western pond turtle, and western spadefoot. Since it is highly unlikely that these species would occur onsite, implementation of the Project should have no impact on these 23 special status species through construction mortality, disturbance, or loss of habitat. Mitigation measures are not warranted.

Project-Related Impacts to Special Status Plant Species Absent From, or Unlikely to Occur on, the Project Area

Of the 36 regionally occurring special status plant species, all 36 species are considered absent from or unlikely to occur within the Project Area due to the absence of suitable habitat. Since it is highly unlikely that these species would occur onsite, implementation of the Project should have no impact through construction mortality, disturbance, or loss of habitat. Mitigation measures are not warranted.

Project-Related Impacts to Special Status Fishes Absent From the Project Area

Los Banos Creek is an intermittent stream with highly controlled hydrology. Habitat in the hills upstream of the Project Area may have historically supported steelhead. However, the habitat is now inaccessible due to an impassible dam. Steelhead are not known to occur in Los Banos Creek. Further, the Project Area does not contain estuarine habitat necessary to support Delta smelt, a regionally occurring species. Therefore, mitigation measures are not warranted. (See [Appendix B](#))

b) Would the project 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 Wildlife or U.S. Fish and Wildlife Service?

Less than Significant Impact with Mitigation Incorporated. There is a small area of riparian habitat within the northern portion of the Project Area. This community forms a narrow band along the banks of an active quarry settling basin that has no hydrologic connection to Los Banos Creek. Riparian habitat located in the Project Area would not be disturbed or affected by work activities, and mitigation measures would not be warranted to protect vegetation.

Los Banos Creek is considered a sensitive natural community and provides a valuable resource to wildlife in the vicinity. Project activities would result in temporary and permanent impacts to this resource. Activities for culvert construction and road construction would require filling, grading, or other ground disturbing activities to take place within the OHWM. The placement of culverts, rip rap and road improvements will result in approximately 4,400 cubic yards of fill below OHWM. Installation of a cofferdam may be required if activities within Los Banos Creek occur when water is present and would result in up to approximately 46 cubic yards of temporary fill.

Additionally, Project activities would result in ground disturbance which could result in increased sedimentation and turbidity in downstream waters following grading and the onset of the rainy season; however, these impacts would be temporary, discrete and localized. Mitigation measures would be implemented to minimize and avoid impacts to Los Banos Creek, avoid in water work, and minimize any deleterious effects to water quality or sensitive habitat. Implementation of mitigation measures **BIO-18** (WEAP training), **BIO-19** (BMPs), **BIO-20** (Establish access points), **BIO-21** (Protective fencing), **BIO-22** (Avoid sensitive habitat), and **BIO-23** (Work in dry conditions), and **BIO-24** (Compensatory Mitigation) would reduce the impacts of disturbance to less than significant.

c) Would the project have a 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?

Less than Significant Impact with Mitigation Incorporated. The Project Area contains Los Banos Creek, which is considered a potential Waters of the United States and/or Waters of the State. Project activities for culvert construction within jurisdictional waters would involve filling, grading, or other ground disturbing activities to take place within non-wetland waters of Los Banos Creek, which would require agency permitting.

A USACE Section 404 Nationwide Permit and a Section 401 Water Quality Certification from the Regional Water Quality Control Board provides regulation for discharge of dredge and fill material into a Waters of the United States. California Department of Fish and Game Code Section 1602 (Lake and Streambed Alteration Agreement) regulates activities that could substantially impact fish and wildlife resources. The Project activities are subject to the regulations provided by these permits.

Placement of fill within potential Waters of the United States would result in permanent and temporary ground disturbance, promoting increased sedimentation and turbidity in downstream waters following grading and the onset of the rainy season. Fulfilling the regulations and requirements of the appropriate permits and implementing mitigation measures **BIO-18** (WEAP training), **BIO-19** (BMPs), **BIO-20** (Establish access points), **BIO-21** (Protective fencing), **BIO-22** (Avoid sensitive habitat), **BIO-23** (Work in dry conditions), and **BIO-24** (Compensatory Mitigation) would reduce the impacts of disturbance to less than significant.

d) 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?

No Impact. No native wildlife nursery sites, critical habitat, or EFH are present in the Project Area. The Project Area is not within a designated wildlife corridor (See **Appendix B**). The quarry site is located within a larger tract of agricultural and lightly developed land within a rural portion of Los Banos. While common wildlife species presumably utilize Los Banos Creek for some degree for movement at a local scale, the area itself does not provide corridor functions beyond connecting similar agricultural land parcels in surrounding areas. Therefore, there would be no impact.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Less than Significant Impact with Mitigation Incorporated. Project activities have the potential to impact the Burrowing Owl, Swainson's Hawk, Loggerhead Shrike, Northern Harrier, and western red bat. The Project Area contains suitable nesting and foraging habitat for the four avian species, and suitable

roosting habitat for western red bat. Auditory, vibratory, or visual disturbance from work activities have the potential to cause nest abandonment for birds, roost abandonment for bats, and even injury or death. Policy NR-1.11 involves protection and monitoring of endangered and threatened species habitats. To comply with the policies in the County of Merced General Plan, implementation of **BIO-1** (Avoidance), **BIO-2** (Pre-construction Surveys), **BIO-3** (Buffer), **BIO-4** (Exclusion Plan), **BIO-5** (Consultation with CDFW), **BIO-6** (Pre-construction Survey), **BIO-7** (Avoidance and minimization plan), **BIO-8** (Buffers), **BIO-9** (CDFW Consultation), **BIO-10** (Avoidance), **BIO-11** (Pre-construction Survey), **BIO-12** (Buffers), **BIO-13** (CDFW Consultation), **BIO-14** (Avoidance), **BIO-15** (Pre-construction survey), **BIO-16** (Buffers), and **BIO-17** (Monitoring).

The remaining Project activities appear to be consistent with the goals and policies of the County of Merced General Plan that address protection of natural resources. All riparian areas, wetlands, and protected resources have been identified and mitigation measures will be taken to avoid and minimize disturbance to these resources. No trees or vegetation would be removed as part of Project activities, and there would be no loss of wetland or water resources. The Project goal is to improve the quality of Los Banos Creek and reduce current and future disturbance at the two water crossings by installing culverts and permanent road crossings.

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

No Impact. The Project is not within a designated Habitat Conservation Plan, Natural Conservation Plan, or any other State or local habitat conservation plan. There would be no impact.

4.4.4 Mitigation

Burrowing Owl

BIO-1 (*Avoidance*): The Project's construction activities will occur, if feasible, between September 1 and January 31 (outside of nesting bird season) in an effort to avoid impacts to nesting birds.

BIO-2 (*Pre-construction survey*): A qualified biologist will conduct a pre-construction survey for Burrowing Owls in areas of suitable habitat on and within 50 feet of the Project Area. This survey would occur regardless of the time of year, as Burrowing Owls may use the Project Area during the non-nesting season. A survey will be conducted 14 days prior to the start of ground disturbing activities using methods in accordance with Appendix D of CDFW's Staff Report on Burrowing Owl Mitigation (2012). If no occupied burrows are found, a letter report documenting the survey methods and results will be submitted to the District and CDFW and no further mitigation will be required.

BIO-3 (*Buffer*): If an active burrow is found during the breeding season (February 1 through August 31), occupied burrows will not be disturbed and will be provided with a 150- to 1,500-foot protective buffer unless a qualified biologist verifies through noninvasive means that either: 1) the birds have not begun egg laying, or 2) juveniles from the occupied burrows are foraging independently and are capable of independent survival. The size of the buffer will depend on the time of year and level of disturbance, as outlined in the CDFW Staff Report (2012, p. 9).

- BIO-4** *(Exclusion Plan):* If an active burrow is found during the nonbreeding season (September 1 through January 31) and cannot be avoided, a Burrowing Owl Exclusion Plan will be developed in consultation with CDFW, and owls may be relocated to suitable habitat outside of the Project Area using passive or active methodologies, as per the guidelines in the CDFW Staff Report (2012, p. 11).
- BIO-5** *(Consultation with CDFW):* If avoidance, disturbance-free buffers, and the Burrowing Owl Exclusion Plan is not feasible, work will cease and CDFW will be immediately consulted to determine the best course of action.

Swainson's Hawk

- BIO-6** *(Pre-construction survey):* If construction, grading, or Project-related activities are to commence between February 1 and September 15, two take avoidance surveys focused for Swainson's Hawk nests should be conducted by a qualified biologist within a 0.5 mile radius of Project activities. One survey should be conducted in each of the two survey periods prior to construction initiation and in accordance with the Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (Swainson's Hawk Technical Advisory Committee 2000). If active nests are found, CDFW should be contacted to determine appropriate protective measures, and these measures should be implemented prior to the start of any ground-disturbing activities. If no active nests are found during the focused survey, no further measures are required.
- BIO-7** *(Avoidance and Minimization Plan):* If an active Swainson's Hawk nest is found within 0.25 miles of the Project footprint, an avoidance and minimization plan will be prepared in consultation with the District and CDFW. The avoidance and minimization plan will be implemented only upon District and CDFW approval. The plan may include, but is not limited to: work windows until the nest is inactive, worker awareness training, avoidance radius around the active nest, installation of visual barriers, and nest monitoring during construction.
- BIO-8** *(Buffers):* On discovery of any active nests near work areas, a 0.5-mile disturbance-free buffer will be implemented around active Swainson's Hawk nests based on applicable CDFW and/or USFWS guidelines. Construction buffers will be identified with flagging, fencing, or other easily visible means, and will be maintained until a qualified biologist has determined that the nestlings have fledged.
- BIO-9** *(CDFW Consultation):* In the event an active Swainson's Hawk nest is detected during surveys, consultation with CDFW is warranted to discuss how to implement the Project and avoid take. If take cannot be avoided, CDFW may require a take authorization through the acquisition of an ITP pursuant to Fish and Game Code section 2081, subdivision (b) is necessary to comply with CESA.

Nesting Birds

- BIO-10** *(Avoidance):* Vegetation removal, grading, or initial ground-disturbance, should be conducted between September 1 and January 31 (outside of the February 1 to August 31 nesting season) to the greatest extent feasible.

- BIO-11** *(Pre-construction survey):* If these activities must be conducted during the nesting season, a pre-construction nesting bird survey should be conducted by a qualified biologist no more than 14 days prior to vegetation removal, grading, or initial ground disturbance. The survey will include the Project Area and surrounding 250 feet to identify the location and status of any nests that could potentially be affected either directly or indirectly by these activities.
- BIO-12** *(Buffers):* If active nests of native nesting bird species are located during the nesting bird survey, a work exclusion zone should be established around each nest by the qualified biologist. Established exclusion zones should remain in place until all young in the nest have fledged or the nest otherwise becomes inactive (e.g., due to predation). Appropriate exclusion zone sizes would be determined by a qualified biologist and would vary based on species, nest location, existing visual buffers, noise levels, and other factors. An exclusion zone radius may be as small as 50 feet for common, disturbance-adapted species, or as large as 250 feet or more for raptors. Exclusion zone size would be reduced from established levels by a qualified biologist if nest monitoring findings indicate that Project activities do not adversely impact the nest, and if a reduced exclusion zone would not adversely affect the nest.
- BIO-13** *(Incidental Take Permit [ITP]):* In the event an active special status species nest is detected during surveys and buffers are not adequate to protect special status species, consultation with CDFW is warranted to discuss how to implement the Project and avoid take. If take cannot be avoided, take authorization through the acquisition of an ITP pursuant to Fish and Game Code section 2081, subdivision (b) is necessary to comply with CESA.

Roosting Bats

- BIO-14** *(Avoidance):* Construction activities will be limited to daylight hours to reduce potential impacts to special status bats that could be foraging onsite.
- BIO-15** *(Pre-construction survey):* A pre-construction survey will be performed for Project activities that fall between March 1 and September 30 (bat maternity season) to identify possible or current bat roosting locations. A qualified biologist will conduct the survey seven days or less prior to construction. The biologist will look for individuals, guano, and staining, and will listen for bat vocalizations. If necessary, the biologist will wait for nighttime emergence of bats from roost sites. If no bats are observed roosting or breeding, then no further action will be required, and construction can proceed.
- BIO-16** *(Buffers):* If a maternity colony is detected during preconstruction surveys, a disturbance-free buffer will be established around the colony and remain in place until a qualified biologist determines that the nursery is no longer active. The disturbance-free buffer will range from 50 to 100 feet as determined by the biologist.
- BIO-17** *(Monitoring):* If an active bat roost is found, a qualified biologist will conduct monitoring surveys during the first two days of construction at the roost location confirm that vibration from the equipment does not disturb the active bat roost and cause roost abandonment.

General Mitigation Measures

BIO-18 *(WEAP Training):* A Worker Environmental Awareness Program (WEAP) training will be given to all contractor crew members working on the Project. The training would be given by a qualified biologist and would include education on sensitive resources such as protected wildlife with the potential to occur within the Project Area, water quality, and environmental protections and mitigation measures.

BIO-19 *(Best Management Practices [BMPs]):* Erosion control measures would be utilized throughout all phases of the Project where sediment runoff from construction may potentially enter nearby waters. Appropriate sediment and erosion control BMPs (e.g., use of silt fencing and/or straw wattles around the perimeter of the construction zone) will be implemented during and following construction to minimize surface runoff originating from the Project and thereby protect water quality of Los Banos Creek. Erosion control structures would be monitored for effectiveness and would be repaired or replaced as needed.

- i. Prior to construction, an Accidental Spill Prevention and Cleanup Plan would be prepared. This plan would include required spill control absorbent material, for use beneath stationary equipment, to be present on-site and available at all times.
- ii. No fueling, cleaning, or maintenance of vehicles or equipment would take place within any areas where an accidental discharge may cause hazardous materials to enter waterways.
- iii. Any equipment or vehicles used for the Project would be checked and maintained daily to prevent leaks of fluids that could be deleterious to aquatic habitats.
- iv. All equipment would be cleaned before arriving on the site and before removal from the site to prevent spread of invasive plants.
- v. To avoid establishment of invasive, non-native plant species on or adjacent to the Project Area, the following measures will be implemented:
 1. Vegetation disturbances will be limited to those areas identified on construction plans and maps as slated for development or construction staging.
 2. Erosion and sediment control materials will be certified as weed-free.
 3. Native and compatible non-native plant species will be used for revegetation. The list of plant species is included in the attached list (See Biological Evaluation: Appendix E).
 4. The revegetation seed mix would not include invasive non-native plants that threaten wildlands according to the California Invasive Plant Inventory made available by the California Invasive Plant Council (Cal-IPC).

- vi. Staging and storage areas for equipment, materials, fuels, lubricants and solvents, would be located outside of the stream channel banks and outside of nearby waters.
- vii. Stationary equipment such as motors, pumps, and generators, located adjacent to aquatic features would be positioned over secondary containment sufficient to arrest a catastrophic failure.
- viii. Stockpiles of excavated soil or other would be covered when not in active use (i.e. would not be used, or moved for 72 hours). All trucks hauling soil, sand, and other loose materials would be covered.
- ix. No motorized equipment would be left within the channel overnight.

BIO-20 *(Establish Access Points):* Prior to construction, locations and equipment access points that minimize channel and bank disturbance would be determined. Pre-existing access points would be used whenever possible. Unstable areas, which may increase the risk of channel instability, would be avoided.

BIO-21 *(Protective Fencing):* Silt fencing and construction fencing (or flagging to make the silt fencing more visible) will be installed above the OHWM of the Los Banos Creek to prevent soils and sediment from entering the streambed, and the final location of the installed fencing will be approved by a qualified biologist prior to initiation of construction activities. The fencing will be monitored regularly during construction activities to ensure that the fencing remains intact and functional, and that encroachment has not occurred into the sensitive habitat or boundary; any repairs to the fence or encroachment correction will be conducted immediately. At the end of the Project all temporary flagging, fencing, or other materials would be removed from the work areas and vicinity of the channel.

BIO-22 *(Avoid Sensitive Habitat):* Encroachment into the sensitive habitat, riparian areas, and buffer will be prohibited by construction personnel, and storage of materials or equipment will be prohibited in this area. Exclusion fencing at direction of qualified biologist will be installed to ensure visibility of these resources so that they can be avoided.

BIO-23 *(Work in Dry Conditions):* Construction activities associated with the culvert installation will be conducted outside of planned Los Banos Creek Reservoir and Dam water release events. If work during flowing conditions is unavoidable, a temporary cofferdam will be placed at the upstream end of work limits. The cofferdams (consisting of, but not limited to, gravel sandbags, or an inflatable bladder) would result in temporary diversion of water in the work area. Once Project activities are completed, the temporary cofferdam would be removed and the area would be restored to pre-construction conditions. No cofferdams will be necessary during work in no flow conditions.

BIO-24 *(Compensatory Mitigation):* Compensatory mitigation for permanent loss of Waters of the United States and Waters of the State shall be required by either purchasing appropriate mitigation credits from an approved mitigation bank, payment of in-lieu fees to an approved public agency or conservation organization (e.g., a local land trust) for the implementation of compensatory mitigation projects, or via permittee responsible

mitigation which would involve creating, restoring, or enhancing analogous habitat types. The ratio for acres of mitigation to acres impacted shall be 1:1.

4.5 CULTURAL RESOURCES

Table 4-10: Cultural Resources Impacts

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource pursuant to in § 15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4.5.1 Baseline Conditions

Records Search

A records search from the Central California Information Center (CCIC) of the California Historical Resources Information System (CHRIS), located at California State University, Stanislaus was conducted in June 2022. The CCIC records search includes a review of all recorded archaeological and built-environment resources as well as a review of cultural resource reports on file. In addition, National Register of Historic Places, California Register of Historical Resources, California Inventory of Historic Resources, California Historical Landmarks, California Points of Historical Interest listing, Office of Historic Preservation Built Environment Resource Directory, the Archaeological Determinations of Eligibility, Survey of Surveys (1989), Caltrans State and Local Bridges Inventory, General Land Office Plats, as well other pertinent historic data available at the CCIC for specific county listing were all reviewed for the Project Area. Due to the sensitive nature of cultural resources, archaeological site locations are not released. ([Appendix C](#)).

4.5.2 Impact Analysis

a) Would the project cause a substantial adverse change in the significance of a historical resource pursuant to in § 15064.5?

Less than Significant Impact with Mitigation Incorporated. A CHRIS records search, from the CCIC, was conducted in June 2022 and reported that there are no formally recorded prehistoric or historic archaeological resources or historic buildings or structures within the Project Area. It is unlikely that the Project has the potential to result in significant impacts or adverse effects to cultural or historical resources, such as archaeological remains, artifacts or historic properties, building or structures, given the Project Area is located at existing, disturbed creek crossings. However, in the improbable event that cultural resources are encountered during Project construction, implementation of mitigation measure **CUL-1** outlined below, would reduce impacts to less than significant.

b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?

Less than Significant Impact with Mitigation Incorporated. The CCIC records search indicated that prehistoric archaeological resources (including Native American occupation remains) have been reported as found in the vicinity immediately surrounding to the Project Area. However, this is outside of the area designated for Project activities and would not disturb these areas. In the unlikely event archaeological resources are encountered during construction activities, the implementation of mitigation measure **CUL-1**, would reduce impacts to less than significant.

c) Would the project disturb any human remains, including those interred outside of dedicated cemeteries?

Less than Significant Impact with Mitigation Incorporated. There is no evidence or record that the Project has the potential to be an unknown burial site or the site of buried human remains. The CCIC search did indicate that there are Prehistoric archaeological resources, including Native American occupation remains, that have been reported found in the immediate vicinity surrounding the Project Areas. Proposed Project activities would not disturb these areas, however, in the unlikely event of such a discovery in the Project Area, mitigation shall be implemented. Mitigation measure **CUL-2** outlined below would be implemented and any impacts resulting from the discovery of remains would be reduced to less than significant.

4.5.3 Mitigation

CUL-1 **(Archaeological Remains):** Should archaeological remains or artifacts be unearthed during any stage of project activities, work in the area of discovery shall cease until the area is evaluated by a qualified archaeologist. If additional mitigation is warranted, the Project proponent shall abide by recommendations of the archaeologist.

CUL-2 **(Human Remains):** In the event that any human remains are discovered on the Project Area, the Merced County Coroner must be notified of the discovery (California Health and Safety Code, Section 7050.5) and all activities in the immediate area of the find or in any nearby area reasonably suspected to overlie adjacent human remains must cease until appropriate and lawful measures have been implemented. If the Coroner determines that the remains are not recent, but rather of Native American origin, the Coroner shall notify the Native American Heritage Commission (NAHC) in Sacramento within 24 hours to permit the NAHC to determine the Most Likely Descendent of the deceased Native American.

4.6 ENERGY

Table 4-11: Energy Impacts

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.6.1 Baseline Conditions

The Project would consume energy during construction activities primarily from on and off road vehicles, and off road equipment fuel consumption in the form of diesel and gasoline. The analysis below includes the Project's energy requirements and energy use. Operations energy consumption will be minimal as the Project is an infrastructure project that consists of the construction of two culverts over existing creek crossings. The Project may require periodic maintenance activities which would involve a few trucks or vehicles. Fuel consumption from the maintenance vehicles would result in minimal energy use.

4.6.2 Impact Analysis

a) Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

No Impact. Operation of the Project will not require the consistent use of energy resources; however, construction activities will require the use of fossil fuels. Construction vehicles and equipment will consume petroleum products such as gasoline and diesel. However, construction activities will be temporary, and all materials are readily available and will not involve wasteful, inefficient, or unnecessary consumption. There would be no impact.

b) Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

No Impact. The Project consists of the construction of two culverts. The construction of this infrastructure project would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency. There would be no impact.

4.7 GEOLOGY AND SOILS

Table 4-12: Geology and Soils Impacts

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i. 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? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii. Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii. Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv. Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994) creating substantial direct or indirect risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) 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 wastewater?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Directly or indirectly destroy a unique paleontological resource or site or unique geological feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4.7.1 Baseline Conditions

Soils in the proposed Project Area are predominantly xerofluvents, extremely gravelly and there are not any active faults close to the area.

Faults and Seismicity

The Project Area is not located within an Alquist-Priolo Earthquake Fault Zone and no known faults cut through the local soil at the site. The nearest mapped fault is the San Joaquin Fault, located approximately 2.3 miles southwest of the Project Area. The San Andreas Fault is the dominant active tectonic feature of the Coast Ranges and represents the boundary of the North American and Pacific plates.

Liquefaction

The potential for liquefaction, which is the loss of soil strength due to seismic forces, is dependent on soil types and density, depth to groundwater, and the duration and intensity of ground shaking. The portion of Merced County where the Project is located has a low to moderate liquefaction risk.

Soil Subsidence

Subsidence occurs when a large land area settles due to over-saturation or extensive withdrawal of ground water, oil, or natural gas. These areas are typically composed of open-textured soils, high in silt or clay content, that become saturated.

4.7.2 Impact Analysis

a) Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

- i. 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? Refer to Division of Mines and Geology Special Publication 42.
- ii. Strong seismic ground shaking?
- iii. Seismic-related ground failure, including liquefaction?
- iv. Landslides?

No Impact. The Project Area is not located within an Alquist-Priolo Earthquake Fault Zone. The nearest active faults in Merced County is the San Joaquin Fault located approximately 2.3 miles west of the Project Area. Additionally, the culvert crossings will be designed for seismic loading and slope stability using standard construction methods. Likewise, the Project Area is not within a liquefaction or landslide zone. There would be no impact.

b) Would the project result in substantial soil erosion or the loss of topsoil?

Less than Significant Impact. Earthmoving activities associated with the Project would include excavation, grading, and culvert construction. These activities could expose soils to erosion processes and the extent of erosion would vary depending on slope steepness/stability, vegetation/cover, concentration of runoff, and weather conditions. Dischargers whose projects disturb one (1) or more acres of soil or whose projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity Construction General Permit Order 2009-0009-DWQ. Construction activity subject to this permit includes clearing, grading and disturbances to the ground such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit requires the development of a SWPPP by a certified Qualified SWPPP Developer. Since the Project Area has relatively flat terrain and the stream gradient is minimal there is a low potential for soil erosion and would comply with the SWRCB requirements, the impact would be less than significant.

c) Would the project 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?

Less than Significant Impact. The Project Area and the immediate surrounding lands do not have any substantial grade changes in the topography that would expose people or structures to potential substantial adverse effects on, or offsite, such as landslides, lateral spreading, subsidence, liquefaction or collapse. The Project may construct in no-flow or low-flow conditions, when there are small amounts of water in Los Banos Creek. Sediment and erosion control BMPs, appropriate to aquatic conditions will be employed when working in no-flow or low-flow conditions. Any impact would be less than significant.

d) Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

Less than Significant Impact. The Project Area is comprised of Xerofluvents, extremely gravelly soils. This soil series consists of poorly drained to well drained soils that are found in flood plains and channels. These soils are derived of various materials of rock with 0 to 2 percent slopes. Profile for these soils are commonly grayish brown and brown, extremely gravelly loamy and clayey material from a dept of 60 inches or more (**Appendix B**). The Project includes construction of two culvert crossings in Los Banos Creek. As discussed in the Project description, the new culverts will utilize rip-rap to stabilize sediment, prevent erosion, and dissipate energy around the construction of permanent features. Rip-rap will be placed within the streambed below TOB at the rip-rap aprons of culvert outlets to provide protection against re-concentration of flows, high velocities, and outlet scour. The size of rock material will be the minimum required in order to provide sufficient stabilization. No habitable structures would be built as part of this Project. Impacts would be less than significant.

e) Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

No Impact. No septic tanks or alternative wastewater disposal systems are proposed as part of the proposed Project. There would be no impact.

f) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geological feature?

Less than Significant Impact with Mitigation Incorporated. No known paleontological resources exist within the Project Area. As the Project would require ground-disturbing activities, it is possible that an undiscovered paleontological resource may be impacted by ground disturbing activities. Implementation of **GEO-1** would ensure impacts remain less than significant.

4.7.3 Mitigation Measures

GEO-1 **(Unique Paleontological Resources):** If during construction a paleontological resource has been discovered, construction activities shall halt within a 50-foot radius of the discovery. A qualified paleontologist shall be consulted to determine if the paleontological resource is unique. If the resource is unique, the Project Proponent shall cover all expenses to have the resource archived. If the resource is not unique, construction activity within the discovery shall be allowed.

4.8 GREENHOUSE GAS EMISSIONS

Table 4-13: Greenhouse Gas Emissions Impacts

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.8.1 Baseline Conditions

Commonly identified Greenhouse Gas (GHG) emissions and sources include the following:

Carbon dioxide (CO₂) is an odorless, colorless natural greenhouse gas. CO₂ is emitted from natural and anthropogenic sources. Natural sources include the following: decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic out gassing. Anthropogenic sources include the burning of coal, oil, natural gas, and wood.

Methane (CH₄) is a flammable greenhouse gas. A natural source of methane is the anaerobic decay of organic matter. Geological deposits, known as natural gas fields, also contain methane, which is extracted for fuel. Other sources are from landfills, fermentation of manure, and ruminants such as cattle.

Nitrous oxide (N₂O), also known as laughing gas, is a colorless greenhouse gas. Nitrous oxide is produced by microbial processes in soil and water, including those reactions that occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load.

Carbon dioxide equivalent (CO₂e), CO₂e is the summation of CO₂, CH₄, and N₂O, multiplied by each greenhouse gases' global warming potential (GWP). For purposes of this analysis, CH₄ and N₂O are assigned a multiplier of 25 and 298, respectively, based on longevity in the atmosphere and the intensity of infrared absorbed. This is consistent with CARB's calculation and the 2007 Intergovernmental Panel on Climate Change fourth assessment report.

Water vapor is the most abundant, and variable greenhouse gas. It is not considered a pollutant; in the atmosphere, it maintains a climate necessary for life.

Ozone (O₃) is known as a photochemical pollutant and is a greenhouse gas; however, unlike other greenhouse gases, ozone in the troposphere is relatively short-lived and, therefore, is not global in nature. Ozone is not emitted directly into the atmosphere but is formed by a complex series of chemical reactions between volatile organic compounds, nitrogen oxides, and sunlight.

Aerosols are suspensions of particulate matter in a gas emitted into the air through burning biomass (plant material) and fossil fuels. Aerosols can warm the atmosphere by absorbing and emitting heat and can cool the atmosphere by reflecting light.

Chlorofluorocarbons (CFCs) are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the earth's surface). CFCs were first synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. CFCs destroy stratospheric ozone; therefore, their production was stopped as required by the Montreal Protocol in 1987.

Hydrofluorocarbons (HFCs) are synthetic chemicals that are used as a substitute for CFCs. Of all the greenhouse gases, HFCs are one of three groups (the other two are perfluorocarbons and sulfur hexafluoride) with the highest global warming potential. HFCs are human-made for applications such as air conditioners and refrigerants.

Perfluorocarbons (PFCs) have stable molecular structures and do not break down through the chemical processes in the lower atmosphere; therefore, PFCs have long atmospheric lifetimes, between 10,000 and 50,000 years. The two main sources of PFCs are primary aluminum production and semiconductor manufacture.

Sulfur hexafluoride (SF₆) is an inorganic, odorless, colorless, nontoxic, nonflammable gas. It has the highest global warming potential of any gas evaluated. Sulfur hexafluoride is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.

There are uncertainties as to exactly what the climate changes will be in various local areas of the earth, and what the effects of clouds will be in determining the rate at which the mean temperature will increase. There are also uncertainties associated with the magnitude and timing of other consequences of a warmer planet: sea level rise, spread of certain diseases out of their usual geographic range, the effect on agricultural production, water supply, sustainability of ecosystems, increased strength and frequency of storms, extreme heat events, air pollution episodes, and the consequence of these effects on the economy.

Emissions of GHGs contributing to global climate change are largely attributable to human activities associated with the industrial/manufacturing, utility, transportation, residential, and agricultural sectors. About three-quarters of human emissions of CO₂ to the global atmosphere during the past 20 years are due to fossil fuel burning. Atmospheric concentrations of CO₂, CH₄, and N₂O have increased 31 percent, 151 percent, and 17 percent respectively since the year 1750 (CEC 2008). GHG emissions are typically expressed in carbon dioxide-equivalents (CO₂e), based on the GHG's Global Warming Plan. The GWP is dependent on the lifetime, or persistence, of the gas molecule in the atmosphere. For example, one ton of CH₄ has the same contribution to the greenhouse effect as approximately 21 tons of CO₂. Therefore, CH₄ is a much more potent GHG than CO₂.

The Air Quality Output Files were prepared in July 2022 and are contained in [Appendix A](#).

4.8.2 Thresholds

The District has not adopted its own GHG thresholds or prepared a Greenhouse Gas Reduction Plan that can be used as a basis for determining project significance. The District conservatively assesses GHG emissions using a numeric threshold approach adopted by the Sacramento Metro Air Quality Management District (SMAQMD), which requires construction emissions to not exceed 1,100 metric tons of CO₂-equivalent per year.

4.8.3 Impact Analysis

a) Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less than Significant Impact. Construction of the Project would result in GHG emissions from operation of both on-road and off-road equipment. As discussed previously, Project operations could occasionally require maintenance conducted by existing Triangle Rock staff. Any vehicle emissions generated from this maintenance would be minor, and therefore are not addressed further. As shown in **Table 4-14**, the Project would be below the SMAQMD thresholds for total Project emissions and well below the thresholds after amortizing the construction emissions. Therefore, the GHG emissions from the proposed Project would not have significant impacts on climate change.

Table 4-14: Short-Term Construction-Generated GHG Emissions

Year	Emissions (MT CO ₂ e) ¹
2022	50.09
2023	6.59
Total	56.68
Amortized over Life of Project (30 years)	1.89
AB 32 Consistency Threshold for Land-Use Development Projects*	1,100
Exceed Threshold?	No

1. Refer to **Appendix A** for modeling results and assumptions. Totals may not sum due to rounding.

* As published in the Sacramento Metro Air Quality Management District's *Guide to Air Quality Assessment in Sacramento County*. Available online at <http://airquality.org/LandUseTransportation/Documents/Ch6GHG2-26-2021.pdf>. Accessed July 2022.

b) Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less than Significant Impact. After Project construction, operational GHG emissions would consist of occasional maintenance conducted by existing Triangle Rock staff. Any vehicle emissions generated from this maintenance would be minor, if any. The proposed activities for this Project will improve two existing road crossings over Los Banos Creek, located in an unincorporated area of Merced County. The improved road crossings will facilitate continuous vehicle transport over Los Banos Creek from permitted and existing mineral resource recovery sites to the processing plant at all times of the year. While the Project will facilitate continuous transport over Los Banos Creek, the total number of truck trips would not be increased as facility production is limited by Triangle Rock's air permits. GHG emissions from the Project construction activities would be temporary and would not have a long-term impact on the state's ability to achieve the Scoping Plan's emission reduction targets for 2030 or beyond. Based on this, the Project would be consistent with the 2017 Scoping Plan and would not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions; therefore, impacts would be less than significant.

