SOUTH SAN JOAQUIN IRRIGATION DISTRICT

LATERAL QQC REGULATING BASIN PROJECT

DRAFT INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

DECEMBER 2023

SCH NO.

PREPARED FOR:

South San Joaquin Irrigation District
11011 E. Highway 120
Manteca, CA 95336

PREPARED BY:

Provost & Pritchard Consulting Group

EST. 1968
PROVOST& PRITCHARD
CONSULTING GROUP

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ACRONYMS AND ABBREVIATIONS

AB ..... Assembly Bill
APE ..... Area of Potential Effect
BMP ..... Best Management Practices
CalEEMod ..... California Emissions Estimator Modeling (software)
CARB ..... California Air Resources Board
CAA ..... Clean Air Act
CCAA ..... California Clean Air Act
CCIC ..... Central Valley Information Center
CDFW ..... California Fish and Wildlife
CEQA ..... California Environmental Quality Act
CH_4 ..... Methane
CHRIS ..... California Historical Resources Information System
CNDDB ..... California Natural Diversity Database
CNPS ..... California Native Plant Society
CO ..... Carbone Monoxide
CO_2 ..... Carbon dioxide
County ..... San Joaquin County
CRHR ..... California Register of Historical Resources
dBA ..... A-weighted decibels
District ..... South San Joaquin Irrigation District
DOC ..... Department of Conservation
DTSC ..... Department of Toxic Substances Control
ECOS ..... (USFWS) Environmental Conservation Online System
EIR ..... Environmental Impact Report
FEMA ..... Federal Emergency Management Agency
FMMP ..... Farmland Mapping and Monitoring Program
HUC ..... Hydrologic Unit Code
HDPE ..... High Density Polyethylene
GHG ..... Greenhouse Gas
GSA ..... Groundwater Sustainability Agency
GWP ..... Global Warming Potential

Interstate 5 ..... I-5
IPaC ..... U.S. Fish and Wildlife Service's Information for Planning and Consultation system
IS ..... Initial Study
IS/MND ..... Initial Study/Mitigated Negative Declaration
MBTA ..... Migratory Bird Act
MDC ..... Main Distribution Canal
MMRP ..... Mitigation Monitoring and Reporting Program
MND ..... Mitigated Negative Declaration
MRZ ..... Mineral Resource Zones
NAHC ..... Native American Heritage Commission
ND ..... Negative Declaration
NO_2 ..... Nitrogen Dioxide
NOx ..... Nitrogen Oxides
NRCS ..... Natural Resources Conservation Service
NRHP ..... National Register of Historic Places
O_3 ..... Ozone
Pb ..... Lead
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 ..... South San Joaquin Irrigation District Lateral QQc Regulating Basin Project
Ratio ..... Demand-Capacity Service Ratio
ROG ..... Reactive Organic Gases
RWQCB ..... Regional Water Quality Control Board
SIP ..... State Implementation Plan
SJVAB ..... San Joaquin Valley Air Basin
SJVAPCD ..... San Joaquin Valley Air Pollution Control District
SO_2 ..... Sulfur Dioxide
SRA ..... State Responsibility Area
SSJID ..... South San Joaquin Irrigation District
SWPPP ..... Storm Water Pollution Prevention Plan
SWRCB ..... State Water Resources Control Board

TPY .....tons per year

USACE ..... United States Army Corps of Engineers

USC .....United States Code

USGS .....United States Geological Survey

USEPA ..... United States Environmental Protection Agency

USFWS .....United States Fish and Wildlife Service

UST .....Underground Storage Tank

µg/m3 .....micrograms per cubic meter

CHAPTER 1 INTRODUCTION

Provost & Pritchard Consulting Group (Provost & Pritchard) has prepared this Initial Study/Mitigated Negative Declaration (IS/MND) on behalf of the South San Joaquin Irrigation District (SSJID *or* District) to address the potential environmental effects of the Lateral QQc Regulating Basin 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. An 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. 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 Evaluation, and Phase I Pedestrian Survey, are provided as technical Appendix A, Appendix B, and Appendix C, respectively, at the end of this document.

CHAPTER 2 PROJECT DESCRIPTION

2.1 PROJECT BACKGROUND

2.1.1 Project Title

Lateral QQc Regulating Basin Project

2.1.2 Lead Agency Name and Address

South San Joaquin Irrigation District
11011 E. Highway 120
Manteca, CA 95336

2.1.3 Contact Person and Phone Number

Lead Agency Contact

Forrest Killingsworth
Engineering Department Manager
(209) 249-4600

CEQA Consultant

Provost & Pritchard Consulting Group
Briza Sholars, Environmental Project Manager
(559) 449-2700

2.1.4 Project Location

The Project is located in San Joaquin County, approximately 4.3 miles east of Manteca and 2.3 miles northeast of Ripon (see Figure 2-1 and Figure 2-2). The Project site is located on Assessor's Parcel Numbers 245-060-250 and 245-060-430. The centroid of the Project site is 37° 47' 22.77" N, 121° 06' 14.20" W. The area of potential effect (APE) is approximately 23 acres.

2.1.5 General Plan Designation and Zoning

Project Area	General Plan Designation	Zoning District
ONSITE	Agriculture/General Open Space/Resource Conservation	AG-40 – General Agriculture (40-acre minimum)

2.1.6 Description of Project

Project Background and Purpose

The District has recently completed a District-Wide Capacity Analysis Study as part of its Water Master Plan process to clearly identify existing irrigation service demand, capacity, and to assist in the understanding of

the cost, benefit, and priority of potential capacity enhancing improvements. One of the highest-priority projects identified in this process was the construction of a strategically placed regulating basin at the District's Lateral Q and Lateral Qc junction.

Lateral Q, which originates from the District's Main Distribution Canal (MDC), is one of two primary service laterals responsible for serving the northwest quadrant of the District. Lateral Q currently serves over 7,000 acres and is extremely overburdened. Currently the Upper Lateral Q has a Demand-Capacity Service ratio (Service Ratio)[1] of 0.94 and Lower Lateral Q has a Ratio of 1.08. Based on SSJID's analysis, any service area with a Ratio of 0.7 or higher is considered to be troubled and intervention is recommended.

Lateral Qc is a sublateral originating from the Lateral K system, which is a primary service lateral that diverts water directly from the MDC at Santa Fe Road, south of Escalon, providing services to more than 3,000 acres. The current Ratio for the Lateral K sublateral is 1.00, causing availability and flexibility of service to be very poor.

Project Description

The Project proposes to construct a regulating basin, a concrete flow control structure for Lateral Q, and a basin inlet pipe from Lateral Qc connected to a combined gravity and pumped concrete outlet structure and connection box. Project construction components are described in detail below:

- The proposed regulating basin would be approximately 18.8 acres with an operational volume of 52-acre feet. The basin would either be lined with high density polyethylene (HDPE) or clay. There would also be a three (3)-foot canal liner raise for Lateral Q upstream of the proposed basin for +/- 1,100 linear feet to the existing check structure.
- The Lateral Q concrete outlet flow control structure would be capable of passing 150 cubic feet per second (CFS) maximum. It would include three (3) Rubicon SMB 1050-3000-C Slip Meters.
- The Lateral Qc combined gravity and pumped concrete outlet structure and connection box would be capable of passing 25 CFS. It would consist of an approximately 42-inch Rubber-Gasketed Reinforced Concrete Pipe (RGRCP), one (1) Rubicon SMB 1050-2400-C Slip Meter, and would include pump, 24-inch PVC pipe, and miscellaneous fittings, meters, appurtenances, etc.

All excavation material would be balanced on-site. No spoils would be exported from the Project site.
In order to power the pump, gate actuators and control systems for the SCADA, a new power connection would be required. The nearest power line follows the east side of Murphy Road, and a potential drop is near the existing control box just north of Ripon Fire Station 52.

Construction Schedule

Construction is anticipated to start in summer 2025 and end in February 2026, lasting approximately nine to ten months.

Equipment

Construction may include earthwork scrapers, excavators, bulldozers, concrete trucks, and water trucks.

[1] The Demand-Capacity Service Ratio is defined as the theoretical water demand of a Designated Service Area (DSA) divided by the theoretical capacity of the facility that serves the DSA over a given period.

Operation and Maintenance

The operation and maintenance of the Project would be consistent with that of the District's other similar facilities and with what presently takes place at the site. Lateral Q, which crosses the Project site, has been maintained by the District by consistent cleaning of debris and sediment.

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 Site	Existing Use	General Plan Designation	Zone District
NORTH	Agriculture	Agriculture/General	AG-40 – General Agriculture, 40-acre minimum
EAST	Fire station/Agriculture	Agriculture/General	AG-40 – General Agriculture, 40-acre minimum
SOUTH	Agriculture	Agriculture/General	AG-40 – General Agriculture, 40-acre minimum
WEST	Agriculture	Agriculture/General	AG-40 – General Agriculture, 40-acre minimum

2.1.8 Other Public Agencies Whose Approval May Be Required

- Regional Water Quality Control Board
- State Water Resources Control Board
- California Department of Fish and Wildlife

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 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 will be made.

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

2.1.10 "CEQA–Plus" Assessment

The District is applying to the United States Bureau of Reclamation for financial assistance to implement the Project through the WaterSMART Drought Response Program: Drought Resiliency Projects Grant (R24AS00007). Reclamation's Drought Response Program supports a proactive approach to drought by providing assistance to water managers to: develop and update comprehensive drought plans and implement projects that will build long-term resiliency to drought.

In addition to meeting the requirements of CEQA, and because the financial assistance could come from the Federal government (Reclamation, in this case), the Project could be subject to "federal cross-cutting authority" requirements of other federal laws and Executive Orders that apply in federal financial assistance programs, such as, in this case, the WaterSMART Drought Response Program. (This process is frequently referred to as "CEQA-Plus".) Therefore, the District may also complete certain studies and analyses to satisfy various federal environmental requirements.