4.9 HAZARDS AND HAZARDOUS MATERIALS

Table 4-15: Hazards and Hazardous Materials Impacts

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Expose people or structures, either directly or indirectly to a significant risk of loss, injury or death involving wildland fires?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.9.1 Baseline Conditions

The Project Area does not involve land that is listed as a hazardous materials site pursuant to Government Code Section 65962.5 and is not included on a list compiled by the Department of Toxic Substances Control. EnviroStor is the Department of Toxic Substances Control's data management system for tracking cleanup, permitting, enforcement, and investigation efforts at hazardous waste facilities, and sites with known contamination, or sites where there may be reasons to investigate further.

Geotracker is the Water Boards' data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater. Geotracker contains records for sites that require cleanup, such as Leaking Underground Storage Tank Sites, Department of Defense Sites, and Cleanup Program Sites. GeoTracker also contains records for various unregulated projects as well as

permitted facilities including: Irrigated Lands, Oil and Gas production, operating Permitted Underground Storage Tanks, and Land Disposal Sites.

Airports

The Los Banos Municipal Airport is located approximately three miles northeast of the Project Area.

Emergency Response Plan

The Merced County Department of Public Health coordinates the development and maintenance of the Merced County Emergency Operations Plan.

Sensitive Receptors

The closest sensitive receptors, rural single-family residences, are located approximately 0.6 miles north and 0.4 miles east of the Project Area.

4.9.2 Impact Analysis

a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

b) Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Less than Significant Impact. The Proposed Project includes grading activities and the construction of two new culverts. Construction vehicles and equipment would require the use of petroleum fuels, such as gasoline and diesel. Small quantities of fuel will be available on site, and an accidental release could occur when equipment is refueled. BMPs to reduce the potential for exposure to waterways would be included as part of the Project during construction. The Project would also comply with CDFW and USACE permitting requirements. All hazardous materials and wastes would be handled, transported, and disposed of according to all applicable federal, state, and local regulations.

c) Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

No Impact. There are no schools, existing or proposed, within one-quarter mile of the Project Area. The closest school is Creekside Junior High School located approximately 2.5 miles north of the Project Area. Additionally, the Project will not emit hazardous emissions or handle hazardous or acutely hazardous materials as part of Project operations. Therefore, there would be no impact.

d) Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

No Impact. The Project Area and the parcels within which they lie does not involve land that is listed as an active hazardous materials site pursuant to Government Code Section 65962.5 and is not included on the lists compiled by the Department of Toxic Substances Control described in Section 65962.5 above. Both the State Water Board's GeoTracker⁶ and Department of Toxic Substances Control EnviroStor

⁶ (State of California Water Resources Control Board - Geotracker 2022)

websites were checked for contaminated groundwater or sites in the area and none were found at or adjacent to the Project Area.⁷ There would be no impact.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

No Impact. The Project Area is not within an Airport Land Use Plan, with the nearest airport being the Los Banos Municipal Airport located approximately three miles northeast. The Project is more than two miles away from all other public and public use airports. Therefore, there would be no impact.

f) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? And;

g) Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

No Impacts. The Project consists of the construction of two culverts which would connect the private roadway that Triangle Rock uses for their mining operation. This is a private road and would not interfere with an adopted emergency response plan or emergency evacuation plan. The Project Area is not located within a State responsibility area or very high fire hazard severity zone and would not include any activities that would expose people or structures to a significant risk of fire. There would be no impact.

⁷ (California Department of Toxic Substances Control 2022)

4.10 HYDROLOGY AND WATER QUALITY

Table 4-16: Hydrology and Water Quality Impacts

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i. result in substantial erosion or siltation on- or off-site;	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iii. 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; or	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iv. impede or redirect flood flows?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.10.1 Baseline Conditions

The Project is located in a rural area of Merced County, inside the San Joaquin Valley Basin. The San Joaquin Valley Basin is divided into seven subbasins. The Delta-Mendota subbasin, where the Project Area is located, is approximately 747,000 acres and provides groundwater for areas in the Counties of Stanislaus, Merced, Madera and Fresno.

4.10.2 Impact Analysis

a) Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Less than significant Impact with Mitigation Incorporated. Water quality issues will be limited to those related to construction activities in and around the creek area. The implementation of BMPs including development and implementation of a sediment and erosion control plan and development and implementation of a Storm Water Pollution Prevention Plan (SWPPP) would minimize the potential for soil erosion and water quality impacts. The BMPs are listed in mitigation measure **BIO-19**. The incorporation of mitigation measure **BIO-19** is sufficient to make these potential impacts less than significant.

b) Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

No Impact. The Project will install culverts at each of the two road crossing locations to divert flow under the improved access roads to facilitate year-round vehicle use of the creek crossings. The construction and operation of the Project will not substantially interfere with or impede sustainable groundwater management in the Project area. Therefore, there would be no impact.

c) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

- i. result in substantial erosion or siltation on- or off-site;
- ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;
- iii. 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; or
- iv. impede or redirect flood flows?

Less than significant Impact with Mitigation Incorporated. Construction activities would involve excavation, filling and grading of soils, which would expose areas to potential erosion during construction. Grading activities will be performed in accordance with Merced County standards. BMPs will be implemented during construction to further reduce potential impacts of erosion or siltation on or off site. Areas disturbed during construction will be restored and seeded. A SWPPP will be prepared to comply with the conditions of the NPDES general stormwater permit for construction activities.

As discussed in the Project description, the Project may construct in no-flow or low-flow conditions, when there are small amounts of water in Los Banos Creek. Sediment and erosion control BMPs, appropriate to aquatic conditions will be employed when working in no-flow or low-flow conditions. Project work is anticipated to be started within the dry season. However, in the unlikely event that work may need to occur when normal flows are present within the work area, a flow bypass system/cofferdams will be installed. The bypass piping will be routed around the channel of Los Banos Creek and will extend the length of planned work area. All work done in the creek bed would comply with mitigation measures

BIO-19 and **BIO-23**, which would reduce any potential impacts to the flow in the creek bed to less than significant. As discussed in the Project description, dewatering will convey base flows only, not stormflows. The contractor will be required to monitor and maintain all components of the dewatering system throughout the construction period. As described above rainfall runoff events that happen during the in-channel work window will not be controlled by the cofferdams. In the unlikely event of stormflows in Los Banos Creek in the summer months or early fall, crews will not work in the creek until flows have subsided.

During operation, these culverts will be designed to handle a capacity of 450 cubic feet per second (cfs) at the southern crossing and 150 cfs for the northern crossing. The difference in the design flow between the two crossings is associated with the diversion into the Delta Mendota Canal located upstream of the northern crossing. The proposed Project will raise the elevations of the TOB at each crossing. The results for the modeled proposed conditions can be found in [Appendix D](#), Los Banos Creek Culvert Project Hydraulic Modeling Memo, and show that the creek water surface elevations below the new top of banks as well as below the top of the culverts. The Project condition modeling results show that water levels in the creek have backwater effects that will raise creek levels behind the proposed northern crossing and the southern crossing culverts. These backwater effects end approximately 800 feet upstream from both crossings. Backwater effects from the proposed northern crossing back water up to the DMC, however they are not high enough in this scenario to impact water surface elevations in DMC culverts. It is possible that at other creek flows, including when the pumped diversion to the DMC is off and flows are the same at both crossings, that overtopping may occur.

The culverts themselves would not increase the rate or amount of surface runoff or result in flooding. Any stormwater flows would flow to and through the creek bed. The culverts have been designed to handle most flow rates through the Los Banos Creek during stormflow situations ([Appendix D](#)). As discussed above, no construction would be done in the creek when there are stormflows. Lastly, the proposed Project will not add sources of polluted runoff. Therefore, any impacts would be less than significant with mitigation measures **BIO-19** and **BIO-23** incorporated.

d) Would the project in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundations?

No Impact. The Project is located inland and as a result would not be at risk of tsunamis, nor is it located near a body of water that would put it at risk of a seiche. According to the FEMA National Flood Hazard Layer⁸ the Project Area is located in Flood Zone X, an area of minimal flood hazard. The Project is approximately 5.5 miles from the closest Flood zone. The Project would not be at risk of pollutants due to Project inundations. Therefore, there would be no impact.

e) Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

No Impact. The Project would not affect the implementation of the water quality control plan or the groundwater sustainability plan as no new water sources or discharges would be developed as part of the Project.

⁸ (Federal Emergency Management Agency 2022)

4.10.3 **Mitigation**

See **BIO-19** outlined in Section 4.4.

See **BIO-23** outlined in Section 4.4.

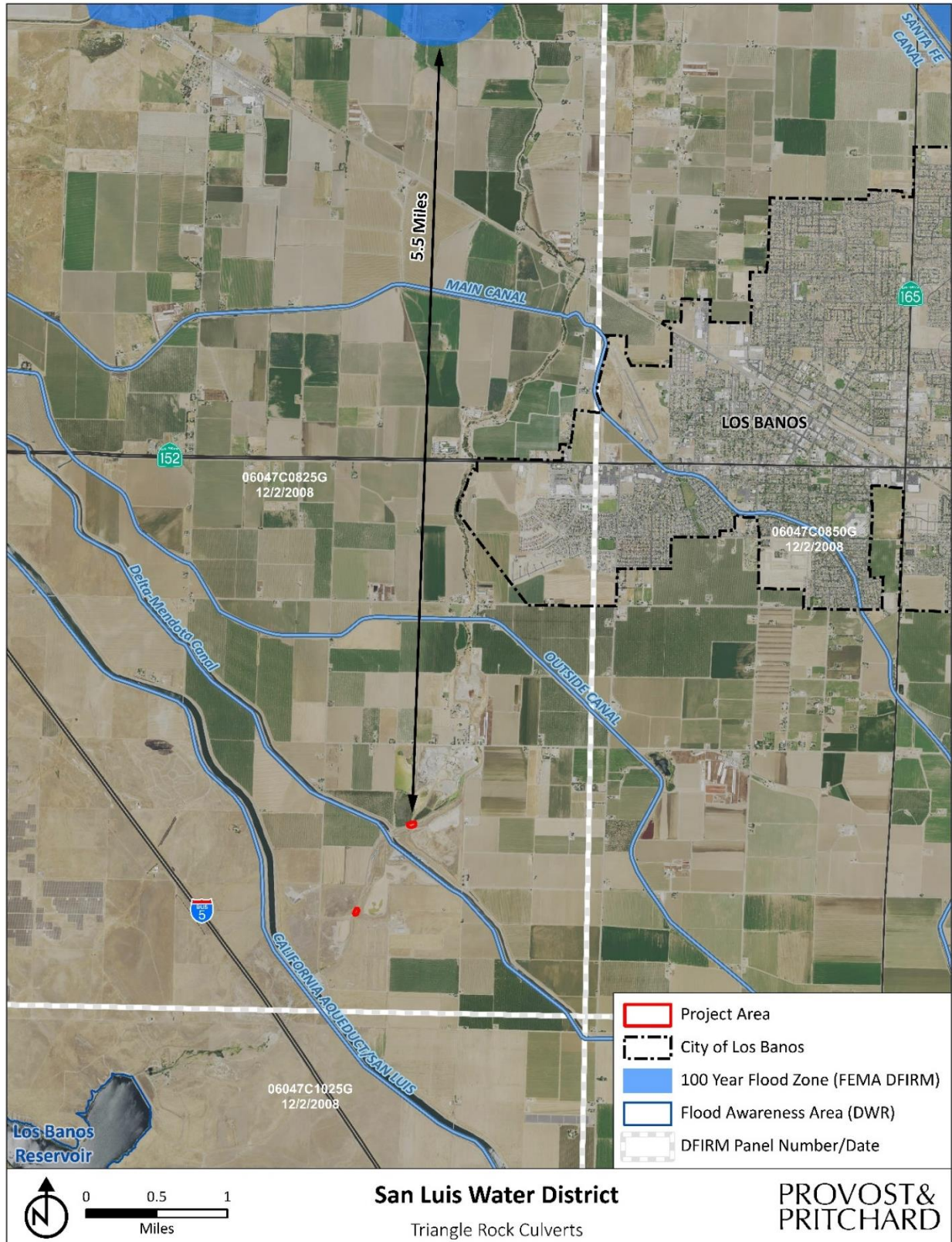


Figure 4-2: FEMA Flood Map

4.11 LAND USE AND PLANNING

Table 4-17: Land Use and Planning Impacts

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
f) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.11.1 Baseline Conditions

The Project Area is designated as Agricultural by the 2030 Merced County General Plan, and zoned A-1 (General Agricultural) by the Merced County Zoning Code. The Project Area's existing use is dry creek crossings for the gravel mining site and processing plant for Triangle Rock Products. The land surrounding the Project Area is primarily developed for the mining site, processing plant and various other agricultural uses.

4.11.2 Impact Analysis

a) Would the project physically divide an established community?

No Impact. The Project Area is located in an unincorporated area of Merced County that is characterized by agriculture and zoned for agricultural uses. Furthermore, the proposed culvert improvements will not occur in or divide an established community. The improved road crossings will facilitate continuous vehicle transport over Los Banos Creek from permitted and existing mineral resource recovery sites to the processing plant at all times of the year, which will enable the processing plant to operate more efficiently and produce material needed for building and improving communities in the region. Therefore, there would be no impact.

b) Would the project cause a significant environmental conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

No Impact. The Project would construct new infrastructure in the form of two culverts; the Project does not propose a change in land use and would not conflict with the County's adopted General Plan, zoning ordinances, or other policies or regulations. There would be no impact.

4.12 MINERAL RESOURCES

Table 4-18: Mineral Resources Impacts

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.12.1 Baseline Conditions

Minable minerals, or an “ore deposit,” are defined as a deposit of ore or mineral having a value materially in excess of the cost of developing, mining, and processing the mineral and reclaiming the area. While Project Area is mapped as MRZ-3a (The significance of mineral deposits cannot be determined from the available data) by the California Geological Survey Mineral Resources Project, Triangle Rock has been operating and mining around the Project Area for aggregate and is a major exporter of aggregate across the region.

4.12.2 Impact Analysis

a) Would the project 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?

b) Would the project 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?

No Impacts. Construction of the culvert improvements would not result in the loss of availability of known mineral resources. The failure to make these improvements however, would have a substantial impact on the availability of the gravel being mined and processed within the Project Area during times when there are flows in Los Banos Creek. The Project will facilitate year-round vehicle use of the creek crossings and allow for uninterrupted production of mineral resources that are of value to the region and residents. The construction and operation of the culverts would have no negative impact.

4.13 NOISE

Table 4-19: Noise Impacts

Would the project result in:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Generation of excessive ground borne vibration or ground borne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.12.3 Baseline Conditions

The primary existing noise sources in the Project vicinity are from traffic on nearby roadways and the noise generated from the mining and processing facilities surrounding the Project Area. Other than traffic and mining related noise, the predominant noise sources surrounding the Project Area are characterized as low intensity rural residential and agricultural uses, including noise from activities at surrounding residences, and agricultural cultivation and harvesting.

4.12.4 Impact Analysis

a) Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? And;

b) Would the project result in generation of excessive ground borne vibration or ground borne noise levels?

Less than Significant Impact. The Project is located in an unincorporated area of Merced County that is zoned for agricultural use. Acceptable noise exposure levels vary by land use. Noise-sensitive land uses include residential, lodging, schools, and hospitals. The Project would produce temporary construction noise; however, the nearest noise-sensitive land use is a residence located approximately 0.45 miles east of the Project Area. As discussed in the Project Description, construction activities would be limited to Monday through Friday between the hours of 7:00 a.m. and 6:00 p.m. Construction noise would comply with County Ordinance 10.60.030 (5), and would be consistent with noise that is currently generated from the adjacent mining operations. The Project would not generate any operational noise. Any impact would be temporary and less than significant.

c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

No Impact. The Project is not located within two miles of an airport. The nearest airport is the Los Banos Municipal Airport located approximately three miles northeast of the Project Area. There would be no impact.

4.13 POPULATION AND HOUSING

Table 4-20: Population and Housing Impacts

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Induce substantial unplanned population growth in an area, either directly (for Sample, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.13.1 Baseline Conditions

The Project Area is an aggregate mining and processing plant operation with some scattered rural residences surrounding the Project Area. The nearest residence to the Project Area is located approximately 0.45 miles east. The nearest densely populated area is the City of Los Banos located approximately two miles northeast of the Project Area.

4.13.2 Impact Analysis

a) Would the project induce substantial unplanned population growth in an area, either directly (for Sample, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? And;

b) Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

No Impact. The Project would construct two culverts over an existing creek to accommodate year round transportation of materials from the adjacent mining operation to the processing plant. The construction and operation of the Project will not induce any population growth. The Project would be constructed in and around the creek bed, and would not displace people or housing. There would be no impacts.

4.14 PUBLIC SERVICES

Table 4-21: Public Services

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.14.1 Baseline Conditions

The closest fire station to the Project Area is the Los Banos City Fire Department located approximately 3.5 miles northeast of the Project Area. The Merced County Sheriff, Los Banos Substation, is located approximately 4 miles northeast of the Project Area. The nearest school, Henry Miller Elementary, is located approximately 3.5 miles northeast of the Project Area. The closest park/recreational area is the Los Banos Creek Reservoir located approximately 2.5 miles southwest of the Project Area.

4.14.2 Impact Analysis

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

No Impact. The Project would construct two culverts over an existing creek to allow for continuous vehicle transport over Los Banos Creek from permitted and existing mineral resource recovery sites to the processing plant at all times of the year. The Project would not create or alter governmental facilities nor would it enable the development of new facilities due to population increase. Because the Project would not cause an increase in population, there would be no increase in demand for public services including fire, police, schools, parks, and other facilities. Therefore there would be no impact.

4.15 RECREATION

Table 4-22: Recreation Impacts

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.15.1 Baseline Conditions

The Project Area consists of two dry creek crossings over Los Banos Creek. No habitable structures are proposed as part of this proposed Project. There would not be an increase in the use of local parks due to the proposed Project. The closest park or recreation area is the Los Banos Creek Campground located approximately 3.5 miles southwest of the Project Area.

4.15.2 Impact Analysis

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

No Impact. The Project does not have the potential to increase or decrease the area's population and would, therefore, not result in increased or decreased use of parks or other recreational facilities. The Project does not include recreational facilities. Therefore, there would be no impact.

4.16 TRANSPORTATION

Table 4-23: Transportation Impacts

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)??	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.16.1 Baseline Conditions

The Project Area is located within a quarry site surrounded predominantly by agricultural uses. Vehicle access to the Project Area is via CA-33. State Route 152 to the north and State Route 165 to the east are roadways that provide regional access to the site. While the culvert improvements are not directly related to transportation of products in and out the mining operation, they will provide necessary circulation infrastructure within private property that will facilitate the production and processing of valuable aggregate products. There are no alternative transportation facilities, such as bus, bicycle, or pedestrian travel routes, in the vicinity of the Project.

4.16.2 Impact Analysis

a) Would the project conflict with a plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3 subdivision (b)?

c) Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

d) Would the project result in inadequate emergency access?

No Impacts. The Project includes construction of two culverts to facilitate continuous vehicle transport over Los Banos Creek from permitted and existing mineral resource recovery sites to the processing plant on site at all times of the year. The Project does not include any work within public access roads and will not conflict with any program, plan or policy addressing circulation or transit, it would not conflict with CEQA Guidelines § 15064.3, subdivision (b), it will not increase geometric design hazards or existing roadways, nor would it impact emergency access.

4.17 TRIBAL CULTURAL RESOURCES

Table 4-24: Tribal Cultural Resources Impacts

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i. Listed or eligible for listing in the California Register of Historical Resources, or in the local register of historical resources as defined in Public Resources Code section 5020.1(k), or	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4.17.1 Baseline Conditions

Public Resources Code Section 21080.3.1, et seq. (codification of AB 52, 2013-14) requires that a lead agency, within 14 days of determining that it would undertake a project, must notify in writing any California Native American Tribe traditionally and culturally affiliated with the geographic area of the project if that Tribe has previously requested notification about projects in that geographic area. The notice must briefly describe the project and inquire whether the Tribe wishes to initiate request formal consultation. Tribes have 30 days from receipt of notification to request formal consultation. The lead agency then has 30 days to initiate the consultation, which then continues until the parties come to an agreement regarding necessary mitigation or agree that no mitigation is needed, or one or both parties determine that negotiation occurred in good faith, but no agreement would be made.

The San Luis Water District has not received any written correspondence from a Tribe pursuant to Public Resources Code Section 21080.3.1 requesting notification of proposed project.

Records Search

A records search from the CCIC of the CHRIS inventory, located at California State University, Stanislaus was conducted in June 2022. The CCIC records search includes a review of all recorded archaeological and built-environment resources as well as a review of cultural resource reports on file. In addition, National Register of Historic Places, California Register of Historical Resources, California Inventory of Historic Resources, California Historical Landmarks, California Points of Historical Interest listing, Office of Historic Preservation Built Environment Resource Directory, the Archaeological Determinations of Eligibility, Survey of Surveys (1989), Caltrans State and Local Bridges Inventory, General Land Office Plats, as well other pertinent historic data available at the CCIC for specific county listing were reviewed for the above referenced Project. Due to the sensitive nature of cultural resources, archaeological site locations are not released. (Appendix C)

4.17.2 Impact Analysis

a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

- i. Listed or eligible for listing in the California Register of Historical Resources, or in the local register of historical resources as defined in Public Resources Code section 5020.1(k), or
- ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Less than Significant Impact with Mitigation Incorporated. The District, as a public lead agency has not received any formal requests for consultation from any State or local tribes, pursuant to Public Resources Code Section 21080.3.1 (AB52). The CCIC search results indicated that there have been prehistoric archaeological resources, including Native American occupation remains, found and reported in the areas immediately surrounding the Project Areas. It is highly unlikely that Project activities would disturb or cause substantial adverse change to any of these resources in the areas surrounding the Project Area. Implementation of the mitigation measures **CUL-1** and **CUL-2** as outlined above in **Section 4.5**, would reduce any potential impacts to Tribal Cultural Resources to less than significant.

4.17.3 Mitigation

See **CUL-1** outlined in Section 4.5.

See **CUL-2** outlined in Section 4.5.

4.18 UTILITIES AND SERVICE SYSTEMS

Table 4-25: Utilities and Service Systems Impacts

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.18.1 Baseline Conditions

The Project Area consists of two dry creek crossings over Los Banos Creek. The Project Area does not currently use any wastewater treatment services. Solid waste disposal during construction would be provided by the Merced County Regional Waste Authority, which operates two landfills. The Billy Wright Landfill is the closest landfill located approximately 4.3 miles northwest of the site.

4.18.2 Impact Analysis

a) Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

No Impact. The Project does not include any activities that would require the relocation or construction of new expanded water, wastewater treatment, storm drainage, electric power, natural gas, or telecommunication facilities. There would be no impact.

b) Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

No Impact. The construction of the culverts will not require any new wells or public water. Based on the nature of the Project, no increased demand on water supplies would occur. There would be no impact.

c) Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

No Impact. The purpose of the Project is to provide unrestricted use of the road crossings across the Los Banos Creek throughout the year. The construction of the two culverts to facilitate the use of the crossings will not increase demand on wastewater treatment facilities or services. Therefore, there would be no impact.

d) Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Less than Significant Impact. The Project is anticipated to generate solid waste from construction activities. Any material generated from this Project will be transported off site for recycling or disposal. The Billy Wright Landfill is located approximately 4.3 miles northwest of the Project Area. It accepts construction waste and has adequate capacity for waste generated by the Project. Any impact would be less than significant.

e) Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

Less than Significant Impact. The Project will comply with all federal, State and local statutes related to solid waste. Therefore, the Project would have a less than significant impact.

4.19 WILDFIRE

Table 4-26: Wildfire Impacts

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrollable spread of wildfire?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.19.1 Baseline Conditions

The Project Area is located approximately 20-miles southeast of the nearest very high fire hazard severity zone and the closest State Responsibility Area is approximately seven miles northeast from the site. The Project would not result in population growth, and it does not involve the construction of habitable structures.

4.19.2 Impact Analysis

a) If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project substantially impair an adopted emergency response plan or emergency evacuation plan?

b) If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project due to slope, prevailing winds, and other factors, exacerbate wildfire risks and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

c) If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

d) If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

No Impacts. The Project is not located in a State Responsibility Area⁹ or lands classified as very high severity zones¹⁰. The closest State responsibility area to the site is approximately seven miles northeast and is classified as moderate severity. Further analysis of the Project's potential impacts regarding wildfire are not warranted. There would be no impacts.

⁹ (California Department of Forestry and Fire 2022)

¹⁰. (California Department of Forestry and Fire Protection 2022)

4.20 CEQA MANDATORY FINDINGS OF SIGNIFICANCE

Table 4-27: CEQA Mandatory Findings of Significance

Does the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.20.1 Statement of Findings

a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Less than Significant Impact with Mitigation Incorporated. The analysis conducted in this IS/MND results in a determination that the proposed Project, with incorporation of mitigation measures, will have a less than significant effect on the environment. The potential for impacts to biological resources, hydrology, geological, cultural and tribal cultural resources from the implementation of the proposed Project will be less than significant with the incorporation of the mitigation measures discussed in **Chapter 5 Mitigation, Monitoring, and Reporting Program**. Accordingly, the proposed Project will involve no potential for significant impacts through the degradation of the quality of the environment, the reduction in the habitat or population of fish or wildlife, including endangered plants or animals, the elimination of a plant or animal community or example of a major period of California history or prehistory.

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

Less than Significant Impact with Mitigation Incorporated. CEQA Guidelines Section 15064(i) States that a Lead Agency shall consider whether the cumulative impact of a project is significant and whether the effects of the project are cumulatively considerable. The assessment of the significance of the cumulative effects of a project must, therefore, be conducted in connection with the effects of past projects, other current projects, and probable future projects. The proposed Project would improve two road crossings over Los Banos Creek. No additional public roads would be constructed as a result of the Project, nor would any additional public services be required. The improved road crossings will facilitate continuous vehicle transport over Los Banos Creek from permitted and existing mineral resource recovery sites to the processing plant at all times of the year. While the Project will facilitate continuous transport over Los Banos Creek, the total number of truck trips would not be increased as facility production is limited by Triangle Rock's air permits. The project would not expand Triangle Rock's operation capacity and would not result in direct or indirect population growth. Therefore, implementation of the proposed Project would not result in significant cumulative impacts and all potential impacts would be reduced to less than significant through the incorporation of the mitigation measures discussed in **Chapter 5 Mitigation, Monitoring, and Reporting Program** and basic regulatory requirements incorporated into future Project design.

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Less than Significant Impact. The Project proposes to improve two road crossings over Los Banos Creek. The Project in and of itself would not create a significant hazard to the public or the environment. Construction-related air quality/dust exposure impacts could occur temporarily as a result of Project construction. However, implementation of basic regulatory requirements identified in this IS/MND would ensure that impacts are less than significant. Therefore, the proposed Project would not have any direct or indirect adverse impacts on humans. This impact would be less than significant.

CHAPTER 5 MITIGATION, MONITORING, AND REPORTING PROGRAM

This Mitigation Monitoring and Reporting Program (MMRP) has been formulated based upon the findings of the Initial Study/Mitigated Negative Declaration (IS/MND) for the Project in Merced County. The MMRP lists mitigation measures recommended in the IS/MND for the Project and identifies monitoring and reporting requirements.

Table 5-1: Mitigation, Monitoring, and Reporting Program presents the mitigation measures identified for the Project. Each mitigation measure is numbered with a symbol indicating the topical section to which it pertains, a hyphen, and the impact number. For example, AIR-2 would be the second mitigation measure identified in the Air Quality analysis of the IS/MND.

The first column of **Table 5-1: Mitigation, Monitoring, and Reporting Program** identifies the mitigation measure. The second column, entitled “When Monitoring is to Occur,” identifies the time the mitigation measure should be initiated. The third column, “Frequency of Monitoring,” identifies the frequency of the monitoring of the mitigation measure. The fourth column, “Agency Responsible for Monitoring,” names the party ultimately responsible for ensuring that the mitigation measure is implemented. The last columns will be used by the Lead and Responsible Agencies to ensure that individual mitigation measures have been complied with and monitored

Table 5-1: Mitigation, Monitoring, and Reporting Program

Mitigation, Monitoring, and Reporting Program						
Item	Mitigation Measure	When Monitoring is to Occur	Frequency of Monitoring	Agency Responsible for Monitoring	Method to Verify Compliance	Verification of Compliance
Biological Resources						
Burrowing Owl						
BIO -1	(Avoidance): The Project's construction activities will occur, if feasible, between September 1 and January 31 (outside of nesting bird season) in an effort to avoid impacts to nesting birds.	Prior to construction	Once	SLWD		
BIO-2	(Pre-construction survey): A qualified biologist will conduct a pre-construction survey for burrowing owls in areas of suitable habitat on and within 50 feet of the Project Area. This survey would occur regardless of the time of year, as burrowing owls may use the Project Area during the non-nesting season. A survey will be conducted 14 days prior to the start of ground disturbing activities using methods in accordance with Appendix D of CDFW's Staff Report on Burrowing Owl Mitigation (2012). If no occupied burrows are found, a letter report documenting the survey methods and results will be submitted to the District and CDFW and no further mitigation will be required.	Prior to construction	Once	SLWD		
BIO-3	(Buffer): If an active burrow is found during the breeding season (February 1 through August 31), occupied burrows will not be disturbed and will be provided with a 150- to 1,500-foot protective buffer unless a qualified biologist verifies through noninvasive means that either: 1) the birds have not begun egg laying, or 2) juveniles from the occupied burrows are foraging independently and are capable of independent survival. The size of the buffer will depend on the time of year and level of disturbance, as outlined in the CDFW Staff Report (2012, p. 9). If an active burrow is found during the nonbreeding season (September 1 through January 31) and cannot be avoided, owls will be relocated to suitable habitat outside of the Project Area using passive or	On discovery of active burrows near work areas.	Once	SLWD		

Mitigation, Monitoring, and Reporting Program						
Item	Mitigation Measure	When Monitoring is to Occur	Frequency of Monitoring	Agency Responsible for Monitoring	Method to Verify Compliance	Verification of Compliance
	active methodologies. A Burrowing Owl Exclusion Plan will be developed in consultation with CDFW. No Burrowing Owls will be excluded from occupied burrows until approval is received by CDFW, as per the guidelines in the CDFW Staff Report (2012, p. 11).					
BIO-4	(Exclusion Plan): If an active burrow is found during the nonbreeding season (September 1 through January 31) and cannot be avoided, a Burrowing Owl Exclusion Plan will be developed in consultation with CDFW, and owls may be relocated to suitable habitat outside of the Project Area using passive or active methodologies. Exclusion may result in a significant impact, so no Burrowing Owls will be excluded from occupied burrows until approval is received by CDFW, as per the guidelines in the CDFW Staff Report (2012, p. 11).	On discovery of active burrows near work areas.	Once	SLWD		
BIO-5	(Consultation with CDFW): If avoidance and disturbance-free buffers of a Burrowing Owl burrow is not feasible, work will cease and CDFW will be immediately consulted to determine the best course of action.	If avoidance and buffers are not feasible.	Once	SLWD		
Swainson's Hawk						
BIO-6	(Pre-construction survey): If construction, grading, or Project-related improvements are to commence between February 1 and September 15, focused surveys for Swainson's Hawk nests should be conducted by a qualified biologist within a 0.5 mile radius of Project activities, in accordance with the Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (Swainson's Hawk Technical Advisory Committee 2000). If active nests are found, CDFW should be contacted to determine appropriate protective measures, and these measures should be implemented prior to the start of any ground-disturbing activities. If no active nests are found	Prior to construction	Once	SLWD		

Mitigation, Monitoring, and Reporting Program						
Item	Mitigation Measure	When Monitoring is to Occur	Frequency of Monitoring	Agency Responsible for Monitoring	Method to Verify Compliance	Verification of Compliance
	during the focused survey, no further measures are required.					
BIO-7	(Avoidance and Minimization Plan): If an active Swainson's Hawk nest is found within 0.25 miles of the Project footprint, an avoidance and minimization plan will be prepared in consultation with the District and CDFW. The avoidance and minimization plan will be implemented only upon District and CDFW approval. The plan may include, but is not limited to: work windows until the nest is inactive, worker awareness training, avoidance radius around the active nest, installation of visual barriers, and nest monitoring during construction.	Upon discovery of active nests	Once	SLWD		
BIO-8	(Buffers): On discovery of any active nests near work areas, a 0.5-mile disturbance-free buffer will be implemented around active Swainson's Hawk nests based on applicable CDFW and/or USFWS guidelines. Construction buffers will be identified with flagging, fencing, or other easily visible means, and will be maintained until a qualified biologist has determined that the nestlings have fledged.	Upon discovery of active nests	Once	SLWD		
BIO-9	(CDFW Consultation): In the event an active Swainson's Hawk nest is detected during surveys, consultation with CDFW is warranted to discuss how to implement the Project and avoid take. If take cannot be avoided, CDFW may require a take authorization through the acquisition of an ITP pursuant to Fish and Game Code section 2081, subdivision (b) is necessary to comply with CESA.	Upon discovery of active nests	Once	SLWD		
Nesting Birds						
BIO-10	(Avoidance): Vegetation removal, grading, or initial ground-disturbance, should be conducted between September 1 and January 31 (outside of the February 1 to August 31 nesting season) to the greatest extent feasible.	Prior to construction	Once	SLWD		
BIO-11	(Pre-construction survey): If these activities must be conducted during the nesting season, a pre-	Prior to construction	Once	SLWD		

Mitigation, Monitoring, and Reporting Program						
Item	Mitigation Measure	When Monitoring is to Occur	Frequency of Monitoring	Agency Responsible for Monitoring	Method to Verify Compliance	Verification of Compliance
	construction nesting bird survey should be conducted by a qualified biologist no more than 14 days prior to vegetation removal, grading, or initial ground disturbance. The survey will include the Project Area and surrounding 250 feet to identify the location and status of any nests that could potentially be affected either directly or indirectly by these activities.					
BIO-12	(Buffers): If active nests of native nesting bird species are located during the nesting bird survey, a work exclusion zone should be established around each nest by the qualified biologist. Established exclusion zones should remain in place until all young in the nest have fledged or the nest otherwise becomes inactive (e.g., due to predation). Appropriate exclusion zone sizes would be determined by a qualified biologist and would vary based on species, nest location, existing visual buffers, noise levels, and other factors. An exclusion zone radius may be as small as 50 feet for common, disturbance-adapted species, or as large as 250 feet or more for raptors. Exclusion zone size would be reduced from established levels by a qualified biologist if nest monitoring findings indicate that Project activities do not adversely impact the nest, and if a reduced exclusion zone would not adversely affect the nest.	Prior to construction	Once	SLWD		
BIO-13	(CDFW Consultation): In the event an active nest is detected during surveys, consultation with CDFW is warranted to discuss how to implement the Project and avoid impacts to nesting bird species.	Prior to construction	Once	SLWD		
Roosting Bats						
BIO-14	(Avoidance): Construction activities will be limited to daylight hours to reduce potential impacts to special status bats that could be foraging onsite.	During construction	Daily	SLWD		
BIO-15	(Pre-construction survey): A pre-construction survey will be performed for Project activities that fall	Prior to construction	Once	SLWD		

Mitigation, Monitoring, and Reporting Program						
Item	Mitigation Measure	When Monitoring is to Occur	Frequency of Monitoring	Agency Responsible for Monitoring	Method to Verify Compliance	Verification of Compliance
	between March 1 and September 30 (bat maternity season) to identify possible or current bat roosting locations. A qualified biologist will conduct the survey 7 days or less prior to construction. The biologist will look for individuals, guano, and staining, and will listen for bat vocalizations. If necessary, the biologist will wait for nighttime emergence of bats from roost sites. If no bats are observed roosting or breeding, then no further action will be required, and construction can proceed.					
BIO-16	(Buffers): If a maternity colony is detected during preconstruction surveys, a disturbance-free buffer will be established around the colony and remain in place until a qualified biologist determines that the nursery is no longer active. The disturbance-free buffer will range from 50 to 100 feet as determined by the biologist.	Prior to construction	Once	SLWD		
BIO-17	(Monitoring): If an active bat roost is found, a qualified biologist will conduct monitoring surveys during the first two days of construction at the roost location confirm that vibration from the equipment does not disturb the active bat roost and cause roost abandonment.	During construction	First two days of construction	SLWD		
General Mitigation Measures						
BIO-18	(WEAP Training): An environmental awareness training program will be given to all contractor crew members working on the Project. The training would be given by a qualified biologist and would include education on sensitive resources such as protected wildlife with the potential to occur within the Project Area, water quality, and environmental protections and mitigation measures.	Prior to construction	Once	SLWD		
BIO-19	(BMPs): Erosion control measures would be utilized throughout all phases of the Project where sediment runoff from construction may potentially enter nearby waters. Appropriate sediment and erosion	During construction	Daily, as applies to the construction work that is occurring.	SLWD		

Mitigation, Monitoring, and Reporting Program						
Item	Mitigation Measure	When Monitoring is to Occur	Frequency of Monitoring	Agency Responsible for Monitoring	Method to Verify Compliance	Verification of Compliance
	<p>control BMPs (e.g., use of silt fencing and/or straw wattles around the perimeter of the construction zone) will be implemented during and following construction to minimize surface runoff originating from the Project and thereby protect water quality of Los Banos Creek. Erosion control structures would be monitored for effectiveness and would be repaired or replaced as needed.</p> <ul style="list-style-type: none"> i. Prior to construction, an Accidental Spill Prevention and Cleanup Plan would be prepared. This plan would include required spill control absorbent material, for use beneath stationary equipment, to be present on-site and available at all times. ii. No fueling, cleaning, or maintenance of vehicles or equipment would take place within any areas where an accidental discharge may cause hazardous materials to enter waterways. iii. Any equipment or vehicles used for the Project would be checked and maintained daily to prevent leaks of fluids that could be deleterious to aquatic habitats. iv. All equipment would be cleaned before arriving on the site and before removal from the site to prevent spread of invasive plants. 					

Mitigation, Monitoring, and Reporting Program						
Item	Mitigation Measure	When Monitoring is to Occur	Frequency of Monitoring	Agency Responsible for Monitoring	Method to Verify Compliance	Verification of Compliance
	<p>v. To avoid establishment of invasive, non-native plant species on or adjacent to the Project Area, the following measures will be implemented:</p> <ol style="list-style-type: none"> 1. Vegetation disturbances will be limited to those areas identified on construction plans and maps as slated for development or construction staging. 2. Erosion and sediment control materials will be certified as weed-free. 3. Native and compatible non-native plant species will be used for revegetation. The list of plant species is included in the attached list (See Biological Evaluation: Appendix E). 4. The revegetation seed mix would not include invasive non-native plants that threaten wildlands according to the California Invasive Plant Inventory made available by the California Invasive Plant Council (Cal-IPC). <p>vi. Staging and storage areas for equipment, materials, fuels, lubricants and solvents, would be located outside of the stream channel banks and outside of nearby waters.</p> <p>vii. Stationary equipment such as motors, pumps, and generators, located adjacent to aquatic features would be positioned over secondary containment sufficient to arrest a catastrophic failure.</p>					

Mitigation, Monitoring, and Reporting Program						
Item	Mitigation Measure	When Monitoring is to Occur	Frequency of Monitoring	Agency Responsible for Monitoring	Method to Verify Compliance	Verification of Compliance
	<p>viii. Stockpiles of excavated soil or other would be covered when not in active use (i.e. would not be used, or moved for 72 hours). All trucks hauling soil, sand, and other loose materials would be covered.</p> <p>ix. No motorized equipment would be left within the channel overnight.</p>					
BIO-20	(Establish Access Points): Prior to construction, locations and equipment access points that minimize channel and bank disturbance would be determined. Pre-existing access points would be used whenever possible. Unstable areas, which may increase the risk of channel instability, would be avoided.	Prior to construction	Once	SLWD		
BIO-21	(Protective Fencing): Silt fencing and construction fencing (or flagging to make the silt fencing more visible) will be installed above the OHWM of the Los Banos Creek to prevent soils and sediment from entering the streambed, and the final location of the installed fencing will be approved by a qualified biologist prior to initiation of construction activities. The fencing will be monitored regularly during construction activities to ensure that the fencing remains intact and functional, and that encroachment has not occurred into the sensitive habitat or boundary; any repairs to the fence or encroachment correction will be conducted immediately. At the end of the Project all temporary flagging, fencing, or other materials would be removed from the work areas and vicinity of the channel.	Prior to construction	Once	SLWD		
BIO-22	(Avoid Sensitive Habitat): Encroachment into the sensitive habitat, riparian areas, and buffer will be prohibited by construction personnel, and storage	Prior to construction	Once	SLWD		

Mitigation, Monitoring, and Reporting Program						
Item	Mitigation Measure	When Monitoring is to Occur	Frequency of Monitoring	Agency Responsible for Monitoring	Method to Verify Compliance	Verification of Compliance
	of materials or equipment will be prohibited in this area. Exclusion fencing at direction of qualified biologist will be installed to ensure visibility of these resources so that they can be avoided.					
BIO-23	(Work in Dry Conditions): Construction activities associated with the culvert installation will be conducted outside of planned Los Banos Creek Reservoir and Dam water release events. If work during flowing conditions is unavoidable, a temporary cofferdam will be placed at the upstream end of work limits. The cofferdams would result in temporary dewatering of the work area. Once Project activities are completed, the temporary coffer dam would be removed and the area would be restored to pre-construction conditions. No cofferdams will be necessary during work in no flow conditions..	Prior to construction, during construction	Daily when conditions could be wet.	SLWD		
BIO-24	(Compensatory Mitigation): Compensatory mitigation for permanent loss of Waters of the United States and Waters of the State shall be required by either purchasing appropriate mitigation credits from an approved mitigation bank, payment of in-lieu fees to an approved public agency or conservation organization (e.g., a local land trust) for the implementation of compensatory mitigation projects, or via permittee responsible mitigation which would involve creating, restoring, or enhancing analogous habitat types. The ratio for acres of mitigation to acres impacted shall be 1:1.			SLWD		
Cultural Resources						
CUL-1	(Archaeological Remains): Should archaeological remains or artifacts be unearthed during any stage of project activities, work in the area of discovery shall cease until the area is evaluated by a qualified archaeologist. If additional mitigation is warranted, the project proponent shall abide by recommendations of the archaeologist.	During construction	Daily	SLWD		

Mitigation, Monitoring, and Reporting Program						
Item	Mitigation Measure	When Monitoring is to Occur	Frequency of Monitoring	Agency Responsible for Monitoring	Method to Verify Compliance	Verification of Compliance
CUL-2	(Human Remains): In the event that any human remains are discovered on the Project Area, the Merced County Coroner must be notified of the discovery (California Health and Safety Code, Section 7050.5) and all activities in the immediate area of the find or in any nearby area reasonably suspected to overlie adjacent human remains must cease until appropriate and lawful measures have been implemented. If the Coroner determines that the remains are not recent, but rather of Native American origin, the Coroner shall notify the Native American Heritage Commission (NAHC) in Sacramento within 24 hours to permit the NAHC to determine the Most Likely Descendent of the deceased Native American.	During construction	Daily	SLWD		
Geology and Soils						
GEO-1	(Unique Paleontological Resources): If during construction a paleontological resource has been discovered, construction activities shall halt within a 50-foot radius of the discovery. A qualified paleontologist shall be consulted to determine if the paleontological resource is unique. If the resource is unique, the Project Proponent shall cover all expenses to have the resource archived. If the resource is not unique, construction activity within the discovery shall be allowed.	During construction	Continuously	SLWD		
Hydrology and Water Quality						
	See BIO-19 as outlined above					
	See BIO-23 as outlined above					
Tribal Cultural Resources						
	See CUL-1 as outlined above					
	See CUL-2 as outlined above					
<i>Table Notes</i>						

CHAPTER 6 REFERENCES

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Appendix A: CalEEMod Output Files

Triangle Rock Culverts Project - Merced County, Annual

Triangle Rock Culverts Project

Merced County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	1.40	Acre	1.40	60,984.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	49
Climate Zone	3			Operational Year	2023
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Project will construct to culvert crossings across Los Banos Creek.

Construction Phase - Based on 12 weeks of construction.

Construction Off-road Equipment Mitigation -

Grading -

Triangle Rock Culverts Project - Merced County, Annual

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	200.00	30.00
tblConstructionPhase	NumDays	4.00	20.00
tblGrading	AcresOfGrading	7.50	1.50
tblGrading	MaterialImported	0.00	2,700.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripNumber	338.00	0.00

2.0 Emissions Summary

Triangle Rock Culverts Project - Merced County, Annual

2.1 Overall Construction**Unmitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.0399	0.3392	0.2796	5.8000e-004	0.0587	0.0147	0.0735	0.0297	0.0139	0.0437	0.0000	49.8451	49.8451	9.7500e-003	0.0000	50.0889
2023	5.3800e-003	0.0314	0.0464	7.0000e-005	8.1000e-004	1.5500e-003	2.3500e-003	2.1000e-004	1.4300e-003	1.6400e-003	0.0000	6.5404	6.5404	1.8800e-003	0.0000	6.5874
Maximum	0.0399	0.3392	0.2796	5.8000e-004	0.0587	0.0147	0.0735	0.0297	0.0139	0.0437	0.0000	49.8451	49.8451	9.7500e-003	0.0000	50.0889

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.0399	0.3392	0.2796	5.8000e-004	0.0302	0.0147	0.0449	0.0144	0.0139	0.0283	0.0000	49.8450	49.8450	9.7500e-003	0.0000	50.0888
2023	5.3800e-003	0.0314	0.0464	7.0000e-005	8.1000e-004	1.5500e-003	2.3500e-003	2.1000e-004	1.4300e-003	1.6400e-003	0.0000	6.5404	6.5404	1.8800e-003	0.0000	6.5874
Maximum	0.0399	0.3392	0.2796	5.8000e-004	0.0302	0.0147	0.0449	0.0144	0.0139	0.0283	0.0000	49.8450	49.8450	9.7500e-003	0.0000	50.0888

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	47.94	0.00	37.66	51.22	0.00	33.86	0.00	0.00	0.00	0.00	0.00	0.00

Triangle Rock Culverts Project - Merced County, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	10-3-2022	1-2-2023	0.3749	0.3749
		Highest	0.3749	0.3749

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	5.2200e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-005	3.0000e-005	0.0000	0.0000	3.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	5.2200e-003	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	3.0000e-005	3.0000e-005	0.0000	0.0000	3.0000e-005

Triangle Rock Culverts Project - Merced County, Annual

2.2 Overall Operational**Mitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	5.2200e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-005	3.0000e-005	0.0000	0.0000	3.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	5.2200e-003	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	3.0000e-005	3.0000e-005	0.0000	0.0000	3.0000e-005

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail**Construction Phase**

Triangle Rock Culverts Project - Merced County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	10/3/2022	10/4/2022	5	2	
2	Grading	Grading	10/5/2022	11/1/2022	5	20	
3	Building Construction	Building Construction	11/2/2022	12/13/2022	5	30	
4	Paving	Paving	12/14/2023	12/27/2023	5	10	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 1.4

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Triangle Rock Culverts Project - Merced County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	6.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	3	8.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	26.00	10.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Triangle Rock Culverts Project - Merced County, Annual

Water Exposed Area

3.2 Site Preparation - 2022**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.8000e-003	0.0000	5.8000e-003	2.9500e-003	0.0000	2.9500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.3100e-003	0.0146	7.0900e-003	2.0000e-005		6.2000e-004	6.2000e-004		5.7000e-004	5.7000e-004	0.0000	1.5115	1.5115	4.9000e-004	0.0000	1.5238
Total	1.3100e-003	0.0146	7.0900e-003	2.0000e-005	5.8000e-003	6.2000e-004	6.4200e-003	2.9500e-003	5.7000e-004	3.5200e-003	0.0000	1.5115	1.5115	4.9000e-004	0.0000	1.5238

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	3.0000e-005	3.2000e-004	0.0000	1.0000e-004	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0837	0.0837	0.0000	0.0000	0.0837
Total	4.0000e-005	3.0000e-005	3.2000e-004	0.0000	1.0000e-004	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0837	0.0837	0.0000	0.0000	0.0837

Triangle Rock Culverts Project - Merced County, Annual

3.2 Site Preparation - 2022**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.6100e-003	0.0000	2.6100e-003	1.3300e-003	0.0000	1.3300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.3100e-003	0.0146	7.0900e-003	2.0000e-005		6.2000e-004	6.2000e-004		5.7000e-004	5.7000e-004	0.0000	1.5115	1.5115	4.9000e-004	0.0000	1.5238
Total	1.3100e-003	0.0146	7.0900e-003	2.0000e-005	2.6100e-003	6.2000e-004	3.2300e-003	1.3300e-003	5.7000e-004	1.9000e-003	0.0000	1.5115	1.5115	4.9000e-004	0.0000	1.5238

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	3.0000e-005	3.2000e-004	0.0000	1.0000e-004	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0837	0.0837	0.0000	0.0000	0.0837
Total	4.0000e-005	3.0000e-005	3.2000e-004	0.0000	1.0000e-004	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0837	0.0837	0.0000	0.0000	0.0837

Triangle Rock Culverts Project - Merced County, Annual

3.3 Grading - 2022**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0461	0.0000	0.0461	0.0249	0.0000	0.0249	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0108	0.1201	0.0594	1.4000e-004		5.1700e-003	5.1700e-003		4.7600e-003	4.7600e-003	0.0000	12.3814	12.3814	4.0000e-003	0.0000	12.4816
Total	0.0108	0.1201	0.0594	1.4000e-004	0.0461	5.1700e-003	0.0513	0.0249	4.7600e-003	0.0297	0.0000	12.3814	12.3814	4.0000e-003	0.0000	12.4816

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.3000e-004	3.0000e-004	3.2100e-003	1.0000e-005	9.9000e-004	1.0000e-005	1.0000e-003	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.8366	0.8366	2.0000e-005	0.0000	0.8372
Total	4.3000e-004	3.0000e-004	3.2100e-003	1.0000e-005	9.9000e-004	1.0000e-005	1.0000e-003	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.8366	0.8366	2.0000e-005	0.0000	0.8372

Triangle Rock Culverts Project - Merced County, Annual

3.3 Grading - 2022**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0208	0.0000	0.0208	0.0112	0.0000	0.0112	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0108	0.1201	0.0594	1.4000e-004		5.1700e-003	5.1700e-003		4.7600e-003	4.7600e-003	0.0000	12.3814	12.3814	4.0000e-003	0.0000	12.4815
Total	0.0108	0.1201	0.0594	1.4000e-004	0.0208	5.1700e-003	0.0259	0.0112	4.7600e-003	0.0160	0.0000	12.3814	12.3814	4.0000e-003	0.0000	12.4815

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.3000e-004	3.0000e-004	3.2100e-003	1.0000e-005	9.9000e-004	1.0000e-005	1.0000e-003	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.8366	0.8366	2.0000e-005	0.0000	0.8372
Total	4.3000e-004	3.0000e-004	3.2100e-003	1.0000e-005	9.9000e-004	1.0000e-005	1.0000e-003	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.8366	0.8366	2.0000e-005	0.0000	0.8372

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3.4 Building Construction - 2022**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0247	0.1876	0.1909	3.3000e-004		8.8300e-003	8.8300e-003		8.5300e-003	8.5300e-003	0.0000	27.2365	27.2365	4.7400e-003	0.0000	27.3551
Total	0.0247	0.1876	0.1909	3.3000e-004		8.8300e-003	8.8300e-003		8.5300e-003	8.5300e-003	0.0000	27.2365	27.2365	4.7400e-003	0.0000	27.3551

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.6000e-004	0.0152	2.9900e-003	4.0000e-005	9.0000e-004	4.0000e-005	9.4000e-004	2.6000e-004	4.0000e-005	3.0000e-004	0.0000	3.7170	3.7170	3.8000e-004	0.0000	3.7264
Worker	2.0900e-003	1.4800e-003	0.0157	5.0000e-005	4.8400e-003	3.0000e-005	4.8700e-003	1.2900e-003	3.0000e-005	1.3200e-003	0.0000	4.0783	4.0783	1.1000e-004	0.0000	4.0811
Total	2.5500e-003	0.0167	0.0187	9.0000e-005	5.7400e-003	7.0000e-005	5.8100e-003	1.5500e-003	7.0000e-005	1.6200e-003	0.0000	7.7953	7.7953	4.9000e-004	0.0000	7.8076

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3.4 Building Construction - 2022**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0247	0.1876	0.1909	3.3000e-004		8.8300e-003	8.8300e-003		8.5300e-003	8.5300e-003	0.0000	27.2365	27.2365	4.7400e-003	0.0000	27.3551
Total	0.0247	0.1876	0.1909	3.3000e-004		8.8300e-003	8.8300e-003		8.5300e-003	8.5300e-003	0.0000	27.2365	27.2365	4.7400e-003	0.0000	27.3551

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.6000e-004	0.0152	2.9900e-003	4.0000e-005	9.0000e-004	4.0000e-005	9.4000e-004	2.6000e-004	4.0000e-005	3.0000e-004	0.0000	3.7170	3.7170	3.8000e-004	0.0000	3.7264
Worker	2.0900e-003	1.4800e-003	0.0157	5.0000e-005	4.8400e-003	3.0000e-005	4.8700e-003	1.2900e-003	3.0000e-005	1.3200e-003	0.0000	4.0783	4.0783	1.1000e-004	0.0000	4.0811
Total	2.5500e-003	0.0167	0.0187	9.0000e-005	5.7400e-003	7.0000e-005	5.8100e-003	1.5500e-003	7.0000e-005	1.6200e-003	0.0000	7.7953	7.7953	4.9000e-004	0.0000	7.8076

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3.5 Paving - 2023**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.2200e-003	0.0312	0.0440	7.0000e-005		1.5400e-003	1.5400e-003		1.4200e-003	1.4200e-003	0.0000	5.8862	5.8862	1.8700e-003	0.0000	5.9329
Paving	1.8300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	5.0500e-003	0.0312	0.0440	7.0000e-005		1.5400e-003	1.5400e-003		1.4200e-003	1.4200e-003	0.0000	5.8862	5.8862	1.8700e-003	0.0000	5.9329

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.2000e-004	2.2000e-004	2.3700e-003	1.0000e-005	8.1000e-004	1.0000e-005	8.1000e-004	2.1000e-004	1.0000e-005	2.2000e-004	0.0000	0.6542	0.6542	2.0000e-005	0.0000	0.6546
Total	3.2000e-004	2.2000e-004	2.3700e-003	1.0000e-005	8.1000e-004	1.0000e-005	8.1000e-004	2.1000e-004	1.0000e-005	2.2000e-004	0.0000	0.6542	0.6542	2.0000e-005	0.0000	0.6546

Triangle Rock Culverts Project - Merced County, Annual

3.5 Paving - 2023**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.2200e-003	0.0312	0.0440	7.0000e-005		1.5400e-003	1.5400e-003		1.4200e-003	1.4200e-003	0.0000	5.8862	5.8862	1.8700e-003	0.0000	5.9329
Paving	1.8300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	5.0500e-003	0.0312	0.0440	7.0000e-005		1.5400e-003	1.5400e-003		1.4200e-003	1.4200e-003	0.0000	5.8862	5.8862	1.8700e-003	0.0000	5.9329

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.2000e-004	2.2000e-004	2.3700e-003	1.0000e-005	8.1000e-004	1.0000e-005	8.1000e-004	2.1000e-004	1.0000e-005	2.2000e-004	0.0000	0.6542	0.6542	2.0000e-005	0.0000	0.6546
Total	3.2000e-004	2.2000e-004	2.3700e-003	1.0000e-005	8.1000e-004	1.0000e-005	8.1000e-004	2.1000e-004	1.0000e-005	2.2000e-004	0.0000	0.6542	0.6542	2.0000e-005	0.0000	0.6546

4.0 Operational Detail - Mobile

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4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.504505	0.029429	0.155974	0.104791	0.016717	0.004370	0.015463	0.156066	0.002403	0.002061	0.006105	0.001524	0.000591

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5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

[illegible]

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5.2 Energy by Land Use - NaturalGas

Unmitigated

[illegible]

Mitigated

[illegible]

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5.3 Energy by Land Use - Electricity**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

6.0 Area Detail**6.1 Mitigation Measures Area**

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	5.2200e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-005	3.0000e-005	0.0000	0.0000	3.0000e-005
Unmitigated	5.2200e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-005	3.0000e-005	0.0000	0.0000	3.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.2700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.9400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-005	3.0000e-005	0.0000	0.0000	3.0000e-005
Total	5.2100e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-005	3.0000e-005	0.0000	0.0000	3.0000e-005

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6.2 Area by SubCategory**Mitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.2700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.9400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-005	3.0000e-005	0.0000	0.0000	3.0000e-005
Total	5.2100e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-005	3.0000e-005	0.0000	0.0000	3.0000e-005

7.0 Water Detail**7.1 Mitigation Measures Water**

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	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Triangle Rock Culverts Project - Merced County, Annual

7.2 Water by Land Use**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

8.0 Waste Detail

8.1 Mitigation Measures Waste**Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

Triangle Rock Culverts Project - Merced County, Annual

8.2 Waste by Land Use**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------

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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	------------	-------------	-------------	-----------

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

Appendix B: Biological Resources Technical Report

BIOLOGICAL RESOURCES TECHNICAL REPORT

LOS BANOS CREEK CULVERT PROJECT

LOS BANOS, MERCED, CALIFORNIA



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TABLE OF CONTENTS

1.0 INTRODUCTION	1
1.1 Overview and Purpose	1
1.2 Project Description.....	1
1.2.1 Equipment.....	3
1.2.2 Proposed Schedule.....	3
1.2.3 Temporary Cofferdam Upstream of the Project.....	3
2.0 REGULATORY BACKGROUND	5
2.1 Federal and State Regulatory Setting	5
2.1.1 Vegetation and Aquatic Communities	5
2.1.2 Special-status Species	6
2.2 Local Plans and Policies.....	8
3.0 ASSESSMENT METHODOLOGY	9
3.1 Vegetation Communities and Other Land Cover Types.....	9
3.2 Special-status Species	10
3.3 Wildlife Corridors and Native Wildlife Nursery Sites.....	11
4.0 ECOLOGICAL SETTING	12
4.1 Soils and Topography.....	12
4.2 Climate and Hydrology.....	12
4.3 Land-use.....	12
5.0 ASSESSMENT RESULTS.....	13
5.1 Vegetation Communities and Other Land Cover	13
5.1.1 Terrestrial Land Cover.....	13
5.1.2 Aquatic Resources.....	14
5.2 Special-status Species	14
5.2.1 Special-status Plants	14
5.2.2 Special-status Wildlife.....	15
5.3 Wildlife Corridors and Native Wildlife Nursery Sites.....	19
6.0 PROJECT IMPACTS	20
6.1 Direct Project Impacts to Biological Resources	21
6.1.1 Los Banos Creek Crossing Improvements Below OHWM	21
6.1.2 Los Banos Creek Crossing Improvements Below Top of Bank	21
6.2 Indirect Project Impacts to Biological Resources.....	22
7.0 RECOMMENDED AVOIDANCE, MINIMIZATION AND MITIGATION MEASURES.....	23

7.1 General Construction Best Management Practices (BMPs)	23
7.2 Jurisdictional Habitat Impact Avoidance and Minimization Measures	24
7.3 Special Status Species Impact Avoidance and Minimization Measures	25
8.0 MITIGATION PLAN	28
8.1 Watershed Profile	28
8.2 Los Banos Creek Assessment	28
8.3 Invasive Plant Removal	28
9.0 REFERENCES	30

LIST OF TABLES

Table 1. Vegetation Community and Land Cover Types	13
Table 2. Potential Special-status Wildlife	15
Table 3. Total Project Impacts	20
Table 4. Impacts and Fill Below OHWM.....	21
Table 5. Total Impacts Below TOB	22

LIST OF APPENDICES

Appendix A – Figures
Figure 1. Study Area Location
Figure 2. Study Area Soils
Figure 3. Natural Communities and Land Cover within the Study Area
Figure 4. Impacts below OHWM
Figure 5. Impacts below TOB
Appendix B – Species Documented within and around the Study Area
Appendix C – Special-Status Species Potential Table
Appendix D – Site Photographs
Appendix E – Revegetation Seed Mix

LIST OF PREPARERS

Rob Schell – Principal-in-Charge
Matt Osowski – Biologist
Molly Matson –Wildlife Biologist
Samantha Hill – Biologist
Neal Jander – GIS Analyst

DEFINITIONS

Project: installation of culverts at the location of two existing dry crossings, to allow vehicle access throughout the year, including when the channel is wetted.

Project Area: The area in which the Project will occur. The Project Area includes where culvert installation will occur.

Study Area: The area throughout which the assessment was performed, inclusive of approximately 3 acres.

LIST OF ACRONYMS

BIOS	Biogeographic Information and Observation System
BMP	Best Management Practices
Cal-IPC	California Invasive Plant Council
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CFGC	California Fish and Game Code
CFR	Code of Federal Regulations
CNDDDB	California Natural Diversity Database
CNPS	California Native Plant Society
Corps	U.S. Army Corps of Engineers
CWA	Clean Water Act
EFH	Essential Fish Habitat
ESA	Federal Endangered Species Act
Magnuson-Stevens Act	Magnuson-Stevens Fishery Conservation & Management
MBTA	Migratory Bird Treaty Act
NMFS	National Marine Fisheries Service
NRCS	Natural Resource Conservation Service
NWI	National Wetland Inventory
OHWM	Ordinary High Water Mark
Rank	California Rare Plant Ranks
RWQCB	Regional Water Quality Control Board
SWRCB	State Water Resource Control Board
TOB	Top of Bank
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WBWG	Western Bat Working Group
WMMP	Weed Monitoring and Management Plan
WRA	WRA, Inc.

1.0 INTRODUCTION

This Biological Resources Technical Report evaluates existing biological resources for the Los Banos Creek Culvert Project located at 22101 Sunset Avenue, Los Banos, California (Figure 1, Appendix A). The proposed project (Project) involves the installation of culverts at the location of two existing dry crossings, to allow vehicle access throughout the year, including when the channel is wetted.

1.1 Overview and Purpose

This report provides an assessment of biological resources within the Study Area and immediate vicinity. The purpose of the assessment was to develop and gather information on sensitive biological communities and special-status plant and wildlife species to support an evaluation of the Project by agencies and other stakeholders issuing authorizations for the Project. This report describes the results of the site visit, which assessed the Study Area for (1) the presence of sensitive biological communities, special-status plant species, and special-status wildlife species, (2) the potential for the site to support special-status plant and wildlife species. Based on the results of the site assessment, potential impacts to sensitive biological communities and special-status species resulting from the proposed Project were evaluated. If the Project has the potential to result in impacts to these biological resources, measures to avoid, minimize, or mitigate for those impacts are described.

A biological resources assessment provides general information on the presence, or potential presence, of sensitive species and habitats. This assessment is based on information available at the time of the study and on-site conditions that were observed on the dates the site was visited. Conclusions are based on currently available information used in combination with the professional judgement of the biologists completing this study.

1.2 Project Description

The proposed activities for this Project will improve two Los Banos Creek road crossings to provide unrestricted use. The improved road crossings will facilitate continuous vehicle transport over Los Banos Creek from mine sites to the processing plant at all times of the year.

The Triangle Rock Products Los Banos facility currently uses and maintains two existing dry creek crossings over Los Banos Creek. The dry creek crossings are permitted via an existing Streambed Alteration Agreement (SAA; File No. R4-2001-0098D). The creek crossings can only be used when the creek is dry. Periodic water releases from Los Banos Creek Detention Dam between September and March close the creek crossings, and cut off vehicle access and between mining sites and the processing facility when the road is inundated by creek flow. The proposed project will install two culverts at each road crossing to divert flow under the improved access road to facilitate year-round vehicle use of the road.

The construction of the culverts will occur at two discreet locations (Project Area) where the access roads for the quarry intersect with Los Banos Creek. The Project will install culverts at each location to divert flow under the road. For the purpose of this report, an approximate 50-foot buffer was added to the road and creek boundaries to assess potential biological constraints within a larger footprint and is referred to as the Study Area.

Project construction will occur within the road, the Ordinary High Water Mark (OHWM) and top of bank (TOB) of Los Banos Creek with a staging area outside of sensitive habitat. Temporary access within the watercourse will be required for the grading of the road and installation of the culverts. The Project will require grading and excavation of earth in Los Banos Creek and along the current road to elevate it for the construction of culverts under the road crossing.

A subbase will be installed to support the culvert. The pipes and end flares will be lifted into place and then backfilled to the roadway grade. Lastly the roadway surface will be installed. The road will be bermed with the placement of fill and will be approximately three feet high. The road edges bound by Los Banos Creek will be reinforced and improved with rock and gravel to prevent the creek from overtopping the road. Construction of the reinforced concrete pipes will require excavation of the road for improvements, placement of fill to elevate the road, installation of culverts and placement of gravel and rock along road edges for reinforcement. The Project will require the use of a backhoe, excavator, trenchers, crawler tractors, and dump trucks, which will be staged outside of Regional Water Quality Control Board (RWQCB) and U.S. Army Corps of Engineers (Corps) jurisdiction in developed areas of the existing facility.

Culvert

The Project includes installation of two and three corrugated metal culvert crossings at two different road intersections with flared end sections and rip-rap aprons. The north crossing will install three approximately 86-foot long, 8-foot diameter corrugated metal pipe culverts with 4-feet of cover and are sized to withstand a 100-year storm event at no greater than 75 percent capacity. The creek crossing road constructed on top of the culverts will be approximately 30 feet wide. Upstream culvert inlets will be installed with rip-rap apron, extending above the creek bed (OHWM) to the top of bank. Downstream culvert outlets will be installed with rip-rap apron, extending above the creek bed (OHWM) to the top of bank.