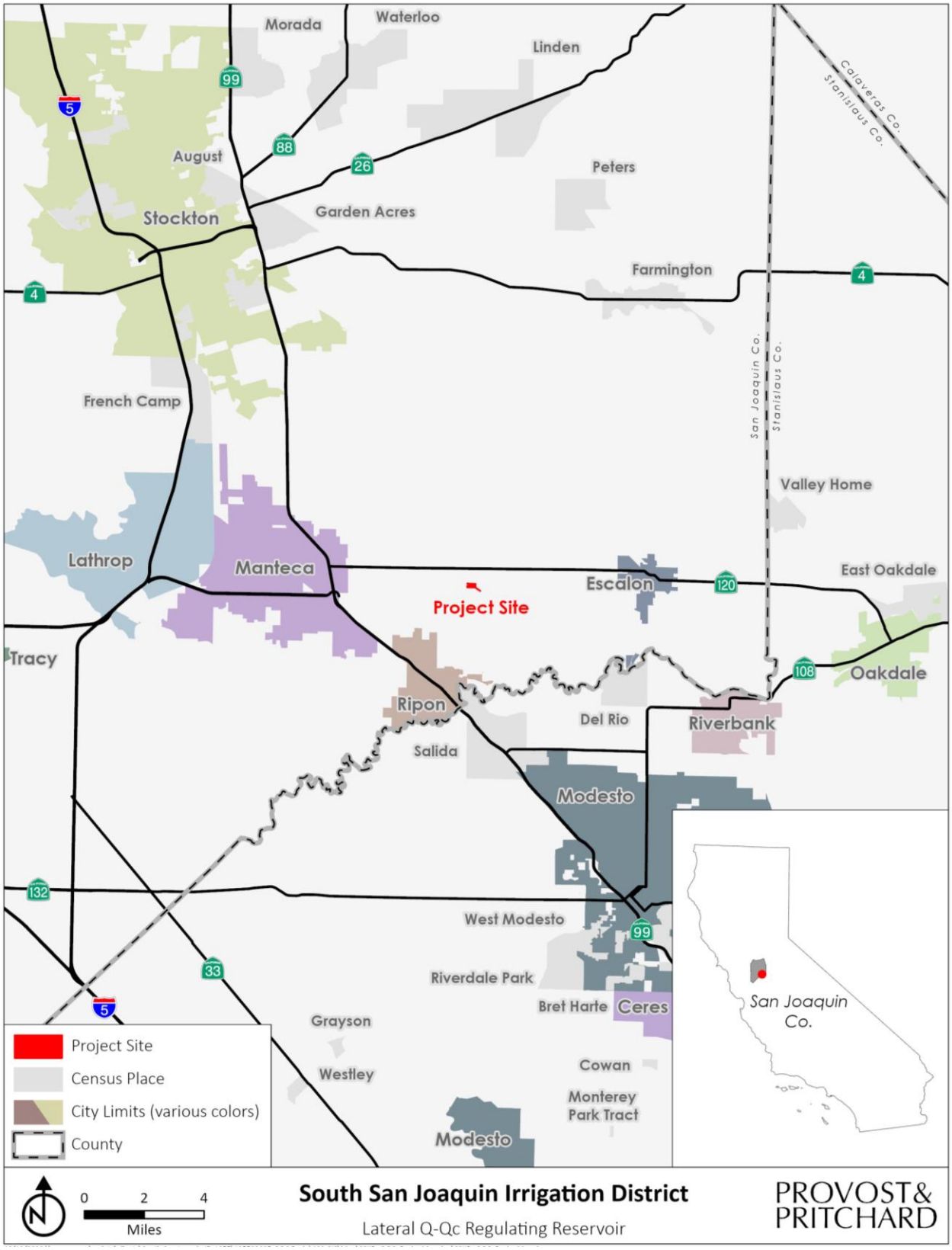

Figure 2-1: Regional Location Map

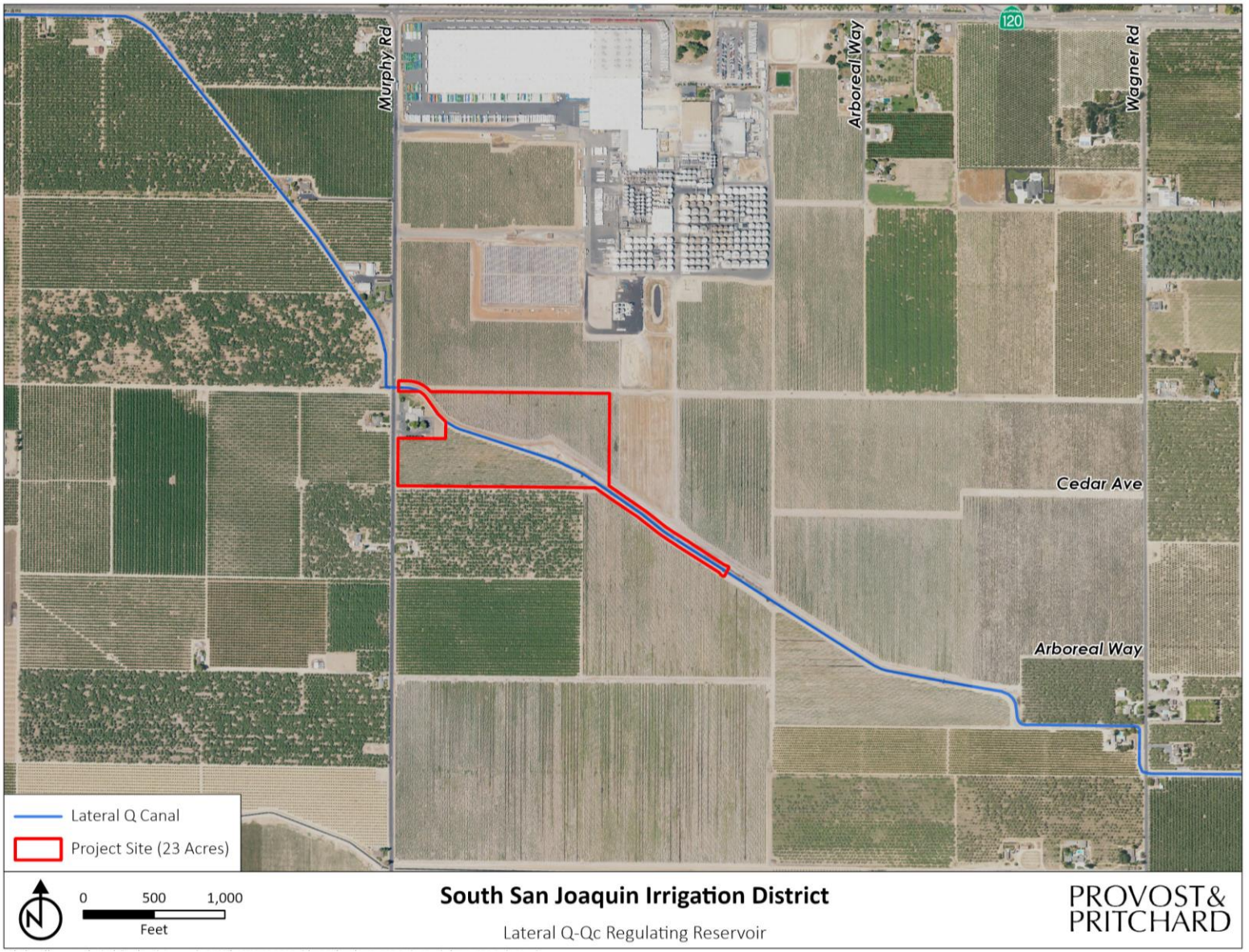

Figure 2-2: Aerial Photo of the Site

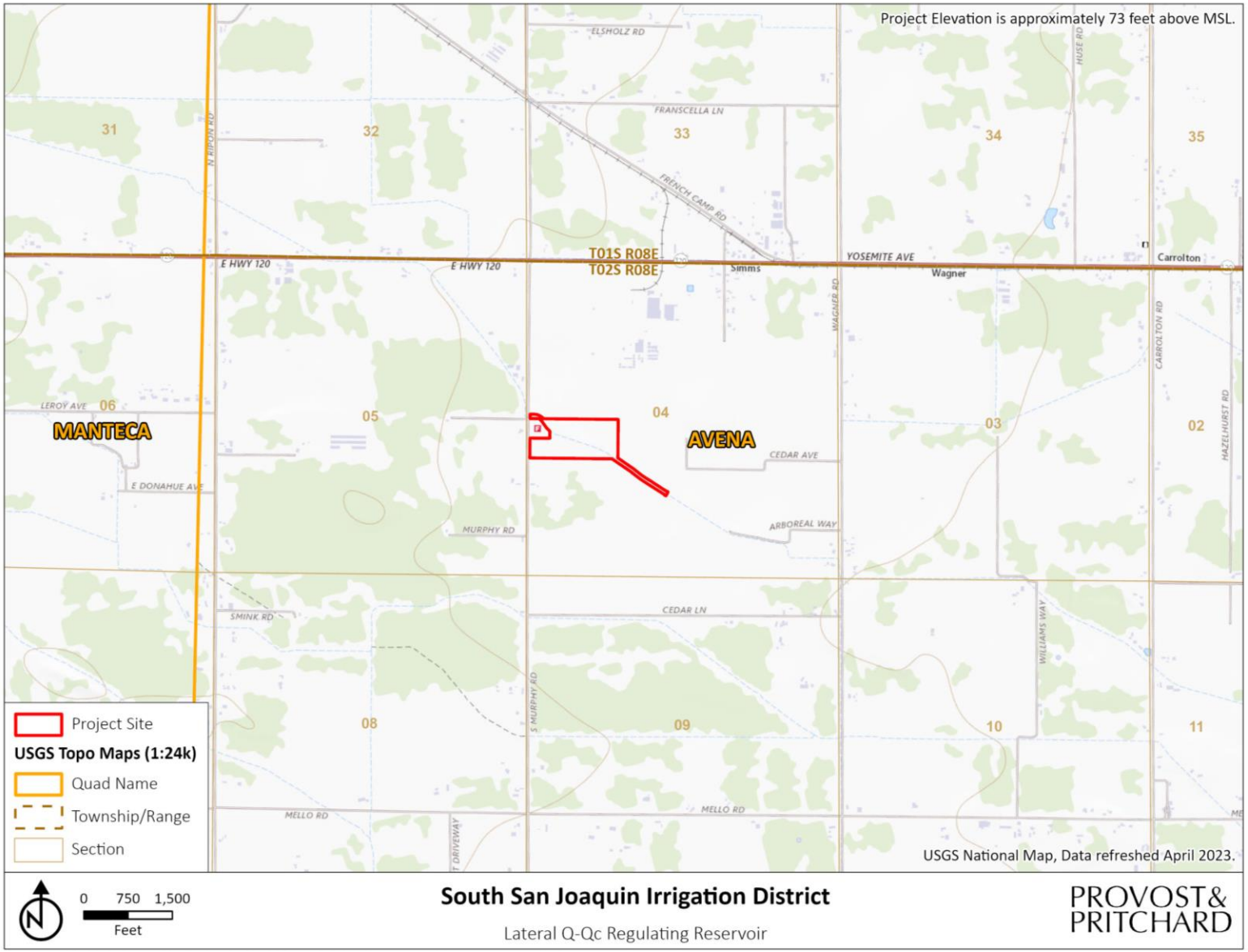

Figure 2-3: Topo Quad Map

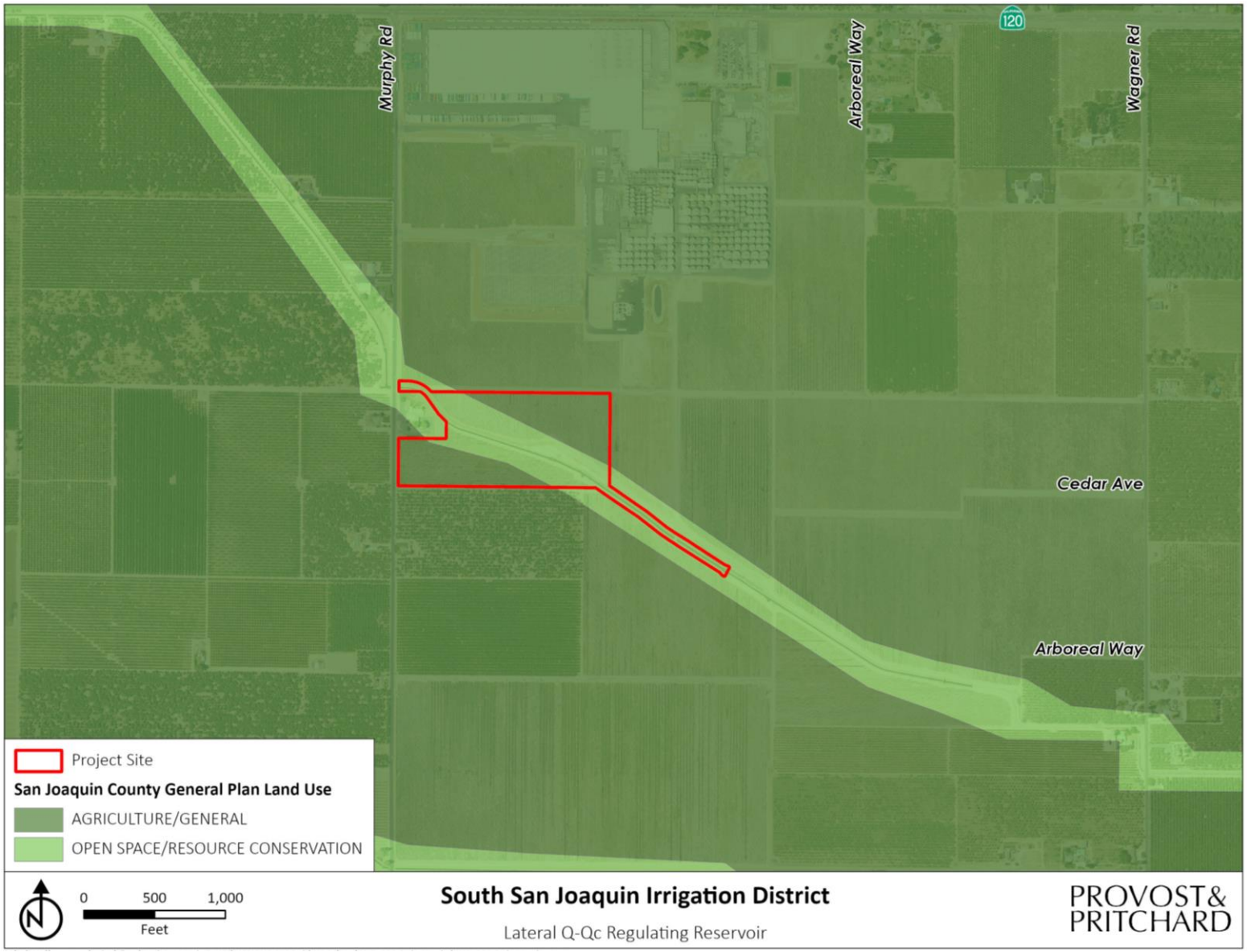

Figure 2-4: General Plan Land Use Designation Map

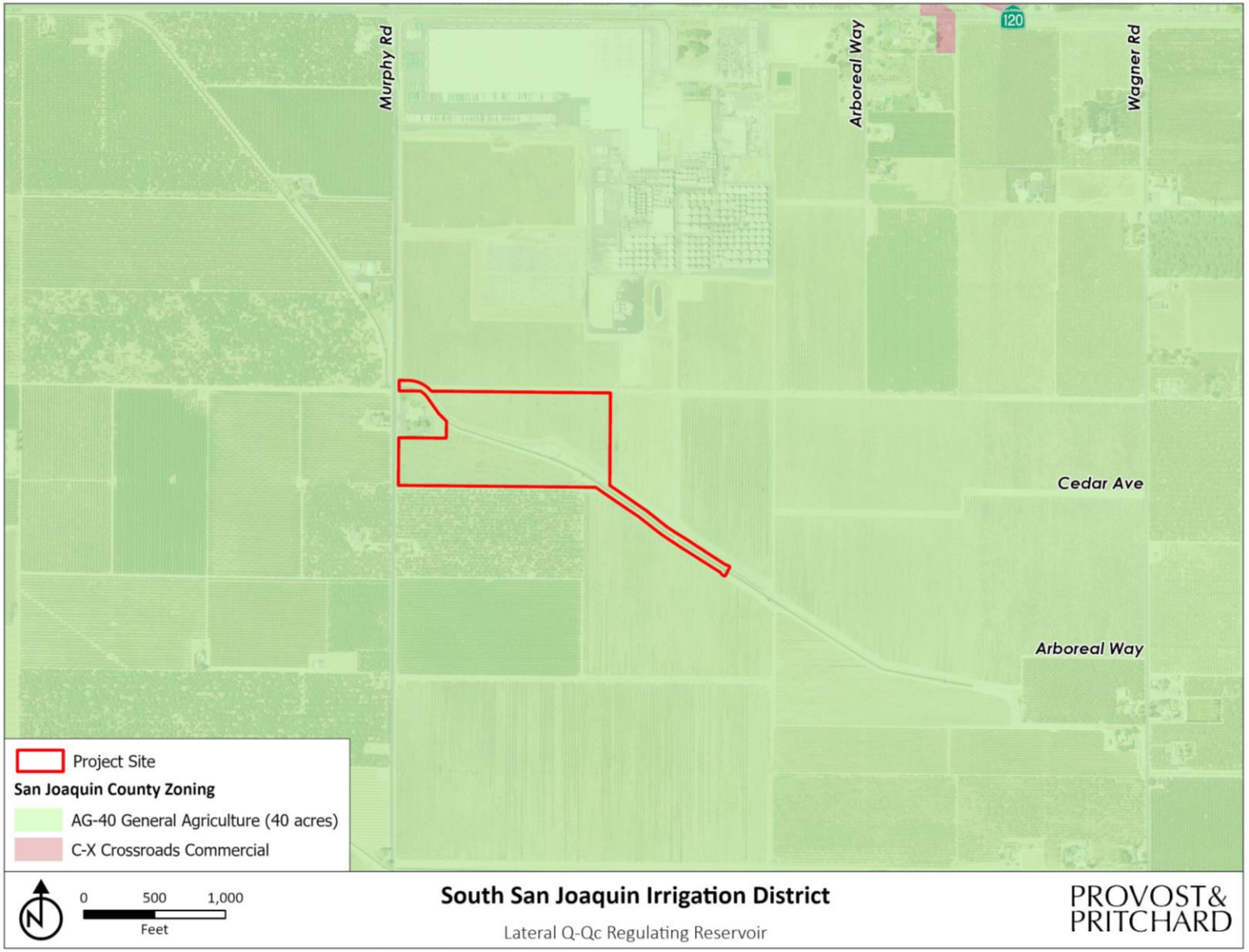

Figure 2-5: Zone District Map

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.

☐ Aesthetics	☐ Agriculture and Forestry Resources	☐ Air Quality
☒ Biological Resources	☒ Cultural Resources	☐ Energy
☒ Geology/Soils	☐ Greenhouse Gas Emissions	☐ Hazards and Hazardous Materials
☐ Hydrology / Water Quality	☐ Land Use/Planning	☐ Mineral Resources
☐ Noise	☐ Population/Housing	☐ Public Services
☐ Recreation	☐ Transportation	☒ Tribal Cultural Resources
☐ Utilities and Service Systems	☐ Wildfire	☐ 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

12/7/23

Date

Forrest Killingsworth, Engineering Department Manager

Printed Name/Position

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?	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
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?	☐	☐	☐	☒
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

4.1.1 Baseline Conditions

The Project is located in San Joaquin County within the San Joaquin Valley approximately 4.3 miles east of the City of Manteca and 2.3 miles northeast of the City of Ripon. The physical setting of the Project area consists of flat agricultural land containing row crops, orchards, irrigation delivery systems, rural County roads, and other typical rural/agricultural infrastructure. In contrast, just north of the Project site contains the Wine Group development, which is a large warehouse building used to package and ship wine products. Also, adjacent west of the Project is the Ripon Fire Station 52.

The Project area and the region itself is mostly flat with little to no visual changes in elevation. There are no scenic vistas, nor scenic resources in the vicinity; although, the agricultural setting does provide subjective scenic qualities. There are no State Scenic Highways within the vicinity of the Project. Roads within the Project area consist of a two-lane paved road and various dirt-path farm access roads. The nearest State Scenic Highway is Interstate 5 (I-5), located approximately 18.5 miles southwest of the Project site.[2] The San Joaquin County General Plan does designate the nearby River Road (two miles south) as a

[2] (California Department of Transportation 2023)

scenic route. River Road travels along various vineyards while running parallel with the Stanislaus River to the south.

4.1.2 Impact Analysis

a) Have substantial adverse effect on a scenic vista?

No Impact. The Project area is predominantly flat with no extreme topographical changes. In addition, there are no County-designated scenic vistas in the vicinity that could be affected by implementation of the Project. The scenic qualities provided by the agricultural setting would remain intact and would not be negatively impacted. River Road, a County-designated scenic route, is located almost two miles south of the Project. The Project would have no physical or visual impact to River Road. Therefore, there would be no impact.

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

No Impact. The nearest State Scenic Highways is I-5, which is located approximately 18.5 miles southwest of the Project. As mentioned, River Road, a County-designated scenic route, is located approximately two miles south. No aspect of the Project would result in an aesthetical impact to River Road. The Project would not change the existing visual character of the region, nor would it result in any obstructed views along or within River Road. Therefore, 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?

No Impact. As mentioned, the Project is located in an agriculturally dominated region and has been determined to be non-urbanized under the definition found in the CEQA State Guidelines. The Project would include a new regulating basin, an outlet flow control structure, and an outlet structure and connection box to assist in delivering water to the basin and other District facilities and lands. Project components would not degrade the existing visual character or quality of public views. Project components would be consistent with surrounding facilities and other District facilities, and no proposed structure would be constructed in a manner to block any existing views. Therefore, there would be no impact.

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

No Impact. The area surrounding the Project consists primarily of agricultural land with some scattered development. No permanent lighting would be proposed on-site, and all construction material would be painted in a manner not to increase the effects of glare. No nighttime vehicular lighting traveling to and from the Project would take place as all as-needed maintenance would occur during daytime hours. Therefore, the Project would not create a new source of substantial light or glare that would adversely affect day or nighttime views in the area or be inconsistent with existing conditions. There would be no impact.

4.1.3 Federal Cross-Cutting Topic

Wild, Scenic, and Recreational Rivers Act

The National Wild and Scenic Rivers Act was established in 1968, to maintain the natural beauty, biology, and wildness of federally designated "wild," "scenic," or "recreational" rivers that may be threatened by construction of dams, diversions, and canals. The act seeks to preserve these designated rivers in their free-flowing condition, and to protect their immediate environments for the benefit and enjoyment of present and future generations. There are no "wild" or "scenic" rivers within or proximate to the proposed project site.

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?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
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))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
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?	☐	☐	☐	☒

4.2.1 Baseline Conditions

In 2021, San Joaquin County was ranked 7th among California counties in overall agricultural production with its top commodity category being fruit and nuts, with production increasing on a yearly basis. Other commodities that have seen increases include livestock and poultry products, milk and eggs, nursery products, and apiary products.[3]

The Project area is located in a predominantly agricultural area in San Joaquin County. The surrounding landscape consists of open fields, vineyards, row crops, and irrigation facilities that transport and deliver water to support the existing agricultural operations. While the surrounding lands mostly consist of active farmland, the Ripon Fire Station 52 is situated adjacent to the Project, located where Murphy Road and the Lateral Q Canal intersect. In addition, just 900 feet north of the Project lies a large wine packing warehouse.

Farmland Mapping and Monitoring Program: The Farmland Mapping and Monitoring Program (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. The California Department of Conservation's 2018 FMMP

[3] (San Joaquin County Office of the Agricultural Commisioner/Sealer 2021)

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.

As demonstrated in Figure 4-1, the FMMP for the Project area is designated as Prime Farmland and Farmland of Statewide Importance.[4]

4.2.2 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. As identified above, the Project area is wholly designated as either Prime Farmland or Farmland of Statewide Importance. Implementation of the Project would not result in any designated farmland to a use utilized for non-agricultural purposes. The Project would construct a new regulating basin and ancillary facilities to efficiently deliver water to District lands. The Project would support

[4] (Calfornia Department of Conservation 2023)

continued farming operations in the region. Project implementation would not result in a potentially significant impact. There would be no impact.

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

No Impact. The principal objective of the Project is to allow the District to provide a better, more efficient supply of water irrigated farming operations within its service area. The principal objective aligns with both the existing agricultural zoning and any potential Williamson Act contracts. 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))?

No Impact. The Project site is not zoned for forest land, timberland, or timberland production. The Project area does not contain forestland or timberland. There would be no impact.

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

No Impact. As discussed above, there are no lands within or near the Project site that contain forest land. The Project site and its vicinity are predominantly agricultural land with occasional developments such as the Ripon Fire Station 52 and the Wine Group warehouse. Implementation of the Project would not result in the loss of forest land or conversion of forest land to non-forest use.

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 Impact. The Project would not convert any existing farmland to a non-agricultural use. As discussed throughout this section, the Project site is not located on or in the vicinity of forestland, and therefore would not convert forest land to non-forest use. There would be no impact.

4.2.3 Federal Cross-Cutting Topic

Farmland Protection Act

The Farmland Protection and Policy Act (FPPA) was enacted in 1981 to minimize the loss of prime farmland and unique farmlands because of federal actions that converted these lands to nonagricultural uses. The act assures that federal programs are compatible with state and local governments, and private programs and policies to protect farmland.

As defined by the FPPA, prime farmland is farmland that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and also is available for these uses. A unique farmland is land other than prime farmland that is used for production of specific, high-value food and fiber crops; it has the special combination of soil quality, location, growing season, and moisture supply needed to economically produce sustained high quality or high yields of specific crops.

As previously concluded, the proposed project is located on land classified by the California Department of Conservation (DOC) as Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance. These classifications recognize a land' s suitability for agricultural production by considering the physical and chemical characteristics of the soil, such as soil temperature range, depth

of the groundwater table, flooding potential, rock fragment content, and rooting depth. The classifications also consider location, growing season, and moisture available to sustain high-yield crops. Together, Important Farmland and Grazing Land are defined by the DOC as "Agricultural Land."

No farmland would be converted as a result of the Project. Therefore, the Project would not conflict with the Farmland Protection and Policy Act or adversely affect prime or unique farmland.

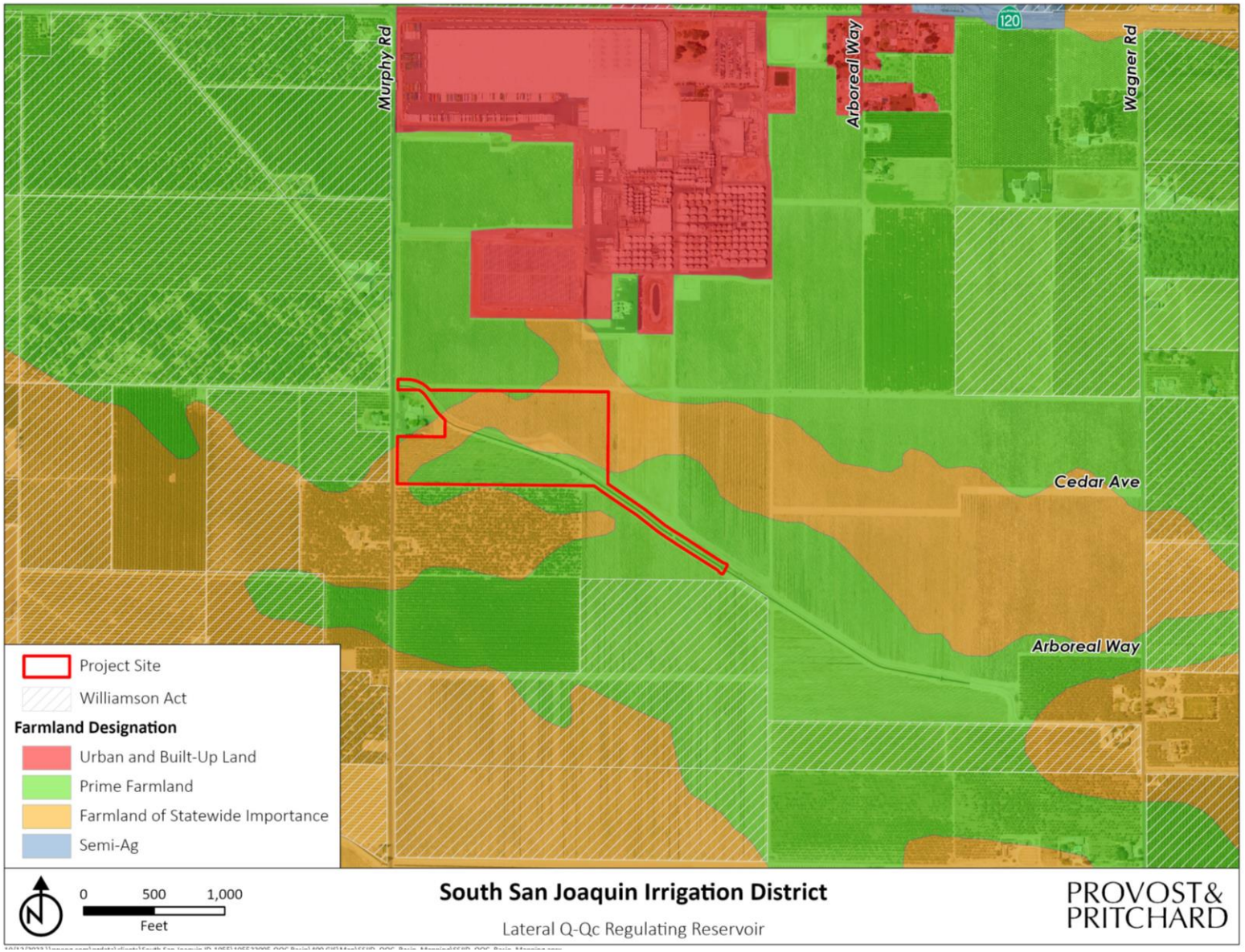

Figure 4-1: FMMP Map

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?	☐	☐	☐	☒
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?	☐	☐	☒	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

4.3.1 Baseline Conditions

The Project site is located within the boundaries of the San Joaquin Valley Air Pollution Control District (SJVAPCD) and the San Joaquin Valley Air Basin (SJVAB). The SJVAB is positioned within the San Joaquin Valley of California. The San Joaquin Valley is bounded by the Sierra Nevada Mountain Range to the east and the Coastal Mountain Range to the west. Wind within the SJVAB typically channels south-southwest during the summer months, while wind flows to the north-northwest during the winter months. Wind velocity for the region is considered low for an area of such size.[5] Due to a lack of strong wind and the natural confinement of the mountain ranges surrounding the SJVAB, the region experiences some of the worst air quality in the world.