The south crossing culverts will install two approximately 124-foot long, 8-foot diameter corrugated metal pipe culverts with 4-feet of cover and are sized to withstand a 100-year storm event at no greater than 75 percent capacity. The creek crossing road constructed on top of the culverts will be approximately 15 feet wide. Upstream culvert inlets will be installed with rip-rap apron, extending above the creek bed (OHWM). Downstream culvert outlets will be installed with rip-rap apron, extending above the creek bed (OHWM) to the top of bank.

Typical construction sequencing for culvert installation includes the following;

- The area of the new culvert will be graded and leveled;
- a subbase will be installed at the proposed crossing location to support the culvert(s);
- the new pipes (and flared end section, where applicable) will be lifted into place and secured;
- stabilization rock aprons will be installed upstream and downstream;
- the area over the culverts will be backfilled to the roadway grade; and
- the roadway surface will be constructed overhead

The new culverts will utilize rip-rap to stabilize sediment, prevent erosion, and dissipate energy around the construction of permanent features. Rip-rap will be placed within the streambed below TOB at the rip-rap aprons of culvert outlets to provide protection against re-concentration of flows, high velocities,

and outlet scour. The size of rock material will be the minimum required in order to provide sufficient stabilization.

1.2.1 Equipment

Equipment used for excavation and grading for the restoration work may include a small backhoe, excavator, tiller, and dump truck. Equipment will be staged in the developed areas of the facility. All equipment refueling and maintenance will occur outside of standing water and appropriate measures will be implemented to prevent the discharge of fuels or other contaminants into waterways in the event a spill. Refueling or maintenance will not occur within 100 feet of standing water. All equipment will be maintained free of petroleum leaks. All vehicles operated will be inspected daily for leaks and, if necessary, repaired. Inspections will be documented in a record that is available for review on request. Vehicle and equipment measures are further described in Section 7.0.

1.2.2 Proposed Schedule

Project work will begin in 2022. Installation of the culverts will take 12 weeks. The Project is planned to start March of 2022 and end in December 2023. The Los Banos Creek Detention Reservoir and Dam stores water from April to August. If Project work is anticipated outside of those dates, flood control releases are made from the Los Banos Detention Dam by the California Department of Water Resources according to Corps flood control criteria between September 20 and March 15. It is not anticipated that water will be flowing in the channel at the time of Project work, but work will occur when the Creek is dry or during low flow conditions.

In the unlikely event of major stormflows during Project activities or when the reservoir is releasing water, crews will not work in the channel until major flows have subsided. The contractor will monitor weather conditions throughout the Project. If more than 0.5 inch of rain is forecast within 2 days, the contractor will cease work within the channel and stabilize the site. The contractor will continue work 24 hours after the end of the precipitation event.

If low flows are present within the channel during Project activities, temporary cofferdams will be constructed to divert flows in the channel downstream of the work area.

1.2.3 Temporary Cofferdam Upstream of the Project

Project work is anticipated to be started within the dry season, however work may need to occur in periods of low flow and during the wet season. If flows are present within the work area, a flow bypass system will be installed. The bypass piping will be routed around the channel of Los Banos Creek and will extend the length of planned work area.

Flow will be collected at the upstream end of the bypass system by constructing a temporary cofferdam using appropriate materials such as sandbags or clean gravel bags and vinyl sheeting. The coffer dam will have a crest elevation high enough above the channel bottom to provide enough pressure head and freeboard for the bypass pipe inlet, with the bypass pipe set in the channel invert, for gravity flow bypassing the portion of the Project Area where earthwork and culvert installation will occur. The flow

bypass will maintain natural creek flow and will include energy dissipation features downstream on the outlet of the diversion pipe.

Dewatering will convey base flows only, not stormflows. The contractor will be required to monitor and maintain all components of the dewatering system throughout the construction period. As described above rainfall runoff events that happen during the in-channel work window will not be controlled by the cofferdams. In the unlikely event of stormflows in Los Banos Creek in the summer months or early fall, crews will not work in the creek until flows have subsided.

2.0 REGULATORY BACKGROUND

The following sections explain the regulatory context of the biological assessment, including applicable laws and regulations that were applied to the field investigations and analysis of potential Project impacts.

2.1 Federal and State Regulatory Setting

2.1.1 Vegetation and Aquatic Communities

CEQA provides protections for particular vegetation types defined as sensitive by the California Department of Fish and Game (CDFW), and aquatic communities protected by laws and regulations administered by the U.S Army Corps of Engineers (Corps), State Water Resources Control Board (SWRCB), and Regional Water Quality Control Boards (RWQCB). The laws and regulations that provide protection for these resources are summarized below.

Sensitive Natural Communities: Sensitive natural communities include habitats that fulfill special functions or have special values. Natural communities considered sensitive are those identified in local or regional plans, policies, regulations, or by the CDFW. CDFW ranks sensitive communities as "threatened" or "very threatened" and keeps records of their occurrences in its California Natural Diversity Database (CNDDDB; CDFW 2021). Vegetation alliances are ranked 1 through 5 in the CNDDDB based on NatureServe's (2021) methodology, with those alliances ranked globally (G) or statewide (S) as 1 through 3 considered sensitive. Impacts to sensitive natural communities identified in local or regional plans, policies, or regulations or those identified by the CDFW or U.S. Fish and Wildlife Service (USFWS) must be considered and evaluated under CEQA (CCR Title 14, Div. 6, Chap. 3, Appendix G). In addition, this general class includes oak woodlands that are protected by local ordinances under the Oak Woodlands Protection Act.

Waters of the United States, Including Wetlands: The Corps regulates "Waters of the United States" under Section 404 of the Clean Water Act (CWA). Waters of the United States are defined in the Code of Federal Regulations (CFR) as including the territorial seas, and waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, such as tributaries, lakes and ponds, impoundments of waters of the U.S., and wetlands that are hydrologically connected with these navigable features (33 CFR 328.3). Potential wetland areas, according to the three criteria used to delineate wetlands as defined in the *U.S. Army Corps of Engineers Wetlands Delineation Manual* (Corps Manual; Environmental Laboratory 1987), are identified by the presence of (1) hydrophytic vegetation, (2) hydric soils, and (3) wetland hydrology. Unvegetated waters including lakes, rivers, and streams may also be subject to Section 404 jurisdiction and are characterized by an ordinary high water mark (OHWM) identified based on field indicators such as the lack of vegetation, sorting of sediments, and other indicators of flowing or standing water. The placement of fill material into Waters of the United States generally requires a permit from the Corps under Section 404 of the CWA.

The Corps also regulates construction in navigable waterways of the U.S. through Section 10 of the Rivers and Harbors Act (RHA) of 1899 (33 USC 403). Section 10 of the RHA requires Corps approval and a permit for excavation or fill, or alteration or modification of the course, location, condition, or capacity of, any port, roadstead, haven, harbor, canal, lake, harbor or refuge, or enclosure within the limits of any breakwater, or of the channel of any navigable water of the United States. Section 10 requirements apply only to navigable waters themselves, and are not applicable to tributaries, adjacent wetlands, and similar aquatic features not capable of supporting interstate commerce.

Waters of the State, Including Wetlands: The term “Waters of the State” is defined by the Porter-Cologne Act as “any surface water or groundwater, including saline waters, within the boundaries of the state.” The SWRCB and nine RWQCB protect waters within this broad regulatory scope through many different regulatory programs. Waters of the State in the context of a CEQA Biological Resources evaluation include wetlands and other surface waters protected by the *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* (SWRCB 2019). The SWRCB and RWQCB issue permits for the discharge of fill material into surface waters through the State Water Quality Certification Program, which fulfills requirements of Section 401 of the CWA and the Porter-Cologne Water Quality Control Act. Projects that require a Clean Water Act permit are also required to obtain a Water Quality Certification. If a Project does not require a federal permit, but does involve discharge of dredge or fill material into surface waters of the State, the SWRCB and RWQCB may issue a permit in the form of Waste Discharge Requirements.

Sections 1600-1616 of California Fish and Game Code: Streams and lakes, as habitat for fish and wildlife species, are regulated by CDFW under Sections 1600-1616 of California Fish and Game Code (CFGC). Alterations to or work within or adjacent to streambeds or lakes generally require a 1602 Lake and Streambed Alteration Agreement. The term “stream”, which includes creeks and rivers, is defined in the California Code of Regulations (CCR) as “a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life [including] watercourses having a surface or subsurface flow that supports or has supported riparian vegetation” (14 CCR 1.72). The term “stream” can include ephemeral streams, dry washes, watercourses with subsurface flows, canals, aqueducts, irrigation ditches, and other means of water conveyance if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife (CDFG 1994). Riparian vegetation has been defined as “vegetation which occurs in and/or adjacent to a stream and is dependent on, and occurs because of, the stream itself” (CDFG 1994). Removal of riparian vegetation also requires a Section 1602 Lake and Streambed Alteration Agreement from CDFW.

2.1.2 Special-status Species

Endangered and Threatened Plants, Fish, and Wildlife. Specific species of plants, fish, and wildlife species may be designated as threatened or endangered by the federal Endangered Species Act (ESA), or the California Endangered Species Act (CESA). Specific protections and permitting mechanisms for these species differ under each of these acts, and a species’ designation under one law does not automatically provide protection under the other.

The ESA (16 USC 1531 et seq.) is implemented by the USFWS and the National Marine Fisheries Service (NMFS). The USFWS and NMFS maintain lists of endangered and threatened plant and animal species (referred to as “listed species”). “Proposed” or “candidate” species are those that are being considered for listing, and are not protected until they are formally listed as threatened or endangered. Under the ESA, authorization must be obtained from the USFWS or NMFS prior to take of any listed species. “Take” under the ESA is defined as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” Take under the ESA includes direct injury or mortality to individuals, disruptions in normal behavioral patterns resulting from factors such as noise and visual disturbance, and impacts to habitat for listed species. Actions that may result in take of an ESA-listed species may obtain a permit under ESA Section 10, or via the interagency consultation described in ESA Section 7. Federally listed plant species are only protected when take occurs on federal land.

The ESA also provides for designation of critical habitat, which are specific geographic areas containing physical or biological features “essential to the conservation of the species”. Protections afforded to designated critical habitat apply only to actions that are funded, permitted, or carried out by federal agencies. Critical habitat designations do not affect activities by private landowners if there is no other federal agency involvement.

The CESA (CFGF 2050 et seq.) prohibits a take of any plant and animal species that the CFGF determines to be an endangered or threatened species in California. CESA regulations include take protection for threatened and endangered plants on private lands, as well as extending this protection to candidate species which are proposed for listing as threatened or endangered under CESA. The definition of a "take" under CESA ("hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill") only applies to direct impact to individuals, and does not extend to habitat impacts or harassment. CDFW may issue an Incidental Take Permit under CESA to authorize take if it is incidental to otherwise lawful activity and if specific criteria are met. Take of these species is also authorized if the geographic area is covered by a Natural Community Conservation Plan (NCCP), as long as the NCCP covers that activity.

Fully Protected Species and Designated Rare Plant Species. This category includes specific plant and wildlife species that are designated in the CFGF as protected even if not listed under CESA or ESA. Fully Protected Species includes specific lists of birds, mammals, reptiles, amphibians, and fish designated in CFGF. Fully protected species may not be taken or possessed at any time. No licenses or permits may be issued for take of fully protected species, except for necessary scientific research and conservation purposes. The definition of "take" is the same under the California Fish and Game Code and the CESA. By law, CDFW may not issue an Incidental Take Permit for Fully Protected Species. Under the California Native Plant Protection Act (NPPA), CDFW has listed 64 “rare” or “endangered” plant species, and prevents “take”, with few exceptions, of these species. CDFW may authorize take of species protected by the NPPA through the Incidental Take Permit process, or under a NCCP.

Special Protections for Nesting Birds and Bats. The federal Bald and Golden Eagle Protection Act provides relatively broad protections to both of North America’s eagle species (bald eagle [*Haliaeetus leucocephalus*] and golden eagle [*Aquila chrysaetos*]) that in some regards are similar to those provided by the ESA. In addition to regulations for special-status species, most native birds in the United States, including non-status species, have baseline legal protections under the Migratory Bird Treaty Act of 1918 and CFGF, i.e., sections 3503, 3503.5 and 3513. Under these laws/codes, the intentional harm or collection of adult birds as well as the intentional collection or destruction of active nests, eggs, and young is illegal. For bat species, the Western Bat Working Group (WBWG) designates conservation status for species of bats, and those with a high or medium-high priority are typically given special consideration under CEQA.

Essential Fish Habitat. The Magnuson-Stevens Fishery Conservation and Management Act provides for conservation and management of fishery resources in the U.S., administered by NMFS. This Act establishes a national program intended to prevent overfishing, rebuild overfished stocks, ensure conservation, and facilitate long-term protection through the establishment of Essential Fish Habitat (EFH). EFH consists of aquatic areas that contain habitat essential to the long-term survival and health of fisheries, which may include the water column, certain bottom types, vegetation (e.g. eelgrass (*Zostera* spp.)), or complex structures such as oyster beds. Any federal agency that authorizes, funds, or undertakes action that may adversely affect EFH is required to consult with NMFS.

Species of Special Concern, Movement Corridors, and Other Special-status Species under CEQA. To address additional species protections afforded under CEQA, CDFW has developed a list of special species as “a general term that refers to all of the taxa the CNDDDB is interested in tracking, regardless of their legal or protection status.” This list includes lists developed by other organizations, including for example, the Audubon Watch List Species, the Bureau of Land Management Sensitive Species, and USFWS Birds of Special Concern. Plant species on the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants (Inventory) with California Rare Plant Ranks (Rank) of 1 and 2, as well as some with a Rank of 3, are also considered special-status plant species and must be considered under CEQA. Some Rank 3 species and all Rank 4 species are typically only afforded protection under CEQA when such species are particularly unique to the locale (e.g., range limit, low abundance/low frequency, limited habitat) or are otherwise considered locally rare. Additionally, any species listed as sensitive within local plans, policies and ordinances are likewise considered sensitive. Movement and migratory corridors for native wildlife (including aquatic corridors) as well as wildlife nursery sites are given special consideration under CEQA.

2.2 Local Plans and Policies

Merced County General Plan. The Merced County General Plan contains policies pertaining to the following biological resources categories:

- Sensitive habitat, wetlands, streams, riparian, and aquatic areas (Policy NR-1.1, Policy NR-1.2, Policy NR-1.4, Policy NR-1.5, Policy NR-1.12, Policy NR-1.13)
- Vegetation communities (Policy NR-1.3, Policy NR-1.4, Policy NR-1.15)
- Wildlife Corridors (Policy NR-1.6)

3.0 ASSESSMENT METHODOLOGY

On July 16, 2021, WRA, Inc. (WRA) biologists visited the Study Area to map vegetation, aquatic communities, unvegetated land cover types, document plant and wildlife species present, and evaluate on-site habitat for the potential to support special-status species as defined by CEQA. Prior to the site visit, WRA biologists reviewed literature resources and performed database searches to assess the potential for sensitive biological communities (e.g., wetlands) and special-status species (e.g., endangered plants), including:

- Soil Survey of Los Banos, California (USDA 1952)
- Volta 7.5-minute U.S. Geological Survey (USGS) quadrangle (USGS 2018)
- Contemporary aerial photographs (Google Earth 2021)
- Historical aerial photographs (NETR 2021)
- National Wetlands Inventory (USFWS 2021a)
- California Aquatic Resources Inventory (SFEI 2017)
- CNDDDB (CDFW 2021)
- CNPS Inventory (CNPS 2021)
- Consortium of California Herbaria (CCH1 2021, CCH2 2021)
- USFWS List of Federal Endangered and Threatened Species (USFWS 2021b)
- Cornell Lab of Ornithology eBird Online Database (eBird 2021)
- CDFW Publication, California Bird Species of Special Concern in California (Shuford and Gardali 2008)
- CDFW and University of California Press publication California Amphibian and Reptile Species of Special Concern (Thomson et al. 2016)
- A Field Guide to Western Reptiles and Amphibians (Stebbins 2003)
- A Manual of California Vegetation, Online Edition (CNPS 2021)
- Preliminary Descriptions of the Terrestrial Natural Communities (Holland 1986)
- California Natural Community List (CDFW 2020)

Database searches (i.e., CNDDDB, CNPS) for special-status species focused on the Volta USGS 7.5-minute quadrangles.

Following the remote assessment, WRA biologists completed a field review on July 16, 2021 to document: (1) land cover types (e.g., terrestrial communities, aquatic resources), (2) existing conditions and to determine if such provide suitable habitat for any special-status plant or wildlife species, (3) if and what type of aquatic natural communities (e.g., wetlands) are present, and (4) if special-status species are present¹.

3.1 Vegetation Communities and Other Land Cover Types

During the site visit, WRA evaluated the species composition and area occupied by distinct vegetation communities, aquatic communities, and other land cover types. Mapping of these classifications utilized a combination of aerial imagery and ground surveys. In most instances, communities are characterized and mapped based on distinct shifts in plant assemblage (vegetation) and follow the California Natural Community List (CDFW 2020) and A Manual of California Vegetation, Online Edition (CNPS 2021b). These

¹ Due to the timing of the assessment, it may or may not constitute protocol-level species surveys; see Section 4.2 if the site assessment would constitute a formal or protocol-level species survey.

resources cannot anticipate every component of every potential vegetation assemblage in California, and so in some cases, it is necessary to identify other appropriate vegetative classifications based on best professional judgment of WRA biologists. When undescribed variants are used, it is noted in the description. Vegetation alliances (natural communities) with a CDFW Rank of 1 through 3 (globally critically imperiled [S1/G1], imperiled [S2/G2], or vulnerable [S3/G3]), were evaluated as sensitive as part of this evaluation (CDFW 2020).

The site was reviewed for the presence of wetlands and other aquatic resources on July 16, 2021 according to the methods described in the Corps Manual (Environmental Laboratory 1987), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West/Western Mountains and Valleys Region* (Arid West; Corps 2008/Western Mountains and Valleys Supplement; Corps 2010), *A Guide to Ordinary High Water Mark (OHWM) Delineation for Non-Perennial Streams in the Western Mountains, Valleys, and Coast Regions of the United States* (Mersel and Lichvar 2014), and *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (Lichvar and McColley 2008). Areas meeting these indicators were mapped as aquatic resources and categorized using the vegetation community classification methods described above. Aquatic communities which are mapped in the NMFS EFH Mapper (NMFS 2021) or otherwise meet criteria for designation as EFH are indicated as such in the community description below in Section 5.1. The presence of riparian habitat was evaluated based on woody plant species meeting the definition of riparian provided in *A Field Guide to Lake and Streambed Alteration Agreements, Section 1600-1607, California Fish and Game Code* (CDFG 1994) and based on best professional judgement of biologists completing the field surveys.

3.2 Special-status Species

Potential occurrence of special-status species in the Study Area was evaluated by first determining which special-status species occur in the vicinity of the Study Area through a literature and database review as described above. Presence of suitable habitat for special-status species was evaluated during the site visit based on physical and biological conditions of the site as well as the professional expertise of the investigating biologists. The potential for each special-status species to occur in the Study Area was then determined according to the following criteria:

- No Potential. Habitat on and adjacent to the site is clearly unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).
- Unlikely. Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.
- Moderate Potential. Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.
- High Potential. All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.
- Present. Species is observed on the site or has been recorded (i.e. CNDDDB, other reports) on the site in the recent past.

If a more thorough assessment was deemed necessary, a targeted or protocol-level assessment or survey was conducted or recommended as a future study. If a special-status species was observed during the site visit, its presence was recorded and discussed below in Section 5.2. If designated critical habitat is present for a species, the extent of critical habitat present and an evaluation of critical habitat elements is provided as part of the species discussions below.

3.3 Wildlife Corridors and Native Wildlife Nursery Sites

To account for potential impacts to wildlife movement/migratory corridors, biologists reviewed maps from the California Essential Connectivity Project (CalTrans 2010), and habitat connectivity data available through the CDFW Biogeographic Information and Observation System (BIOS; CDFW 2021). Additionally, aerial imagery (Google 2021) for the local area was referenced to assess if local core habitat areas were present within, or connected to the Study Area. This assessment was refined based on observations of on-site physical and/or biological conditions, including topographic and vegetative factors that can facilitate wildlife movement, as well as on-site and off-site barriers to connectivity.

The potential presence of native wildlife nursery sites is evaluated as part of the site visit and discussion of individual wildlife species below. Examples of native wildlife nursery sites include nesting sites for native bird species (particularly colonial nesting sites), marine mammal pupping sites, and colonial roosting sites for other species (such as for monarch butterfly [*Danaus plexippus*]).

4.0 ECOLOGICAL SETTING

The approximately 3-acre Study Area is located at 22101 Sunset Avenue, Los Banos, Merced County, California. The site sits east of Interstate 5 South and west of State Route 165 and can be accessed from Sunset Avenue. The Study Area includes areas that may be affected by Project activities. Additional details of the local setting are below.

4.1 Soils and Topography

The overall topography of the Study Area is flat/steep/gentle slope/undulating...with elevations ranging from approximately 180 to 140 feet above sea level. According to the *Soil Survey of Los Banos* (USDA 1952), the Study Area is underlain by one soil mapping unit, Xerofluvents, extremely gravelly. Soils within the Study Area are shown in Appendix A – Figure 2. This soil mapping unit is summarized below.

Xerofluvents, extremely gravelly: The Xerofluvents series consist of poorly drained to well drained soils that are found in flood plains and channels. These soils are derived of various materials of rock with 0 to 2 percent slopes. Profile for these soils are commonly grayish brown and brown, extremely gravelly loamy and clayey material from a depth of 60 inches or more (USDA 1952).

4.2 Climate and Hydrology

The Study Area is located in the inland region of Los Banos in Merced County. The average monthly maximum temperature in the area is 76 degrees Fahrenheit, while the average monthly minimum temperature is 51 degrees Fahrenheit. Predominantly, precipitation falls as rainfall between November and March with an annual average precipitation of 12 inches.

The local watershed is Los Banos Creek (HUC 12: 180400011902; NRCS 2021) and the regional watershed is Middle San Joaquin-Lower Chowchilla (HUC 8: 18040001; NRCS 2021). The primary hydrologic sources for the Study Area include rainfall and dam release flow from Los Banos Creek which dries up in the summer months. Los Banos Creek is the blue-line stream located in the Study Area (USGS 2018). Detailed descriptions of aquatic resources are provided in Section 5.1 below.

4.3 Land-use

The majority of the Study Area is industrial use ruderal/ developed land which consists of the mine access road for Triangle Rock Products operation. Undeveloped areas consist of nonnative annual grassland and Los Banos Creek. Detailed plant community descriptions are included in Section 5.1 below, and all observed plant species are included in Appendix B. Surrounding land uses is predominantly undeveloped and agricultural land (Google Earth 2021). Historically, the Study Area was used for agricultural uses and was developed as a quarry around the 1950's (NETR 2021).

5.0 ASSESSMENT RESULTS

5.1 Vegetation Communities and Other Land Cover

WRA observed four land cover types within the Study Area: non-native grassland, ruderal/ developed, riparian, and intermittent stream. Land cover types within the Study Area are illustrated in Figure A-3 (Appendix A). The non-sensitive land cover types in the Study Area include non-native annual grassland and developed/ruderal, while the sensitive communities include riparian and intermittent stream.

TABLE 1. VEGETATION COMMUNITY AND LAND COVER TYPES

COMMUNITY/LAND COVERS	SENSITIVE STATUS	RARITY RANKING	ACRES WITHIN STUDY AREA
<i>Terrestrial Community/Land Cover</i>			
Non-native Annual grassland	Non-sensitive	None	1.54
Ruderal/ Developed	Non-sensitive	None	0.78
Riparian	Sensitive	None	0.06
<i>Aquatic Resources</i>			
Intermittent Stream	Sensitive	N/A	0.58

5.1.1 Terrestrial Land Cover

Non-native Annual Grassland (No Vegetation Alliance). CDFW Rank: None. The dominant land cover type within the Study Area is non-native annual grassland. This land cover type was mapped adjacent to the top of bank of the intermittent stream and on the banks of the stream above the OHWM. It meets the membership rules for the wild oats and annual brome grasslands (*Avena* spp. – *Bromus* spp. Herbaceous Semi-Natural Alliance) vegetation alliance. In the Study Area, dominant vegetation within this community includes ripgut brome (*Bromus diandrus*), wild oats (*Avena* sp.), perennial pepperweed (*Lepidium latifolium*), shortpod mustard (*Hirschfeldia incana*), and curly dock (*Rumex crispus*).

Riparian. CDFW Rank: G4 S3. There is a small area of riparian habitat within the northern portion of the Study Area. This community forms a narrow band along the banks of an active quarry settling basin that has no hydrologic connection to Los Banos Creek. It meets the membership rules for the Goodding's willow – red willow riparian woodland and forest (*Salix gooddingii* – *Salix laevigata* Forest and Woodland Alliance) vegetation alliance. In the Study Area, the canopy of this community is comprised of dense red willow (*Salix laevigata*) with occasional Fremont cottonwood (*Populus fremontii*). The understory is sparse to absent.

Ruderal/Developed (No Vegetation Alliance). CDFW Rank: None. This community type corresponds with the dirt access road that crosses the intermittent stream in both portions of the Study Area as well as the access road on the top of the northern levee in the northern portion of the Study Area. Ruderal/developed areas are generally unvegetated, though sparse non-native annual herbs such as ripgut brome, curly dock, and shortpod mustard are present in some areas.

5.1.2 Aquatic Resources

Intermittent Stream (No Vegetation Alliance). CDFW Rank: None. There is one intermittent stream within the Study Area (Los Banos Creek). The stream occurs within an engineered channel with high banks. It has a distinct bed and bank and indicators of OHWM such as scour, sediment sorting, and mud cracks. The stream flows for a longer duration than during or immediately after precipitation events, but the hydrology is complicated by the fact that flows are partially controlled by the Los Banos Reservoir dam, located approximately 2 air miles southwest of the southern portion of the Study Area. Los Banos Creek is dammed at the Los Banos Detention Dam. The Creek was dammed to detain floodwater to protect the San Luis Canal, the DMC, the City of Los Banos and adjacent areas from damaging floods. Flood control releases from the reservoir are made according to Corps flood control releases between September 20 and March 15. Waters are stored in the reservoir from November 1 to April 30. At the time of the site visit, the stream was completely dry. The intermittent stream in the southern portion of the Study Area was characterized by sparse herbaceous vegetation, primarily non-native annual species, though native species such as gumweed (*Grindelia camporum*) and sunflower (*Helianthus annuus*) were also present. In the northern portion of the Study Area, the intermittent stream was characterized by low-density tamarisk (*Tamarix cf. ramosissima*) and mulefat (*Baccharis salicifolia*) with sparse, primarily non-native herbs in the open areas. This intermittent stream is not considered Essential Fish Habitat. Los Banos Creek, in the assessed segment on the facility property, is an intermittent stream on an industrial gravel mining property with highly controlled hydrology, engineered banks, and a streambed with invasive plants. Los Banos creek is listed on the Clean Water Act Section 303(d) list as an impaired waterway for sediment and water toxicity.

5.2 Special-status Species

5.2.1 Special-status Plants

Based upon a review of the resource databases listed in Section 3.0, 36 special-status plant species have been documented in the vicinity of the Study Area. All of these species are unlikely or have no potential to occur for one or more of the following reasons:

- Edaphic (soil) conditions (e.g., high alkalinity, serpentine) necessary to support the special-status plant species are not present in the Study Area;
- Associated natural communities (e.g., interior chaparral, tidal marsh, vernal pool) necessary to support the special-status plant species are not present in the Study Area;
- The Study Area is geographically isolated (e.g. below elevation, coastal environ) from the documented range of the special-status plant species;
- Land use history and contemporary management (e.g., quarrying operations) has degraded the localized habitat necessary to support the special-status plant species.

No special-status plants were observed during the July 16, 2021, site visit.

5.2.2 Special-status Wildlife

Of the 31 special-status wildlife species documented in the vicinity of the Study Area, most are excluded from the Study Area based on a lack of habitat features. Features not found within the Study Area that are required to support special-status wildlife species include:

- Vernal pools
- Perennial aquatic habitat (e.g. streams, rivers or ponds)
- Marsh areas
- Forest
- Open annual grassland or scrub

The absence of such habitat features eliminates components critical to the survival or movement of most special-status species found in the vicinity.

Five special-status species have potential to occur in the immediate vicinity of or in portions of the Study Area: Swainson's hawk (*Buteo swainsoni*), burrowing owl (*Athene cunicularia*), northern harrier (*Circus hudsonius*), loggerhead shrike (*Lanius ludovicianus*) and western red bat (*Lasiurus blossevillei*). These species are discussed in greater detail below.

Table 2. Potential Special-status Wildlife

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS	POTENTIAL HABITAT IN THE STUDY AREA
<i>Formally Listed Wildlife (FESA, CESA)</i>			
<i>Buteo swainsoni</i>	Swainson's hawk	State Threatened	Trees within ¼ mile of the Study Area, including riparian trees around quarry ponds, may provide suitable nesting habitat for this species. This species has been documented nesting in the vicinity.
<i>Other Special-status Wildlife (CEQA, other)</i>			
<i>Athene cunicularia</i>	burrowing owl	CDFW Species of Special Concern	Annual grassland with ground squirrel burrows may provide suitable habitat for this species.
<i>Circus hudsonius</i>	northern harrier	CDFW Species of Special Concern	Open grassland adjacent to the Study Area may support foraging and nesting by this species. This species was observed during the July 16 site visit.
<i>Lanius ludovicianus</i>	loggerhead shrike	CDFW Species of Special Concern	Trees and shrubs bordering grassland may support nesting by this species.

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS	POTENTIAL HABITAT IN THE STUDY AREA
<i>Lasiurus blossevillei</i>	western red bat	CDFW Species of Special Concern WBWG High Priority	This species may roost in riparian habitat within and adjacent to the Study Area.

Swainson's hawk (*Buteo swainsoni*). State Threatened. Moderate Potential. Swainson's hawk is a summer resident and migrant in California's Central Valley and scattered portions of the southern California interior. Nests are constructed of sticks and placed in trees located in otherwise largely open areas. Areas typically used for nesting include the edge of narrow bands of riparian vegetation, isolated patches of oak woodland, lone trees, and also planted and natural trees associated with roads, farmyards and sometimes adjacent residential areas. Foraging occurs in open habitats, including grasslands, open woodlands, and agricultural areas. While breeding, adults feed primarily on rodents (and other vertebrates); for the remainder of the year, large insects (e.g., grasshoppers, dragonflies) comprise most of the diet. In many areas, Swainson's hawks have adapted to foraging primarily in and around agricultural plots (particularly alfalfa, wheat and row crops), as prey is both numerous and conspicuous at harvest and/or during flooding or burning (Bechard et al. 2010). There are several documented nesting occurrences of this species in the vicinity (CDFW 2021). Trees suitable for nesting are present within ¼ mile of the Study Area.

Burrowing owl (*Athene cunicularia*). CDFW Species of Special Concern. Moderate Potential. Burrowing owl occurs as a year-round resident and winter visitor in much of California's lowlands, inhabiting open areas with sparse or non-existent tree or shrub canopies. Typical habitat is annual or perennial grassland, although human-modified areas such as agricultural lands and airports are also used (Poulin et al. 2011). This species is dependent on burrowing mammals to provide the burrows that are characteristically used for shelter and nesting, and in northern California is typically found in close association with California ground squirrels (*Otospermophilus beecheyi*). Manmade substrates such as pipes or debris piles may also be occupied in place of burrows. Prey consists of insects and small vertebrates. Breeding typically takes place from March to July. Ground squirrel activity and burrow complexes were observed approximately 250 feet south of the Study Area. However, burrowing owls are not frequently observed in the vicinity. There are few documented occurrences within 5 miles (CDFW 2021, eBird 2021).

Northern harrier (*Circus hudsonius [cyaneus]*). CDFW Species of Special Concern. Moderate Potential. Northern harrier occurs as a resident and winter visitor in open habitats throughout most of California, including freshwater and brackish marshes, grasslands and fields, agricultural areas, and deserts. Harriers typically nest in treeless areas within patches of dense, relatively tall, vegetation, the composition of which is highly variable; nests are placed on the ground and often located near water or within wetlands (Shuford and Gardali 2008). Harriers are birds of prey and subsist on a variety of small mammals and other vertebrates. There is not suitable densely vegetated, open habitat within the Study Area to support nesting by this species. However, open grassland is present within 500 feet of the southern portion of the Study Area. This species was observed during the July 16, 2021 site visit.

Loggerhead shrike (*Lanius ludovicianus*). CDFW Species of Special Concern. Moderate Potential. Loggerhead shrike is a year-round resident and winter visitor in lowlands and foothills throughout California. This species is associated with open country with short vegetation and scattered trees, shrubs, fences, utility lines and/or other perches. Although they are songbirds, shrikes are predatory and forage on a variety of invertebrates and small vertebrates. Captured prey items are often impaled for storage

purposes on suitable substrates, including thorns or spikes on vegetation, and barbed wire fences. Nests in trees and large shrubs; nests are usually placed three to ten feet off the ground (Shuford and Gardali 2008). The Study Area contains grassland and nearby shrubs that may support nesting and/ or foraging.

Western red bat (*Lasiurus blossevillei*). CDFW Species of Special Concern, WBWG High Priority. Moderate Potential. This species is highly migratory and broadly distributed, ranging from southern Canada through much of the western United States. Western red bats are believed to make seasonal shifts in their distribution, although there is no evidence of mass migrations (Pierson et al. 2006). They are typically solitary, roosting primarily in the foliage of broad-leafed trees or shrubs. Day roosts are commonly in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas possibly and association with riparian trees (particularly willows, cottonwoods, and sycamores). It is believed that males and females maintain different distributions during pupping, where females take advantage of warmer inland areas and males occur in cooler areas along the coast. This species may roost in riparian habitat within and adjacent to the Study Area.

Federal Listed Wildlife Unlikely to Occur

Blunt-nosed leopard lizard (*Gambelia sila*). Federal Endangered, State Endangered, California Fully Protected Species. Blunt-nosed leopard lizard is endemic to California's San Joaquin and smaller adjacent valleys to the southwest from 120 feet to 2,300 feet in elevation. They inhabit alkali sink habitat with playas, saltbush scrub, and non-native grasslands. Leopard lizards eat smaller lizards, including of their own species, and arthropods such as grasshoppers, crickets, and beetles. Mating occurs in May and June. Females may lay up to four clutches of three to four eggs which hatch out from July to September (Jones and Lovich 2009).

This species is documented to occur in the hills west of the Study Area (CDFW 2021). The Los Banos Creek corridor provides potential connectivity between the Study Area and potentially occupied habitat to the west. However, the Study Area lacks many of the key features to support this species including scrub, playa, and open grassland not consisting of non-native species, and is not connected directly to occupied habitat. Grassland within the Study Area is fragmented. Development surrounding the Study Area including, most notably, Interstate 5 and the California Aqueduct, as well as agriculture and quarry operations. Both the interstate and the aqueduct are likely complete barriers to dispersal, and both together seem impassable. The species is unlikely to occur within the Study Area.

San Joaquin Kit Fox (*Vulpes macrotis mutica*). Federal Endangered, State Threatened. San Joaquin kit fox is found in the San Joaquin Valley and in surrounding foothills, from Alameda east to Stanislaus County. It is a desert-adapted species which occurs mainly in arid, flat grasslands, scrublands, and alkali meadows where the vegetation structure is relatively short (generally less than 1.5 feet tall). This species uses dens year-round and needs loose-textured soils suitable for burrowing. Kit fox prey consists primarily of kangaroo rats and other small rodents, as well as large insects and occasionally rabbits.

This species has been documented in open habitat west of the Study Area (CDFW 2021). The Study Area is within dispersal distance of suitable habitat. However, land within and adjacent to the Study Area is disturbed through quarry operations and agricultural practices, and also hosts two likely complete barriers to dispersal, Interstate 5 and the California Aqueduct. No documented occurrences are present within the agricultural lands adjacent to the Study Area, or within the 10 miles of agricultural or developed land east of the Study Area. The Study Area does not provide open annual grassland habitat suitable for San Joaquin kit fox. In addition, soils within the Study Area are gravelly, and not conducive to burrowing. It is

unlikely this species would move into or through the Study Area, given the lack of suitable habitat within the Study Area or lands to the east.

Giant garter snake (*Thamnophis gigas*). State Threatened, Federal Threatened. This endemic species of snake is found only in the Sacramento and San Joaquin Valleys. Giant garter snake prefers freshwater marshes and low gradient streams, but has adapted to drainage channels and irrigation ditches. Giant garter snake inhabits agricultural wetlands and other waterways such as irrigation and drainage canals, sloughs, ponds, small lakes, low gradient streams, and adjacent uplands in the Central Valley. It uses vegetation near water in spring and summer for basking.

The Study Area does not contain freshwater marsh, drainage canals, or similar habitat to support this species. Aquatic habitat within the Study Area is an intermittent, rocky stream with little to no vegetative cover. The nearest extant documented occurrences are over 6 miles east of the Study Area, associated with freshwater marsh/slough habitat. The Study Area is separated from documented occurrences by dense development in the City of Los Banos. This species is unlikely to occur in the Study Area given lack of suitable habitat and barriers to dispersal from occupied habitat.

Longhorn fairy shrimp (*Branchinecta longiantenna*). Federal Endangered. Only four populations of longhorn fairy shrimp are known (USFWS 2007). Longhorn fairy shrimp occurrences are rare and highly disjunct with largely unknown specific pool characteristics (USFWS 2003). The Altamont pass subunits of the species occur within clear depression pools in sandstone outcrops (Eriksen and Belk 1999). Other populations in the middle and southern range of the species occur in loam and shallow alkaline soil, respectively (USFWS 2003).

This species has been surveyed for extensively within its range. The nearest documented population is within the San Luis National Wildlife Refuge, more than 10 miles from the Study Area. Known localities in this population are within protected public lands (USFWS 2007). The occurrence of this species within the Study Area is unlikely given the disturbed nature of the site, lack of suitable soils, and its rarity to the immediate area.

Golden eagle (*Aquila chrysaetos*). Federal Eagle Protection Act, CDFW Fully Protected Species. Golden eagle is a large raptor that occurs in open and semi-open areas from sea level to high elevation. Typical occupied habitats include grasslands, shrublands, deserts, woodlands, and coniferous forests. Nests are most often placed on the ledges of steep cliffs, but nesting also occurs in trees and on tall manmade structures (e.g., utility towers) (Kochert et al. n.d.). Golden eagles forage over wide areas, feeding primarily on medium-sized mammals (e.g., ground squirrels and rabbits), large birds, and carrion. The Study Area does not contain open hills, cliffs, or other habitat typically used by this species for nesting. This species is observed in the hills to the west, but is uncommon within the agricultural and developed areas of Los Banos (eBird 2021). Due to the Study Area's history of disturbance such as agriculture and mining activities and lack of suitable nesting structures, this species is unlikely to occur.

State-listed Wildlife Unlikely to Occur

Tricolored blackbird (*Agelaius tricolor*). State Threatened. CDFW Species of Special Concern. Tricolored blackbird is a locally common resident in the Central Valley and along coastal California. Most tricolored blackbirds reside in the Central Valley March through August, then moving into the Sacramento-San Joaquin Delta and east to Merced County and coastal locations during winter (Meese et al. 2014). This species breeds adjacent to fresh water, preferring emergent wetlands with tall, dense cattails or tules,

thickets of willow or blackberry, and/or tall herbs. Flooded agricultural fields with dense vegetation are also used (Shuford and Gardali 2008). This species is highly colonial; nesting habitat must be large enough to support a minimum of 30 pairs, and colonies are commonly substantially larger (up to thousands of pairs).

Riparian habitat and emergent vegetation is present adjacent to the northern extent of the Study Area. However, the emergent vegetation is dense and does not provide areas of open water to support foraging by this species. The nearest documented nesting colony is approximately 2 miles from the Study Area, by Los Banos Reservoir. This colony was most recently detected in 1999 (CDFW 2021). Given the lack of open water in the immediate vicinity or recent documented occurrences of nesting, this species is not likely to nest within or adjacent to the Study Area. However, tricolored blackbird may be observed wintering or foraging in nearby emergent vegetation or agricultural fields. As such, this species may occasionally fly through the Study Area.

5.3 Wildlife Corridors and Native Wildlife Nursery Sites

No native wildlife nursery sites, critical habitat, or Essential Fish Habitat are present in the Study Area.

Wildlife movement between suitable habitat areas can occur via open space areas lacking substantial barriers. The terms “landscape linkage” and “wildlife corridor” are often used when referring to these areas. The key to a functioning corridor or linkage is that it connects two larger habitat blocks, also referred to as core habitat areas (Beier and Loe 1992; Soulé and Terbough 1999). It is useful to think of a “landscape linkage” as being valuable in a regional planning context, a broad scale mapping of natural habitat that functions to join two larger habitat blocks. The term “wildlife corridor” is useful in the context of smaller, local area planning, where wildlife movement may be facilitated by specific local biological habitats or passages and/or may be restricted by barriers to movement. Above all, wildlife corridors must link two areas of core habitat and should not direct wildlife to developed areas or areas that are otherwise void of core habitat (Hilty et al. 2019).

The Study Area is not within a designated wildlife corridor (CalTrans 2010). The site is located within a larger tract of agricultural and lightly-developed land within a rural portion of Los Banos. While common wildlife species presumably utilize Los Banos Creek for some degree for movement at a local scale, the Study Area itself does not provide corridor functions beyond connecting similar agricultural land parcels in surrounding areas.

6.0 Project Impacts

Potential impacts on existing biological resources were evaluated by comparing the quantity and quality of habitats present in the Project Area under baseline conditions to the anticipated conditions after implementation of proposed Project activities. Impacts were assessed based on the current, conceptual culver plans. *Material extents are estimated as maximum amounts based on the conceptual plans and actual amounts will be refined as construction plans as developed.* Direct and indirect impacts on special-status species and sensitive natural communities were assessed based on the potential for the species, their habitat, or the natural community in question to be disturbed or enhanced by construction or operation of the proposed Project. Temporary and permanent impacts that would result from Project activities are summarized in Table 3 and depicted in Appendix A, Figure 4A, 4B, 5A, and 5B.

Los Banos Creek, in the assessed segment on the facility property, is an intermittent stream on an industrial gravel mining property with highly controlled hydrology, engineered banks, and a streambed with highly invasive shrubs and trees. Los Banos creek is listed on the Clean Water Act Section 303(d) list as an impaired waterway for sediment and water toxicity.

Table 3. Total Project Impacts

	TEMPORARY IMPACTS ACRES (SqFt)	PERMANENT IMPACTS ACRES (SqFt)	TOTAL ACRES (SqFt)
<i>Below OHWM</i>			
Culvert	-	0.09 (4,000)	0.09 (4,000)
Rip rap	-	0.32 (13,915)	0.32 (13,915)
Access and coffer dam placement	0.06 (2,737)	-	0.06 (2,737)
<i>Subtotal</i>	<i>0.06 (2,737)</i>	<i>0.41 (17,915)</i>	<i>0.47 (20,652)</i>
<i>Above OHWM and below TOB</i>			
Rip rap	-	0.19 (8,167)	0.19 (8,167)
Access	0.01 (215)	-	0.01 (215)
Road widening and protection	-	0.04 (1,882)	0.04 (1,882)
Road above OHWM	-	0.10 (4,138)	0.10 (4,138)
<i>Subtotal</i>	<i>0.01 (215)</i>	<i>0.33 (14,187)</i>	<i>0.34 (14,402)</i>
<i>Total Impacts below TOB</i>	<i>0.07 (2,952)</i>	<i>0.74 (32,102)</i>	<i>0.81 (35,054)</i>
<i>Other Components</i>			
Road below OHWM (no impact)	-	-	0.08 (3,912)
<i>Total Project Area Impacts</i>			<i>0.81 (35,054)</i>

The proposed Project will include measures to avoid effects to listed species, habitats and the surrounding environment. Measures will be implemented to minimize impacts to Los Banos Creek, avoid in water work and minimize any deleterious effects to water quality or sensitive habitat. This section provides a discussion of avoidance measures and best management practices (BMPs) that would be incorporated into the Project to avoid adverse environmental effects to state protected species and habitats. All permit conditions, legal requirements, and appropriate excavation and engineering practices associated with the proposed Project will be followed. A qualified biologist will assist with the deployment of any species-specific avoidance measures (e.g., preconstruction surveys) that may be required by Project permits.

Measures listed in Section 7 pertain to sensitive habitat protection and avoidance, water quality protection and erosion control, and special-status species will be implemented during the proposed Project. Additionally, general construction BMPs are provided in this section.

6.1 Direct Project Impacts to Biological Resources

All project impacts will be incurred below the TOB of Los Banos Creek. Activities for culvert construction will require filling, grading, or other ground disturbing activities to take place below TOB. Project work will result in permanent and temporary impacts to sensitive biological resources associated with Los Banos Creek. Filling, grading and other ground disturbing activities related to culvert installation in jurisdictional waters will permanently impact approximately 468 linear feet of Los Banos Creek.

6.1.1 Los Banos Creek Crossing Improvements Below OHWM

Impacts below OHWM include permanent impacts from culvert and fill placement and temporary impacts from construction access and cofferdam placement. Impacts below OHWM will be in the sparsely vegetated channel. Impacts below OHWM are summarized in Tables 3 and 4, and depicted in Figures 4A and 4B (Appendix A). The placement of culverts and rip rap will result in approximately 2,251 cubic yards of fill below OHWM (Table 4). Installation of a cofferdam (if needed) would result in up to approximately 46 cubic yards of temporary fill.

Table 4. Impacts and Fill Below OHWM

	ACRES	SQUARE FEET	LINEAR FEET	CUBIC YARDS
<i>Permanent</i>	<i>0.41</i>	<i>17,915</i>	<i>468</i>	<i>2251</i>
Culvert	0.09	4,000	203	296
Rip rap	0.32	13,915	468	1955
<i>Temporary</i>	<i>0.06</i>	<i>2,737</i>	<i>60</i>	<i>46</i>
Access and cofferdam placement	0.06	2,737	60	46 (coffer dam)

The Project will temporarily impact approximately 0.06 acres below OHWM. Temporary impacts include Project access below the OHWM, along the outer edge of the Project footprint and coffer dam placement as depicted in Appendix A, Figures 4A and 4B. All staging will occur in developed areas of the facility. As such, no temporary impacts will occur from staging.

Permanent impacts below OHWM will result from the construction and installation of the culverts (0.09 acre) and placement of rip-rap for the culvert apron (0.32 acres).

6.1.2 Los Banos Creek Crossing Improvements Below Top of Bank

Project work that will occur below TOB and above OHWM includes road widening and protection and additional rip rap installation and temporary access. A summary of impacts below TOB and above OHWM is included in Table 3. A summary of all impacts below TOB is included below in Table 5 and depicted in Figures 5A and 5B (Appendix A). The placement of culverts, rip rap and road improvements will result in

approximately 4,353 cubic yards of fill below TOB (Table 5). Installation of a cofferdam (if needed) would result in up to approximately 46 cubic yards of temporary fill.

Table 5. Total Impacts Below TOB

	ACRES	SQUARE FEET	LINEAR FEET	CUBIC YARDS
<i>Permanent</i>	<i>0.74</i>	<i>32,102</i>	<i>468</i>	<i>4353</i>
Culvert	0.09	4,000	203	296
Rip rap	0.51	22,082	468	3165
Road widening and slope protection	0.04	1,882	-	279
Road improvements (above OHWM)	0.10	4,138	-	613
<i>Temporary</i>	<i>0.07</i>	<i>2,952</i>	<i>60</i>	<i>46</i>
Access and cofferdam placement	0.07	2,952	60	46 (coffer dam)

The Project will temporarily impact approximately 0.07 acres below TOB. Temporary impacts include Project access below the TOB, along the outer edge of the Project footprint as depicted in Appendix A, Figures 5A and 5B. All staging will occur in developed areas of the facility. As such, no temporary impacts will occur from staging. No temporary impacts in vegetated areas are anticipated.

Permanent impacts below TOB will result from the construction and installation of the culverts (0.09 acre), placement of rip-rap for the culvert apron (0.51 acres), road widening and slope protection (0.04 acre) and road improvements (0.10).

6.2 Indirect Project Impacts to Biological Resources

Project activities will result in ground disturbance which could result in increased sedimentation and turbidity in downstream waters following grading and the onset of the rainy season; however, these impacts would be temporary, discrete and localized, and would be minimized by measures described in Section 7.

7.0 Recommended Avoidance, Minimization and Mitigation Measures

A majority of Project work will occur within a sensitive biological community (Los Banos Creek) which will incur permanent and temporary impacts.

Based on the potential biological constraints described above, the following regulatory agencies may have jurisdiction within the Study Area:

- U.S. Army Corps of Engineers
- San Francisco Bay Regional Water Quality Control Board
- California Department of Fish & Wildlife

Filling, grading, or other ground disturbance activities in jurisdictional wetlands or waters require an individual or nationwide permit from the Corps and a Section 401 Water Quality Certification from the RWQCB. Due to the purpose of the Project and if impacts below the OHWM are under 0.5 acres, the Project will likely qualify for Nationwide Permit (NWP) #39 – Commercial and Institutional Developments. A new update was made to NWP 39 in 2021, which removes the limit of impacts to 300 linear feet of stream bed. However, if the Project results in impacts greater than 0.5 acre of jurisdictional waters, an individual permit will likely be required.

Alterations to or work within or adjacent to streambeds or lakes generally require a 1602 Lake and Streambed Alteration Agreement. The CDFW requires any person who may affect the bed or bank of a perennial, intermittent, or ephemeral river, stream, or lake to request a Section 1602 Streambed Alteration Agreement. CDFW would use the application request to determine appropriate jurisdiction over the creek and whether Project actions would affect sensitive resources or wildlife.

The Project will propose avoidance, minimization, and mitigation measures as part of the permit applications to the agencies. Recommended measures are listed in more detail below.

7.1 General Construction Best Management Practices (BMPs)

The Project will result in permanent and temporary impacts to potential waters of the state. Implementation of the general BMPs below will result in the minimization of impacts to the greatest extent possible. The following will be implemented to avoid potential impacts to jurisdictional features:

- An environmental awareness training program will be given to all contractor crew members working on the Project. The training will be given by a qualified biologist and will include education on sensitive resources such as protected wildlife with the potential to occur within the Project Area, water quality, and environmental protection measures.
- Erosion control measures will be utilized throughout all phases of the Project where sediment runoff from construction may potentially enter nearby waters. Appropriate sediment and erosion control BMPs (e.g., use of silt fencing and/or straw wattles around the perimeter of the construction zone) shall be implemented during and following construction to minimize surface runoff originating from the Project and thereby protect water quality of Los Banos Creek. Erosion control structures will be monitored for effectiveness and will be repaired or replaced as needed.

- Prior to construction, an Accidental Spill Prevention and Cleanup Plan will be prepared. This plan will include required spill control absorbent material, for use beneath stationary equipment, to be present on-site and available at all times.
- No fueling, cleaning, or maintenance of vehicles or equipment will take place within any areas where an accidental discharge may cause hazardous materials to enter waterways.
- Any equipment or vehicles used for the Project will be checked and maintained daily to prevent leaks of fluids that could be deleterious to aquatic habitats.
- All equipment will be cleaned before arriving on the site and before removal from the site to prevent spread of invasive plants.
- To avoid establishment of invasive, non-native plant species on or adjacent to the Project Area, the following measures shall be implemented:
 - Vegetation disturbances shall be limited to those areas identified on construction plans and maps as slated for development or construction staging.
 - Erosion and sediment control materials shall be certified as weed-free.
 - Native and compatible non-native plant species shall be used for revegetation. The list of plant species is included in the attached list (Appendix E).
 - The revegetation seed mix will not include invasive non-native plants that threaten wildlands according to the California Invasive Plant Inventory made available by the California Invasive Plant Council (Cal-IPC).
- Staging and storage areas for equipment, materials, fuels, lubricants and solvents, will be located outside of the stream channel banks and outside of nearby waters.
- Stationary equipment such as motors, pumps, and generators, located adjacent to aquatic features will be positioned over secondary containment sufficient to arrest a catastrophic failure.
- Stockpiles of excavated soil or other will be covered when not in active use (i.e. will not be used, or moved for 72 hours). All trucks hauling soil, sand, and other loose materials will be covered.
- No motorized equipment will be left within the channel overnight.

7.2 Jurisdictional Habitat Impact Avoidance and Minimization Measures

- Prior to construction, locations and equipment access points that minimize channel and bank disturbance will be determined. Pre-existing access points will be used whenever possible. Unstable areas, which may increase the risk of channel instability, will be avoided
- Prior to construction activities, the OHWM of the Los Banos Creek be plotted on all construction plans and maps, including a minimum buffer of 10 feet or more as determined by a qualified biologist.
- Removal of vegetation will be minimized to the extent feasible during culvert installation work. Construction areas temporarily disturbed by construction activities will be restored immediately to pre-work disturbance conditions at minimum.
- Silt fencing and construction fencing (or flagging to make the silt fencing more visible) shall be installed above the OHWM of the Los Banos Creek to prevent soils and sediment from entering the streambed, and the final location of the installed fencing shall be approved by a qualified biologist prior to initiation of construction activities.

The fencing shall be monitored regularly during construction activities to ensure that the fencing remains intact and functional, and that encroachment has not occurred into the sensitive habitat or boundary; any repairs to the fence or encroachment correction shall be conducted immediately.

- Encroachment into the sensitive habitat and buffer shall be prohibited by construction personnel, and storage of materials or equipment shall be prohibited in this area.
- Construction activities associated with the culvert installation and associated BMP activities, which will be performed in order to stabilize the slope surrounding the work area along the bank of Los Banos Creek, shall be conducted outside of planned Los Banos Creek Reservoir and Dam water release events
- At the end of the Project all temporary flagging, fencing, or other materials will be removed from the work areas and vicinity of the channel.
- If work is to occur during periods of low flow, temporary impacts below OHWM involve the placement of coffer dams at the upstream end of temporary work limits. The coffer dams will result in the temporary dewatering of the work area, but flows will be restored to pre-construction conditions following removal of the coffer dams.
- If during the course of excavation/ grading activities, archaeological materials are uncovered, a qualified archaeologist shall be retained to evaluate the findings for significance and propose recommendations as appropriate. During this evaluation, all work in the immediate area should be halted.

7.3 Special Status Species Impact Avoidance and Minimization Measures

Burrowing Owl

Burrowing owls may be present in grassland adjacent to the Study Area. The Project may indirectly impact burrowing owl through auditory, vibratory, and/or visual disturbance of a sufficient level to cause abandonment of the site or active nests. The following recommendations are provided to avoid and minimize potential impacts to burrowing owl during proposed Project activities:

- A pre-construction survey will be performed within 14 days prior to start of ground disturbing activities. This survey will occur regardless of the time of year, as burrowing owls may use the Study Area during the non-nesting season. The survey will be performed according to the standards set forth by the Staff report for Burrowing Owl Mitigation (CDFW 2012).
- Occupied burrows will not be disturbed during the nesting season (February 1 through August 31) unless, after consultation with the CDFW, a qualified biologist verifies that either: (1) the birds have not begun egg-laying and incubation; or (2) that juveniles from the occupied burrows are foraging independently and capable of independent survival.
- If owls must be moved away from the disturbance area, passive relocation techniques should be used rather than trapping. At least 1 week should be allowed to accomplish this and allow the owls to acclimate to alternate burrows.

Nesting Birds

Special-status birds (northern harrier and loggerhead shrike) and non-status nesting birds protected under the CFGC have the potential to nest in trees, shrubs, herbaceous vegetation, and on bare ground within the Study Area. The following measures are recommended to avoid Project related impacts to nesting birds.

- Vegetation removal, grading, or initial ground-disturbance, should be conducted between September 1 and January 31 (outside of the February 1 to August 31 nesting season) to the greatest extent feasible.
- If these activities must be conducted during the nesting season, a pre-construction nesting bird survey should be conducted by a qualified biologist no more than 14 days prior to vegetation removal, grading, or initial ground disturbance. The survey should include the Project Area and surrounding 250 feet to identify the location and status of any nests that could potentially be affected either directly or indirectly by these activities.
- If active nests of native nesting bird species are located during the nesting bird survey, a work exclusion zone should be established around each nest by the qualified biologist. Established exclusion zones should remain in place until all young in the nest have fledged or the nest otherwise becomes inactive (e.g., due to predation). Appropriate exclusion zone sizes will be determined by a qualified biologist and will vary based on species, nest location, existing visual buffers, noise levels, and other factors. An exclusion zone radius may be as small as 50 feet for common, disturbance-adapted species, or as large as 250 feet or more for raptors. Exclusion zone size will be reduced from established levels by a qualified biologist if nest monitoring findings indicate that Project activities do not adversely impact the nest, and if a reduced exclusion zone would not adversely affect the nest.

Roosting Bats

Special-status bats, including western red bat, have potential to occur within riparian habitat within the Study Area. To avoid Project related impacts to roosting bats, the following measures are recommended.

- If Project activities are planned within 100 feet of riparian habitat, no more than 90 days prior to initial ground disturbance or vegetation removal a bat roost habitat assessment shall be performed by a qualified bat biologist to determine the potential for roosting bats to occur. If evidence of roosting is present, species-specific measures including buffers, exclusion, and monitoring should be prescribed based on the species, type of roost, and status of occupation at the time Project activities are implemented.

Swainson's Hawk

Swainson's hawk may nest in trees in the vicinity of the Study Area. To avoid Project related impacts to Swainson's hawk, such as nest abandonment from noise or disturbance, the following measures are recommended.

- If construction, grading, or Project-related improvements are to commence between February 1 and September 15, focused surveys for Swainson's hawk nests should be conducted by a qualified biologist within a ½-mile radius of Project activities, in accordance with the Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (Swainson's Hawk TAC 2000). To meet the minimum level of protection for the species, surveys should be

completed for the two survey periods immediately prior to commencement of construction activities in accordance with the 2000 TAC recommendations. If active nests are found, CDFW should be contacted to determine appropriate protective measures, and these measures should be implemented prior to the start of any ground-disturbing activities. If no active nests are found during the focused survey, no further measures are required.

8.0 Mitigation Plan

This mitigation plan proposes enhancement of the Los Banos Creek bed thorough removal of tamarisk and other invasive plants. Invasive removal is proposed to improve surface water availability for groundwater aquifer recharge and downstream agricultural and ecological receptors.

8.1 Watershed Profile

See Part 5. Delineation, and Part 11. EcoAtlas Landscape Profile Report of this application for additional information on the watershed. Part 4. Supplemental Information discusses the licenses and management plans that establish the beneficial uses of this segment of Los Banos Creek for groundwater recharge and surface water delivery to downstream receptors' beneficial uses.

8.2 Los Banos Creek Assessment

Los Banos Creek, in the segment on the facility property, is an intermittent waterway on an industrial gravel mining property, with highly controlled hydrology, engineered banks, and a bed with highly invasive shrubs and trees. Los Banos Creek is also a Clean Water Act listed impaired waterway.

Los Banos Creek receives surface water input from Los Banos Creek Detention Dam and its reservoir. The dam is located approximately 2 air miles southwest of the southern portion of the Study Area. As part of its operations, water releases from the Los Banos Creek Detention Reservoir and Dam are made according to flood control criteria specified by the Corps between September 20th and March 15th. Flood waters released to Los Banos Creek are also intercepted by facilities at the Delta Mendota Canal-Los Banos Creek Crossing and diverted into the canal. The Delta Mendota Canal-Los Banos Creek Crossing lies downstream of the south road crossing and upstream of the north road crossing.

Los Banos creek is listed on the Clean Water Act Section 303(d) list as an impaired waterway for sediment and water toxicity. Within the Study Area, Los Banos Creek occurs in an engineered channel with a distinct bed and high banks. The bed is sparsely vegetated by shortpod mustard (*Hirschfeldia incana*), common sunflower (*Helianthus annuus*), prickly lettuce (*Lactuca serriola*), tamarisk (*Tamarix ramosissima*), common hareleaf (*Lagophylla ramosissima*), and gumweed (*Grindelia stricta*). No riparian habitat is present on the steep engineered banks of the creek. The Study Area creek bed also has patches of non-native invasive species, such as tamarisk, which is rated high by Cal-IPC.

8.3 Invasive Plant Removal

Species rated high have severe ecological impacts on natural plant and animal communities and have high rates of dispersal and establishment. To prevent further spreading invasive plant species within the Study Area, an Invasive Plant Monitoring and Management Plan (IPMMP) will be prepared. The IPMMP will detail the removal of invasive plant species along Los Banos Creek banks on the property in one or more areas equivalent to 3 times the acres of impact to the OHWM of Los Banos Creek, focusing on species rated high by the Cal-IPC. To ensure invasive eradication, the monitoring plan will require the Project meets certain success criteria for up to three-years post-construction.

Success criteria will require that invasive plants ranked high via Cal-IPC shall not exceed 5% relative cover within the mitigation area along Los Banos Creek. Removal of non-native invasive species in the mitigation areas will be conducted as needed by a qualified wetland plant biologist or by Triangle Rock Products maintenance personnel as directed by a qualified wetland plant biologist.

With the implementation of weed removal and installation of the culvert, the Project will result in the overall net increase of aquatic resource functions. Removal of tamarisk from the channel of Los Banos Creek will result in an increase in water availability for groundwater recharge downstream receptors.