Regulatory Attainment Designations

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 United States Environmental Protection Agency (USEPA) designates areas for ozone (O_3), carbon monoxide (CO), and nitrogen dioxide (NO_2) as "does not meet the primary standards," "cannot be classified," or "better than national standards." For sulfur dioxide (SO_2), areas are designated as "does not

[5] (San Joaquin Valley Air Pollution Control District 2012)

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 USEPA uses the same sub-categories for nonattainment status: serious, severe, and extreme. In 1991, USEPA assigned new nonattainment designations to areas that had previously been classified as Group I, II, or III for particulate matter 10 microns in size ($PM_{1)0}$ based on the likelihood that they would violate national PM_{10} standards. All other areas are designated "unclassified."

According to the USEPA the SJVAPCD was not in non-attainment for two pollutant concentrations, with particulate matter 2.5 microns in size $PM_{2.5}$ (2012) being classified as in serious non-attainment, and 8-hour Ozone (2015) classified as being in extreme non-attainment as of July 31st, 2023.[6]

[6] (United States Environmental Protection Agency 2023)

Table 4-4: 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	0.075 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	
Carbon Monoxide (CO)	1-hour	20 ppm	Attainment/ Unclassified	35 ppm	Attainment/ Unclassified
	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_2S)	1-hour	0.03 ppm (42 µg/m^3)	Unclassified		
Vinyl Chloride (C_2H_3Cl)	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/aaqs/aaqs2.pdf*
*** No Federal 1-hour standard. Reclassified extreme nonattainment for the Federal 8-hour standard 7/31/23.*
****Secondary Standard*
Source: CARB 2015; SJVAPCD 2015
Note: ppm- parts per million; ppb- parts per billion; µg/m3- micrograms per cubic meter

Construction-Generated Emissions

Construction of the Project is assumed to be completed over approximately nine months. Emissions associated with the Project were calculated using California Emissions Estimator Modeling (CalEEMod) Air Quality Model, Version 2020.4.0. 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 the default parameters contained in the model. Localized air quality impacts associated with the Project would be minor and were qualitatively assessed. Modeling assumptions and output files are included in Appendix A.

Thresholds of Significance

Air pollutant emissions have regional effects and localized effects. This analysis assesses the regional effects of the Project's criteria pollutant emissions in comparison to SJVAPCD thresholds of significance for short-term construction activities and long-term operation of the Project. Localized emissions from Project construction and operation are also assessed using concentration-based thresholds that determine if the Project would result in a localized exceedance of any ambient air quality standards or would make a cumulatively considerable contribution to an existing exceedance.

The primary pollutants of concern during Project construction and operation are reactive organic gases (ROG), NOx, PM_{10}, and $PM_{2.5}$. The SJVAPCD Guide for Assessing and Mitigating Air Quality Impacts (GAMAQI) adopted in 2015 contains thresholds for ROG and Nitrogen Oxides (NOx); Sulfur Oxides (SOX), CO, PM10, and PM2.5.

Ozone is a secondary pollutant that can be formed miles away from the source of emissions through reactions of ROG and NOX emissions in the presence of sunlight. Therefore, ROG and NOx are termed ozone precursors. The SJVAB often exceeds the state and national ozone standards. Therefore, if the Project emits a substantial quantity of ozone precursors, the Project may contribute to an exceedance of the ozone standard. The SJVAB also exceeds air quality standards for PM10, and PM2.5; therefore, substantial Project emissions may contribute to an exceedance for these pollutants.

The SJVAPCD adopted significance thresholds for construction-related and operational ROG, NO_X, PM, CO, and SO_X, these thresholds are included in Table 4-5.

Table 4-5: Project-Level Air Quality CEQA Thresholds of Significance

Pollutant	Significance Threshold	
	Construction Emissions (tons/year)	Operational Emissions (tons/year)
ROG	10	10
NO_X	10	10
CO	100	100
SO_X	27	27
PM_{10}	15	15
$PM_{2.5}$	15	15

Source: SJVAPCD. 2015. Guidance for Assessing and Mitigating Air Quality Impacts. Website: https://www.valleyair.org/transportation/GAMAQI-2015/FINAL-DRAFT-GAMAQI.PDF. Accessed July 31, 2023.

4.3.2 Impact Analysis

Short-Term Construction-Generated Emissions

Estimated construction-generated emissions are summarized in Table 4-6 and Table 4-7. Operational emissions of the proposed Project would be considered negligible due to the type of use proposed on-site. A negligible amount of emissions could result from use of water conveyance infrastructure.

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

Source	Annual Emissions [Tons per Year (TPY)]					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Maximum Annual Project Construction Emissions	0.2075	2.0610	1.7160	3.8200e-003	0.7307	0.4062
SJVAPCD Threshold	*10*	*10*	*100*	*27*	*15*	*15*
Threshold Exceeded?	No	No	No	No	No	No

Table 4-7: Maximum Daily Construction Related Emissions of Criteria Air Pollutants

Source	Daily Emissions Maximum (in pounds)					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Construction – Summer	3.2781	32.4076	28.1923	0.0635	19.9744	11.1588
Construction – Winter	3.2746	32.4140	281475	0.0634	19.9744	11.1588
SJVAPCD Threshold	*100*	*100*	*100*	*100*	*100*	*100*
Threshold Exceeded?	No	No	No	No	No	No

a) Would the project conflict with or obstruct implementation of the applicable air quality plan?

No Impact. The Project would not conflict with or obstruct implementation of any applicable air quality plan. The proposed Project would not exceed any threshold for air quality emissions that has been set by the SJVAPCD. Therefore, there would be no impact.

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 Impact. The proposed Project would not result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is in non-attainment. As shown in Table 4-6 and Table 4-7, the Project would not exceed an emissions threshold which has been set by the SJVAPCD for construction related emissions. The proposed Project would result in negligible quantities of operational emissions. Therefore, impacts would be less than significant.

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. As discussed above, the proposed Project would not result in significant long-term operational emissions. Constructed related emissions, shown in Table 4-6 and Table 4-7, would be temporary in nature and would cease upon Project construction. Short-term construction activities, however, could result in temporary increases in pollutant concentrations that could impact nearby sensitive receptors. Sensitive Receptors are groups that would be more affected by air, noise, and light pollution, pesticides, and other toxic chemicals than others. This includes infants, children under 16, elderly over 65, and people with cardiovascular and respiratory diseases. High concentrations of these groups would include daycares, residential areas, hospitals, elder care facilities, schools and parks. While the Project would be located in an area near sensitive receptors, such as the residential homes surrounding the site, the Project would not exceed the daily emission thresholds set by the SJVAPCD. Additionally, the HARP2 air dispersion model was run for the Project site to show the health risk the Project would have on sensitive receptors in the area. The model run, which can be viewed in Appendix A, indicates that the Project would result in a cancer risk of 0.0043 in one million, which is less than the SJVAPCD's threshold of 20 in one million. The Project would also present a chronic risk of 0.000006 in

one million and an acute risk of 0 in one million, which would be less than the SJVAPCD's threshold of one in one million for both chronic and acute. Therefore, impacts would be less than significant.

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

Less than Significant Impact. During construction activities, construction equipment exhaust and application of asphalt, structural coating and other construction applications would temporarily emit odors. Construction would be completed within rural San Joaquin County and would have little effect on some rural residences that would be located near the construction area of the Project. Construction of the Project would be temporary, and odors would not remain after Project completion. Therefore, impacts would be less than significant.

4.3.3 Federal Cross-Cutting Topic

Clean Air Act (CAA)

Under the federal CAA, federal actions conducted in air basins that are not in attainment with the federal ozone standard (such as the SJVAB) must demonstrate conformity with the State Implementation Plan (SIP). Conformity to a SIP is defined in the federal CAA as meaning conformity to a SIP's purpose of eliminating or reducing the severity and number of violations of the national standards and achieving an expeditious attainment of such standards. The SJVAPCD has published Regulation IX, Rule 9110 (referred as the General Conformity Rule) that indicates how most federal agencies can make such a determination.[7]

The SJVAPCD specifies that a project is conforming to the applicable attainment or maintenance plan if it:

- complies with all applicable SJVAPCD rules and regulations,
- complies with all applicable control measures from the applicable plans, and
- is consistent with the growth forecast in the applicable plans.

The SJVAPCD does not require a detailed quantification of construction emissions unless the project's indirect source emissions are expected to increase pollutant emissions of ROG or NOx in excess of 10 TPY. Because proposed project construction would not exceed this threshold, the proposed project would comply with the conformity criteria.

[7] The SJVAPCD's Rule 9110 is consistent with USEPA 's General Conformity Rule, Determining Conformity of General Federal Actions to State or Federal Implementation Plans (40 CFR, Part 93), available online at http://www.valleyair.org/rules/currntrules/r9110.pdf.

4.4 BIOLOGICAL RESOURCES

Table 4-8: 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?	☐	☒	☐	☐
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?	☐	☐	☐	☒
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?	☐	☐	☒	☐
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?	☐	☒	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
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?	☐	☐	☐	☒

4.4.1 Baseline Conditions

General

The Project is located within the San Joaquin Valley, east of the City of Manteca and north of the City of Modesto in San Joaquin County. The Project site includes ruderal/agricultural fields, dirt roads, and the Lateral Q canal. The topography of the overall site is relatively flat with elevations approximately 73 feet above mean sea level.

The City of Manteca experiences hot, dry summers followed by cold, wet winters. In the summer, average high temperatures range between 80- and 95-degrees Fahrenheit (°F), and the humidity is generally low. Winter temperatures are often below 60 °F during the day and rarely exceed 70 °F. On average, Manteca

receives approximately 16 inches of precipitation in the form of rainfall yearly, most of which occurs between October and April, and the Project site would be expected to receive similar amounts of precipitation.

Hydrology

A watershed is the topographic region that drains into a stream, river, or lake. Watersheds are made up of many smaller subwatersheds that drain into a particular stream, river, or lake. The project site lies within the Lone Tree Creek watershed; Hydrologic Unit Code (HUC): 1804005103 and the Lower Lone Tree Creek subwatershed; HUC: 180400510304. The nearest surface water to the Project is the Lateral Q Canal which bisects the Project site.

Lone Tree Creek watershed is fed by stormwater or snowmelt runoff from upland areas which flows into lone tree creek. Lone tree creek then flows into canals which then connect to the Lateral Q Canal that flows through the Project site. The Lateral Q Canal then flows into various unnamed canals and does not contain any downstream connections with jurisdictional waters.

Soils

Two soil mapping units representing two soil types were identified within the Project site and are listed in Table 1 (see Appendix B: Biological Evaluation). The soils are displayed with their core properties in the table below, according to the Major Land Resource Area of California. Both soils are primarily used for agriculture.

Table 4-9: List of Soils Located Onsite and Their Basic Properties

Soil	Soil Map Unit	Percent of Project Site	Hydric Soil Category	Drainage	Permeability	Runoff
Delhi	Loamy sand, 0 to 2 percent slopes	53.9%	Nonhydric	Somewhat excessively drained	Rapid	Negligible to slow
Honcut	Sandy loam, 0 to 2 percent slopes	46.1%	Nonhydric	Well drained	Moderately rapid	Slow to medium

Hydric soils are defined as soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions such that under sufficiently wet conditions, hydrophytic vegetation can be supported. All of the soils on the Project site are considered nonhydric.

Biotic Habitats

Two biotic habitats were observed within the Project site and included ruderal/agricultural and canal. These habitats and their constituent plant and animal species are described in more detail in the following sections.

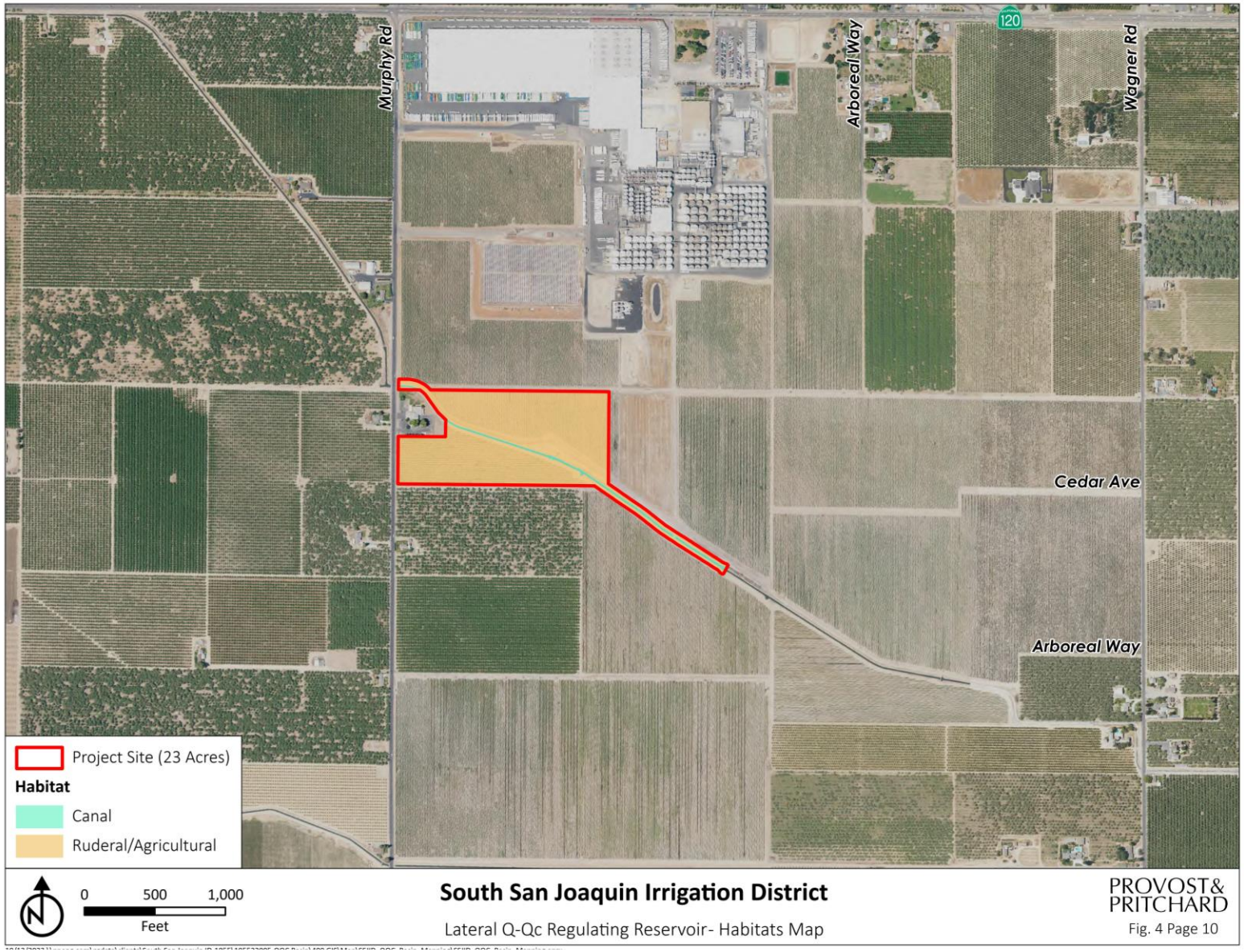

Figure 4-2: Habitat Map

Ruderal/Agricultural

The Project site was primarily located within ruderal/agricultural habitat (see Figure 4-4). The property used to contain agricultural wine grapes. The grape vineyards were removed prior to the field survey. Vegetation within this habitat included horseweed (*Erigeron canadensis*), puncture vine (*Tribulus terrestris*), flax leaved horseweed (*Erigeron bonariensis*), sacred datura (*Datura wrightii*), dove weed (*Croton setiger*), Russian thistle (*Salsola tragus*), common lambsquarters (*Chenopodium giganteum*), common purslane (*Portulaca oleracea*), Johnson grass (*Sorghum halepense*), prostrate pigweed (*Amaranthus blitoides*), morning glory (*Ipomoea stans*), velvet leaf (*Abutilon theophrasti*), Bermuda grass (*Cynodon dactylon*), redstem filaree (*Erodium cicutarium*), cheese weed mallow (*Malva parviflora*), barnyard grass (*Echinochloa crus-galli*), watermelon plant (*Citrullus lanatus*), sunflower (*Helianthus* sp.), cutleaf evening primrose (*Oenothera laciniata*), shortpod mustard (*Hirschfeldia incana*), and spotted spurge (*Euphorbia maculate*).

The survey of the Project site resulted in the identification of numerus bird species including mourning dove (*Zenaida macroura*), northern mockingbird (*Mimus polyglottos*), red-tailed hawk (*Buteo jamaicensis*), turkey vulture (*Cathartes aura*), black phoebe (*Sayornis nigricans*), house sparrow (*Passer domesticus*), house finch (*Haemorhous mexicanus*), lesser goldfinch (*Spinus psaltria*), cliff swallow (*Petrochelidon pyrrhonota*), and brown-headed cowbird (*Molothrus ater*). Other species observed include black-tailed jackrabbit (*Lepus californicus*), and domestic dog (*Canis lupus familiaris*) tracks through the Project site.

The ruderal/agricultural habitat within the Project site was highly disturbed by agricultural and irrigation activities and likely provides little value to special status and disturbance intolerant species. The Project site potentially provides foraging birds, including raptors, during the day, as well as bats, coyotes, and other nocturnal animals at night.

Canal

The canal habitat included the Lateral Q Canal which bisects the Project site (see Figure 4-3). This is a concrete lined canal that did not contain any vegetation. The canal habitat within the Project site was highly disturbed by agricultural and irrigation activities and likely provides little value to special status and disturbance intolerant species. The canal may be used as a water source and wildlife movement corridor. The canal does not appear to connect to a jurisdictional water.

Figure 4-3: Project Site Photos

Figure 4-4: Project Site Photos

Wildlife and Plant Species

A query of the California Natural Diversity Database (CNDDB) for occurrences of special status plant and animal species was conducted for the Avena 7.5-minute U.S. Geological Survey (USGS) quadrangle that contains the Project site, and for the eight surrounding USGS quadrangles: Escalon, Farmington, Manteca, Peters, Ripon, Riverbank, Salida, and Stockton East. These species, and their potential to occur within the Project site, are listed in Table 4-10 and Table 4-11 on the following pages. Other special status species that did not show up in the CNDDB query, but have the potential to occur in the vicinity, are also included in Table 2. Species lists obtained from CNDDB and IPaC are available in Appendix B: Biological Evaluation. All relevant sources of information, as discussed in the Study Methodology section of this report, as well as field observations, were used to determine if any special status species have the potential to occur within the Project site.

Table 4-10: List of Special Status Animals with Potential to Occur Onsite and/or in the Vicinity

Species	Status*	Habitat	Occurrence within the Site*
Burrowing owl (*Athene cunicularia*)	CSSC	Resides in open, dry grasslands, deserts, scrublands, and other areas with low growing vegetation. Nests and roosts underground in existing burrows created by mammals, most often ground squirrels, and human-made structures.	**Unlikely.** The site and surrounding areas are regularly maintained for irrigation and agricultural purposes and are unsuitable for this species. No burrows or signs of this species were observed during the field survey. The nearest recorded observation of this species within the vicinity was approximately 9 miles northwest of the site in 1993.
California tiger salamander (*Ambystoma californiense*)	FT, CT	Requires vernal pools or seasonal ponds for breeding and small mammal burrows for aestivation. Generally found in grassland and oak savannah plant communities in central California from sea level to 1,500 feet in elevation. Can migrate up to 1.3 miles to breed.	**Absent.** Required vernal pools and upland habitat with burrows were absent within the site and surrounding areas. The nearest recorded observation of this species within the vicinity was approximately 3 miles south of the site in 1912 but is listed as extirpated.
Conservancy fairy shrimp (*Branchinecta conservatio*)	FE	Found in large, turbid freshwater vernal pools in the Central Valley, from Tehama County in the north to Merced County in the south, with one outlying population in Ventura County's Interior Coast Ranges.	**Absent.** Required vernal pools were absent within the site and surrounding areas. The nearest recorded observation of this species within the vicinity was approximately 11 miles southwest of the site in 1991 within the San Joaquin River National Wildlife Refuge.
Crotch bumble bee (*Bombus crotchii*)	CCE	Occurs throughout coastal California, as well as east to the Sierra Nevada-Cascade crest, and south into Mexico. Food plant genera include *Antirrhinum, Phacelia, Clarkia, Dendromecon, Eschscholzia*, and *Eriogonum*.	**Unlikely.** The site and surrounding areas are regularly maintained for irrigation and agricultural purposes and plants this species forages on were absent. The nearest recorded observation of this species within the vicinity was approximately 7.5 miles southeast of this site in 1968.
Giant gartersnake (*Thamnophis gigas*)	FT, CT	Occurs in marshes, sloughs, drainage canals, irrigation ditches, rice fields, and adjacent uplands. Prefers locations with emergent vegetation for cover and open areas for basking. This species uses small mammal burrows adjacent to aquatic habitats for hibernation in	**Unlikely.** The canal within the site is concrete lined and did not contain aquatic vegetation or burrows, making it unsuitable for this species. The nearest recorded observation of this species within the vicinity was approximately 10 miles north of the site in 1987.

Species	Status*	Habitat	Occurrence within the Site*
		the winter and to escape from excessive heat in the summer.	
Green sturgeon-southern DPS (*Acipenser medirostris*)	FT	Spawning occurs primarily in cool (11-15 C) sections of mainstem rivers in deep pools (8-9 meters) with substrate containing small to medium sized sand, gravel, cobble, or boulder, such as the Sacramento, Feather, and Yuba Rivers. Presence in upper Stanislaus and San Joaquin Rivers may indicate spawning. Non-spawning adults occupy marine/estuarine waters. Delta Estuary is important for rearing juveniles.	**Unlikely.** The canal within the site is concrete lined with no aquatic vegetation and is not expected to contain special status fish species. The nearest recorded observation of this species within the vicinity was approximately 3.5 miles south of the site in 2017 within the Stanislaus River.
Hardhead (*Mylopharodon conocephalus*)	CSSC	Occurs in low- to mid-elevation streams in the Sacramento-San Joaquin drainage. Clear, deep pools with sand-gravel-boulder bottoms and slow-moving water are required. This species is often sympatric with Sacramento pikeminnow and Sacramento sucker. Hardhead are typically absent from streams occupied by centrarchids and from heavily altered habitats.	**Unlikely.** The canal within the site is concrete lined with no aquatic vegetation and is not expected to contain special status fish species. The nearest recorded observation of this species within the vicinity was approximately 14 miles south of the site in 2008 within the Tuolumne River.
Monarch butterfly (*Danaus plexippus*)	FC	Roosts in wind-protected tree groves (eucalyptus, Monterey pine, cypress), with nectar and water sources nearby. Larval host plants consist of milkweeds (*Asclepias* sp.). Winter roost sites extend along the Pacific coast from northern Mendocino to Baja California, Mexico.	**Unlikely.** Foraging and roosting habitat was absent within the site. The site did not contain milkweeds or groves of trees. The CNDDB query resulted in no observations of this species within the regional vicinity of the Project.
Northern California legless lizard (*Anniella pulchra*)	CSSC	Found primarily underground, burrowing in loose, sandy soil. Forages in loose soil and leaf litter during the day. Occasionally observed on the surface at dusk and night.	**Unlikely.** The site and surrounding areas are regularly maintained for irrigation and agricultural purposes and are unsuitable for this species. The nearest recorded observation of this species within the vicinity was approximately 5 miles east of the site in 1933.
Pallid bat (*Antrozous pallidus*)	CSSC	Found in grasslands, chaparral, and woodlands, where it feeds on ground- and vegetation-dwelling arthropods, and occasionally takes insects in flight. Prefers to roost in rock crevices, but may also use tree cavities, caves, bridges, and other man-made structures.	**Unlikely.** The site did not contain roosting habitat. Adjacent to the site there are large trees where this species could roost, but Project activities will not disturb the trees. Foraging habitat was present, but this species would be expected to fly away during Project activities. The only recorded observation of this species within the vicinity was approximately 10 miles northeast of this site in 1951.
Riparian brush rabbit (*Sylvilagus bachmani riparius*)	FE, CE	Found in the understory of riparian forests adjacent to the San Joaquin River in northern Stanislaus County. Prefers dense vegetation, including wild rose, willows, and blackberries.	**Unlikely.** No riparian habitat or signs of this species were observed during the field survey. The site and surrounding areas are regularly maintained for irrigation and agricultural purposes and

Species	Status*	Habitat	Occurrence within the Site*
			are unsuitable. The nearest recorded observation of this species within the vicinity was approximately 7 miles southwest of the site in 2012 along the Stanislaus River.
Riparian (San Joaquin Valley) woodrat (*Neotoma fuscipes riparia*)	CSSC	Found in riparian areas along the San Joaquin, Stanislaus, and Tuolumne rivers. This species needs areas with a mix of brush and trees. Suitable nesting sites include trees, snags, or logs.	**Unlikely.** No nests or signs of this species were observed during the field survey. The site and surrounding areas are regularly maintained for irrigation and agricultural purposes and are unsuitable. The nearest recorded observation of this species within the vicinity was approximately 7 miles southwest of the site in 2012 along the Stanislaus River.
Steelhead – Central Valley DPS (*Oncorhynchus mykiss irideus* pop.11)	FT	This winter-run fish begins migration to fresh water during peak flows in December through February. The spawning season is typically from February to April. After hatching, they will move to deeper, mid-channel habitats in late summer and fall. In general, both juveniles and adults prefer complex habitat boulders, submerged clay and undercut banks, and large woody debris.	**Unlikely.** The canal within the site is concrete lined with no aquatic vegetation and is not expected to contain special status fish species. The nearest recorded observation of this species within the vicinity was approximately 7 miles southwest of the site in 2014 along the Stanislaus River.
Swainson's hawk (*Buteo swainsoni*)	CT	Nests in large trees in open areas adjacent to grasslands, grain or alfalfa fields, or livestock pastures suitable for supporting rodent populations.	**Possible.** There were large coast redwood trees directly adjacent to the site that were suitable for this species to nest in. The nearest recorded observation of this species within the vicinity was approximately 2.5 miles northwest of the site in 2009.
Tricolored blackbird (*Agelaius tricolor*)	CT, CSSC	Nests colonially near fresh water in dense cattails or tules, or in thickets of riparian shrubs. Forages in grassland and cropland. Large colonies are often found foraging in dairy farm feed fields.	**Unlikely.** The canal within the site is concrete lined and did not contain riparian vegetation for this species to nest in. Foraging habitat is present, but this species would be expected to fly away during Project activities. The nearest recorded observation of this species within the vicinity was approximately 5.5 miles west of the site in 1936.
Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)	FT	Lives in mature elderberry shrubs of the Central Valley and adjacent foothills from Tehama County south through Merced and Mariposa Counties with two scattered populations in Madera and Fresno Counties. Adults are active from March to June.	**Absent.** No elderberry shrubs were observed within the site or surrounding areas. The nearest recorded observation of this species within the vicinity was approximately 5.5 miles southeast of the site in 2009.
Vernal pool fairy shrimp (*Branchinecta lynchi*)	FT	Occupies vernal and seasonal pools, with clear to tea-colored water, in grass or mud-bottomed swales, and basalt depression pools.	**Absent.** Vernal pool habitat was absent from the site and surrounding lands. The nearest recorded observation of this species within the vicinity was approximately 10 miles southwest of the site in 1998 within the San Joaquin River National Wildlife Refuge.

Species	Status*	Habitat	Occurrence within the Site*
Vernal pool tadpole shrimp (*Lepidurus packardi*)	FE	Occurs in vernal pools, clear to tea-colored water, in grass or mud-bottomed swales, and basalt depression pools.	**Absent.** Vernal pool habitat was absent from the site and surrounding lands. The nearest recorded observation of this species within the vicinity was approximately 8.5 miles southwest of the site in 2000 within the San Joaquin River National Wildlife Refuge.
Western bumble bee (*Bombus occidentalis*)	CCE	The western bumble bee has three basic habitat requirements: suitable nesting sites for the colonies, nectar and pollen from floral resources available throughout the duration of the colony period (spring, summer and fall), and suitable overwintering sites for the queens (Jepson et al. 2014).Nests occur primarily in underground cavities such as old squirrel or other animal nests and in open west-southwest slopes bordered by trees, although a few nests have been reported from above-ground locations such as in logs among railroad ties (Hobbs 1968, MacFarlane et al. 1994, Plath 1922, Thorp et al. 1983, all cited in Jepson et al. 2014).	**Unlikely.** The site and surrounding areas are regularly maintained for irrigation and agricultural purposes and plants this species forages on were absent. The nearest recorded observation of this species was mapped within the location of the Project site in 1962.
Western mastiff bat (*Eumops perotis californicus*)	CSSC	Found in open, arid to semi-arid habitats, including dry desert washes, flood plains, chaparral, oak woodland, open ponderosa pine forest, grassland, and agricultural areas, where it feeds on insects in flight. Roosts most commonly in crevices in cliff faces but may also use high buildings and tunnels.	**Unlikely.** The site and surrounding areas did not contain roosting habitat. Foraging habitat was present, but this species would be expected to fly away during Project activities. The nearest recorded observation of this species within the vicinity was approximately 12.5 miles east of this site in 1957.
Western spadefoot (*Spea hammondii*)	CSSC	The majority of the time this species is terrestrial and occurs in small mammal burrows and soil cracks, sometimes in the bottom of dried pools. Prefers open areas with sandy or gravelly soils, in a variety of habitats including mixed woodlands, grasslands, coastal sage scrub, chaparral, sandy washes, lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. Vernal or seasonal pools, that hold water for a minimum of three weeks, are necessary for breeding.	**Unlikely.** The site and surrounding areas are regularly maintained for irrigation and agricultural purposes and are unsuitable for this species. The nearest recorded observation of this species within the vicinity was approximately 8.5 miles southwest of the site in 1998 within the San Joaquin River National Wildlife Refuge.
Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)	FT, CE	Suitable nesting habitat in California includes dense riparian willow-cottonwood and mesquite habitats along a perennial river. Once a common breeding species in riparian habitats of lowland California, this species currently breeds consistently in only two locations in the state: along the	**Unlikely.** Suitable habitat for this species is absent within the site and surrounding areas. The site and surrounding areas are regularly maintained for irrigation and agricultural purposes. The nearest recorded observation of this species within the vicinity was approximately 10 miles southwest of the site in 1977

Species	Status*	Habitat	Occurrence within the Site*
		Sacramento and South Fork Kern Rivers.	along the Stanislaus River but is listed as possibly extirpated.

Table 4-11: List of Special Status Plants with Potential to Occur Onsite and/or in the Vicinity

Species	Status*	Habitat	Occurrence within the Site*
Alkali-sink goldfields (Lasthenia chrysantha)	CNPS 1B	Found in vernal pool and wet saline flat habitats. Occurrences documented in the Central Valley at elevations below 660 feet. Blooms February - April.	**Absent.** Vernal pool habitat was absent within the site and surrounding areas. The nearest recorded observation of this species within the vicinity was approximately 11 miles southwest of the site in 1939 within the San Joaquin River National Wildlife Refuge.
California alkali grass (Puccinellia simplex)	CNPS 1B	Found in the San Joaquin Valley and other parts of California in saline flats and mineral springs within valley grassland and wetland-riparian communities at elevations below 3,000 feet. Blooms March–May.	**Absent.** Suitable habitat was absent from the site and surrounding areas. The nearest recorded observation of this species within the vicinity was approximately 10.5 miles southwest of the site in 1942 within the San Joaquin River National Wildlife Refuge.
Delta button-celery (Eryngium racemosum)	CE, CNPS 1B	Found in riparian scrublands in floodplains near the California Delta at elevations between 10 and 100 feet. Blooms June – August.	**Absent.** Required vernal pool habitat was absent within the site and surrounding areas. The nearest recorded observation of this species within the vicinity was approximately 7 miles southwest of the site in 1985 within the Caswell Memorial State Park.
Greene's tuctoria (Tuctoria greenei)	FE, CNPS 1B	Found in the San Joaquin Valley and other parts of California in vernal pools within valley grassland, wetland, and riparian communities at elevations below 3,500 feet. Blooms May – September.	**Absent.** Required vernal pool habitat was absent within the site and surrounding areas. The nearest recorded observation of this species within the vicinity was approximately 7.5 miles east of the site in 1987 but is listed as extirpated.
Legenere (Legenere limosa)	CNPS 1B	Found in wet areas and vernal pool beds at elevations between 5 and 2,900 feet. Blooms April - June.	**Absent.** Required vernal pool habitat was absent within the site and surrounding areas. The nearest recorded observation of this species within the vicinity was approximately 10 miles northeast of the site in 1983 but is listed as extirpated.
Lesser saltscale (Atriplex minuscula)	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.	**Absent.** The site and surrounding areas are regularly maintained for irrigation and agricultural purposes and are unsuitable for this species. The nearest recorded observation of this species within the vicinity was approximately 11 miles southwest of the site in 1954 within the San Joaquin River National Wildlife Refuge.
Recurved larkspur (Delphinium recurvatum)	CNPS 1B	Occurs in poorly drained, fine, alkaline soils in grassland and alkali scrub communities at elevations between 100 and 2,600 feet. Blooms March–June.	**Absent.** The site and surrounding areas are regularly maintained for irrigation and agricultural purposes and are unsuitable for this species. The nearest recorded observation of this species

Species	Status*	Habitat	Occurrence within the Site*
			within the vicinity was approximately 8 miles northwest of the site in 1937.

***EXPLANATION OF OCCURRENCE DESIGNATIONS AND STATUS CODES**

Present:	Species observed on the site at time of field surveys or during recent past.
Likely:	Species not observed on the site, but it may reasonably be expected to occur there on a regular basis.
Possible:	Species not observed on the site, but it could occur there from time to time.
Unlikely:	Species not observed on the site, and would not be expected to occur there except, perhaps, as a transient.
Absent:	Species not observed on the site and precluded from occurring there due to absence of suitable habitat.

STATUS CODES

FE	Federally Endangered	CE	California Endangered
FT	Federally Threatened	CCE	California Endangered (Candidate)
FC	Federal Candidate	CT	California Threatened
		CSSC	California Species of Special Concern

CNPS LISTING

1B	Plants rare, threatened, or endangered in California and elsewhere.

4.4.2 Applicable Regulations

Threatened and Endangered Species

Permits may be required from California Department of Fish and Wildlife (CDFW) and/or United States Fish and Wildlife Service (USFWS) if activities associated with a project have the potential to result in the "take" of a species listed as threatened or endangered under the California Endangered Species Act (CESA) and/or Endangered Species Act (ESA), respectively. Take is defined by CESA as, "to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill" (California Fish and Game Code, Section 86). Take is more broadly defined by the ESA to include "harm" (16 Unted States Code (USC), Section 1532(19), 50 Code of Federal Regulations (CFR), Section 17.3). CDFW and USFWS are responsible agencies under CEQA and NEPA. Both agencies review CEQA and NEPA documents in order to determine the adequacy of the treatment of endangered species issues and to make project-specific recommendations for their conservation.

Designated Critical Habitat

When species are listed as threatened or endangered, the USFWS often designates areas of "critical habitat" as defined by section 3(5)(A) of the ESA. Critical habitat is a term defined in the ESA as a specific geographic area that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. Critical habitat is a tool that supports the continued conservation of imperiled species by guiding cooperation with the federal government. Designations only affect federal agency actions or federally funded or permitted activities. Critical habitat does not prevent activities that occur within the designated area. Only activities that involve a federal permit, license, or funding and are likely to destroy or adversely modify critical habitat will be affected.

Migratory Birds

The Migratory Bird Treaty Act (MBTA: 16 USC 703-712) prohibits killing, possessing, or trading in any bird species covered in one of four international conventions to which the United States is a party, except in accordance with regulations prescribed by the Secretary of the Interior. The name of the act is misleading, as it covers almost all bird's native to the United States, even those that are non-migratory. The MBTA encompasses whole birds, parts of birds, and bird nests and eggs. Additionally, California Fish and Game Code makes it unlawful to take or possess any non-game birds covered by the MBTA (Section 3513), as well as any other native non-game birds (Section 3800).

Birds of Prey

Birds of prey are protected in California under provisions of California Fish and Game Code (Section 3503.5), which states that it is unlawful to take, possess, or destroy any birds in the order Falconiformes (hawks and eagles) or Strigiformes (owls), as well as their nests and eggs. The bald eagle and golden eagle are afforded additional protection under the Bald and Golden Eagle Protection Act (16 USC 668), which makes it unlawful to kill birds or their eggs, or take feathers or nests, without a permit issued by the U.S. Secretary of the Interior.

Nesting Birds

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.

Wetlands and other "Jurisdictional Waters"

The definition of "waters of the United States" (WOTUS) often changes from one presidential administration to the next. The current definition, established under the Biden Administration that became effective on March 20, 2023 (i.e., "new rule"), has adopted much of the same WOTUS designations as the pre-2015 rules, but has incorporated the most recent science and court case rulings. Traditional navigable waters, territorial seas, and interstate waters remain covered under the new rule. Natural drainage channels and adjacent wetlands may be considered "waters of the United States" or "jurisdictional waters" subject to the jurisdiction of the USACE if there is a "relatively permanent" surface water connection, or "significant nexus" to WOTUS. The extent of jurisdiction has been defined in the Code of Federal Regulations but is also subject to interpretation by the federal courts. Jurisdictional waters generally include the following categories:

1) Waters which are:
    a. Currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
    b. The territorial seas; or
    c. Interstate waters, including interstate wetlands;
2) Impoundments of waters otherwise defined as WOTUS under this definition, other than impoundments of waters identified under item (5) of this section;
3) Tributaries of waters identified in items (1) or (2) of this section:
    a. That are relatively permanent, standing or continuously flowing bodies of water; or
    b. That either alone or in combination with similarly situated waters in the region, significantly affect the chemical, physical, or biological integrity of waters identified in item (1) of this section;
4) Wetlands adjacent to the following waters:
    a. Waters identified in item (1) of this section; or
    b. Relatively permanent, standing or continuously flowing bodies of water identified in items (2) or (3)(i) of this section and with a continuous surface connection to those waters; or
    c. Waters identified in items (2) or (3) of this section when the wetlands either alone or in combination with similarly situated waters in the region, significantly affect the chemical, physical, or biological integrity of waters identified in item (1) of this section;
5) Intrastate lakes and ponds, streams, or wetlands not identified in items (1) through (4) of this section:

a. That are relatively permanent, standing or continuously flowing bodies of water with a continuous surface connection to the waters identified in items (1) or (3)(i) of this section; or
b. That either alone or in combination with similarly situated waters in the region, significantly affect the chemical, physical, or biological integrity of waters identified in item (1) of this section.

Prior exclusions have been consolidated under the new rule, which excludes from jurisdiction any feature that satisfies the following terms:

- Waste treatment systems, including treatment ponds or lagoons;
- Prior converted cropland;
- Ditches excavated wholly in and draining only dry land and do not carry a relatively permanent flow of water;
- Artificially irrigated areas that would revert to dry land if irrigation ceased;
- Artificial lakes or ponds created by excavating or diking dry land for the use of stock watering, irrigation, settling basins or rice growing;
- Artificial reflecting or swimming pools;
- Waterfilled depressions created in dry land; and
- Swales and erosional features (ex. gullies and small washes) characterized by low volume, infrequent, or short duration flow.