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APPENDIX A – FIGURES

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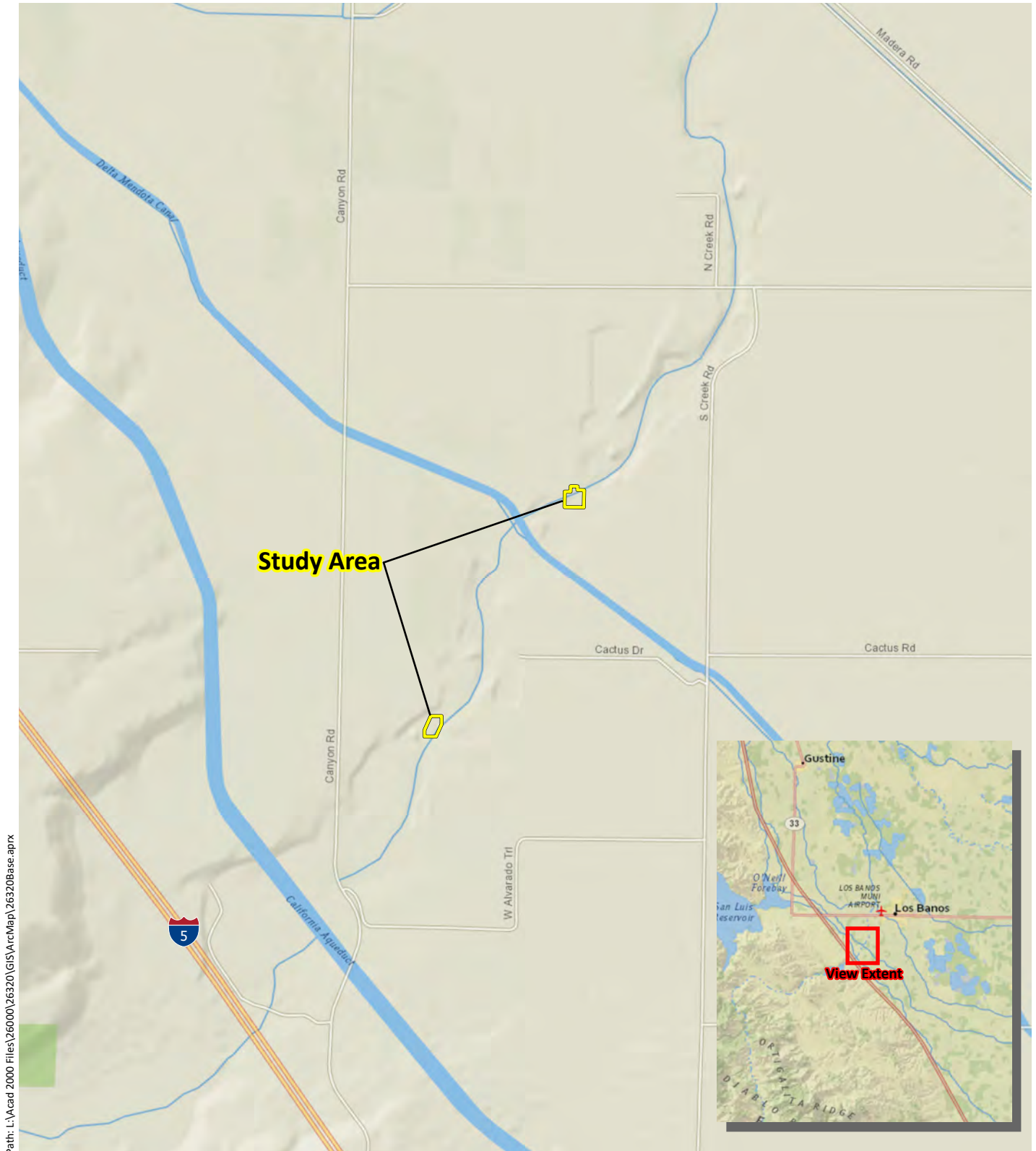


Figure 1. Study Area Regional Location Map

Stream Culvert Project
Vulcan Materials
Merced County, California

0 0.5 1 Miles



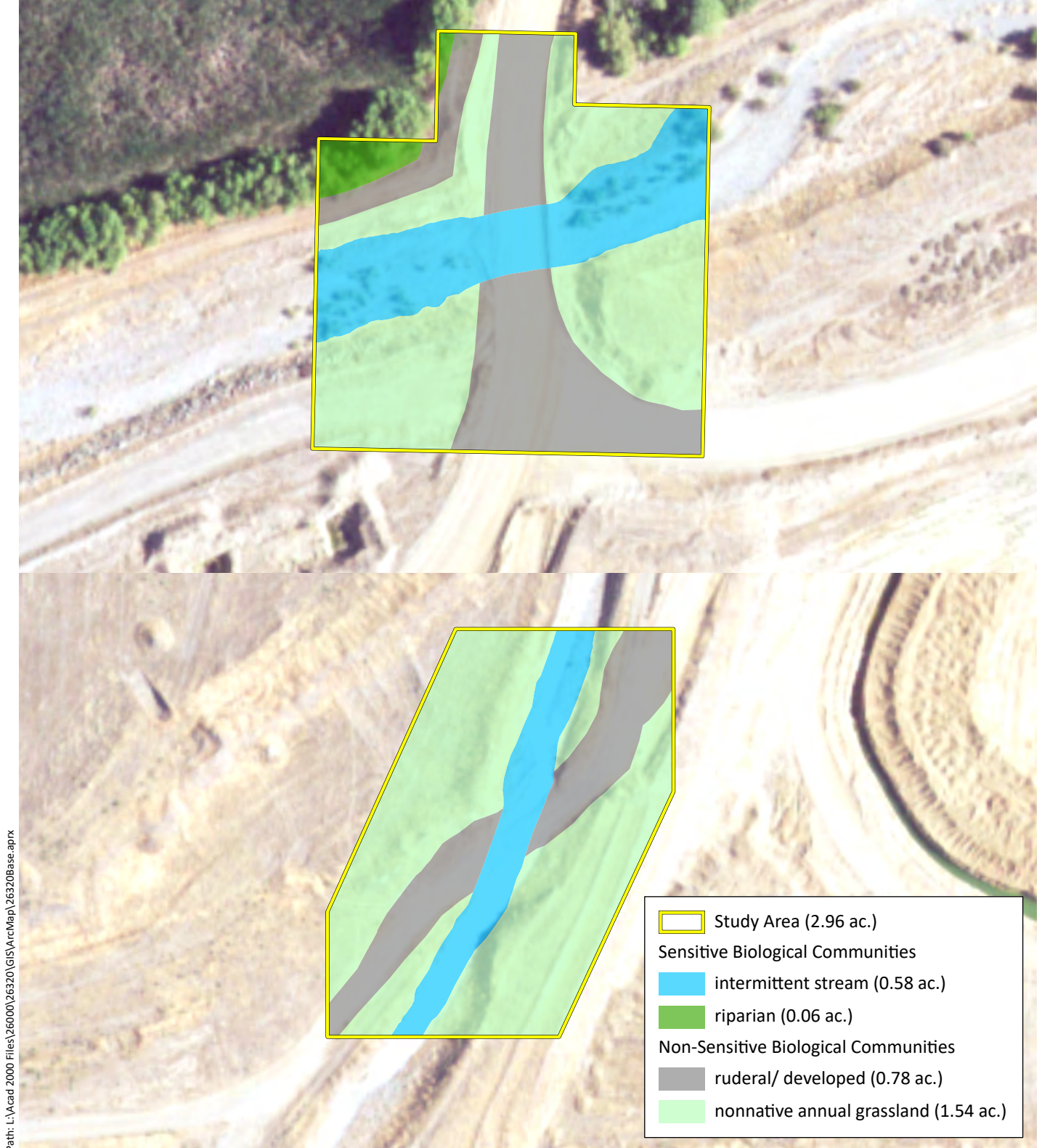


Figure 2. Soils

Stream Culvert Project
Vulcan Materials
Merced County, California

0 250 500
Feet





Sources: CARI, USGS SURRGO, USDA NAIP Imagery 2018, WRA | Prepared By: njander, 10/18/2021

Figure 3. Biological Communities in the Study Area

Stream Culvert Project
Vulcan Materials
Merced County, California

0 50 100
Feet



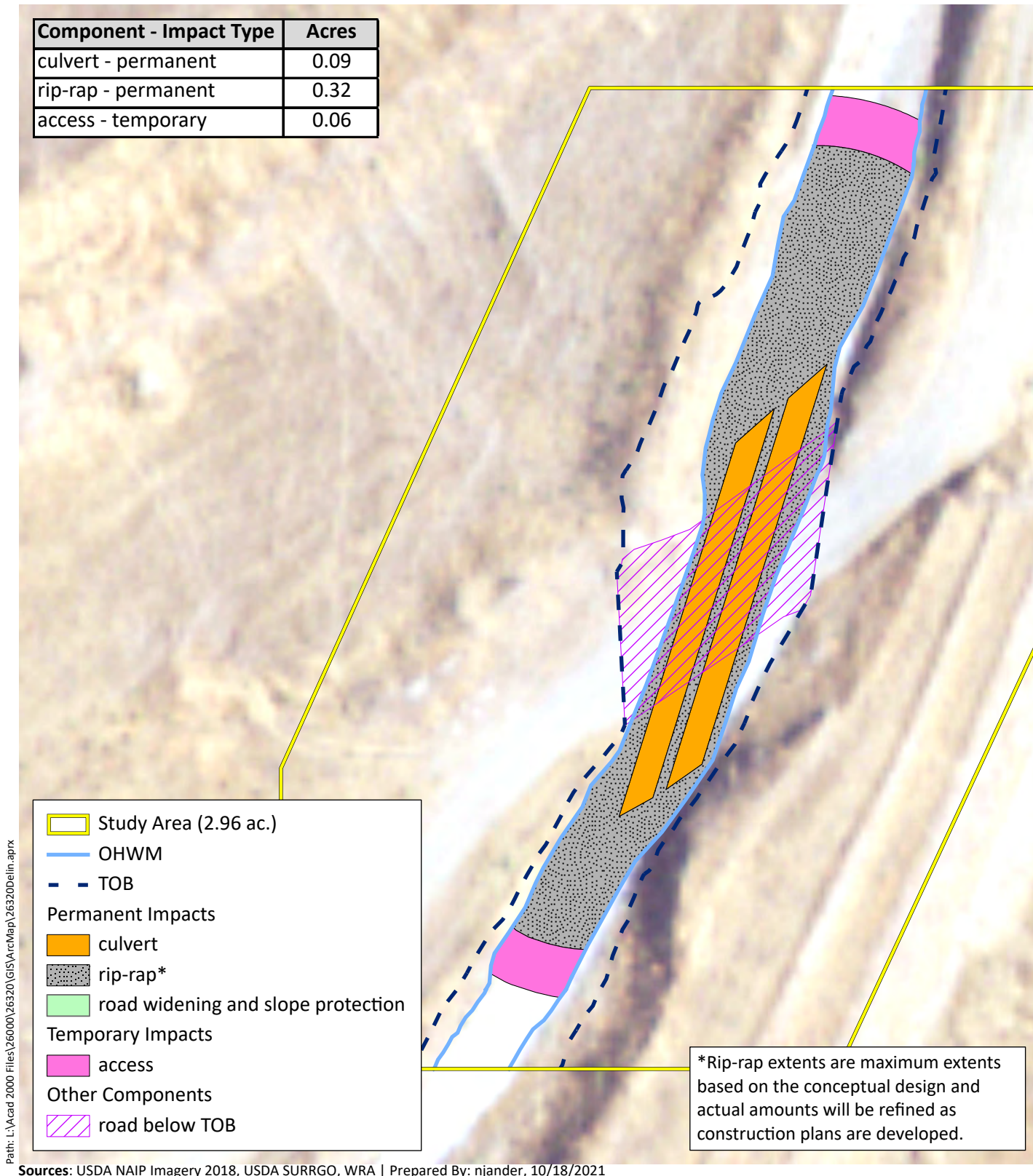
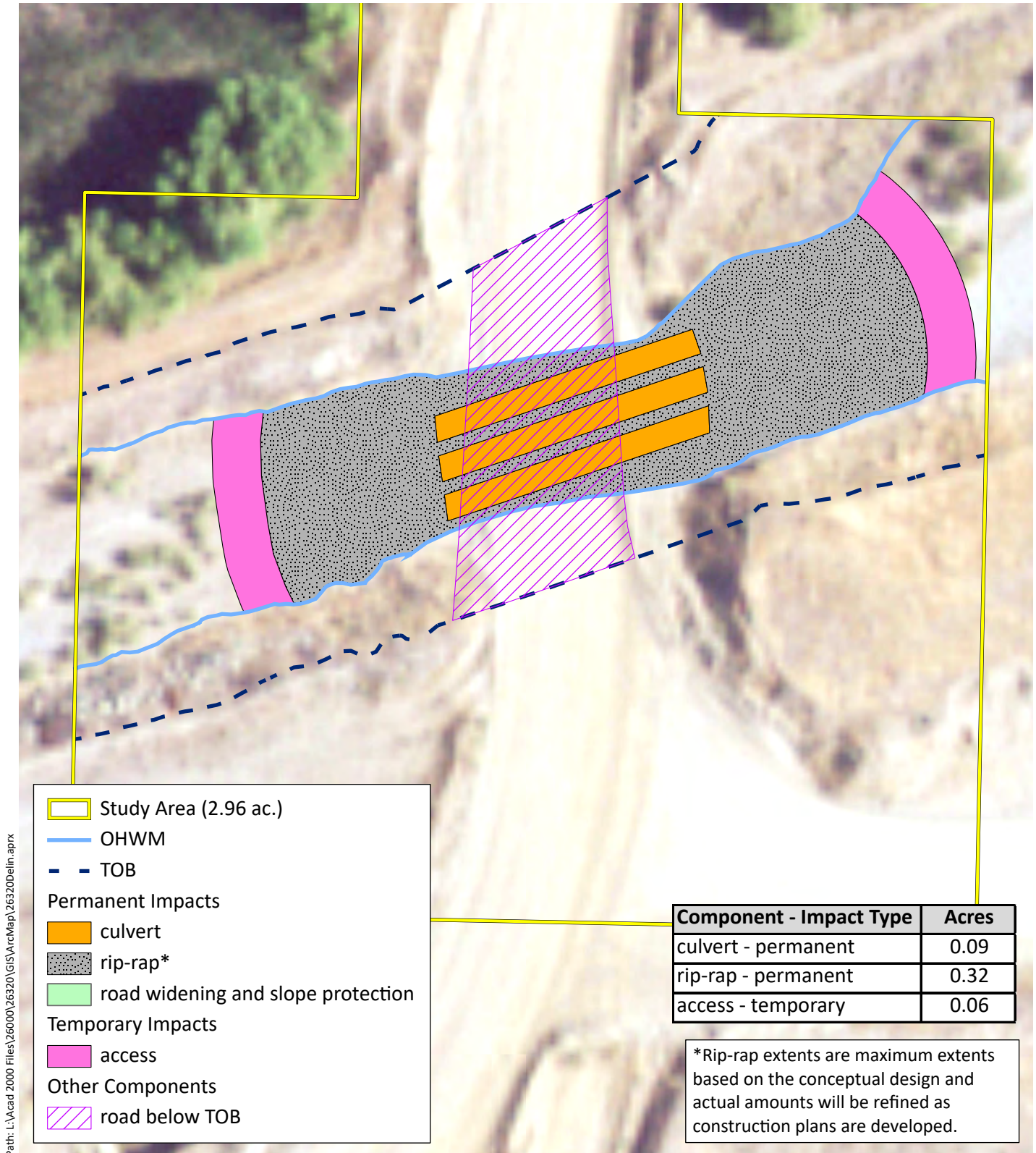


Figure 4A. Impacts Below OHWM

Stream Culvert Project
Vulcan Materials
Merced County, California

0 50 100 Feet





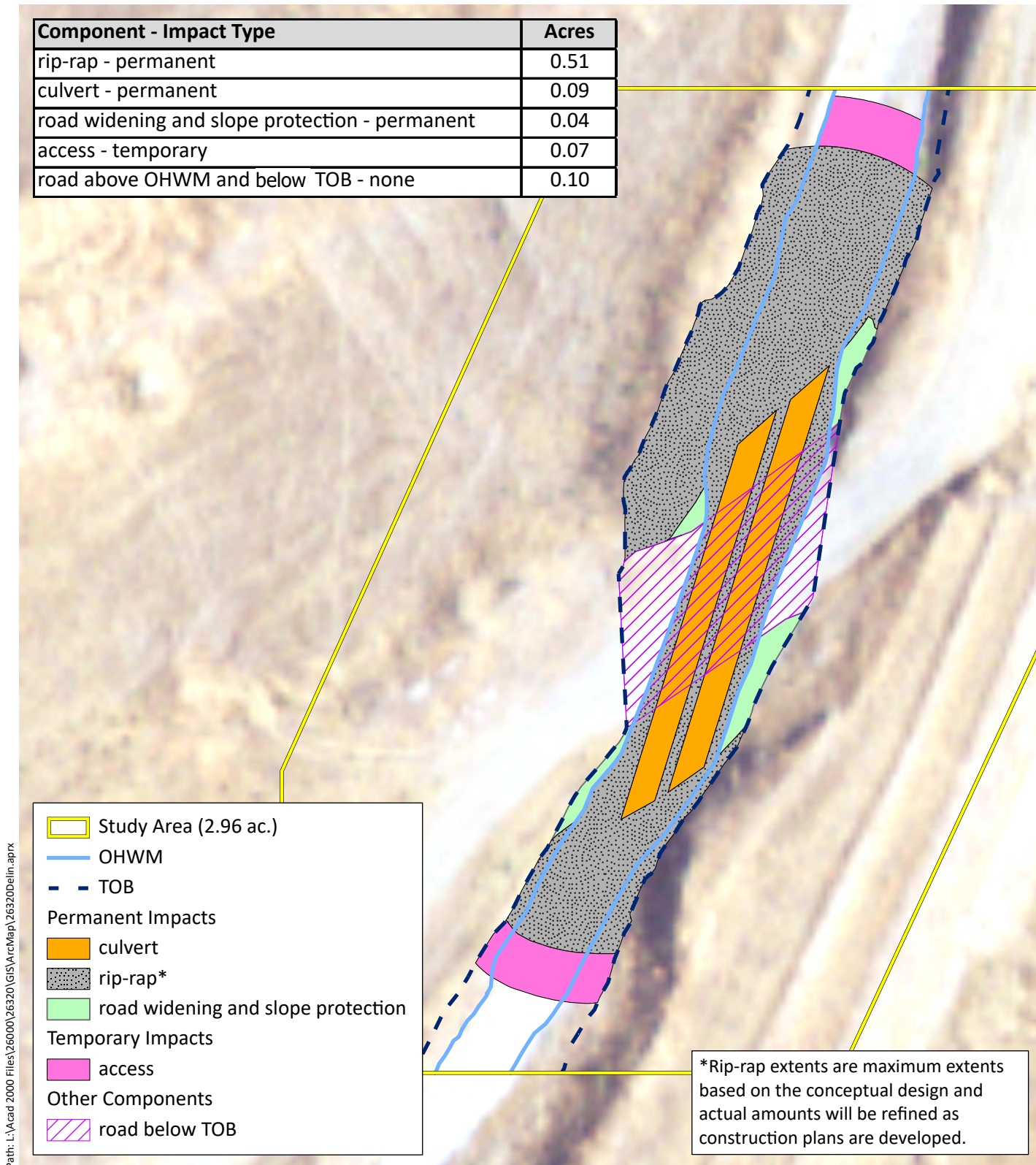
Sources: USDA NAIP Imagery 2018, USDA SURRGO, WRA | Prepared By: njander, 10/18/2021

Figure 4B. Impacts Below OHWM

Stream Culvert Project
Vulcan Materials
Merced County, California

0 50 100 Feet





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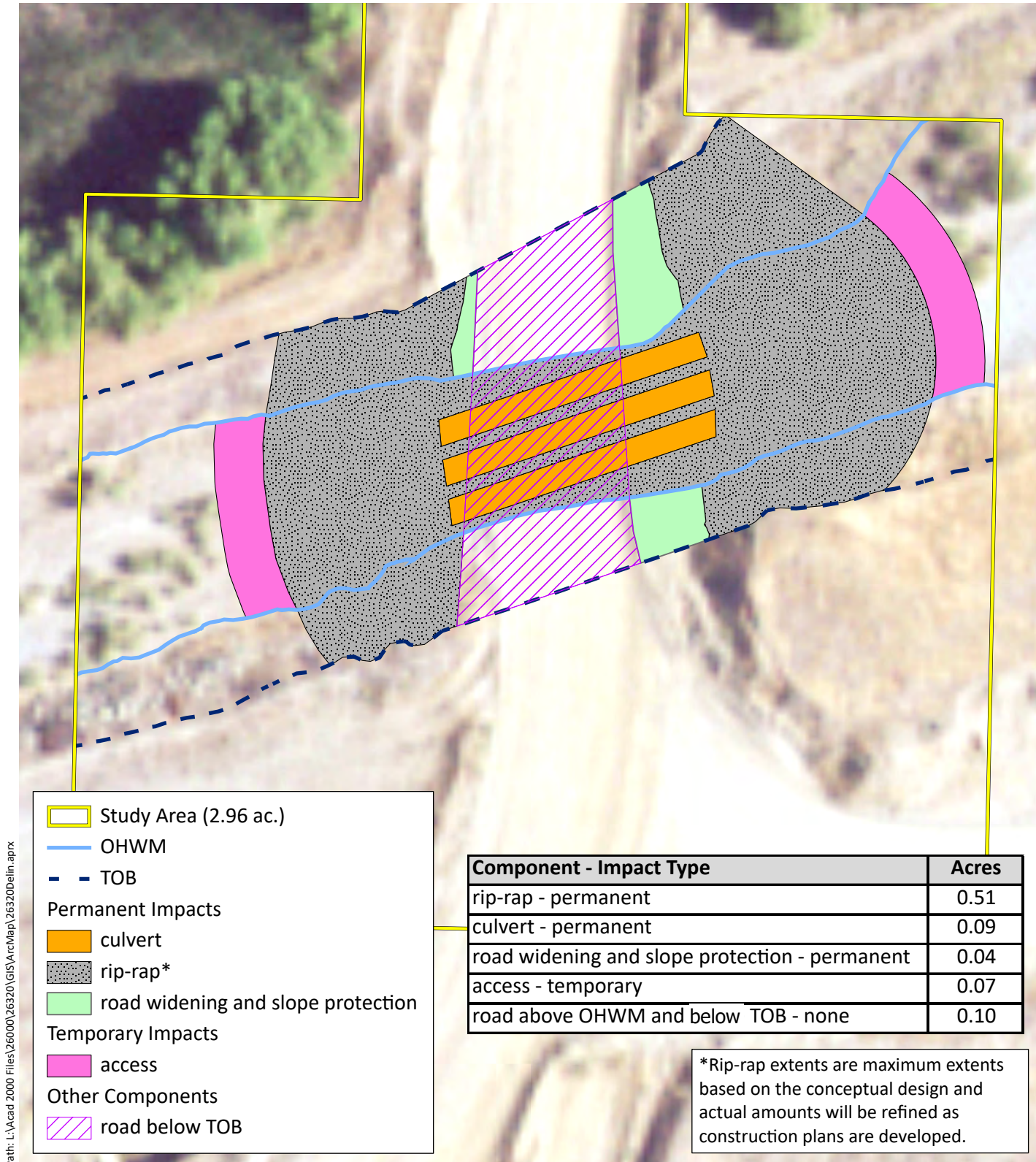
Sources: USDA NAIP Imagery 2018, USDA SURRGO, WRA | Prepared By: njander, 10/18/2021

Figure 5A. Impacts Below TOB

Stream Culvert Project
Vulcan Materials
Merced County, California

0 50 100 Feet





Sources: USDA NAIP Imagery 2018, USDA SURRGO, WRA | Prepared By: njander, 10/18/2021

Figure 5B. Impacts Below TOB

Stream Culvert Project
Vulcan Materials
Merced County, California

0 50 100 Feet



APPENDIX B – SPECIES OBSERVED IN AND AROUND THE STUDY AREA

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Appendix B – Table 1. Plant Species Observed on July 16, 2021

Scientific Name	Common Name	Origin	Form	Rarity Status ¹	CAL-IPC Status ²	Wetland Status ³
<i>Acmispon americanus</i> var. <i>americanus</i>	Spanish lotus	native	annual herb	-	-	UPL
<i>Amsinckia intermedia</i>	Common fiddleneck	native	annual herb	-	-	-
<i>Asclepias fascicularis</i>	Milkweed	native	perennial herb	-	-	FAC
<i>Avena</i> sp.	Wild oats	non-native (invasive)	annual grass	-	-	-
<i>Baccharis salicifolia</i>	Mulefat	native	shrub	-	-	FAC
<i>Bromus diandrus</i>	Ripgut brome	non-native (invasive)	annual grass	-	Moderate	-
<i>Bromus hordeaceus</i>	Soft chess	non-native (invasive)	annual grass	-	Limited	FACU
<i>Bromus rubens</i>	Red brome	non-native (invasive)	annual grass	-	High	UPL
<i>Centaurea melitensis</i>	Tocalote	non-native (invasive)	annual herb	-	Moderate	-
<i>Centromadia pungens</i> ssp. <i>pungens</i>	Common tarweed	native	annual herb	-	-	FAC
<i>Chenopodium album</i>	Lambs quarters	non-native	annual herb	-	-	FACU
<i>Croton setiger</i>	Turkey-mullein	native	perennial herb	-	-	-
<i>Datura wrightii</i>	Jimsonweed	native	perennial herb	-	-	UPL
<i>Dittrichia graveolens</i>	Stinkwort	non-native (invasive)	annual herb	-	Moderate	-
<i>Epilobium brachycarpum</i>	Willow herb	native	annual herb	-	-	FAC
<i>Eriogonum fasciculatum</i>	California buckwheat	native	shrub	-	-	-
<i>Festuca myuros</i>	Rattail sixweeks grass	non-native (invasive)	annual grass	-	Moderate	FACU
<i>Grindelia camporum</i>	Gumweed	native	perennial herb	-	-	FACW
<i>Helianthus annuus</i>	Hairy leaved sunflower	native	annual herb	-	-	FACU

Scientific Name	Common Name	Origin	Form	Rarity Status ¹	CAL-IPC Status ²	Wetland Status ³
<i>Heliotropium curassavicum</i> var. <i>oculatum</i>	Seaside heliotrope	native	perennial herb	-	-	FACU
<i>Hirschfeldia incana</i>	Short-podded mustard	non-native (invasive)	perennial herb	-	Moderate	-
<i>Holocarpha virgata</i>	Narrow tarplant	native	annual herb	-	-	-
<i>Hordeum marinum</i> ssp. <i>gussoneanum</i>	Mediterranean barley	non-native (invasive)	annual grass	-	Moderate	FAC
<i>Lactuca serriola</i>	Prickly lettuce	non-native	annual herb	-	-	FACU
<i>Lagophylla ramosissima</i>	Common hareleaf	native	annual herb	-	-	-
<i>Lepidium latifolium</i>	Perennial pepperweed	non-native (invasive)	perennial herb	-	High	FAC
<i>Plantago lanceolata</i>	Ribwort	non-native (invasive)	perennial herb	-	Limited	FAC
<i>Polypogon monspeliensis</i>	Annual beard grass	non-native (invasive)	annual grass	-	Limited	FACW
<i>Rumex crispus</i>	Curly dock	non-native (invasive)	perennial herb	-	Limited	FAC
<i>Salix laevigata</i>	Red willow	native	tree	-	-	FACW
<i>Salsola</i> sp.	Russian thistle	non-native	annual herb	-	-	-
<i>Stephanomeria</i> sp.	Wire lettuce	native	annual herb	-	-	-
<i>Tamarix</i> cf. <i>ramosissima</i>	Tamarisk	non-native (invasive)	tree, shrub	-	High	FAC
<i>Trichostema lanatum</i>	Woolly bluecurls	native	shrub	-	-	-

All species identified using the Jepson eFlora [Jepson Flora Project (eds.) 2021]; nomenclature follows Jepson eFlora [Jepson Flora Project (eds.) 2021]

¹ California Native Plant Society. 2021. Inventory of Rare and Endangered Plants (online edition, v9-01 0.0). Sacramento, California. Online at: <http://rareplants.cnps.org/>; most recently accessed: July 2021

FE: Federal Endangered

FT: Federal Threatened

SE: State Endangered

ST: State Threatened

SR: State Rare

Rank 1A: Plants presumed extinct in California

Rank 1B: Plants rare, threatened, or endangered in California and elsewhere
 Rank 2: Plants rare, threatened, or endangered in California, but more common elsewhere
 Rank 3: Plants about which we need more information – a review list
 Rank 4: Plants of limited distribution – a watch list

² **California Invasive Plant Council. 2021. California Invasive Plant Inventory Database. California Invasive Plant Council, Berkeley, CA. Online at: <http://www.cal-ipc.org/paf/>; most recently accessed: August 2021**

High: Severe ecological impacts; high rates of dispersal and establishment; most are widely distributed ecologically.
 Moderate: Substantial and apparent ecological impacts; moderate-high rates of dispersal, establishment dependent on disturbance; limited-moderate distribution ecologically
 Limited: Minor or not well documented ecological impacts; low-moderate rate of invasiveness; limited distribution ecologically
 Assessed: Assessed by Cal-IPC and determined to not be an existing current threat

³ **U.S. Army Corps of Engineers. 2018. National Wetland Plant List, version 3.4. Engineer Research and Development Center. Cold Regions Research and Engineering Laboratory, Hanover, NH. Online at: <http://wetland-plants.usace.army.mil/>; most recently accessed: August 2021.**

OBL: Almost always found in wetlands
 FACW: Usually found in wetlands
 FAC: Equally found in wetlands and uplands
 FACU: Usually not found in wetlands
 UPL: Almost never found in wetlands
 NL: Not listed, assumed almost never found in wetlands
 NI: No information; not factored during wetland delineation

Appendix B: Table 2: Wildlife Species Observed on July 16, 2021.

Common Name	Scientific Name	Conservation Status
Mammals		
Domestic dog	<i>Canis familiaris</i>	-
California ground squirrel	<i>Otospermophilus beecheyi</i>	-
Birds		
Red-tailed hawk	<i>Buteo jamaicensis</i>	-
Turkey vulture ¹	<i>Cathartes aura</i>	-
Northern harrier	<i>Circus hudsonius</i>	Species of Special Concern
Rock pigeon	<i>Columba livia</i>	-
American crow	<i>Corvus brachyrhynchos</i>	-
Common raven	<i>Corvus corax</i>	-
common yellowthroat	<i>Geothlypis trichas</i>	-
House finch	<i>Haemorhous mexicanus</i>	-
Purple finch	<i>Haemorhous purpureus</i>	-
Barn swallow	<i>Hirundo rustica</i>	-
Song sparrow	<i>Melospiza melodia</i>	-
Cliff swallow	<i>Petrochelidon pyrrhonota</i>	-
Black phoebe	<i>Sayornis nigricans</i>	-
western bluebird	<i>Sialia mexicana</i>	-
Eurasian collared dove	<i>Streptopelia decaocto</i>	-
Bewick's wren	<i>Thryomanes bewickii</i>	-
Amphibians and Reptiles		
American bullfrog	<i>Lithobates catesbeianus</i>	-
side-blotched lizard	<i>Uta stansburiana</i>	-

APPENDIX C – SPECIAL-STATUS SPECIES POTENTIAL TABLE

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APPENDIX C. SPECIAL-STATUS SPECIES ASSESSMENT TABLE

SPECIES	STATUS	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
<i>Plants</i>				
Santa Clara thorn-mint <i>Acanthomintha lanceolata</i>	Rank 4.2	Chaparral, cismontane woodland, coastal scrub. Elevation ranges from 260 to 3935 feet (80 to 1200 meters). Blooms Mar-Jun.	No Potential. The Study Area does not contain chaparral, cismontane woodland or coastal scrub habitats.	Not Observed. This species was not observed during the July 16, 2021 site visit. Despite the visit occurring out of this species blooming period, it is presumed absent from the Study Area and no further surveys are recommended for this species.
forked fiddleneck <i>Amsinckia furcata</i>	Rank 4.2	Cismontane woodland, valley and foothill grassland. Elevation ranges from 165 to 3280 feet (50 to 1000 meters). Blooms Feb-May.	Unlikely. Although the Study Area contains grassland habitat, it occurs on highly disturbed, altered terrain and is surrounded by active mining areas and similarly disturbed, altered terrain. As such, the grassland provides poor quality habitat.	Not Observed. This species was not observed during the July 16, 2021 site visit. Despite the visit occurring out of this species blooming period, it is presumed absent from the Study Area and no further surveys are recommended for this species.
California androsace <i>Androsace elongata ssp. acuta</i>	Rank 4.2	Chaparral, cismontane woodland, coastal scrub, meadows and seeps, pinyon and juniper woodland, valley and foothill grassland. Elevation ranges from 490 to 4280 feet (150 to 1305 meters). Blooms Mar-Jun.	Unlikely. Although the Study Area contains grassland habitat, it occurs on highly disturbed, altered terrain and is surrounded by active mining areas and similarly disturbed, altered terrain. As such, the grassland provides poor quality habitat.	Not Observed. This species was not observed during the July 16, 2021 site visit. Despite the visit occurring out of this species blooming period, it is presumed absent from the Study Area and no further surveys are recommended for this species.

APPENDIX C. SPECIAL-STATUS SPECIES ASSESSMENT TABLE

SPECIES	STATUS	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
alkali milk-vetch <i>Astragalus tener</i> var. <i>tener</i>	Rank 1B.2	Playas, valley and foothill grassland, vernal pools. Elevation ranges from 5 to 195 feet (1 to 60 meters). Blooms Mar-Jun.	No Potential. The Study Area does not contain vernal pools or other vernal mesic, alkaline habitats.	Not Observed. This species was not observed during the July 16, 2021 site visit. Despite the visit occurring out of this species blooming period, it is presumed absent from the Study Area and no further surveys are recommended for this species.
heartscale <i>Atriplex cordulata</i> var. <i>cordulata</i>	Rank 1B.2	Chenopod scrub, meadows and seeps, valley and foothill grassland. Elevation ranges from 0 to 1835 feet (0 to 560 meters). Blooms Apr-Oct.	No Potential. The Study Area does not contain vernal pools or other vernal mesic, alkaline habitats.	Not Observed. This species was not observed during the July 16, 2021 site visit. No further surveys are recommended for this species.
crownscale <i>Atriplex coronata</i> var. <i>coronata</i>	Rank 4.2	Chenopod scrub, valley and foothill grassland, vernal pools. Elevation ranges from 5 to 1935 feet (1 to 590 meters). Blooms Mar-Oct.	No Potential. The Study Area does not contain vernal pools or other vernal mesic, alkaline habitats.	Not Observed. This species was not observed during the July 16, 2021 site visit. No further surveys are recommended for this species.
Lost Hills crownscale <i>Atriplex coronata</i> var. <i>vallicola</i>	Rank 1B.2	Chenopod scrub, valley and foothill grassland, vernal pools. Elevation ranges from 165 to 2085 feet (50 to 635 meters). Blooms Apr-Sep.	No Potential. The Study Area does not contain vernal pools or other vernal mesic, alkaline habitats.	Not Observed. This species was not observed during the July 16, 2021 site visit. No further surveys are recommended for this species.

APPENDIX C. SPECIAL-STATUS SPECIES ASSESSMENT TABLE

SPECIES	STATUS	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
lesser saltscale <i>Atriplex minuscula</i>	Rank 1B.1	Chenopod scrub, playas, valley and foothill grassland. Elevation ranges from 50 to 655 feet (15 to 200 meters). Blooms May-Oct.	No Potential. The Study Area does not contain vernal pools or other vernal mesic, alkaline habitats.	Not Observed. This species was not observed during the July 16, 2021 site visit. No further surveys are recommended for this species.
vernal pool smallscale <i>Atriplex persistens</i>	Rank 1B.2	Vernal pools. Elevation ranges from 35 to 375 feet (10 to 115 meters). Blooms Jun-Oct.	No Potential. There is no vernal pool habitat within the Study Area to support this species.	Presumed Absent. No suitable habitat for this species was observed within the Study Area. No further surveys are recommended for this species.
Lemmon's jewelflower <i>Caulanthus lemmonii</i>	Rank 1B.2	Pinyon and juniper woodland, valley and foothill grassland. Elevation ranges from 260 to 5185 feet (80 to 1580 meters). Blooms Feb-May.	Unlikely. Although the Study Area contains grassland habitat, it occurs on highly disturbed, altered terrain and is surrounded by active mining areas and similarly disturbed, altered terrain. As such, the grassland provides poor quality habitat.	Not Observed. This species was not observed during the July 16, 2021 site visit. Despite the visit occurring out of this species blooming period, it is presumed absent from the Study Area and no further surveys are recommended for this species.