The new rule has incorporated the best available science, relevant supreme court cases, public comment, technical expertise, and experience gained from more than 45 years of implementing the pre-2015 "waters of the United States" framework to inform jurisdictional limits. One significant court case involves the U.S. Supreme Court in its *2001 Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers (SWANCC)* decision. It was determined that channels and wetlands isolated from other jurisdictional waters cannot be considered jurisdictional on the basis of their use, hypothetical or observed, by migratory birds.

Similarly, in its 2006 consolidated *Carabell/Rapanos* decision, the United States Supreme Court ruled that a significant nexus between a wetland and other navigable waters must exist for the wetland itself to be considered jurisdictional waters. The Supreme Court heard *Sackett v. United States Environmental Protection Agency (EPA)* in May 2023, to determine governing standards of a significant nexus between waters of the United States and adjacent wetlands. The court decided that adjacent wetlands would be protected under the CWA only if it maintained a continuous surface water connection with a federal water body. This decision has limited protection for networks of wetlands connected to navigable waters through subsurface flow. The final decision is anticipated to be published in October 2023.

The USACE regulates the filling or grading of waters of the United States. under the authority of Section 404 of the CWA. The extent of jurisdiction within drainage channels is defined by "ordinary high-water marks" on opposing channel banks. All activities that involve the discharge of dredge or fill material into Waters of the United States are subject to the permit requirements of the USACE. Such permits are typically issued on the condition that the applicant agrees to provide mitigation that results in no net loss of wetland functions or values. No permit can be issued until the RWQCB issues a Section 401 Water Quality Certification (or waiver of such certification) verifying that the proposed activity will meet state water quality standards.

Under the Porter-Cologne Water Quality Control Act of 1969, the SWRCB has regulatory authority to protect the water quality of all surface water and groundwater in the State of California ("Waters of the

State"). Nine RWQCBs oversee water quality at the local and regional level. The RWQCB for a given region regulates discharges of fill or pollutants into Waters of the State through the issuance of various permits and orders. Discharges into Waters of the State that are also Waters of the United States require a Section 401 Water Quality Certification from the RWQCB as a prerequisite to obtaining certain federal permits, such as a Section 404 Clean Water Act permit. Discharges into all Waters of the State, even those that are not also Waters of the United States, require Waste Discharge Requirements (WDRs), or waivers of WDRs, from the RWQCB. The RWQCB also administers the Construction Storm Water Program and the federal National Pollution Discharge Elimination System (NPDES) program. Projects that disturb one acre or more of soil must obtain a Construction General Permit under the Construction Storm Water Program. A prerequisite for this permit is the development of a Storm Water Pollution Prevention Plan (SWPPP) by a certified Qualified SWPPP Developer. Projects that discharge wastewater, storm water, or other pollutants into a Water of the United States may require a NPDES permit.

CDFW has jurisdiction over the bed and bank of natural drainages and lakes according to provisions of Section 1601 and 1602 of the California Fish and Game Code. Activities that may substantially modify such waters through the diversion or obstruction of their natural flow, change or use of any material from their bed or bank, or the deposition of debris require a notification of a Lake or Streambed Alteration. If CDFW determines that the activity may adversely affect fish and wildlife resources, a Lake or Streambed Alteration Agreement will be prepared. Such an agreement typically stipulates that certain measures will be implemented to protect the habitat values of the lake or drainage in question.

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. Of the 22 regionally occurring special status animal species, 21 are considered absent from or unlikely to occur within the Project site due to past or ongoing disturbance and/or the absence of suitable habitat. These species include: burrowing owl, California tiger salamander, conservancy fairy shrimp, Crotch bumble bee, giant gartersnake, green sturgeon, hardhead, monarch butterfly, northern California legless lizard, pallid bat, riparian woodrat, riparian brush rabbit, steelhead, tricolored blackbird, valley elderberry longhorn beetle, vernal pool fairy shrimp, vernal pool tadpole shrimp, western bumble bee, western mastiff bat, western spadefoot, and western yellow-billed cuckoo.

Since it is unlikely that these species would occur onsite, implementation of the Project should have no impact on these 21 special status species through construction mortality, disturbance, or loss of habitat. Mitigation measures are not warranted.

Of the seven regionally occurring special status plant species, all seven are considered absent from or unlikely to occur within the Project site due to past or ongoing disturbance and/or the absence of suitable habitat. These species include: alkali-sink goldfields, California alkali grass, Delta button-celery, Greene's tuctoria, legenere, lesser saltscale, and recurved larkspur.

Since it is unlikely that these species would occur onsite, implementation of the Project should have no impact on these seven special status species through construction mortality, disturbance, or loss of habitat. Mitigation measures are not warranted.

Birds could nest on the ground or in trees adjacent to the Project site. While there are no suitable trees for Swainson's hawk within the Project site, large coast redwood trees suitable for nesting for this species are located directly west of the Project site and could be utilized. Protected birds located within or adjacent to the Project site during construction have the potential to be injured or killed by Project-related activities. In addition to the direct "take" of protected birds within the Project site or adjacent areas, these birds nesting in these areas could be disturbed by Project-related activities resulting in nest abandonment. Projects that adversely affect the nesting success of protected birds or result in the mortality of these birds would be a violation of State and federal laws and considered a potentially significant impact under CEQA and NEPA.

While foraging habitat for protected birds is present on the site, suitable foraging habitat is located adjacent to the site and within the vicinity of the site. Loss of the foraging habitat from implementation of the Project is not considered a significant impact.

Mitigation measures are warranted and are identified in Section 4.4.5 below. Implementation of mitigation measures BIO-1, BIO-2, and BIO-3 would reduce potential impacts to protected nesting birds to a less than significant level under CEQA and NEPA and ensure compliance with State and federal laws protecting these bird species.

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?

No Impact. Riparian habitat is absent from the Project site and adjacent lands. There are no CNDDB-designated "natural communities of special concern" recorded within the Project site or surrounding lands. Mitigation measures are not warranted.

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. Typical wetlands, vernal pools, and other waters were not observed onsite at the time of the biological survey. The nearest water source is the Lateral Q Canal located within the Project site. This canal is concrete lined so it lacks riparian vegetation and would not be considered a Waters of the United States or state. There are no designated wild and scenic rivers within the Project site; therefore, the Project would not result in direct impacts to wild and scenic rivers.

As construction would involve ground disturbance over an area greater than one acre, the Project would also be required to obtain a Construction General Permit under the Construction Storm Water Program administered by the RWQCB. A prerequisite for this permit is the development of a Storm Water Pollution Prevention Plan (SWPPP) to ensure construction activities do not adversely affect water quality.

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?

Less than Significant Impact with Mitigation Incorporated. The Project site lacks suitable features that could be used as native wildlife nursery sites. It is unlikely native species would utilize any features of the Project site as a wildlife nursery site. Therefore, the Project would have no impact on native wildlife nursery sites, and no additional mitigation measures are warranted.

Most of the Project site does not contain features that would be likely to function as wildlife movement corridors. Lateral Q Canal could be potentially used as a wildlife movement corridor, but disturbance to this canal would be temporary in nature.

Mitigation measures are warranted and are identified in Section 4.4.5 below. The potential impacts to species that could use the Lateral Q Canal habitat as a wildlife movement corridor have been addressed in Mitigation Measures BIO-4, BIO-5, and BIO-6. Implementation of these will reduce potential impacts to wildlife movement corridors to a less than significant level under CEQA and NEPA and will ensure compliance with state and federal laws protecting this habitat.

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

No Impact. The Project appears to be consistent with the goals and policies of the San Joaquin County General Plan and the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan. There are no other known HCPs or NCCPs in the Project vicinity. Mitigation measures are not warranted.

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 located within the boundaries of an adopted Habitat Conservation Plan, Natural Communities Conservation Plan, or other approved local, regional, or state habitat conservation plan. There would be no impact and mitigation measures are not warranted.

4.4.4 Federal Cross-Cutting Topic

Federal Endangered Species Act

Regulations in the federal Endangered Species Act of 1973 and subsequent amendments govern the conservation of endangered and threatened species and the ecosystems on which they depend. USFWS and the National Marine Fisheries Service (NMFS) oversee the act. USFWS has jurisdiction over plants, wildlife, and resident fish, and NMFS has jurisdiction over anadromous fish, marine fish, and mammals. Section 7 requires federal agencies to consult with USFWS and NMFS if they determine that a proposed project may affect a listed species or destroy or adversely modify designated critical habitat. Under Section 7, the federal lead agency must obtain incidental take authorization or a letter of concurrence, stating that the project is not likely to adversely affect federally listed species. Section 7 requirements do not apply to nonfederal actions. Because the USEPA is the source of SRF monies that may be distributed to San Joaquin County, its distribution is a federal action covered by Section 7.

Appendix B presents a Biological Evaluation intended to provide the basis for compliance with Section 7 of the ESA.

Section 9 prohibits take of any fish or wildlife species listed as endangered, including the destruction of habitat that prevents the species' recovery. "Take" is defined as any action or attempt to hunt, harm, harass, pursue, shoot, wound, capture, kill, trap, or collect a species. Section 9 prohibitions also apply to threatened species unless a special rule governing take was defined at the time the species became listed.

The take prohibition in Section 9 applies only to fish and wildlife species. However, Section 9 also prohibits the unlawful removal and possession, or malicious damage or destruction, of any endangered plant from federal land. Section 9 prohibits acts to remove, cut, dig up, damage, or destroy an endangered plant species in non-federal areas in knowing violation of any State law or in the course of criminal trespass.

Candidate species and species that are proposed for or under petition for listing receive no protection under Section 9.

See discussion under checklist item a.

Fish and Wildlife Conservation Act

The Fish and Wildlife Conservation Act (Act), approved September 29, 1980, declares that fish and wildlife are of ecological, educational, esthetic, cultural, recreational, economic, and scientific value to the Nation. The Act acknowledges that historically, fish and wildlife conservation programs have focused on more recreationally and commercially important species within any particular ecosystem, without provisions for the conservation and management of nongame fish and wildlife. The purposes of this Act are to encourage all federal departments and agencies to utilize their statutory and administrative authority, to the maximum extent practicable and consistent with each agency's statutory responsibilities and to conserve and to promote conservation of non-game fish and wildlife and their habitats. The Act authorizes financial and technical assistance to the States for the development, revision, and implementation of conservation plans and programs for nongame fish and wildlife. The Act defines "nongame fish and wildlife" as wild vertebrate animals in an unconfined state, that are not ordinarily taken for sport, fur or food, not listed as endangered or threatened species, and not marine mammals within the meaning of the Marine Mammal Protection Act. The original Act authorized $5 million for each of Fiscal Years 1982 through 1985, for grants for development and implementation of comprehensive State nongame fish and wildlife plans and for administration of the Act.

See discussions under checklist items a, b, and d above.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (Title 16, Section 703 and following sections of the United States Code [16 USC 703 et seq.]), first enacted in 1918, provides protection of international migratory birds and authorizes the Secretary of the Interior to regulate the taking of migratory birds. The MBTA states that it is unlawful, except as permitted by regulations, to pursue, take, or kill any migratory bird, or any part, nest, or egg of any such bird. The current list of species protected by the MBTA is found under Title 50, Section 10.13 of the CFR (50 CFR 10.13). The list includes nearly all birds native to the United States.

In December 2017, the U.S. Department of the Interior's Office of the Solicitor issued a revised legal interpretation (Opinion M-37050) of the MBTA's prohibition on the take of migratory bird species. Opinion M-37050 concludes that "consistent with the text, history, and purpose of the MBTA, the statute's prohibitions on pursuing, hunting, taking, capturing, killing, or attempting to do the same apply only to affirmative actions that have as their purpose the taking or killing of migratory birds, their nests, or their eggs" (DOI 2017). According to Opinion M-37050, take of a migratory bird, its nest, or eggs that is incidental to another lawful activity does not violate the MBTA, and the MBTA's criminal provisions do not apply to those activities. Opinion M-37050 may affect how the MBTA is interpreted but does not legally change the regulation itself.

The U.S. Court of Appeals for the Ninth Circuit, the controlling federal appellate court for California, also has held that habitat modification that harms migratory birds "does not 'take' them within the meaning of the MBTA (Seattle Audubon Soc. v. Evans, 952 F.2d 297, 303, 1981).

See discussion under checklist item a.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act affords additional legal protection to bald eagles and golden eagles. This law prohibits the take, sale, purchase, barter, offer of sale, purchase, or barter, transport, export or import, at any time or in any manner of any bald or golden eagle, alive or dead, or any part, nest, or egg thereof (16 U.S. Code [USC] 668---668d). The Bald and Golden Eagle Protection Act also defines take to include "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb," and includes criminal and civil penalties for violating the statute. USFWS further defines the term "disturb" as agitating or bothering an eagle to a degree that causes or is likely to cause injury, or either a decrease in productivity or nest abandonment by substantially interfering with normal breeding, feeding, or sheltering behavior.

See discussion under checklist item a.

Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act, as amended (16 USC 180 I), requires that Essential Fish Habitat (EFH) be identified and described in federal fishery management plans. Federal agencies must consult with NMFS on any activity that they fund, permit, or carry out that may adversely affect EFH. The EFH regulations require that federal agencies obligated to consult on EFH also provide NMFS with a written assessment of the effects of any action on EFH (50 CFR 600.920). NMFS is required to provide EFH conservation and enhancement recommendations to federal agencies. The statute also requires federal agencies receiving NMFS EFH conservation recommendations to provide a detailed written response to NMFS within 30 days of receipt, detailing how they intend to avoid, mitigate, or offset the impact of activity on EFH (Section 305[b][4][B]).

EFH is defined as those waters and substrates necessary to fish for spawning, breeding, feeding, or growth to maturity. For the purposes of interpreting the definition of EFH, "waters" includes aquatic areas and their associated physical, chemical, and biological properties that are used by fish, and may include areas historically used by fish where appropriate; "substrate" includes sediment, hard bottom, structures underlying the waters, and associated biological communities; "necessary" means habitat required to support a sustainable fishery and a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers all habitat types used by a species throughout its life cycle. No EFH is on the project site.

Clean Water Act

Section 404

Section 404 of the CWA requires project proponents to obtain a permit from the United States Army Corps of Engineers before performing any activity involving a discharge of dredged or fill material into waters of the U.S. Waters of the U.S. include:

- Navigable waters of the U.S.;
- Interstate waters;
- All other waters where the use or degradation or destruction of the waters could affect interstate or foreign commerce;
- Tributaries to any of these waters; and
- Wetlands that meet any of these criteria, or that are adjacent to any of these waters or their tributaries.

Many surface waters and wetlands in California meet the criteria for waters of the U.S.

Section 402

CWA Section 402 regulates construction-related stormwater discharges to surface waters through the National Pollutant Discharge Elimination System (NPDES) program, which is administered by USEPA. In California, the State Water Resources Control Board is authorized by USEPA to oversee the program through the Regional Water Quality Control Boards (RWQCBs)-in this case, the Central Valley (Region 5) RWQCB.

Section 401

Under CWA Section 401(a)(1), the applicant for a federal license or permit to conduct an activity that may result in a discharge into waters of the U.S. must provide the federal licensing or permitting agency with a certification that any such discharge will not violate state water quality standards. The RWQCBs administer the Section 401 program to prescribe measures for projects that are necessary to avoid, minimize, and mitigate adverse effects on water quality and ecosystems.

No State or federally protected wetlands or waters are on the proposed project site.

4.4.5 Mitigation

Migratory Birds, Raptors, and Special Status Birds, including Swainson's Hawk

BIO-1 (Avoidance): The Project's construction activities will occur, if feasible, between September 15 and January 31 (outside of the nesting bird season) to avoid impacts to nesting birds.

BIO-2 (Pre-construction Surveys): If activities must occur within the nesting bird season (February 1 to September 14), a qualified biologist will conduct a pre-construction survey for Swainson's hawk nests onsite and within a 0.5-mile radius. This one time take avoidance survey will be conducted 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), or current guidance. The pre-construction survey would also provide a presence/absence survey for all other nesting birds within the Project site, and up to 100 feet outside of the Project site for nesting migratory birds and up to 500 feet outside of the Project site for nesting raptors. Raptor nests would be considered "active" upon the nest-building stage. If no active nests are observed, no further mitigation is required.

BIO-3 (Avoidance Buffers): On discovery of any active nests or breeding colonies near work areas, a qualified biologist will determine appropriate avoidance buffer distances based on applicable CDFW and/or USFWS guidelines, the biology of the species, conditions of the nest(s), and the level of Project disturbance. If necessary, avoidance buffers will be identified with flagging, fencing, or other easily visible means, and will be maintained until the biologist has determined that the nestlings have fledged.

Wildlife Movement Corridors and Native Wildlife Nursery Sites

BIO-4 (Operational Hours): Construction activities would be limited to a half hour after sunrise through a half hour before sunset to reduce potential impacts to wildlife movement corridors.

BIO-5 (Wildlife Access): Access will not be blocked outside of construction hours or during overnight hours or weekends. If construction must block both sides of a wildlife access

route, an alternative route through the construction area should be identified by a qualified biologist and maintained throughout the construction schedule timeframe.

BIO-6 (Cover Excavations): Pipeline/culvert/siphon excavations and vertical pipes will be covered each night to prevent wildlife from falling in and becoming trapped or injured during migratory or dispersal movements.

4.5 CULTURAL RESOURCES

Table 4-12: 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?	☐	☒	☐	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	☐	☒	☐	☐
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☒	☐	☐

4.5.1 Baseline Conditions

San Joaquin County is located in an archaeologically, historically, and paleontologically rich part of the San Joaquin Valley. Little is known of the earliest occupants of San Joaquin County, although it is probable that the San Joaquin Valley, Sierra Nevada foothills, and the eastern flanks of the Diablo Range were occupied throughout most of the latter part of the Holocene Epoch (~10,000 years ago to the present).

Pedestrian Survey

A Class III/Phase I Survey for the Project was prepared for the Project in November 2023 (see Appendix C). At the time of the Class III Inventory/ Phase I survey, the study area consisted of flat agricultural land containing row crops, orchards, irrigation delivery systems, rural County roads, and other typical rural/agricultural infrastructure. In contrast, just north of the Project site contains industrial development consisting of large warehouses.

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 August 2023. 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, the California Points of Historical Interest (SPHI), the California Historical Landmarks (SHL), the California Register of Historical Resources (CAL REG), the National Register of Historic Places (NRHP), and the California State Built Environment Resources Directory (BERD) listings were reviewed for the above referenced APE and an additional ¼-mile radius. Due to the sensitive nature of cultural resources, archaeological site locations are not released. (Appendix C).

Additional sources included the State Office of Historic Preservation (SHPO) Historic Properties Directory, Archaeological Determinations of Eligibility, and the California Inventory of Historic Resources.

Native American Outreach

The Native American Heritage Commission (NAHC) in Sacramento was also contacted in August 2023. They were provided with a brief description of the Project and a map showing its location and requested that

the NAHC perform a search of the Sacred Lands File to determine if any Native American resources have been recorded in the immediate APE. The NAHC identifies, catalogs, and protects Native American cultural resources -- ancient places of special religious or social significance to Native Americans and known ancient graves and cemeteries of Native Americans on private and public lands in California. The NAHC is also charged with ensuring California Native American tribes' accessibility to ancient Native American cultural resources on public lands, overseeing the treatment and disposition of inadvertently discovered Native American human remains and burial items, and administering the California Native American Graves Protection and Repatriation Act (CalNAGPRA), among many other powers and duties. NAHC provide a current list of Native American Tribal contacts to notify of the project. The results of the Sacred Lands File Search were negative for the presence of tribal cultural resources. The 16 tribal representatives identified by NAHC were contacted in writing via United States Postal Service in a letter mailed August 15, 2023, prior to the receipt of the Sacred Lands File Search, informing each Tribe of the Project. Follow up emails were sent October 18, 2023.

1. Buena Vista Rancheria of Me-Wuk Indians, Rhonda Morningstar Pope, Chairperson
2. California Valley Miwok Tribe
3. California Valley Miwok Tribe, AKA Sheep Rancheria of Me-Wuk Indians of CA
4. Confederated Villages of Lisjan Nation, Cheyenne Gould, Tribal Cultural Resource Manager
5. Confederated Villages of Lisjan Nation, Deja Gould, Language Program Manager
6. Confederated Villages of Lisjan Nation, Corrina Gould, Chairperson
7. Ione Band of Miwok Indians, Sara Dutschke, Chairperson
8. North Valley Yokuts Tribe, Katherine Perez, Chairperson
9. North Valley Yokuts Tribe, Timothy Perez
10. Tule River Indian Tribe, Joey Garfield, Tribal Archaeologist
11. Tule River Indian Tribe, Neil Peyron, Chairperson
12. Tule River Indian Tribe, Kerri Vera, Environmental Department
13. Wilton Rancheria, Herbert Griffin, Executive Director of Cultural Preservation
14. Wilton Rancheria, Cultural Preservation Department
15. Wilton Rancheria, Dahlton Brown, Executive Director of Administration
16. Wuksachi Indian Tribe/Eshom Valley Band, Kenneth Woodrow, Chairperson

Based on the records search and other sources, the APE appeared to have low cultural resources sensitivity. Additionally, the intensive Class III inventory/Phase I survey demonstrated that no Native American sacred sites or cultural landscapes had been identified within or immediately adjacent to the study APE, and no archaeological sites had been recorded within the APE. Additionally, it was determined that the APE lacks significant historical resources or historic properties. The Project therefore does not have the potential to result in adverse impacts or effects to significant historical resources or historic properties. A finding of No Significant Impacts/No Historic Properties Affected is recommended for the Project.

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?

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

a and b) Less than Significant Impact with Mitigation Incorporated. A CHRIS records search, from the CCIC, was conducted in August 2023. The search confirmed there have not been any previous cultural resource studies conducted within the Project area and there have been six previous cultural resource

studies conducted within the one-half mile radius. The search also confirmed the absence of identified cultural resources within the Project APE and within a one-half mile radius of the Project APE. 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. 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.

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

Less than Significant Impact with Mitigation Incorporated. The Project would include a new regulating basin, an outlet flow control structure, and an outlet structure and connection box to assist in delivering water to the basin and other District facilities and lands. 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. In the unlikely event of such a discovery, mitigation shall be implemented. With incorporation of mitigation measure CUL-2 outlined below, impacts resulting from the discovery of remains interred on the Project site would be less than significant.

4.5.3 Federal Cross-Cutting Topic

National Historic Preservation Act

The National Historic Preservation Act of 1966 as amended created the National Register of Historic Places and extended protection to historic places of State, local, and national significance. It established the Advisory Council on Historic Preservation, State Historic Preservation Officer (SHPO), Tribal Preservation Officers, and a preservation grants-in-aid program. Section 106 directs federal agencies to take into account effects of their actions ("undertakings") on properties in or eligible for the National Register. Section 106 of the act is implemented by regulations of the Advisory Council on Historic Preservation (36 Code of Federal Regulations [CFR] Part 800).

The U.S. Department of the Interior criteria and procedures for evaluating a property's eligibility for inclusion in the National Register are at 36 CFR Part 60. The 36 CFR Part 800 regulations, implementing Section 106, call for consultation with the SHPO, Native American tribes, and interested members of the public throughout the Section 106 compliance process. The four principal steps are to:

- Initiate the Section 106 process (36 CFR Part 800.3);
- Identify historic properties, cultural resources that are eligible for inclusion in the National Register of Historic Places (36 CFR Part 800.4);
- Assess the effects of the undertaking to historic properties within the area of potential effect (36 CFR Part 800.5); and
- Resolve adverse effects (36 CFR Part 800.6).

Adverse effects on historic properties often are resolved through preparation of a Memorandum of Agreement (MOA), developed in consultation with the United States Bureau of Reclamation, the SHPO, Native American tribes, the Advisory Council on Historic Preservation, and interested members of the public. The MOA stipulates procedures that treat historic properties to mitigate adverse effects (36 CFR Part 800.14[b]).

No historic properties have been identified within the area of potential effects. Therefore, the proposed project would not have an adverse effect on historic properties.

4.5.4 Mitigation

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

CUL-2 In the event that human remains are discovered on the Project site, the San Joaquin County Coroner must be notified of that discovery (Health and Safety Code Section 7050.5) and all activities in the immediate area if the find or in any nearby area reasonably suspected of 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 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 4-13: 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?	☐	☐	☒	☐
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☒

4.6.1 Baseline Conditions

The Project is located within the service area of Pacific Gas and Electric for natural gas services and is located within the service area of Modesto Irrigation District for electrical services. Existing energy connection exists for Ripon Fire Station 52 abutting the Project site to the west.

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?

Less than Significant Impact. Fuel consumed by construction equipment would be the primary energy resource expended over the course of Project construction. For heavy-duty construction equipment, horsepower and load factor were assumed using default data from the CalEEMod model. Fuel use associated with construction vehicle trips generated by the Project was also estimated; trips include construction worker trips, haul trucks trips for material transport, and vendor trips for construction material deliveries. Fuel use from these vehicles traveling to the Project was based on (1) the projected number of trips the Project would generate (CalEEMod default values), (2) default average trip distance by land use in CalEEMod, and (3) fuel efficiencies estimated in the ARB 2017 Emissions Factors model (EMFAC2017) mobile source emission model.

Construction is estimated to consume a total of 43,027.2 gallons of diesel fuel and 2,353.29 gallons of gasoline fuel (See Appendix A). California Code of Regulations Title 13, Motor Vehicles, Section 2449(d)(2), Idling, limits idling times of construction vehicles to no more than 5 minutes, thereby precluding unnecessary and wasteful consumption of fuel because of unproductive idling of construction equipment. In addition, the energy consumption for construction activities would not be ongoing as they would be limited to the duration of Project construction.

Energy consumption of non-residential uses is currently governed by the 2022 California Building Code, Part 6 for structures, and Title 20 of the California Code of Regulations for appliances. Energy consumption is anticipated to decrease over time as more energy efficient standards take effect and energy-consuming equipment reaches its end-of-life and necessitates replacement. Therefore, impacts would be less than significant.

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

No Impact. State and local authorities regulate energy use and consumption. These regulations at the State level are intended to reduce energy use and greenhouse gas (GHG) emissions. These include, among others, AB 1493 – Light-Duty Vehicle Standards; California Code of Regulations Title 24, Part 6 – Energy Efficiency Standards; and California Code of Regulations Title 24, Parts 6 and 11 – California Energy Code and Green Building Standards. The Project would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency. Therefore, there would be no impact.

4.7 GEOLOGY AND SOILS

Table 4-14: 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:				
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?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
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?	☐	☐	☒	☐
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?	☐	☐	☒	☐
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?	☐	☐	☐	☒
f) Directly or indirectly destroy a unique paleontological resource or site or unique geological feature?	☐	☒	☐	☐

4.7.1 Baseline Conditions

Geology and Soils

San Joaquin County lies within the California geologic region known as the Great Valley geomorphic province.[8] The Great Valley geomorphic province is characterized by a long alluvial plain that extends approximately 400 miles through the central part of California. The Great Valley is further divided into the northern Sacramento Valley and the southern San Joaquin Valley. The valleys were created as a result of

[8] (California Department of Conservation 2002)

the uplift of the two mountain ranges that flank them, the Coast Ranges to the west and the Sierra Nevada mountain range to the east.[9] The Project site itself is located in the San Joaquin Valley.

Various soil types exist in San Joaquin County that are closely associated with alluvial action and deposition. According to the Natural Resources Conservation Service of the United States Department of Agriculture, there are a total of 183 different soil units located within San Joaquin County.[10] See Section 4.4 for Project site soils.

Faults and Seismicity

The Project site is not located within an Alquist-Priolo Earthquake Fault Zone and no known faults cut through the soil at the site.[11] The nearest major fault is the Hayward Fault, located over 50 miles west of the Project. The Hayward Fault is a member of the San Andreas Fault system. 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. A smaller fault zone, the Vernalis fault, is located approximately 11.5 miles southwest of the site.[12] The Vernalis Fault is a Quaternary fault, meaning that it has been recognized at the surface and has moved in the past 1.6 million years.[13]

Liquefaction

The potential for liquefaction, which is the loss of soil strength due to seismic forces, is dependent on soil types and density, the groundwater table, and the duration and intensity of ground shaking. Soil susceptible to liquefaction includes loose to medium dense sand and gravel, low-plasticity silt, and some low-plasticity clay deposits.[14] According to the DOC, the Project site is not affected by liquefaction.[15]

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 that become saturated, high in silt or clay content. According to the San Joaquin County Draft Environmental Impact Report, the Project site is not affected by subsidence.[16]

Dam and Levee Failure

San Joaquin County contains or is adjacent to various dams that provide beneficial water supply storage, hydroelectric generation, and flood control storage space. These dams are regularly surveyed by the California Division of Safety of Dams to verify their structural integrity, including their resistance to stresses that could result from local or regional earthquakes. In the unlikely event of a dam failure, large amounts of water could result in inundation throughout the County. According to dam failure inundation data, the Tulloch Dam located in the eastern adjacent county of Calaveras could impact the Project site. Tulloch Dam has a maximum storage capacity of 66,290 acre-feet (AF). Its inundation area is approximately 67 square

[9] (ESA 2014)
[10] (National Resource Conservation Service (NRCS) 2023)
[11] (California Department of Conservation 2015)
[12] Ibid.
[13] (United States Geological Survey 2023)
[14] (ESA 2014)
[15] (California Department of Conservation 2023)
[16] (ESA 2014)

miles and would potentially affect a population of 47,000 people mostly located in the Escalon, Ripon, Manteca, and Tracy areas.[17]

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?

a-i – a-iv) Less than Significant Impact.. The Project site does not contain any known Alquist-Priolo Earthquake Fault Zones, as listed by the California Geological Survey. According to the DOC, no active faults are located on the Project site. The closest fault is the Vernalis Fault, which is located approximately 11.5 miles southwest of the Project. Risks associated with seismic-related activity such as rupture of a fault, strong ground shaking, and ground failure, including liquefaction would be less than significant. In addition, the Project's topography is virtually flat, which is consistent with the San Joaquin Valley, resulting in a low to non-existent likelihood for landslide potential. Therefore, any impacts would be less than significant.

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 for the regulating basin and the ancillary facilities. 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. Construction activity resulting in a land disturbance of one acre or more would require the contractor to obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity Construction General Permit (CGP) 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 CGP requires the development of a Storm Water Pollution Prevention Plan (SWPPP) by a certified Qualified SWPPP Developer. Since the Project site has relatively flat terrain with a low potential for soil erosion, and would comply with the SWRCB requirements, impacts 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?

[17] (ESA 2014)

Less than Significant Impact. Most of the Project site and the surrounding area does not have any substantial grade changes to the point where the proposed regulating basin would expose people or structures to potential substantial adverse effects on- or offsite such as from landslides, lateral spreading, subsidence, liquefaction, or collapse. As mentioned earlier, subsidence and liquefaction risk are low at the Project site. 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?

No Impact. Expansive soils are those with excessive swelling clay minerals such as montmorillonite. The presence of expansive clay minerals in soils can cause excessive swelling when the soil comes into contact with water and also shrinkage when it undergoes drying.[18] As seen in Table 4-9, the Project site contains sandy loam and loamy sand. There are no clayey soils that would be susceptible to excessive swelling and shrinking; therefore, there would be no impact.

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. The Project would not require the use of septic tanks or any type of wastewater disposal systems. The Project would not construct any habitable structures that would indirectly result in the generation of wastewater. Therefore, 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 have been identified at the Project site to date. However, during construction, there is potential for a paleontological resource to be found. **GEO-1** will be implemented in the unlikely event that paleontological resources are encountered during Project construction.

4.7.3 Mitigation

GEO-1 Should paleontological resources be encountered on the Project site, all ground disturbing activities in the area shall stop. A qualified paleontologist shall be contacted to assess the discovery. Mitigation may include monitoring, recording the fossil locality, data recovery and analysis, and preparing a final report. Public educational outreach may also be appropriate. Upon completion of the assessment, a report documenting methods, findings, and recommendations shall be prepared and submitted to San Joaquin County for review, and (if paleontological materials are recovered) a paleontological repository, such as the University of California Museum of Paleontology.

[18] (ScienceDIrect 2021)

4.8 GREENHOUSE GAS EMISSIONS

Table 4-15: 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?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☒

4.8.1 Baseline Conditions

Commonly identified GHG emissions and sources include the following:

Carbon dioxide (CO_2) is an odorless, colorless natural greenhouse gas. CO_2 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 (CH_4) 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 (N_2O), 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.

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 (O_3) 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. O_3 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 (SF_6) 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 CO_2 to the global atmosphere during the past 20 years are due to fossil fuel burning. Atmospheric concentrations of CO_2, CH_4, and N_2O have increased by at least 40 percent, 150 percent, and 20 percent respectively since the year 1750. GHG emissions are typically expressed in carbon dioxide-equivalents (CO_2e), based on the GHG's Global Warming Potential (GWP). The GWP is dependent on the lifetime, or persistence, of the gas molecule in the atmosphere. For example, one ton of CH_4 has the same contribution to the greenhouse effect as approximately 25 tons of CO_2. Therefore, CH_4 is a much more potent GHG than CO_2. In accordance with SJVAPCD's *CEQA Greenhouse Gas Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects*[19], proposed projects complying with Best Performance Standards (BPS) would be determined to have a less-than-significant impact. Projects not complying with BPS would be considered less than significant if operational GHG emissions would be reduced or mitigated by a minimum of 29 percent, in comparison to business-as-usual (year 2004) conditions. In addition, project-generated emissions complying with an approved plan or mitigation program would also be determined to have a less-than-significant impact.

4.8.2 Impact Analysis

Project Related Emissions

Short-term construction emissions associated with the Project were calculated using CalEEMod, Version 2020.4.0. The emissions modeling includes emissions generated by off-road equipment, haul trucks, and worker commute trips. Emissions were quantified based on an anticipated construction schedule of approximately nine months. Remaining assumptions were based on the default parameters contained in

[19] (San Joaquin Valley Air Pollution Control District 2009)

the model. Modeling assumptions and output files are included in Appendix A. Estimated construction-generated emissions are summarized in Table 4-16. GHGs impact the environment over time as they increase and contribute to climate change. As discussed in Section 4.3, the amount of operational related emissions generated would be considered negligible.

Table 4-16: Short Term Construction Related GHG Emissions

	Emissions (MT $CO2_e$) in TPY
Maximum Annual Construction CO2e Emissions	338.7527
AB 32 Consistency Threshold for Land-Use Development Projects*	1,1OO
AB 32 Consistency Threshold for Stationary Source Projects*	10,000
Threshold Exceeded?	No
* As published in the Bay Area Air Quality Management District's CEQA Air Quality Guidelines. Available online at http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en Accessed 7/31/23.	

Construction related generation of GHGs would be a maximum of 338.7527 Metric Tons of Carbon Dioxide Equivalent (MT $CO2_e$) per year. While some operational emissions could result from the proposed Project, this quantity would be negligible. The Project would not exceed the AB 32 consistency threshold for land use projects for both short term construction emissions and long-term operational emissions as a result.

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. The Project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. As shown in Table 4-16, the Project is not expected to result in the generation of GHG emissions that would exceed the AB 32 consistency threshold of 1,100 MT $CO2_e$ annually during both construction and operational activities. Long term operational activities would result in negligible quantities of GHG emissions being generated due to use of pumps, valves, and associated water conveyance infrastructure. Therefore, impacts would be less than significant.

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

No Impact. The Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. The Project would be in compliance with all SJVAPCD policies and regulations and would not exceed an applicable threshold for GHG emissions. Therefore, there would be no impacts.

4.9 HAZARDS AND HAZARDOUS MATERIALS

Table 4-17: 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?	☐	☐	☒	☐
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?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
g) Expose people or structures, either directly or indirectly to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☒	☐

4.9.1 Baseline Conditions

Hazardous Materials

The Hazardous Waste and Substances Sites (Cortese) List is a planning document used by the State, local agencies, and developers to comply with CEQA requirements in providing information about the location of hazardous materials release sites. Government Code Section 65962.5 requires the California Environmental Protection Agency to develop at least annually an updated Cortese List. The Department of Toxic Substances Control (DTSC) is responsible for a portion of the information contained in the Cortese List. Other State and local government agencies are required to provide additional hazardous material release information for the Cortese List. DTSC's EnviroStor database provides DTSC's component of Cortese List data. In addition to the EnviroStor database, the SWRCB Geotracker database provides information on

regulated hazardous waste facilities in California, including underground storage tank (UST) cases and non-UST cleanup programs, including Spills-Leaks-Investigations-Cleanups (SLIC) sites, Department of Defense (DOD) sites, and Land Disposal program. A search of the DTSC EnviroStor database and the SWRCB Geotracker performed on August 10, 2023, determined that there are no known active hazardous waste generators or hazardous material spill sites within the Project area or immediate surrounding vicinity.[20]

Airports

The nearest active public airport is the Stockton Metropolitan Airport, located approximately 9.2 miles northwest of the Project site.

Emergency Response Plan

The San Joaquin County Office of Emergency Services coordinates the development and maintenance of the San Joaquin County Emergency Operations Plan.[21]

Sensitive Receptors

Due to the Project's agricultural landscape, there are a limited number of sensitive receptors in the area. There are four homes in the vicinity located within 500 feet of the regulating basin, with one of the four being situated within 150 feet of the basin. The residence located within 150 feet is located on the west side of Murphy Road and is blocked from the Project by the Ripon Fire Station 52.

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?

a and b) Less than Significant Impact. Equipment and materials used during construction activities would include fuels, oils and lubricants. The routine use or an accidental spill of hazardous materials used in construction could result in inadvertent releases, which could adversely affect construction workers, the public, and the environment.

Construction activities would be required to comply with numerous hazardous materials regulations designed to ensure that hazardous materials are transported, used, stored, and disposed of in a safe manner to protect worker safety, and to reduce the potential for a release of construction-related fuels or other hazardous materials into the environment, including stormwater and downstream receiving water bodies. As discussed in Section 4.7 Geology and Soils, the construction contractor would be required to apply for coverage under the NPDES CGP, which requires the preparation and implementation of a SWPPP for construction activities on sites with more than one acre of ground disturbance. A Spill Prevention, Control, and Countermeasure (SPCC) Plan for Project construction would be prepared. The SPCC Plan for Project construction would address fuels, lubricants, and hydraulic fluids expected to be used in construction equipment. Such equipment would be properly maintained to

[20] (California Department of Toxic Substances Control 2022); (State of California 2020)
[21] (San Joaquin County Office of Emergency Services 2022)

minimize leaks, and to prevent spills, vehicle service and repair would be performed off-site at an appropriate facility.

Details regarding examples of best management practices (BMPs) designed to minimize erosion are discussed in Section 4.10 Hydrology and Water Quality. The required compliance with applicable laws and regulations that govern the transportation, use, handling, and disposal of hazardous materials would limit the potential for creation of hazardous conditions due to the use or accidental release of hazardous materials, and this impact would be less than significant.

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. The Project is not located within a quarter mile of an existing or proposed school; the nearest school is Parkview Elementary, located approximately 2.5 miles southwest of the Project. 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 DTSC EnviroStor and the SWRCB Geotracker database were both reviewed on August 10, 2023, for any potential hazardous materials located onsite or in the vicinity of the Project. According to the query results, no such sites were found to be present. Therefore, 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 is not located in an airport land use plan or within two miles of an airport. The nearest airport, the Stockton Metropolitan Airport, is located over 9 miles away from the Project site. 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?

Less than Significant Impact. The Project includes the construction of a regulating basin and ancillary facilities associated to control flow rates to better deliver water to District irrigation water users. Construction traffic associated with the Project would be minimal and temporary, lasting approximately nine months. Operational traffic would consist of as-needed maintenance trips and would have no effect on roadways or emergency access. Road closures and detours are not anticipated as part of the construction phase of the Project. Therefore, Project-related impacts to emergency evacuation routes or emergency response routes on local roadways would be considered less than significant.