APPENDIX C. SPECIAL-STATUS SPECIES ASSESSMENT TABLE

SPECIES	STATUS	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Parry's rough tarplant <i>Centromadia parryi ssp. rudis</i>	Rank 4.2	Valley and foothill grassland, vernal pools. Elevation ranges from 0 to 330 feet (0 to 100 meters). Blooms May-Oct.	Unlikely. Although this species is known to occur in disturbed habitat, it was not observed during the July 16 site visit, which occurred during the blooming period of this species. In addition, the nearest occurrence of this species is approximately 7 miles northeast of the Study Area. .	Not Observed. This species was observed during the July 16, 2021 site visit during its blooming period. No further surveys are recommended for this species.
hispid salty bird's-beak <i>Chloropyron molle ssp. hispidum</i>	Rank 1B.1	Meadows and seeps, playas, valley and foothill grassland. Elevation ranges from 5 to 510 feet (1 to 155 meters). Blooms Jun-Sep.	No Potential. The Study Area does not contain vernal mesic, strongly alkaline habitat.	Not Observed. This species was not observed during the July 16, 2021 site visit. No further surveys are recommended for this species.
Brewer's clarkia <i>Clarkia breweri</i>	Rank 4.2	Chaparral, cismontane woodland, coastal scrub. Elevation ranges from 705 to 3660 feet (215 to 1115 meters). Blooms Apr-Jun.	No Potential. The Study Area does not contain chaparral, cismontane woodland or coastal scrub habitat to support this species.	Not Observed. This species was not observed during the July 16, 2021 site visit. Despite the visit occurring out of this species blooming period, it is presumed absent from the Study Area and no further surveys are recommended for this species.

APPENDIX C. SPECIAL-STATUS SPECIES ASSESSMENT TABLE

SPECIES	STATUS	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Rattan's cryptantha <i>Cryptantha rattanii</i>	Rank 4.3	Cismontane woodland, riparian woodland, valley and foothill grassland. Elevation ranges from 805 to 3000 feet (245 to 915 meters). Blooms Apr-Jul.	Unlikely. Although the Study Area contains grassland habitat, it occurs on highly disturbed, altered terrain and is surrounded by active mining areas and similarly disturbed, altered terrain. As such, the grassland provides poor quality habitat.	Not Observed. This species was not observed during the July 16, 2021 site visit. No further surveys are recommended for this species.
recurved larkspur <i>Delphinium recurvatum</i>	Rank 1B.2	Chenopod scrub, cismontane woodland, valley and foothill grassland. Elevation ranges from 10 to 2590 feet (3 to 790 meters). Blooms Mar-Jun.	No Potential. The Study Area is highly disturbed and lacks suitably alkaline substrate.	Not Observed. This species was not observed during the July 16, 2021 site visit. Despite the visit occurring out of this species blooming period, it is presumed absent from the Study Area and no further surveys are recommended for this species.
protruding buckwheat <i>Eriogonum nudum</i> var. <i>indictum</i>	Rank 4.2	Chaparral, chenopod scrub, cismontane woodland. Elevation ranges from 490 to 4800 feet (150 to 1463 meters). Blooms (Apr)May-Oct(Dec).	No Potential. The Study Area does not contain chenopod scrub, or cismontane woodland habitat to support this species.	Not Observed. This species was not observed during the July 16, 2021 site visit. No further surveys are recommended for this species.

APPENDIX C. SPECIAL-STATUS SPECIES ASSESSMENT TABLE

SPECIES	STATUS	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Idria buckwheat <i>Eriogonum vestitum</i>	Rank 4.3	Valley and foothill grassland. Elevation ranges from 770 to 2955 feet (235 to 900 meters). Blooms Apr-Aug.	Unlikely. Although the Study Area contains grassland habitat, it occurs on highly disturbed, altered terrain and is surrounded by active mining areas and similarly disturbed, altered terrain. As such, the grassland provides poor quality habitat. Additionally, this species is presumed to be extirpated from the area (CNPS 2021).	Not Observed. This species was not observed during the July 16, 2021 site visit. No further surveys are recommended for this species.
Delta button-celery <i>Eryngium racemosum</i>	SE, Rank 1B.1	Riparian scrub. Elevation ranges from 10 to 100 feet (3 to 30 meters). Blooms (May)Jun-Oct.	No Potential. The Study Area does not contain riparian scrub habitat to support this species.	Not Observed. This species was not observed during the July 16, 2021 site visit. No further surveys are recommended for this species.
spiny-sepaled button-celery <i>Eryngium spinosepalum</i>	Rank 1B.2	Valley and foothill grassland, vernal pools. Elevation ranges from 260 to 3200 feet (80 to 975 meters). Blooms Apr-Jun.	No Potential. The Study Area does not contain vernal pools or other seasonal wetland habitats.	Not Observed. This species was not observed during the July 16, 2021 site visit. Despite the visit occurring out of this species blooming period, it is presumed absent from the Study Area and no further surveys are recommended for this species.

APPENDIX C. SPECIAL-STATUS SPECIES ASSESSMENT TABLE

SPECIES	STATUS	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
hogwallow starfish <i>Hesperevax caulescens</i>	Rank 4.2	Valley and foothill grassland, vernal pools. Elevation ranges from 0 to 1655 feet (0 to 505 meters). Blooms Mar-Jun.	No Potential. The Study Area does not contain vernal pools or other seasonal wetland habitats or clay substrate.	Not Observed. This species was not observed during the July 16, 2021 site visit. Despite the visit occurring out of this species blooming period, it is presumed absent from the Study Area and no further surveys are recommended for this species.
alkali-sink goldfields <i>Lasthenia chrysantha</i>	Rank 1B.1	Vernal pools. Elevation ranges from 0 to 655 feet (0 to 200 meters). Blooms Feb-Apr.	No Potential. The Study Area does not contain vernal pool habitat to support this species.	Not Observed. This species was not observed during the July 16, 2021 site visit. Despite the visit occurring out of this species blooming period, it is presumed absent from the Study Area and no further surveys are recommended for this species.
Ferris' goldfields <i>Lasthenia ferrisiae</i>	Rank 4.2	Vernal pools. Elevation ranges from 65 to 2295 feet (20 to 700 meters). Blooms Feb-May.	No Potential. The Study Area does not contain vernal pool habitat to support this species.	Not Observed. This species was not observed during the July 16, 2021 site visit. Despite the visit occurring out of this species blooming period, it is presumed absent from the Study Area and no further surveys are recommended for this species.

APPENDIX C. SPECIAL-STATUS SPECIES ASSESSMENT TABLE

SPECIES	STATUS	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Coulter's goldfields <i>Lasthenia glabrata ssp. coulteri</i>	Rank 1B.1	Marshes and swamps, playas, vernal pools. Elevation ranges from 5 to 4005 feet (1 to 1220 meters). Blooms Feb-Jun.	No Potential. The Study Area does not contain marsh, swamp, playa or vernal pool habitat to support this species.	Not Observed. This species was not observed during the July 16, 2021 site visit. Despite the visit occurring out of this species blooming period, it is presumed absent from the Study Area and no further surveys are recommended for this species.
Munz's tidy-tips <i>Layia munzii</i>	Rank 1B.2	Chenopod scrub, valley and foothill grassland (alkaline clay). Elevation ranges from 490 to 2295 feet (150 to 700 meters). Blooms Mar-Apr.	No Potential. The Study Area does not contain chenopod scrub or alkaline clay substrate.	Not Observed. This species was not observed during the July 16, 2021 site visit. Despite the visit occurring out of this species blooming period, it is presumed absent from the Study Area and no further surveys are recommended for this species.
Panoche pepper-grass <i>Lepidium jaredii ssp. album</i>	Rank 1B.2	Valley and foothill grassland (clay, steep slopes, sometimes alkaline). Elevation ranges from 605 to 2445 feet (185 to 745 meters). Blooms Feb-Jun.	No Potential. The Study Area does not contain clay substrate and is highly disturbed.	Not Observed. This species was not observed during the July 16, 2021 site visit. Despite the visit occurring out of this species blooming period, it is presumed absent from the Study Area and no further surveys are recommended for this species.

APPENDIX C. SPECIAL-STATUS SPECIES ASSESSMENT TABLE

SPECIES	STATUS	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
serpentine leptosiphon <i>Leptosiphon ambiguus</i>	Rank 4.2	Cismontane woodland, coastal scrub, valley and foothill grassland. Elevation ranges from 395 to 3710 feet (120 to 1130 meters). Blooms Mar-Jun.	Unlikely. Although the Study Area contains grassland habitat, it occurs on highly disturbed, altered terrain and is surrounded by active mining areas and similarly disturbed, altered terrain. As such, the grassland provides poor quality habitat. Additionally, the Study Area lacks serpentine substrate.	Not Observed. This species was not observed during the July 16, 2021 site visit. Despite the visit occurring out of this species blooming period, it is presumed absent from the Study Area and no further surveys are recommended for this species.
Hall's bush-mallow <i>Malacothamnus hallii</i>	Rank 1B.2	Chaparral, coastal scrub. Elevation ranges from 35 to 2495 feet (10 to 760 meters). Blooms (Apr)May-Sep(Oct).	No Potential. The Study Area does not contain chaparral or coastal scrub habitat to support this species.	Not Observed. This species was not observed during the July 16, 2021 site visit. No further surveys are recommended for this species.
little mouseltail <i>Myosurus minimus ssp. apus</i>	Rank 3.1	Valley and foothill grassland, vernal pools. Elevation ranges from 65 to 2100 feet (20 to 640 meters). Blooms Mar-Jun.	No Potential. The Study Area does not contain seasonally mesic, alkaline substrate.	Not Observed. This species was not observed during the July 16, 2021 site visit. Despite the visit occurring out of this species blooming period, it is presumed absent from the Study Area and no further surveys are recommended for this species.

APPENDIX C. SPECIAL-STATUS SPECIES ASSESSMENT TABLE

SPECIES	STATUS	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
shining navarretia <i>Navarretia nigelliformis ssp. radians</i>	Rank 1B.2	Cismontane woodland, valley and foothill grassland, vernal pools. Elevation ranges from 215 to 3280 feet (65 to 1000 meters). Blooms (Mar)Apr-Jul.	Unlikely. Although the Study Area contains grassland habitat, it occurs on highly disturbed, altered terrain and is surrounded by active mining areas and similarly disturbed, altered terrain. As such, the grassland provides poor quality habitat. Additionally, this species is known from clayey substrate, which is absent from the Study Area.	Not Observed. This species was not observed during the July 16, 2021 site visit. No further surveys are recommended for this species.
prostrate vernal pool navarretia <i>Navarretia prostrata</i>	Rank 1B.2	Coastal scrub, meadows and seeps, valley and foothill grassland, vernal pools. Elevation ranges from 10 to 3970 feet (3 to 1210 meters). Blooms Apr-Jul.	No Potential. The Study Area does not contain vernal pools or other seasonal wetland habitats or alkaline substrate.	Not Observed. This species was not observed during the July 16, 2021 site visit. No further surveys are recommended for this species.
California alkali grass <i>Puccinellia simplex</i>	Rank 1B.2	Chenopod scrub, meadows and seeps, valley and foothill grassland, vernal pools. Elevation ranges from 5 to 3050 feet (2 to 930 meters). Blooms Mar-May.	No Potential. The Study Area does not contain seasonally mesic, alkaline substrate.	Not Observed. This species was not observed during the July 16, 2021 site visit. Despite the visit occurring out of this species blooming period, it is presumed absent from the Study Area and no further surveys are recommended for this species.

APPENDIX C. SPECIAL-STATUS SPECIES ASSESSMENT TABLE

SPECIES	STATUS	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Sanford's arrowhead <i>Sagittaria sanfordii</i>	Rank 1B.2	Marshes and swamps. Elevation ranges from 0 to 2135 feet (0 to 650 meters). Blooms May-Oct(Nov).	No Potential. The Study Area does not contain marsh or swamp habitat to support this species.	Not Observed. This species was not observed during the July 16, 2021 site visit. No further surveys are recommended for this species.
chaparral ragwort <i>Senecio aphanactis</i>	Rank 2B.2	Chaparral, cismontane woodland, coastal scrub. Elevation ranges from 50 to 2625 feet (15 to 800 meters). Blooms Jan-Apr(May).	No Potential. The Study Area does not contain chaparral, cismontane woodland or coastal scrub habitat to support this species.	Not Observed. This species was not observed during the July 16, 2021 site visit. Despite the visit occurring out of this species blooming period, it is presumed absent from the Study Area and no further surveys are recommended for this species.
Arburua Ranch jewelflower <i>Streptanthus insignis ssp. lyonii</i>	Rank 1B.2	Coastal scrub. Elevation ranges from 755 to 2805 feet (230 to 855 meters). Blooms Mar-May.	No Potential. The Study Area does not contain coastal scrub habitat to support this species.	Not Observed. This species was not observed during the July 16, 2021 site visit. Despite the visit occurring out of this species blooming period, it is presumed absent from the Study Area and no further surveys are recommended for this species.

APPENDIX C. SPECIAL-STATUS SPECIES ASSESSMENT TABLE

SPECIES	STATUS	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
slender-leaved pondweed <i>Stuckenia filiformis ssp. alpina</i>	Rank 2B.2	Marshes and swamps. Elevation ranges from 985 to 7055 feet (300 to 2150 meters). Blooms May-Jul.	No Potential. The Study Area does not contain marsh or swamp habitat to support this species.	Not Observed. This species was not observed during the July 16, 2021 site visit. Despite the visit occurring out of this species blooming period, it is presumed absent from the Study Area and no further surveys are recommended for this species.
Wright's trichocoronis <i>Trichocoronis wrightii</i> var. <i>wrightii</i>	Rank 2B.1	Marshes and swamps, meadows and seeps, riparian forest, vernal pools. Elevation ranges from 15 to 1425 feet (5 to 435 meters). Blooms May-Sep.	No Potential. The Study Area does not contain marsh, swamp, meadow/seep, riparian forest or vernal pool habitat to support this species.	Not Observed. This species was not observed during the July 16, 2021 site visit. No further surveys are recommended for this species.

APPENDIX C. SPECIAL-STATUS SPECIES ASSESSMENT TABLE

COMMON NAME	SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL TO OCCUR
<i>Amphibians</i>				
California tiger salamander	<i>Ambystoma californiense</i>	Federal Threatened State Threatened	Populations in Santa Barbara and Sonoma counties currently listed as endangered; threatened in remainder of range. Inhabits grassland, oak woodland, ruderal and seasonal pool habitats. Adults are fossorial and utilize mammal burrows and other subterranean refugia. Breeding occurs primarily in vernal pools and other seasonal water features.	No Potential. The Study Area does not contain vernal pools, ponds or grassland to support this species. There are no documented occurrences of this species within the Volta or 8 surrounding USGS quadrangles (CDFW 2021).
foothill yellow-legged frog	<i>Rana boylei</i>	California Endangered CDFW Species of Special Concern	Found in or adjacent to rocky streams in a variety of habitats. Prefers partly-shaded, shallow streams and riffles with a rocky substrate; requires at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis. Feeds on both aquatic and terrestrial invertebrates.	Unlikely. Stream habitat within the Study Area is intermittent, and does not provide suitable shaded riffle habitat to support breeding by this species.

APPENDIX C. SPECIAL-STATUS SPECIES ASSESSMENT TABLE

COMMON NAME	SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL TO OCCUR
California red-legged frog	<i>Rana draytonii</i>	Federal Threatened CDFW Species of Special Concern	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11 to 20 weeks of permanent water for larval development. Associated with quiet perennial to intermittent ponds, stream pools and wetlands. Prefers shorelines with extensive vegetation. Disperses through upland habitats after rains.	Unlikely. The nearest documented occurrences are over 6 miles from the Study Area, west of the Los Banos Reservoir and are associated with ponded habitat in oak woodland and grassland. Los Banos Creek in the vicinity of the Study Area is open and rocky, and lacks vegetative cover to support breeding or provide refugia for this species. The surrounding landscape is heavily disturbed through agricultural and quarry operations, further reducing potential for this species to occur within the Study Area.
western spadefoot	<i>Spea hammondi</i>	CDFW Species of Special Concern	Occurs primarily in grassland habitats, but can be found in valley-foothill hardwood woodlands. Shallow temporary pools formed by winter rains are essential for breeding and egg-laying.	Unlikely. While the Study Area contains grassland, the site is isolated from potential suitable habitat. The surrounding landscape is heavily disturbed through agricultural and quarry operations. As such, this species is unlikely to occur within the Study Area.

APPENDIX C. SPECIAL-STATUS SPECIES ASSESSMENT TABLE

COMMON NAME	SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL TO OCCUR
<i>Birds</i>				
tricolored blackbird	<i>Agelaius tricolor</i>	California Threatened CDFW Species of Special Concern	Nearly endemic to California, where it is most numerous in the Central Valley and vicinity. Highly colonial, nesting in dense aggregations over or near freshwater in emergent growth or riparian thickets. Also uses flooded agricultural fields. Abundant insect prey near breeding areas essential.	Unlikely. Riparian habitat and emergent vegetation is present adjacent to the northern extent of the Study Area. However, the emergent vegetation is dense and does not provide areas of open water to support foraging by this species. The nearest documented nesting colony is approximately 2 miles from the Study Area, by Los Banos Reservoir. This colony was most recently detected in 1999 (CDFW 20201). Given the lack of open water in the immediate vicinity or recent documented occurrences of nesting, this species is not likely to nest within or adjacent to the Study Area. However, tricolored blackbird may be observed wintering or foraging in nearby emergent vegetation or agricultural fields. As such, this species may occasionally fly though the Study Area.

APPENDIX C. SPECIAL-STATUS SPECIES ASSESSMENT TABLE				
COMMON NAME	SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL TO OCCUR
golden eagle	<i>Aquila chrysaetos</i>	CDFW Fully Protected	Occurs year-round in rolling foothills, mountain areas, sage-juniper flats, and deserts. Cliff-walled canyons provide nesting habitat in most parts of range; also nests in large trees, usually within otherwise open areas.	Unlikely. The Study Area does not contain open hills, cliffs, or other habitat typically used by this species for nesting.
burrowing owl	<i>Athene cunicularia</i>	CDFW Species of Special Concern	Year-round resident and winter visitor. Occurs in open, dry grasslands and scrub habitats with low-growing vegetation, perches and abundant mammal burrows. Preys upon insects and small vertebrates. Nests and roosts in old mammal burrows, most commonly those of ground squirrels.	Moderate Potential. Ground squirrel activity and burrow complexes were observed approximately 250 feet south of the Study Area. However, burrowing owls are not frequently observed in the vicinity. There are few documented occurrences within 5 miles (CDFW 2021, eBird 2021).
Swainson's hawk	<i>Buteo swainsoni</i>	California Threatened	Summer resident in California's Central Valley and limited portions of the southern California interior. Nests in tree groves and isolated trees in riparian and agricultural areas, including near buildings. Forages in grasslands and scrub habitats as well as agricultural fields, especially alfalfa. Preys on arthropods year-round as well as smaller vertebrates during the breeding season.	Moderate Potential. Swainson's hawk has been documented nesting in the vicinity (CDFW 2021). However, the surrounding landscape is heavily disturbed through quarry operations, and few suitable nest trees are present within ¼ mile of the Study Area which reduces potential for this species to occur.

APPENDIX C. SPECIAL-STATUS SPECIES ASSESSMENT TABLE

COMMON NAME	SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL TO OCCUR
northern harrier	<i>Circus hudsonius</i>	CDFW Species of Special Concern	Year-round resident and winter visitor. Found in open habitats including grasslands, prairies, marshes and agricultural areas. Nests on the ground in dense vegetation, typically near water or otherwise moist areas. Preys on small vertebrates.	Moderate Potential. There is not suitable densely vegetated, open habitat within the Study Area to support nesting by this species. However, open grassland is present within 500 feet of the southern portion of the Study Area.
yellow rail	<i>Coturnicops noveboracensis</i>	CDFW Species of Special Concern	Summer resident in eastern Sierra Nevada in Mono County, breeding in shallow freshwater marshes and wet meadows with dense vegetation. Also a rare winter visitor along the coast and other portions of the state. Extremely cryptic.	No Potential. The Study Area is outside of this species breeding range. This species has not been documented in the vicinity since 1911 (CDFW 2021).
loggerhead shrike	<i>Lanius ludovicianus</i>	CDFW Species of Special Concern	Year-round resident in open woodland, grassland, savannah and scrub. Prefers areas with sparse shrubs, trees, posts, and other suitable perches for foraging. Preys upon large insects and small vertebrates. Nests are well-concealed in densely-foliaged shrubs or trees.	Moderate Potential. The Study Area contains grassland and nearby shrubs that may support nesting and/or foraging.

APPENDIX C. SPECIAL-STATUS SPECIES ASSESSMENT TABLE				
COMMON NAME	SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL TO OCCUR
<i>Invertebrates</i>				
Conservancy fairy shrimp	<i>Branchinecta conservatio</i>	Federal Endangered	Endemic to the grasslands of the northern two-thirds of the Central Valley; found in large, turbid pools. Inhabit astatic pools located in swales formed by old, braided alluvium; filled by winter/spring rains, last until June.	Unlikely. The Study Area does not contain vernal pool habitat, and surrounding land is heavily disturbed through agricultural and quarry operations. The nearest documented occurrences are over 14 miles from the Study Area (CDFW 2021).
longhorn fairy shrimp	<i>Branchinecta longiantenna</i>	Federal Endangered	Endemic to the eastern margin of the central coast mountains in seasonally astatic grassland vernal pools. Inhabit small, clear-water depressions in sandstone and clear-to-turbid clay/grass-bottomed pools in shallow swales.	Unlikely. The Study Area does not contain vernal pool habitat, and surrounding land is heavily disturbed through agricultural and quarry operations. The Study Area is separated from the nearest known population (San Luis National Wildlife Refuge Complex) by dense development.

APPENDIX C. SPECIAL-STATUS SPECIES ASSESSMENT TABLE				
COMMON NAME	SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL TO OCCUR
vernal pool fairy shrimp	<i>Branchinecta lynchi</i>	Federal Threatened	Endemic to the grasslands of the Central Valley, central coast mountains, and south coast mountains, in astatic rain-filled pools. Inhabit small, clear-water sandstone-depression pools and grassed swale, earth slump, or basalt-flow depression pools.	Unlikely. The Study Area does not contain vernal pool habitat, and surrounding land is heavily disturbed through agricultural and quarry operations. The nearest documented occurrences are over 14 miles from the Study Area (CDFW 2021).
valley elderberry longhorn beetle	<i>Desmocerus californicus dimorphus</i>	Federal Threatened	Occurs only in the central valley of California, in association with blue elderberry (<i>Sambucus</i> spp.). Prefers to lay eggs in elderberry 2 to 8 inches in diameter; some preference shown for "stressed" elderberry.	No Potential. No elderberry was observed within the Study Area.
vernal pool tadpole shrimp	<i>Lepidurus packardii</i>	Federal Endangered	Inhabits vernal pools and swales in the Sacramento Valley containing clear to highly turbid water. Pools commonly found in grass bottomed swales of unplowed grasslands. Some pools are mud-bottomed and highly turbid.	Unlikely. The Study Area does not contain vernal pool habitat, and surrounding land is heavily disturbed through agricultural and quarry operations.

APPENDIX C. SPECIAL-STATUS SPECIES ASSESSMENT TABLE

COMMON NAME	SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL TO OCCUR
<i>Fish</i>				
Delta smelt	<i>Hypomesus transpacificus</i>	Federal Threatened State Endangered	Lives in the Sacramento-San Joaquin estuary in areas where salt and freshwater systems meet. Occurs seasonally in Suisun Bay, Carquinez Strait and San Pablo Bay. Seldom found at salinities > 10 ppt; most often at salinities < 2 ppt.	No Potential. The Study Area does not contain estuarine habitat.
steelhead - Central Valley DPS	<i>Oncorhynchus mykiss irideus</i> pop. 11	Federal Threatened	Includes all naturally spawned populations (and their progeny) in the Sacramento and San Joaquin Rivers and their tributaries, excluding San Francisco and San Pablo bays and their tributaries. Preferred spawning habitat is in cool to cold perennial streams with high dissolved oxygen levels and fast flowing water. Abundant riffle areas for spawning and deeper pools with sufficient riparian cover for rearing are necessary for successful breeding.	Unlikely. The stream within the Study Area is intermittent. Habitat in the hills upstream of the Study Area may have historically supported steelhead. However, the habitat is now inaccessible due to an impassible dam (Lindley et al. 2006). Steelhead are not known to occur in Los Banos Creek (U.C. Davis 2021).

APPENDIX C. SPECIAL-STATUS SPECIES ASSESSMENT TABLE				
COMMON NAME	SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL TO OCCUR
<i>Mammals</i>				
Nelson's antelope squirrel	<i>Ammospermophilus nelsoni</i>	California Threatened	Western San Joaquin Valley from 200 to 1200 feet elevation on dry, sparsely vegetated loam soils. Needs widely scattered shrubs, forbs, and grasses in broken terrain with gullies and washes. Digs burrows or uses kangaroo rat burrows for shelter.	Unlikely. The Study Area is in the historic range of this species. However, there are no recent documented occurrences in the vicinity (CDFW 2021). In addition, the Study Area does not contain scattered shrub habitat to support this species, and the surrounding landscape is heavily disturbed through agricultural and quarry operations, further reducing potential for this species to occur within the Study Area.
giant kangaroo rat	<i>Dipodomys ingens</i>	Federal Endangered California Endangered	Annual grasslands on the western side of the San Joaquin Valley, marginal habitat in alkali scrub. Need level terrain and sandy loam soils for burrowing.	Unlikely. The Study Area is at the northern extent of this species' historic range. However, there are no recent documented occurrences in the vicinity (CDFW 2021). In addition, the Study Area does not contain gently sloped annual grassland to support this species, and the surrounding landscape is heavily disturbed through agricultural and quarry operations, further reducing potential for this species to occur within the Study Area.

APPENDIX C. SPECIAL-STATUS SPECIES ASSESSMENT TABLE

COMMON NAME	SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL TO OCCUR
Fresno kangaroo rat	<i>Dipodomys nitratoide exilis</i>	Federal Endangered State Endangered	Alkali sink-open grassland habitats in western Fresno County. Bare alkaline clay-based soils subject to seasonal inundation, with more friable soil mounds around shrubs and grasses.	No Potential. The Study Area is outside of this species known current range.
western mastiff bat	<i>Eumops perotis californicus</i>	CDFW Species of Special Concern WBWG High Priority	Found in a wide variety of open, arid and semi-arid habitats. Distribution appears to be tied to large rock structures which provide suitable roosting sites, including cliff crevices and cracks in boulders.	Unlikely. The Study Area or adjacent land does not provide rocky outcrops, cliffs, or similar habitat for roosting by this species.
western red bat	<i>Lasiurus blossevillei</i>	CDFW Species of Special Concern WBWG High Priority	Highly migratory and typically solitary, roosting primarily in the foliage of trees or shrubs. Roosts are usually in broad-leaved trees including cottonwoods, sycamores, alders, and maples. Day roosts are commonly in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas.	Moderate Potential. This species may roost in riparian habitat within and adjacent to the Study Area.
Yuma myotis	<i>Myotis yumanensis</i>	WBWG Low-Medium Priority	Known for its ability to survive in urbanized environments. Also found in heavily forested settings. Day roosts in buildings, trees, mines, caves, bridges and rock crevices. Night roosts associated with man-made structures.	Unlikely. The Study Area does not contain forested habitat to support roosting by this species.

APPENDIX C. SPECIAL-STATUS SPECIES ASSESSMENT TABLE

COMMON NAME	SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL TO OCCUR
American badger	<i>Taxidea taxus</i>	CDFW Species of Special Concern	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Requires friable soils and open, uncultivated ground. Preys on burrowing rodents.	Unlikely. The Study Area contains grassland. However, this species typically requires large, contiguous habitat for this species. The surrounding landscape is heavily disturbed through agricultural and quarry operations, further reducing potential for this species to occur within the Study Area. No suitably sized burrows were observed during the site visit.
San Joaquin kit fox	<i>Vulpes macrotis mutica</i>	Federal Endangered California Threatened	Annual grasslands or grassy open stages with scattered shrubby vegetation. Need loose-textured sandy soils for burrowing, and suitable prey base.	Unlikely. This species has been documented in open habitat west of the Study Area. The Study Area is within this species dispersal range. However, land within and adjacent to the Study Area is disturbed through quarry operations and agricultural practices. The Study Area does not provide open annual grassland habitat suitable for San Joaquin kit fox.
Reptiles				
Northern California legless lizard	<i>Anniella pulchra</i>	CDFW Species of Special Concern	Fossorial species, inhabiting sandy or loose loamy soils under relatively sparse vegetation. Suitable habitat includes dunes, stream terraces, and scrub and chaparral. Adequate soil moisture is essential.	Unlikely. The Study Area does not contain loose or sandy soils to support this species.

APPENDIX C. SPECIAL-STATUS SPECIES ASSESSMENT TABLE				
COMMON NAME	SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL TO OCCUR
western pond turtle	<i>Emys marmorata</i>	CDFW Species of Special Concern	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches with aquatic vegetation. Require basking sites such as partially submerged logs, vegetation mats, or open mud banks, and suitable upland habitat (sandy banks or grassy open fields) for egg-laying.	Unlikely. Aquatic habitat within the Study Area is intermittent and does not provide aquatic vegetation, sandy banks, or other habitat components.
blunt-nosed leopard lizard	<i>Gambelia sila</i>	Federal Endangered California Endangered CDFW Fully Protected	Resident of sparsely vegetated alkali and desert scrub habitats, in areas of low topographic relief. Seeks cover in mammal burrows, under shrubs or structures such as fence posts; they do not excavate their own burrows.	Unlikely. This species is documented in the hills west of the Study Area. However, the Study Area does not contain typical desert scrub habitat. The surrounding landscape is heavily disturbed through agricultural and quarry operations, further reducing potential for this species to occur within the Study Area.
San Joaquin coachwhip	<i>Masticophis flagellum ruddocki</i>	CDFW Species of Special Concern	Found in valley grassland and saltbush scrub in the San Joaquin Valley in open, dry habitats with little or no tree cover. Requires mammal burrows for refuge and breeding sites.	Unlikely. This species is documented in the hills west of the Study Area. However, the Study Area does not contain typical open grassland or scrub habitat. The surrounding landscape is heavily disturbed through agricultural and quarry operations, further reducing potential for this species to occur within the Study Area.

APPENDIX C. SPECIAL-STATUS SPECIES ASSESSMENT TABLE				
COMMON NAME	SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL TO OCCUR
giant gartersnake	<i>Thamnophis gigas</i>	Federal Threatened California Threatened	Prefers freshwater marsh and low gradient streams. Has adapted to drainage canals and irrigation ditches. This is the most aquatic of the garter snakes in California.	Unlikely. The Study Area does not contain freshwater marsh, drainage canals, or similar habitat to support this species. Aquatic habitat within the Study Area is an intermittent, rocky stream with little to no vegetative cover. Suitable habitat is not present within 5 miles of the Study Area.

APPENDIX D – SITE PHOTOGRAPHS

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Photograph 1. Photograph of the intermittent stream (Los Banos Creek) channel in the southern portion of the Study Area, on the north side of the road crossing. View facing east-northeast. Photograph taken July 16, 2021.



Photograph 2. Photograph depicting the ruderal land cover type and the intermittent stream (Los Banos Creek) in the southern portion of the Study Area, on the north side of the road crossing. View facing northeast. Photograph taken July 16, 2021.



Photograph 3. Photograph of the existing road crossing the intermittent stream (Los Banos Creek) channel in the southern portion of the Study Area. View facing southwest. Photograph taken July 16, 2021.



Photograph 4. Photograph depicting the intermittent stream (Los Banos Creek) in the northern portion of the Study Area, east of the road crossing. Image shows tamarisk growing within the channel. View facing east. Photograph taken July 16, 2021.



Photograph 5. Photograph of the existing road crossing the intermittent stream (Los Banos Creek) in the northern portion of the Study Area. View facing southeast. Photograph taken July 16, 2021.



Photograph 6. Photograph depicting the levee on the north side of the intermittent stream channel (Los Banos Creek) in the northern portion of the Study Area. The levee is included within the ruderal/developed land cover type. Riparian vegetation is visible in the right side of the image. Photograph taken July 16, 2021.



Photograph 7. Photograph of the intermittent stream channel (Los Banos Creek) in the northern portion of the Study Area, west of the road crossing. The image depicts tamarisk and mulefat growing in the channel. Photograph taken July 16, 2021.



Photograph 8. Photograph depicting evidence of ponding in the intermittent stream (Los Banos Creek) channel. Photograph taken July 16, 2021.