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

Less than Significant Impact. The Project is not located in or near a state responsibility area (SRA) or lands classified as very high fire hazard severity zones. The nearest SRA is located approximately 13.5 miles

northeast of the Project.[22] The nearest very high fire hazard severity zone is located approximately 25 miles northeast of the Project.[23] The Project does not include any residential components, nor would it require any employees to be stationed permanently at the site on a daily basis. Any impact would be less than significant.

[22] (California Department of Forestry and Fire Protection 2022)
[23] (ArcGIS n.d.)

4.10 HYDROLOGY AND WATER QUALITY

Table 4-18: 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?	☐	☐	☒	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☐	☒
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;	☐	☐	☒	☐
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?	☐	☐	☒	☐
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☒	☒
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

4.10.1 **Baseline Conditions**

The Project lies within the Lone Tree Creek watershed and the Lower Lone Tree Creek subwatershed. A watershed is the topographic region that drains into a stream, river, or lake. Watersheds are made up of many smaller subwatersheds that drain into a particular stream, river, or lake. The nearest surface water to the Project is the Later Q Canal, which bisects the Project site.

Lone Tree Creek watershed is fed by stormwater or snowmelt runoff from upland areas which flows into lone tree creek. Lone tree creek then flows into canals which then connect to the Lateral Q Canal that flows through the Project site. The Lateral Q Canal then flows into various unnamed canals and does not contain any downstream connections with jurisdictional waters.

The Project is located within the Eastern San Joaquin Groundwater Basin.[24] The portion of the underlying basin is managed by the South San Joaquin Groundwater Sustainability Agency (GSA), a Joint Powers Authority formed together by the District, and the cities of Escalon and Ripon. The South San Joaquin GSA works closely with other nearby agencies that overly the Eastern San Joaquin Groundwater Basin.[25]

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. Construction of the Project would involve the use of heavy equipment, such as excavation, grading, earthmoving, movement of spoils, installation of pipelines and placement of HDPE or concrete for the regulating basin. Even though soil erosion potential on the Project site is generally low, construction activities have the potential to increase rates of erosion, which could increase turbidity in downstream receiving waters. In addition, the use of heavy machinery during construction would have the potential to result in an accidental release of fuels, oils, solvents, hydraulic fluid, and other construction-related fluids to the environment, thereby degrading water quality. As mentioned in Section 4.9 Hazards and Hazardous Materials, a SPCC Plan for Project construction would be prepared. The SPCC Plan for Project construction would address fuels, lubricants, and hydraulic fluids expected to be used in construction equipment. Such equipment would be properly maintained to minimize leaks, and to prevent spills, vehicle service and repair would be performed off-site at an appropriate facility.

In addition, as mentioned in Section 4.7 Geology and Soils, SSJID would be required to obtain a NPDES CGP for Discharges of Stormwater Associated with Construction Activities from the Central Valley RWQCB before initiating ground-disturbing activities. A condition of the CGP would be the preparation and implementation of a SWPPP, as required by the SWRCB. The SWPPP involves site planning and scheduling, limiting disturbed soil areas, and determining BMPs to minimize the risk of pollution and sediments being discharged from construction sites. Implementation of the SWPPP would minimize the potential for the Project to substantially alter the existing drainage pattern in a manner that would result in substantial erosion or siltation onsite or offsite. The Project would not violate any water quality standards and would not impact waste discharge requirements. The impact would be 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 principal objective of the Project is to allow the District to provide a better, more efficient supply of water to irrigated farming operations within its service area. Currently, the District is experiencing water loss due to unstable flow rates. Implementation of the Project would assist in stabilizing flow rates, ultimately reducing water loss and allowing the efficient delivery of water. No new water users or additional water consumption would be included as a part of the Project. The combination of an increased efficiency of water delivery without any increase in water consumption would imply that there would not be a decrease of groundwater supplies. Therefore, there would be no impact.

[24] (California Department of Water Resources 2023)
[25] (South San Joaquin Irrigation District 2023)

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?

c-i – iv) Less than Significant Impact. The Project would construct a new regulating basin, flow control structure, and combined outlet structure and connection box that would be used to stabilize flow rates in the Lateral Q Canal. Once constructed, the regulating basin would accept gravity-fed flows from the District's Main Distribution Canal during unexpectedly high flows. The basin would be lined with either HDPE or clay and would reduce erosion and siltation. The regulating basin would not increase the amount of water in the SSJID canal system but would capture water that would otherwise spill to SSJID's drains, would improve operational flexibility, and would improve customer service through stable flow rates, increased water supply reliability, and faster operational response times. Therefore, this impact would be less than significant.

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

No Impact. As the Project is located inland and at least 50 miles from the nearest ocean, the Project is not located in a tsunami or seiche zone. According to the Federal Emergency Management Agency (FEMA) Flood Map Service Center, the Project is not located in a flood hazard area (see Figure 4-5).[26] 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?

Less than Significant Impact. As described previously, the Project would comply with the NPDES CGP, including the implementation of BMPs described in the SWPPP to prevent water quality pollutants such as silt, sediment, hazardous materials, and construction-related fluids from entering receiving waters. Implementing the Project would result in the addition of impervious surfaces from construction of the HDPE or clay-lined regulating basin; however, the Project would capture water that would otherwise be spilled to SSJID's drains, would improve operational flexibility, would improve customer service through stable flow rates increased water supply reliability, and would potentially reduce supplemental groundwater pumping. Therefore, impacts would be less than significant.

[26] (United States Federal Emergency Management Agency (FEMA) 2023)

4.10.3 Federal Cross-Cutting Topic

Flood Plain Management- Executive Order Numbers 11988, 12148, and 13690

FEMA designates flood hazard and frequency for cities and counties on its Flood Insurance Rate Maps. The proposed project area is not within a designated 100-year floodplain, on a floodplain map, or otherwise designated by FEMA.

Rivers and Harbors Act

The Rivers and Harbors Act of 1899 prohibits construction of any bridge, dam, dike, or causeway over or in navigable waterways of the U.S., without Congressional approval. Under Section 10 of the Act, the building of any wharfs, piers, jetties, and other structures is prohibited without Congressional approval, and excavation or fill within navigable waters requires the approval of the Chief of Engineers. The U.S. Army Corps of Engineers (USACE) is authorized to issue permits for the discharge of refuse matter into or affecting navigable waters under Section 13 of the act.

The proposed project would not be constructed in a location that would affect a navigable waterway, requiring permit or approval by USACE.

Safe Drinking Water Act, Sole Source Aquifer Protection

The Safe Drinking Water Act (SOWA) required USEPA to establish criteria through which an aquifer may be declared a critical aquifer protection area. Since 1977, it has been used by communities to help prevent contamination of groundwater from federally funded projects. These aquifers are defined as "sole source aquifers." USEPA's Sole Source Aquifer (SSA) Program was established under Section 1424(e) of the SOWA. These are, essentially, aquifers that are the only drinking water supply for the population of a region.

SSA designation protects an area's groundwater resources by requiring USEPA to review all proposed projects within the designated area that will receive federal financial assistance. The SSA Program states that if USEPA determines an area to have an aquifer which is the sole or principal drinking water source for the area, that if contaminated would create a significant hazard to public health, a notice of that determination needs to be published in the Federal Register. After publication of any such notice, no commitment for federal financial aid may be applied for any project that the Administrator determines may contaminate the aquifer through a recharge zone, so as to create a significant hazard to public health (US EPA 2019).

The Project is not located in a Sole Source Aquifer.[27]

[27] (United States Environmental Protection Agency 2023)

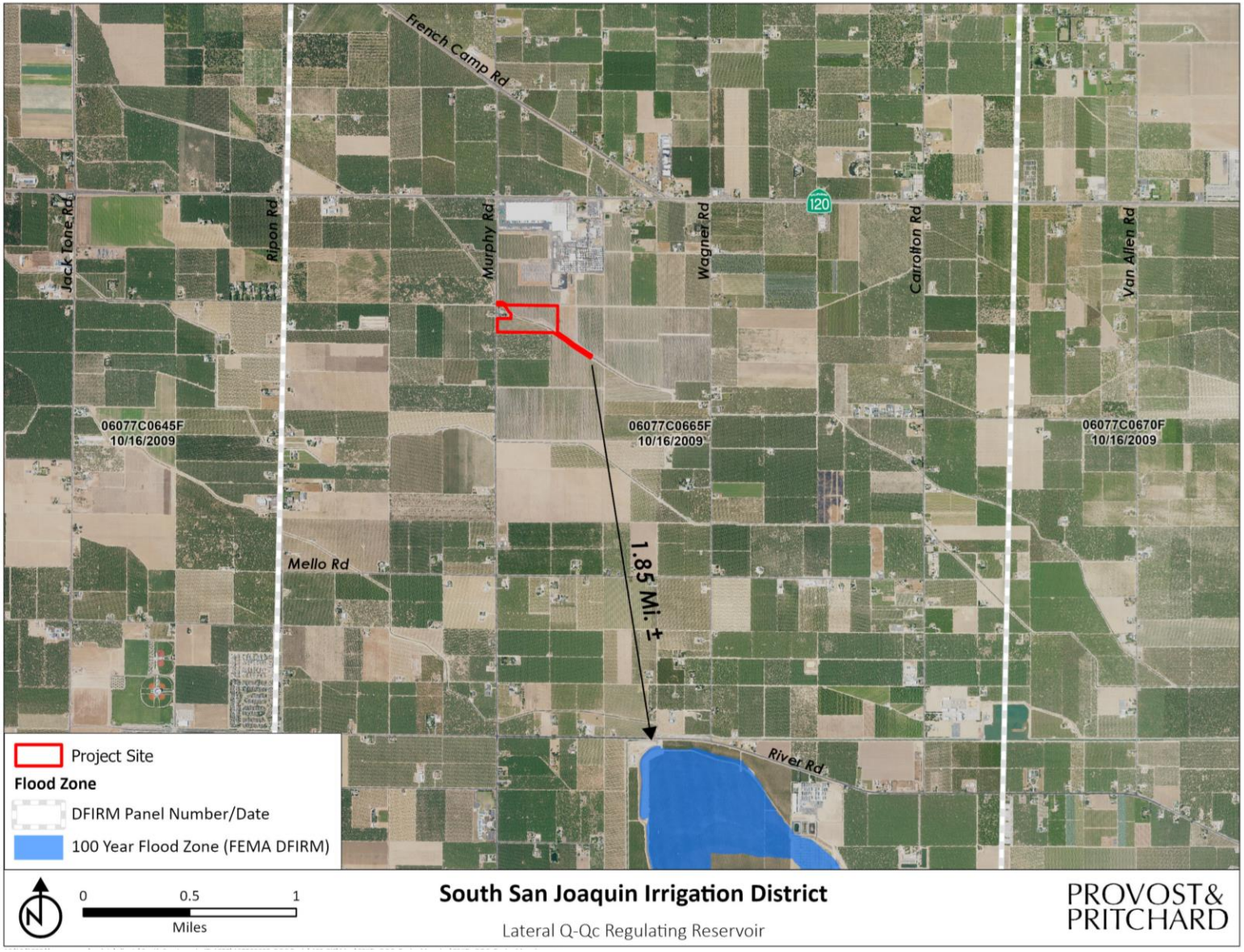

Figure 4-5: FEMA Flood Map

4.11 LAND USE AND PLANNING

Table 4-19: Land Use and Planning Impacts

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Physically divide an established community?	☐	☐	☐	☒
b) 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?	☐	☐	☐	☒

4.11.1 Baseline Conditions

The Project site is located within San Joaquin County. San Joaquin County, similar to all other California County, maintains a general plan. A general plan is each local government's blueprint for meeting the community's long-term vision for the future. The general plan contains a land use element that assigns all property with a planned land use. In addition, the County, also similar to other counties, maintains a municipal code that contains a zoning ordinance. The zoning ordinance provide specific development requirements to assist in carrying out the goals of each planned land use. See Table 4-20 below for the Project site's general plan land use designation and zoning district.

Table 4-20: Project General Plan Land Use and Zoning Designation

General Plan Designation	Zoning District
General Agriculture Open Space/Resource Conservation	General Agriculture- 40-acre minimum (AG-40)

4.11.2 Impact Analysis

a) Would the project physically divide an established community?

No Impact. The Project is located in an agricultural area within San Joaquin County, with the cities of Ripon and Manteca being the two closest cities to the Project. The surrounding uses are primarily used for agricultural purposes. The Project would not include any features that would physically divide any established community. 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. As shown in Table 4-20, the Project site is planned and zoned for agricultural purposes and open space purposes. The open space portion of the Project is the Lateral Q system itself, which will maintain its existing purpose. The regulating basin would be located on an existing agricultural property. The purpose of the Project is for the District to better deliver irrigation water to its customers by stabilizing water flow rates. Construction of the regulating basin would ultimately support the existing

land use plan by maintaining both the agricultural an open space element. This would assist in providing reliability for the existing agricultural operations in the region. The Project would not conflict with any existing applicable plans, policies, or regulations. There would be no impact.

4.11.3 Federal Cross-Cutting Topic

Coastal Zone Management Act

The Coastal Zone Management Act was enacted in 1972. This act, administered by the National Oceanic and Atmospheric Administration, provides management of the nation' s coastal resources. The California coastal zone generally extends 1,000 yards inland from the mean high tide line. The Project site is more than 100 miles from the coastline. Therefore, the proposed project would not conflict with the Coastal Zone Management Act.

4.12 MINERAL RESOURCES

Table 4-21: 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?	☐	☐	☐	☒
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?	☐	☐	☒	☐

4.12.1 Baseline Conditions

The primary mineral resource in San Joaquin County is sand and gravel aggregate. Other resources such as peat, gold, and silver extraction are known to occur. As of 2013, San Joaquin County contains 41 mining sites, with 13 of them being active with the remaining being closed or currently idle. Nearly all of these mines are for the extraction of sand and gravel.[28]

The State legislature adopted the Surface Mining and Reclamation Act in 1975, which designated Mineral Resource Zones (MRZs) for designating areas with varying degrees of mineral potential, as described below (DOC 1993):

- MRZ-1: Areas of no mineral resource significance.
- MRZ-2a: Areas that contain mineral reserves.
- MRZ-2b: Areas where geologic information infers mineral reserves are likely to be present.
- MRZ-3a: Areas with known occurrences of minerals with undetermined resource significance.
- MRZ-3b: Areas where geologic information infers occurrences of minerals with undetermined resource significance.
- MRZ-4: Areas of unknown mineral resource significance.

The Project site is located in a MRZ-3 area, which is an area with a known occurrence of minerals but with undetermined significance.[29]

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?

No Impact. The Project site is located in an area designated as MRZ-3. An MRZ-3 area is an area with a known occurrence of minerals but with undetermined significance. Therefore, the Project would not

[28] (ESA 2014)
[29] Ibid.

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. There would be no impact.

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?

Less than Significant Impact. The County's General Plan Draft Environmental Impact Report delineates the Project site as an MRZ-3 area. Although there may be known mineral resources at the Project site, implementation of the Project would not result in the loss of it. All excavated material would be balanced onsite; therefore, there would be no export of excavated material that could potentially contain mineral resources. Any impacts would be less than significant.

4.13 NOISE

Table 4-22: 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?	☐	☐	☒	☐
b) Generation of excessive ground borne vibration or ground borne noise levels?	☐	☐	☒	☐
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?	☐	☐	☐	☒

4.13.1 Baseline Conditions

With the exception of the adjacent fire station to the west and the nearby Wine Group warehouse to the north, the Project is located in a relatively unoccupied area with very little sensitive receptors.

4.13.2 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?

Less than Significant Impact. The Project would generate temporary noise during construction, which is expected to last approximately nine months. Noise during construction would primarily be generated from various construction equipment used. Table 4-23 below describes the typical noise associated with common construction equipment.

Table 4-23. Typical Construction Equipment Noise Levels

Typical Construction Equipment Noise Levels	
Equipment	Levels in dBA at 50 feet
Front Loader	73-86
Trucks	82-95
Cranes (Moveable)	75-88
Cranes (Derrick)	86-89
Vibrator	68-82
Saws	77-82

Typical Construction Equipment Noise Levels	
Equipment	Levels in dBA at 50 feet
Pneumatic Impact Equipment	83-88
Jackhammers	81-98
Pumps	68-72
Generators	71-83
Compressors	75-87
Concrete Mixers	75-88
Concrete Pumps	81-85
Backhoe	73-85
Pile Driving (Peaks)	95-107
Tractor	77-98
Scraper/Grader	80-93
Paver	85-88
Source: (U.S. Department of Transportation Federal Highway Administration 2017)	

Although there would be noise generated during construction, it would be temporary. As the Project would be passive in operation, there would be no new substantial noise emitted in the area from Project implementation. Additionally, according to the San Joaquin County municipal code, construction noise is exempt from the provisions of the County's noise regulations.[30] Therefore, the Project would not 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. Impacts would be less than significant.

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

Less than Significant Impact. Operation of the Project would not include any activities that would generate significant levels of vibration. Therefore, it is not anticipated that Project operation would expose the nearest sensitive receptor or structure (the Fire Station) to vibration levels that would result in annoyance. For this reason, the following analysis of the Project's vibration impacts evaluates only the effects of on-site construction activities.

For adverse human reaction, the analysis applies the "strongly perceptible" threshold of 0.9 inch per second (in/sec) PPV for transient sources. For risk of architectural damage to historic buildings and structures, the analysis applies a threshold of 0.12 in/sec PPV.[31] A threshold of 0.3 in/sec PPV is used to assess damage risk for all other buildings. There are no historic structures in the vicinity of the Project site that could be adversely affected by vibration related to Project construction. Construction of the Project would involve the use of excavators, graders, bulldozers, dump trucks, and loaders. The use of bulldozers would be expected to generate the highest vibration levels during construction. Vibration levels of bulldozers are typically 0.089 in/sec PPV at 25 feet, which is typical for a wide range of soils. Under typical propagation conditions, vibration levels at 100 feet would be approximately 0.0111 in/sec PPV, which is well below the Federal Transit Administration's threshold of 0.20 in/sec PPV for building damage. Therefore, this impact would be less than significant.

[30] (Municode 2023)
[31] (Caltrans 2013)

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 in an airport land use plan or within two miles of an airport. The nearest airport, the Stockton Metropolitan Airport, is located over nine miles away from the Project site. Therefore, there would be no impact.

4.14 POPULATION AND HOUSING

Table 4-24: 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 example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

4.14.1 Baseline Conditions

San Joaquin County has an estimated population of 793,229, as of July 2022.[32] The U.S. Census Bureau estimates that San Joaquin County contains approximately 259,474 housing units, also as of July 2022.[33] The Project area is located in an unincorporated area of the County, which is located outside of areas that are densely populated. The Project is located in a rural agricultural region of the County located approximately 4.3 miles east of the city of Manteca.

4.14.2 Impact Analysis

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

No Impact. The Project would allow for existing irrigation water supplies to be more efficiently delivered to customers within the District. No water involved in the Project would be for domestic purposes that could directly or indirectly induce substantial population growth in the region. The Project area is located in a rural agricultural area and has not been planned for urban uses. Therefore, there would be no impact.

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

No Impact. The Project is not located in an urbanized area that contains a large number of people or housing. The Project area is located in a rural agricultural area that has not been planned for a large population. As mentioned previously, the Project area is planned for agricultural and open space uses. Therefore, the Project would not displace existing people or housing. There would be no impact.

[32] (United States Census Bureau 2022)
[33] Ibid.

4.14.3 Federal Cross-Cutting Topic

Environmental Justice Executive Order 12898

Executive Order (EO) 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, was issued in 1994. The EO directs federal agencies to identify and address the disproportionately high and adverse human health or environmental effects of their actions on minority and low-income populations, to the greatest extent practicable and permitted by law.

USEPA has developed a mapping and screening tool called EJSCREEN that uses nationally consistent data to identify minority or low-income communities. According to EJSCREEN, the proposed project site is not in an environmental justice community (US EPA 2015). In addition, the purpose of the project would be to supply reliable water to agricultural water users of the District. Because the proposed project would directly benefit the local community only, no disproportional health of environmental effect would be imposed on minority or low-income populations. The proposed project would not conflict with the purpose and objectives of EO 12898.