Photograph 9. Photograph of herbaceous vegetation and adjacent riparian vegetation within the active quarry settling basin on the north side of the intermittent stream (Los Banos Creek) in the vicinity of the northern portion of the Study Area. The settling basin has no hydrologic connection to the intermittent stream. View facing north. Photograph taken July 16, 2021.



Photograph 10. Photograph of riparian vegetation that borders the active quarry settling basin in the vicinity of the northern portion of the Study Area. The intermittent stream (Los Banos Creek) channel is visible in the right side of the image. Photograph taken on July 16, 2021.

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APPENDIX E – REVEGETATION SEED MIX

Los Banos Creek Culvert Project Preliminary Streambank Seed Mix		
Botanical Name	Common Name	Pure Live Seed (PLS) Lb. / Acre
<i>Bromus carinatus</i>	California Brome	8.0
<i>Asclepias fascicularis</i> *	Milkweed	0.1
<i>Croton setiger</i> *	Turkey-mullein	0.5
<i>Elymus glaucus</i>	Blue Wildrye	6.0
<i>Eriogonum fasciculatum</i> *	California Buckwheat	0.5
<i>Eriogonum nudum</i>	Naked Buckwheat	0.5
<i>Eschscholzia californica</i>	California Poppy	1.0
<i>Festuca microstachys</i>	Small Fescue	6.0
<i>Grindelia camporum</i> *	Gumplant	1.0
<i>Helianthus annuus</i> *	Hairy Leaved Sunflower	1.0
<i>Hordeum brachyantherum</i>	Meadow Barley	5.5
<i>Lupinus succulentus</i>	Arroyo Lupine	2.0
<i>Stipa pulchra</i>	Purple Needle Grass	4.0
<i>Trifolium willdenovii</i>	Tomcat Clover	4.0
		40.1
* Indicates species observed on site		

Appendix C: Cultural Resources Information

San Luis Water District

Triangle Rock Culverts Project

Cultural Resources Information

Central California Information Center, CSU Stanislaus, California Historical Resources Information System: Record Search 122211, dated June 28, 2022.

- There are no formally recorded prehistoric or historic archaeological resources or historic buildings or structures within the project area.
- The General Land Office Survey Plat for T10S R10E (dated 1855) does not show any historic features within Section 32.
- The General Land Office Survey Plat for T11S R10E (dated 1855) shows Section 5 divided into parcels of various acreages; no historical features referenced.
- The 1921 edition of the Volta USGS map shows a road in Section 32, T10S R10E.
- The 1947 edition of the Volta USGS maps shows the gravel pit and additional roads in Section 32, T10S R10E.
- **Prehistoric or historic resources within the immediate vicinity of the project area:** Prehistoric archaeological resources including Native American occupation remains have been reported found in the immediate vicinity of the project area.
- **Resources that are known to have value to local cultural groups:** None has been formally reported to the Information Center.
- **Previous investigations within the project area:** None has been formally reported to the Information Center.

AB 52 Consultation pursuant to Public Resource Code Section 21080.3.1

- The Lead Agency has not received a letter from a tribe.
- No correspondence has been received by San Luis Water District pursuant to the Tribal Consultation Notification Request Letter.

CHRIS – Record Search Results



CENTRAL CALIFORNIA INFORMATION CENTER

California Historical Resources Information System

Department of Anthropology – California State University, Stanislaus

One University Circle, Turlock, California 95382

(209) 667-3307

Alpine, Calaveras, Mariposa, Merced, San Joaquin, Stanislaus & Tuolumne Counties

Date: 6/28/2022

Records Search File #: 12221I

**Project: San Luis Water District Triangle
Rock Culverts Project; APN 083-210-022
& 088-070-002**

Jackie Lancaster, Project Administrator
Provost & Pritchard
400 E. Main Street, Ste. 400
Visalia, CA 93921
559-636-1166

Billing Address: 455 W. Fir Ave.
Clovis, CA 93611

Dear Ms. Lancaster:

We have conducted a non-confidential extended records search as per your request for the above-referenced project area located on the Volta USGS 7.5-minute quadrangle map in County.

Search of our files includes review of our maps for the specific project area and the immediate vicinity of the project area, and review of the following:

National Register of Historic Places (NRHP)
California Register of Historical Resources (CRHR)
California Inventory of Historic Resources (1976)
California Historical Landmarks
California Points of Historical Interest listing
Office of Historic Preservation Built Environment Resource Directory (BERD) and the
Archaeological Determinations of Eligibility (ADOE)
Survey of Surveys (1989)
Caltrans State and Local Bridges Inventory
General Land Office Plats
Other pertinent historic data available at the CCalIC for each specific county

The following details the results of the records search:

Prehistoric or historic resources within the project area:

- There are no formally recorded prehistoric or historic archaeological resources or historic buildings or structures within the project area.
- The General Land Office Survey Plat for T10S R10E (dated 1855) does not show any historic features within Section 32.

- The General Land Office Survey Plat for T11S R10E (dated 1855) shows Section 5 divided into parcels of various acreages; no historical features referenced.
- The 1921 edition of the Volta USGS map shows a road in Section 32, T10S R10E.
- The 1947 edition of the Volta USGS maps shows the gravel pit and additional roads in Section 32, T10S R10E.

Prehistoric or historic resources within the immediate vicinity of the project area:

Prehistoric archaeological resources including Native American occupation remains have been reported found in the immediate vicinity of the project area.

Resources that are known to have value to local cultural groups: None has been formally reported to the Information Center.

Previous investigations within the project area: None has been formally reported to the Information Center.

Recommendations/Comments:

Please be advised that a historical resource is defined as a building, structure, object, prehistoric or historic archaeological site, or district possessing physical evidence of human activities over 45 years old. Since the project area has not been subject to previous investigations and there are known prehistoric resources nearby, there may be unidentified features involved in your project that are 45 years or older and considered as historical resources requiring further study and evaluation by a qualified professional of the appropriate discipline.

If ground disturbance is considered a part of the current project, we recommend further review for the possibility of identifying prehistoric or historic-era archaeological resources.

If the proposed project contains buildings or structures that meet the minimum age requirement (45 years in age or older) it is recommended that the resource/s be assessed by a professional familiar with architecture and history of the county. Review of the available historic building/structure data has included only those sources listed above and should not be considered comprehensive.

If at any time you might require the services of a qualified professional the Statewide Referral List for Historical Resources Consultants is posted for your use on the internet at <http://chrisinfo.org>

If archaeological resources are encountered during project-related activities, work should be temporarily halted in the vicinity of the discovered materials and workers should avoid altering the materials and their context until a qualified professional archaeologist has evaluated the

situation and provided appropriate recommendations. Project personnel should not collect cultural resources.

If human remains are discovered, California Health and Safety Code Section 7050.5 requires you to protect the discovery and notify the county coroner, who will determine if the find is Native American. If the remains are recognized as Native American, the coroner shall then notify the Native American Heritage Commission (NAHC). California Public Resources Code Section 5097.98 authorizes the NAHC to appoint a Most Likely Descendant (MLD) who will make recommendations for the treatment of the discovery.

Due to processing delays and other factors, not all of the historical resource reports and resource records that have been submitted to the State Office of Historic Preservation are available via this records search. Additional information may be available through the federal, state, and local agencies that produced or paid for historical resource management work in the search area. Additionally, Native American tribes have historical resource information not in the CHRIS Inventory, and you should contact the California Native American Heritage Commission for information on local/regional tribal contacts.

The California Office of Historic Preservation (OHP) contracts with the California Historical Resources Information System's (CHRIS) regional Information Centers (ICs) to maintain information in the CHRIS inventory and make it available to local, state, and federal agencies, cultural resource professionals, Native American tribes, researchers, and the public. Recommendations made by IC coordinators or their staff regarding the interpretation and application of this information are advisory only. Such recommendations do not necessarily represent the evaluation or opinion of the State Historic Preservation Officer in carrying out the OHP's regulatory authority under federal and state law.

We thank you for contacting this office regarding historical resource preservation. Please let us know when we can be of further service. Thank you for sending the signed **Access Agreement Short Form**.

Note: Billing will be transmitted separately via email from the Financial Services office (\$150.00), payable within 60 days of receipt of the invoice.

If you wish to include payment by Credit Card, you must wait to receive the official invoice from Financial Services so that you can reference the CMP # (Invoice Number), and then contact the link below:

<https://commerce.cashnet.com/ANTHROPOLOGY>

Sincerely,

E. A. Greathouse

E. A. Greathouse, Coordinator
Central California Information Center
California Historical Resources Information System

* Invoice Request sent to: ARBilling@csustan.edu, CSU Stanislaus Financial Services

Appendix D: Los Banos Creek Culverts Project Hydraulic Modeling Memo

MEMORANDUM

To: Terry Marshall, Triangle Rock Products
Adam Guernsey, Harrison, Temblador,
Hungerford & Guernsey

From: Andrew Smith, PE
Bridgette Medeghini, EIT

Date: March 8, 2022

Subject: Los Banos Creek Culvert Project Hydraulic Modeling

Purpose and Scope

This hydraulic analysis has been performed by WRA to understand the hydraulic performance of two proposed crossings of Los Banos Creek to be used for quarry hauling operations by Triangle Rock Products (Triangle).

The Triangle Rock Products Los Banos facility currently uses and maintains two dry creek crossings across Los Banos Creek. The creek crossings can only be used when the creek is dry. Periodic water releases from Los Banos Creek Detention Dam close the creek crossings and cut off vehicle access between mining sites and the processing facility when the creek crossings are inundated by creek flow. The San Joaquin River Exchange Contractors Water Authority (Water Authority) plans increased dam water releases as part of the Los Banos Creek Diversion Project. Triangle Rock Products anticipates additional business interruption from the Los Banos Creek Diversion Project from additional frequency and volume of water releases. The proposed project will install culverts at each of the two road crossing locations to divert flow under the improved access roads to facilitate year-round vehicle use of the creek crossings. Each proposed crossing has several cylindrical culverts installed within a granular material matrix to convey creek flows.

The project location is approximately 3.5 miles southwest of the City of Los Banos where the Delta-Mendota Canal (DMC) and Los Banos Creek (Creek) intersect. The hydraulic analysis examined the proposed culvert design conditions. The southern crossing is located approximately 3,400 feet southwest of the DMC. The northern crossing is 870 feet northwest of the DMC.

The model domain extend along a 1.8-mile-long section of Los Banos creek with a bottom channel width ranging from 20 to 80 feet and an average channel depth of 13 feet. The channel depth is lower near the two proposed creek crossings. This section of Los Banos Creek conveys flows northeast toward the City of Los Banos and has existing culverts that cross under the DMC. This section of the Creek has a flow regime dictated by releases from Los Banos Creek Reservoir 2.8 miles upstream of the project. The Los Banos Creek Detention Reservoir was built by the US Bureau of Reclamation to protect the DMC and San Luis Canal and the City of Los Banos from flooding. There is a pump station along the side of the creek that

diverts water from the creek into the DMC that was recently installed as part of the US Bureau of Reclamation Los Banos Creek Diversion Project to divert flood flow releases into the DMC.

The culverts will need to properly convey surface water without impacting existing infrastructure (DMC) and/or modifying flow characteristics upstream or downstream of the proposed project. The modeling generates values of project water surface elevations along the creek alignment and compares those elevations to the top of bank elevations.

Methods and Assumptions

WRA reviewed the background information provided by the client of existing and proposed site conditions, including three topography data sets. WRA created a one-dimensional (1D) model of Los Banos Creek using USACE HEC-RAS version 6.1.0 (Figure 1) in order to generate water surface elevation values. The model was set up with cross sections occurring approximately every 400 feet along Los Banos Creek and approximately every 50 feet near the two proposed culverts. The model uses lateral structures for areas with low top of bank elevations to quantify surface water leaving Los Banos Creek.

The topography for the model combined three data sets previously prepared for Triangle. The topography for the surrounding area is from an aerial survey in 2007 produced by Digital Mapping, Inc. The topography in the north region is from an aerial survey in 2016. The topography in the south region is from a drone survey in 2021. The Central Valley is known to have issues related to subsidence. This analysis assumes there is no subsidence from the first topographic survey in 2007 to the latest topographic survey in 2021. A digital model of the grading plan with culvert sizing and depths was also provided by Triangle and combined with the surrounding topography.

There are two model boundary conditions, allowing discharge to enter and exit the model domain. The downstream boundary is located approximately 2300 feet northeast (downstream) of the north crossing and approximates flow leaving the model using the Manning's equation with a slope of 0.00625 feet per foot (ft/ft) based on the local topography of the channel and floodplain (Brunner, 2016). The upstream boundary condition is located approximately 2500 feet southwest (upstream) of the southern crossing and uses a flow rate provided by the Water Authority with an energy gradient of 0.0025 ft/ft for distributing the flows along the boundary condition line (White, 2021).

The design parameters for the proposed culverts were provided by Triangle and are summarized in Table 1 along with the observed parameters of the DMC. Additional parameters are provided as an attachment to this memorandum.

Table 1 Culvert Parameters

Culvert Crossing	Upstream Invert Elevation (ft NAVD88)	Downstream Invert Elevation (ft NAVD88)	Length (ft)	Shape	Width (ft)	Height (ft)	Material
DMC	165.6 ¹	165.5 ¹	75 ¹	Arch Pipe	9.8 ¹	6.8 ¹	Corrugated Metal
Northern Crossing	156.1	155.8	86 ²	Circle	N/A	8	Corrugated Metal
Southern Crossing	175.4	174.5	124 ²	Circle	N/A	8	Corrugated Metal

¹Parameters are approximate and were estimated from the topographic data provided

²Culvert length in the model uses the longest dimension presented in the Triangle design.

The flow regime for this section of Los Banos Creek is determined by flows released from the Los Banos Creek Reservoir and creek diversions into the DMC. There is no stream gauge on the creek, so historical flow data was not available. A document provided by Triangle titled “Los Banos Detention Reservoir Flood Control Diagram” effective 19 May 1985, indicates that the reservoir has the following release schedule:

- Schedule 1: 200 cfs
- Schedule 2: 450 cfs
- Schedule 3: 1,000 cfs
- When flow over the spillway occurs, the outlet works shall be closed as required to maintain flows at or below 1,000 cfs for as long as possible.
- No releases are also possible.

According to communications between the Water Authority and Triangle, typical releases are around 200 cfs with 450 cfs releases being highly unlikely and 1,000 cfs releases extremely rare. Engineers from the Water Authority recommend that the design flow used in this analysis for the southern crossing should be 450 cfs and that the flow rate for the northern crossing should be 150 cfs (White, 2021). The 150 cfs flow for the northern (downstream) crossing may be due to the DMC diversions. The diversion pump station has an estimated design pumping capacity of 250 cfs (Bureau of Reclamation, 2014).

The flows released from the dam would likely be detained to some degree upstream of the project by the culvert crossing Highway I-5, another culvert crossing the California Aqueduct, and one more culvert for a road crossing. Modeling these crossings is beyond the scope of this analysis.

The Manning’s n roughness value in the channel was modeled as 0.03 assuming clean, strait, full stage channel flow (Chow, 1959). Manning’s roughness value of 0.024 was assumed for the proposed corrugated metal culverts (Brunner, 2016).

Results

The profile of project conditions with existing water surface elevations is shown in Figure 2. The section views of the southern crossing, DMC, and the northern crossing, with water levels for the design flow conditions, are displayed in Figure 3, Figure 4, and Figure 5.

The proposed Los Banos Creek Culvert Project will raise the elevations of the top of bank at each crossing. The results for the modeled proposed conditions (Figure 2) show creek water surface elevations below the new top of banks as well as below the top of the culverts. The project condition modeling results show

that water levels in the creek have backwater effects that will raise creek levels behind the proposed northern crossing and the southern crossing culverts. These backwater effects end approximately 800 feet upstream from both crossings. Backwater effects from the proposed northern crossing back water up to the DMC, however they are not high enough in this scenario to impact water surface elevations in the DMC culverts.

It is possible that at other creek flows, including when the pumped diversion to the DMC is off and flows are the same at both crossings, that overtopping may occur. Future modeling studies can include other flow or grading scenarios if requested.

Limitations

The models developed for this study are focused on specified design flows rather than a full range of recurrence interval peak flows or hydrographs. The range of operational scenarios for the creek diversion to the DMC was not taken into account. The scope and emphasis of the modeling evaluate the conditions for the proposed project within the study area. It is important to acknowledge that as for any numerical model, there is uncertainty, estimations, and imprecision in the assumptions, inputs, and results. The scope of this analysis was limited to the physical hydraulics and present-day and proposed creek topography dated 2007, 2016 and 2021 from Triangle using hydrologic data from the Water Authority.

References

- Brunner, G. W. (2016). *HEC-RAS River Analysis System User's Manual*. Davis: US Army Corps of Engineers.
- Bureau of Reclamation. (2014). *Los Banos Creek Diversion Project FONSI-12-060, Draft Finding of No Significant Impact*. Los Banos: US Department of the Interior Bureau of Reclamation.
- Chow, V. (1959). *Open-channel hydraulics*. New York: McGraw-Hill.
- White, C. (2021, August 5). Communication to Terry Marshall (Triangle) via Email: Los Bano Creek Flow Data. California: San Joaquin River Exchange Contractors Water Authority.

Figures

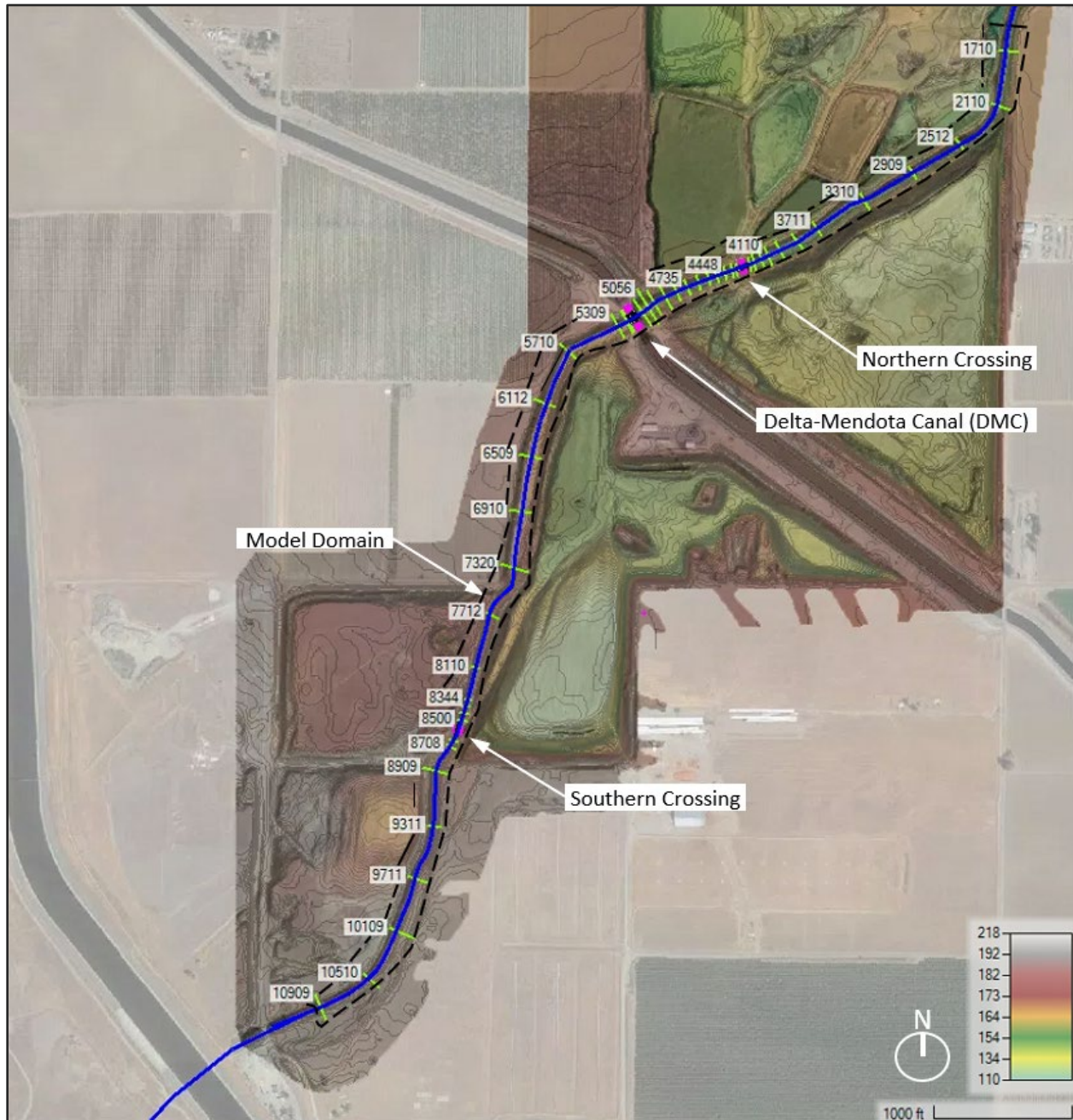
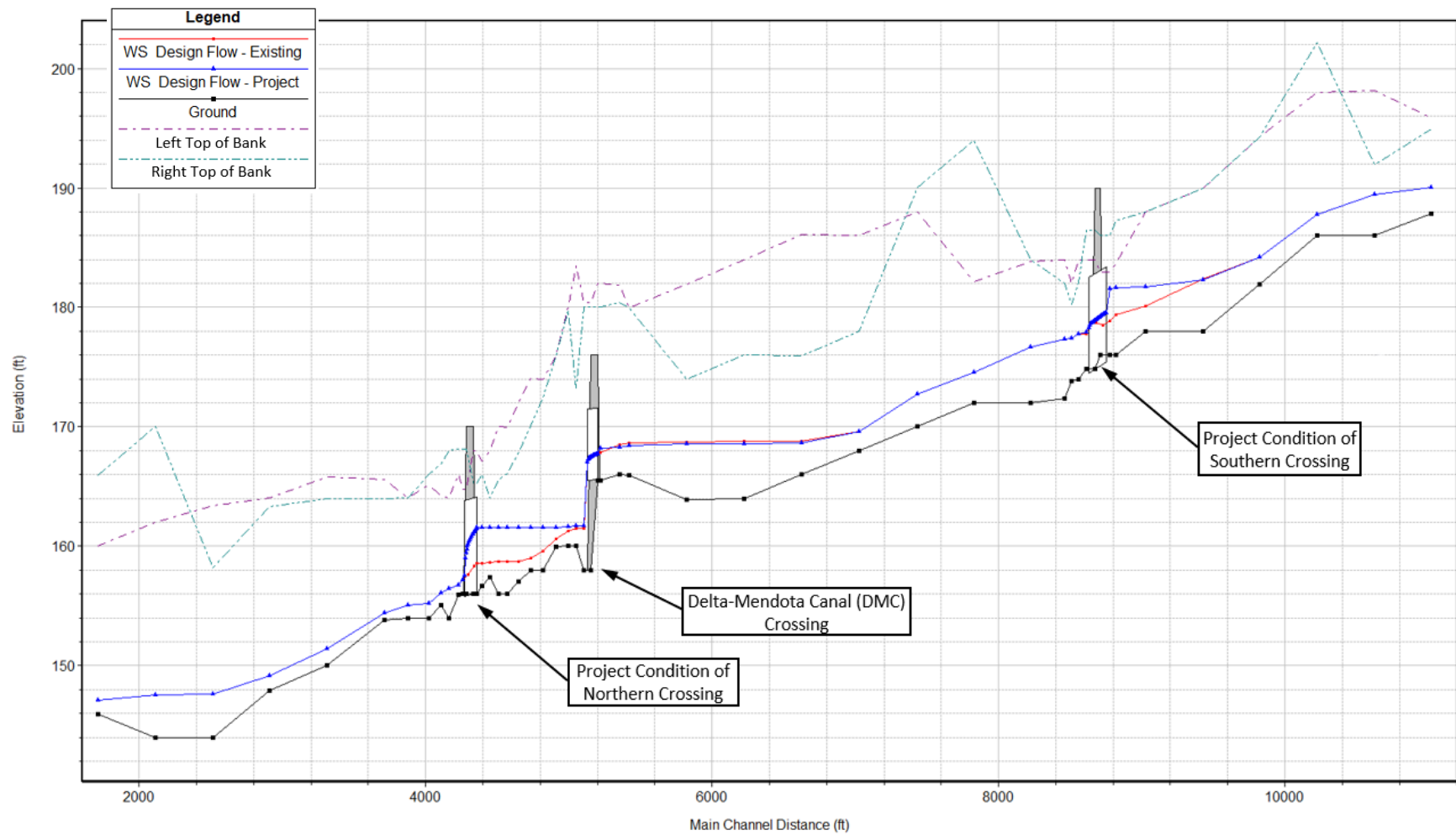


Figure 1. HEC-RAS Model Domain, Cross Sections, and Culvert Locations



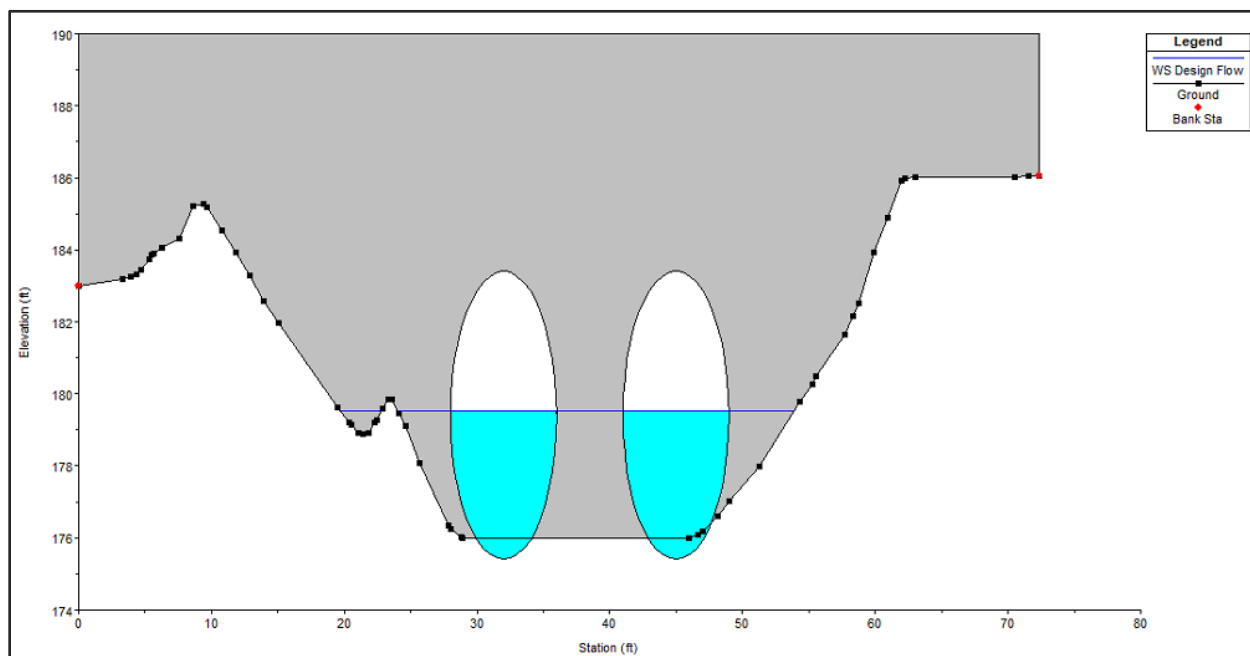


Figure 3. Section View of Southern Crossing and Modeled Water Level at 450 cfs (facing downstream)

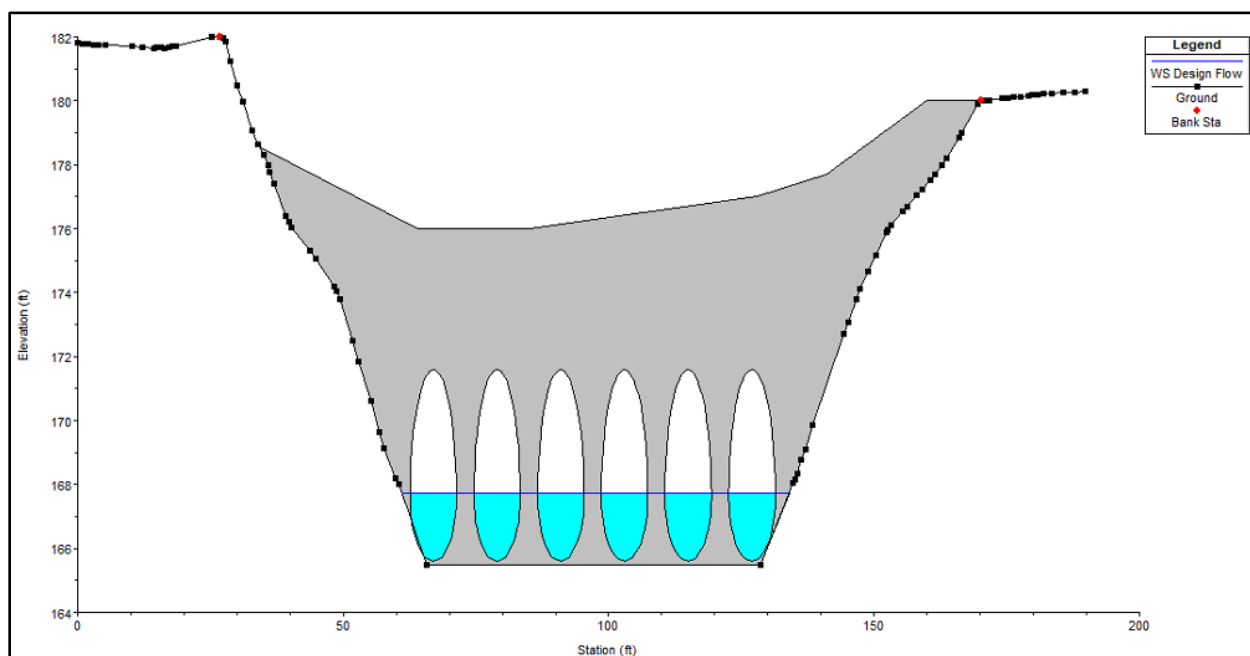


Figure 4. Section View of Delta-Mendota Canal Crossing (facing downstream)

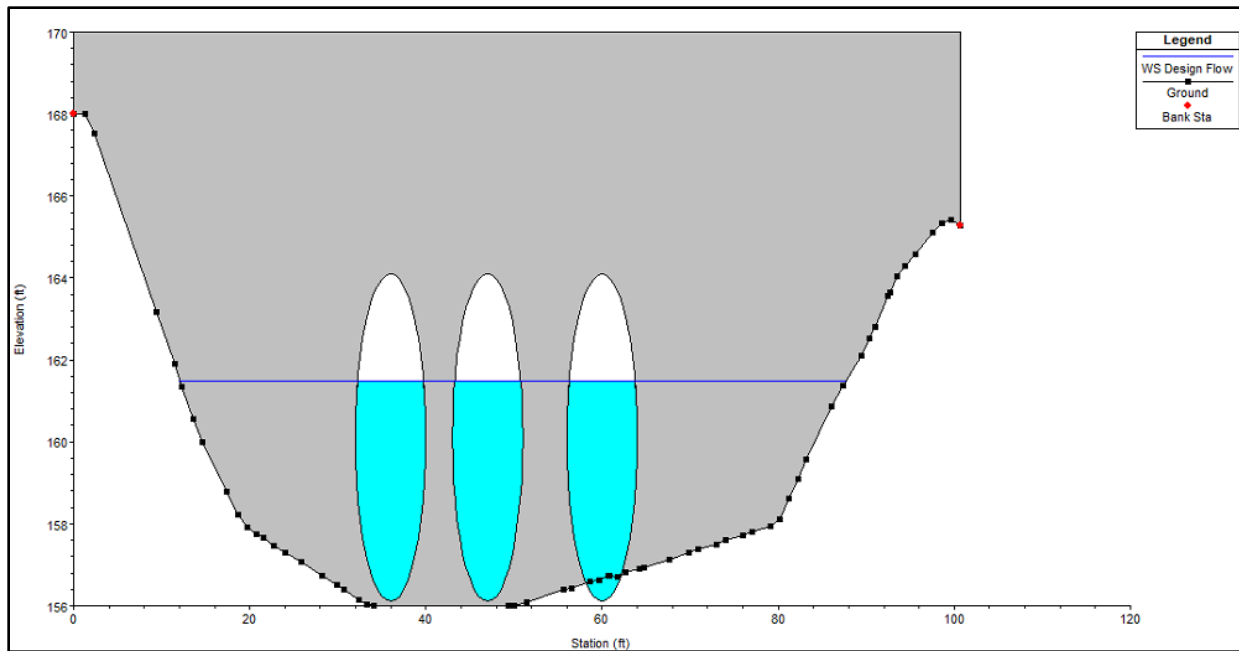


Figure 5. Section View of Northern Crossing and Modeled Water Level at 150 cfs (facing downstream)