4.15 PUBLIC SERVICES

Table 4-25: 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:				
Fire protection?	☐	☐	☒	☐
Police protection?	☐	☐	☒	☐
Schools?	☐	☐	☒	☐
Parks?	☐	☐	☒	☐
Other public facilities?	☐	☐	☒	☐

4.15.1 Baseline Conditions

Fire Protection: The Project area would be served by the San Joaquin County Fire Department. The Project is located within the Ripon Fire District and the closest fire station is Ripon Fire Station No. 52, located adjacent to the Project.

Police Protection: Police protection is provided by the San Joaquin County Sheriff's Department. San Joaquin County Sheriff's Department contains one station located approximately 12 miles northwest of the Project.

Schools: The nearest school is Parkview Elementary, located approximately 2.5 miles southwest of the Project.

Parks: The nearest park to the Project site is Mistlin Sports Park, located approximately 2.25 miles southwest.

Landfills: The nearest landfill to the Project site is the Republic Services Forward Inc. and Austin Road Landfill, located approximately 5.2 miles to the northwest.

4.15.2 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:

i. Fire Protection:

ii. Police Protection:

iii. Schools:

iv. Parks:

v. Other public facilities:

a-i – a-iv) Less than Significant Impact. The Project would not require new or altered governmental facilities in order to maintain acceptable service ratios, response times, or other performance objectives for public services. The Project involves the construction and operation of a regulating basin and supporting infrastructure to stabilize flow rates in District facilities. There would be no impact to the listed public services.

4.16 RECREATION

Table 4-26: 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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

4.16.1 Baseline Conditions

San Joaquin County is home to a variety of parks and recreational facilities. According to the County's General Plan Policy Document, the single most important recreational resource in the County is the Sacramento-San Joaquin Delta.[34] Saltwater from the San Francisco Bay mixes with fresh water from the Sacramento, San Joaquin, and other rivers to create the largest estuary on the West Coast.[35] Recreation and open space resources and facilities include federal, State, and County recreation and wildlife areas, County maintained regional, community, and local parks, other recreational facilities such as city parks and school playgrounds, and other recreation resources such as waterways and habitat areas.[36]

The Project site itself does not contain any parks or recreational facilities. The nearest park to the Project site is the Mistlin Sports Park, located approximately 2.25 miles southwest. In addition, the Stanislaus River, which offers a variety of recreational opportunities, is located 3.2 miles directly south of the Project site.

4.16.2 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?

No Impact. The Project includes the construction of a regulating basin, a flow control structure, and a combined concrete outlet structure and connection box that would be used to stabilize flow rates in the Lateral Q canal. Project features would not increase the use or demand of any existing neighborhood park, regional park, or any other recreational facilities of any kind. Population growth is not anticipated or associated with the Project. Therefore, there would be no impact.

[34] (Mintier Harnish Planning Consultants 2016)
[35] (California Department of Water Resources 2023)
[36] (Mintier Harnish Planning Consultants 2016)

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 include recreational facilities, nor does it propose the expansion of any existing recreational facilities. As mentioned, the Project's objective is to allow the District to deliver a more secure, reliable source of water to its users. There would be no impact.

4.17 TRANSPORTATION

Table 4-27: 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?	☐	☐	☒	☐
b) Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)??	☐	☐	☒	☐
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
d) Result in inadequate emergency access?	☐	☐	☒	☐

4.17.1 Baseline Conditions

The Project is located in a predominantly rural and agriculturally-dominated area of San Joaquin County. The Project is located off of Murphy Road, approximately 0.5 miles south of State Route 120 (Yosemite Avenue). Other roadways in the vicinity of the Project consist of dirt roads used by landowners to access their farming operations. As previously mentioned, the nearest airport is the Stockton Metropolitan Airport, located approximately 9.2 miles northwest of the Project site.

4.17.2 Impact Analysis

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

Less than Significant Impact. Construction of the Project would temporarily generate increases in vehicle trips by workers and vehicles on adjacent roadways. There could be a minimal increase in truck trips for construction; however, given the scale of the Project and the length of the construction period, the capacity of local roads used to access the Project site would not likely be substantially reduced. Project operation and maintenance would require regular inspection to assess basin and flow control structure integrity and would result in a minor increase in vehicle trips. Considering the minor increase in traffic, the Project would not worsen any existing levels of service. Therefore, this impact would be less than significant.

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

Less than Significant Impact. Section 15064.3 of the State CEQA Guidelines establishes specific considerations for evaluating a project's transportation impacts. The State CEQA Guidelines identify vehicle miles traveled (VMT), which is defined as the amount and distance of automobile travel attributable to a project, as the most appropriate measure of transportation impacts. Other relevant

considerations may include the effects of a project on transit and nonmotorized travel. Construction of the Project would last approximately nine months and would use existing construction crews. Operation of the Project would not add a substantial amount of VMT to the Project area. Therefore, impacts would be less than significant.

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)?

No Impact. No new roadway design features are associated with the Project that could increase hazards.

The Project would require construction equipment to be transported to the Project site using hauling trucks. Project area roadways are suitable for the transporting of heavy-duty construction equipment; therefore, there would be no impact.

d) Would the project result in inadequate emergency access?

Less than Significant Impact. Temporary construction staging would not block or interfere with emergency response vehicles. Increases in traffic volumes on local roadways providing access to the Project site could cause intermittent and temporary slowdowns in traffic flow during construction, although truck trips associated with Project operation are not expected to cause access on local roadways to deteriorate. Based upon these reasons, the Project would not result in inadequate emergency access, Impacts would be less than significant.

4.18 TRIBAL CULTURAL RESOURCES

Table 4-28: 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	☐	☒	☐	☐
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.	☐	☒	☐	☐

4.18.1 Baseline Conditions

The Project is located within the general territory of the central and southern Sierra Miwoks (alternatively Me-Wuk or Miwuk). The Sierra Miwok, members of the Penutian language family, occupied the territory between the Mokelumne and Fresno rivers, as well as the full width of the west slope of the Sierra Nevada Mountain Range, from the edge of the Central valley to the Sierra Crest.

The influx of outsiders to the central Sierra region during the Gold Rush period resulted in a major disruption for the Miwoks and their way of life. Within a decade, diseases, environmental damage, and cultural conflicts with the outsiders had decimated much of the population. Despite this calamity, some tribal members managed to survive and have continued their cultural traditions.

The NAHC in Sacramento was contacted in August 2023 and they were provided with a brief description of the Project and a map showing its location and requested a search of the SLF to determine if any Native American resources have been recorded in the immediate APE. The NAHC identifies, catalogs, and protects Native American cultural resources -- ancient places of special religious or social significance to Native

Americans and known ancient graves and cemeteries of Native Americans on private and public lands in California. The NAHC is also charged with ensuring California Native American tribes' accessibility to ancient Native American cultural resources on public lands, overseeing the treatment and disposition of inadvertently discovered Native American human remains and burial items, and administering the CalNAGPRA, among many other powers and duties. The results from the SLF File Search came back negative for the presence of tribal cultural resources. In addition, the NAHC provide a current list of Native American Tribal contacts to notify of the project. The ten tribal representatives identified by NAHC were contacted in writing via United States Postal Service in a letter dated August 15, 2023, prior to the receipt of the Sacred Lands File Search, informing each Tribe of the Project. Follow up emails were sent October 18, 2023.

4.18.2 Impact Assessment

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. Less than significant impacts, with mitigation incorporated, to tribal resources are expected. Mitigation Measures CUL-1 and CUL-2, described above in Section 4.5 Cultural Resources, are recommended in the event cultural materials or human remains are unearthed during excavation or construction.

4.18.3 Mitigation

See CUL-1 and CUL-2 above in Section 4.5.4.

4.19 UTILITIES AND SERVICE SYSTEMS

Table 4-29: 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?	☐	☐	☐	☒
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☒	☐
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☐	☒

4.19.1 Baseline Conditions

SSJID's water supply comes primarily from surface water captured into the Tulloch and Goodwin Dam Reservoirs.

The nearest wastewater facility is the Manteca Wastewater Treatment Plant, located approximately 8.4 miles west of the Project site.

There are various solid waste facilities/landfills within a 15-mile radius of the Project site.

Gas and electricity services in the area are provided by Pacific Gas and Electric.

4.19.2 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 includes the construction of a regulating basin and a flow control structure for the purpose of reducing water loss by stabilizing flow rates. The Project would not generate wastewater and would not require the construction of new or expanded services. 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. There is no anticipated increase in water demand resulting from implementation of the Project. The Project would not impede sustainable groundwater management of the Eastern San Joaquin Groundwater Basin, nor would it substantially decrease groundwater supplies. 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. No wastewater would be generated as part of the Project. There would be no change to nearby wastewater facilities or operations. 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. Project construction could generate minor solid waste, but the amount generated would be negligible. Construction and operation would not 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. Impacts 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?

No Impact. The Project would conform to all applicable statutes and regulations related to solid waste disposal. The Project would comply with the adopted policies related to solid waste, and would comply with all applicable federal, State, and local statutes and regulations pertaining to disposal of solid waste, including recycling. Therefore, the Project would have no impact on solid waste regulations.

4.20 WILDFIRE

Table 4-30: 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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

4.20.1 Baseline Conditions

The Project is located in San Joaquin County within the San Joaquin Valley. The physical setting of the Project area consists of flat agricultural land containing row crops, orchards, irrigation delivery systems, rural County roads, and other typical rural/agricultural infrastructure. In contrast, just north of the Project site is a large warehouse building used to package and ship wine products and to the east is the Ripon Fire Station 52.

According to California Department of Forestry and Fire Protection (CalFire), the Project is not located within an SRA, meaning CalFire does not assume responsibility for wildfire prevention and protection, and it is managed at the local level.[37] Furthermore, according to CalFire, the Project area is not located within a Very High Fire Hazard Severity Zone, nor is the Project located within a high or moderate fire hazard severity zone.[38]

[37] (California Department of Forestry and Fire Protection 2022)
[38] (ArcGIS 2023)

4.20.2 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?

a-d) Less than Significant Impact. The Project area is located in a section of San Joaquin County that has not been designated as either a Very High Fire Hazard Severity Zone or an SRA. Therefore, further analysis is not required and there would be no impact.

4.21 CEQA MANDATORY FINDINGS OF SIGNIFICANCE

Table 4-31: 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?	☐	☒	☐	☐
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)?	☐	☐	☒	☐
c) Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

4.21.1 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 Project, with incorporation of mitigation measures, would have a less than significant effect on the environment. The potential for impacts to biological resources, cultural resources, geology and soils, and tribal cultural resources from the construction and operation of the Project would be less than significant with the incorporation of the mitigation measures discussed in Chapter 5 Mitigation, Monitoring, and Reporting Program. Accordingly, the Project would 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. As discussed above, the Project would result in less than significant impacts to biological resources, cultural resources, geology and soils, and tribal cultural resources with mitigation incorporated. Project operations would not require any on-site personnel. Maintenance would be performed on an as-needed basis and would not require any permanent on-site personnel. As such, the Project operations would generate minimal Project-related vehicle trips as a result of implementation. The implementation of the identified Project-specific mitigation measures, and compliance with applicable codes, ordinances, laws, and other required regulations would reduce the magnitude of any impacts associated with construction activities to a less than significant level.

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 would not result in substantial adverse effects on human beings, either directly or indirectly. The implementation of the identified mitigation measures would reduce the Project's potential environmental effects on the public and the environment to less than significant levels. No additional mitigation measures would be required. Adverse effects on human beings resulting from implementation of the Project 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 San Joaquin 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						
Migratory Birds, Raptors, and Special Status Birds, including Swainson's Hawk						
BIO-1	(Avoidance): The Project's construction activities will occur, if feasible, between September 15 and January 31 (outside of the nesting bird season) to avoid impacts to nesting birds.	September 15 to January 31	Prior to construction activities	SSJID with assistance of a qualified biologist		
BIO-2	(Pre-construction Surveys): If activities must occur within the nesting bird season (February 1 to September 14), a qualified biologist will conduct a pre-construction survey for Swainson's hawk nests onsite and within a 0.5-mile radius. This one time take avoidance survey will be conducted 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), or current guidance. The pre-construction survey would also provide a presence/absence survey for all other nesting birds within the project site, and up to 100 feet outside of the project site for nesting migratory birds and up to 500 feet outside of the project site for nesting raptors. Raptor nests would be considered "active" upon the nest-building stage. If no active nests are observed, no further mitigation is required	Prior to construction activities	Once, Prior to ground disturbing activities and the start of construction	SSJID with assistance of a qualified biologist		
BIO-3	(Avoidance Buffers): On discovery of any active nests or breeding colonies near work areas, a qualified biologist will determine appropriate avoidance buffer distances based on applicable CDFW and/or USFWS guidelines, the biology of the species, conditions of the nest(s), and the level of project disturbance. If necessary, avoidance buffers will be identified with flagging, fencing, or other easily visible means, and will be maintained until the	During construction	As determined by qualified biologist during construction activities	SSJID with assistance of a qualified biologist		

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
	biologist has determined that the nestlings have fledged.					
Wildlife Movement Corridors and Native Wildlife Nursery Sites						
BIO-4	(Operational Hours): Construction activities would be limited to a half hour after sunrise through a half hour before sunset to reduce potential impacts to wildlife movement corridors	During construction activities	During construction activities	SSJID		
BIO-5	(Wildlife Access): Access will not be blocked outside of construction hours or during overnight hours or weekends. If construction must block both sides of a wildlife access route, an alternative route through the construction area should be identified by a qualified biologist and maintained throughout the construction schedule timeframe	During Construction activities	During construction activities	SSJID with assistance of a qualified biologist		
BIO-6	(Cover Excavations): Pipeline/culvert/siphon excavations and vertical pipes will be covered each night to prevent wildlife from falling in and becoming trapped or injured during migratory or dispersal movements	During construction activities	Daily during construction activities	SSJID		
Cultural Resources						
CUL-1	Should archaeological remains or artifacts be unearthed during any stage of project activities, work in the area of the discovery shall cease until the area is evaluated by a qualified archaeologist. If mitigation is warranted, the project proponent shall abide by recommendations of the archaeologist.	During Construction Activities	During Construction Activities	SSJID with assistance of a qualified archaeologist		
CUL-2	In the event that human remains are discovered on the Project site, the San Joaquin County Coroner must be notified of that discovery (Health and Safety Code Section 7050.5) and all activities in the immediate area if the find or in any nearby area reasonably suspected of 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 NAHC in Sacramento within 24 hours to	During Construction Activities	During Construction Activities	SSJID with assistance of a County Coroner, NAHC and tribal contacts as necessary		

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
	permit the NAHC to determine the most likely descendent of the deceased Native American					
Geology and Soils						
GEO-1	Should paleontological resources be encountered on the Project site, all ground disturbing activities in the area shall stop. A qualified paleontologist shall be contacted to assess the discovery. Mitigation may include monitoring, recording the fossil locality, data recovery and analysis, and preparing a final report. Public educational outreach may also be appropriate. Upon completion of the assessment, a report documenting methods, findings, and recommendations shall be prepared and submitted to San Joaquin County for review, and (if paleontological materials are recovered) a paleontological repository, such as the University of California Museum of Paleontology.	During Construction Activities	During Construction Activities	SSJID with assistance of a qualified paleontologist		
Tribal Cultural Resources						
TCR-1	See **CUL-1**	During Construction Activities	During Construction Activities	SSJID with assistance of a qualified archaeologist		
TCR-2	See **CUL-2**	During Construction Activities	During Construction Activities	SSJID with assistance of a County Coroner, NAHC and tribal contacts as necessary		

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Appendix A: CalEEMod Output Files

SSJID QQC Basin - San Joaquin County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

SSJID QQC Basin

San Joaquin County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	18.47	Acre	18.47	804,553.20	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	51
Climate Zone	2			**Operational Year**	2025
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - 18.4 = BASIN
0.07 = PIPE

Construction Phase - Construction Schedule

Grading - Acreage Graded

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	30.00	160.00
tblConstructionPhase	NumDays	10.00	30.00
tblConstructionPhase	PhaseEndDate	9/20/2024	3/21/2025
tblConstructionPhase	PhaseStartDate	7/27/2024	7/1/2024
tblGrading	AcresOfGrading	480.00	90.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblGrading	AcresOfGrading	45.00	15.00

2.0 Emissions Summary

SSJID QQC Basin - San Joaquin County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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					
2024	0.2075	2.0610	1.7160	3.8200e-003	0.6441	0.0866	0.7307	0.3265	0.0797	0.4062	0.0000	336.0295	336.0295	0.1064	2.1000e-004	338.7527
2025	0.0856	0.8112	0.7749	1.8400e-003	0.2270	0.0328	0.2598	0.1024	0.0302	0.1326	0.0000	161.4538	161.4538	0.0512	9.0000e-005	162.7608
Maximum	**0.2075**	**2.0610**	**1.7160**	**3.8200e-003**	**0.6441**	**0.0866**	**0.7307**	**0.3265**	**0.0797**	**0.4062**	**0.0000**	**336.0295**	**336.0295**	**0.1064**	**2.1000e-004**	**338.7527**

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					
2024	0.2075	2.0610	1.7160	3.8200e-003	0.2575	0.0866	0.3441	0.1290	0.0797	0.2087	0.0000	336.0291	336.0291	0.1064	2.1000e-004	338.7523
2025	0.0856	0.8112	0.7749	1.8400e-003	0.0913	0.0328	0.1242	0.0407	0.0302	0.0709	0.0000	161.4536	161.4536	0.0512	9.0000e-005	162.7606
Maximum	**0.2075**	**2.0610**	**1.7160**	**3.8200e-003**	**0.2575**	**0.0866**	**0.3441**	**0.1290**	**0.0797**	**0.2087**	**0.0000**	**336.0291**	**336.0291**	**0.1064**	**2.1000e-004**	**338.7523**

SSJID QQC Basin - San Joaquin County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	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	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**59.96**	**0.00**	**52.73**	**60.44**	**0.00**	**48.11**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**7-1-2024**	**9-30-2024**	1.0901	1.0901
2	**10-1-2024**	**12-31-2024**	1.1726	1.1726
3	**1-1-2025**	**3-31-2025**	0.8837	0.8837
		Highest	1.1726	1.1726

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	0.0688	0.0000	1.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.3000e-004	3.3000e-004	0.0000	0.0000	3.5000e-004
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	**0.0688**	**0.0000**	**1.7000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**3.3000e-004**	**3.3000e-004**	**0.0000**	**0.0000**	**3.5000e-004**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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	0.0688	0.0000	1.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.3000e-004	3.3000e-004	0.0000	0.0000	3.5000e-004
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	**0.0688**	**0.0000**	**1.7000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**3.3000e-004**	**3.3000e-004**	**0.0000**	**0.0000**	**3.5000e-004**

	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	N20	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

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	7/1/2024	8/9/2024	5	30	
2	Grading	Grading	8/10/2024	3/21/2025	5	160	

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 90

Acres of Paving: 18.47

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	4	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	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2024

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					0.2790	0.0000	0.2790	0.1498	0.0000	0.1498	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0399	0.4076	0.2750	5.7000e-004		0.0184	0.0184		0.0170	0.0170	0.0000	50.1856	50.1856	0.0162	0.0000	50.5914
Total	**0.0399**	**0.4076**	**0.2750**	**5.7000e-004**	**0.2790**	**0.0184**	**0.2974**	**0.1498**	**0.0170**	**0.1668**	**0.0000**	**50.1856**	**50.1856**	**0.0162**	**0.0000**	**50.5914**

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	7.2000e-004	4.6000e-004	5.6800e-003	2.0000e-005	2.1500e-003	1.0000e-005	2.1600e-003	5.7000e-004	1.0000e-005	5.8000e-004	0.0000	1.6314	1.6314	5.0000e-005	4.0000e-005	1.6459
Total	**7.2000e-004**	**4.6000e-004**	**5.6800e-003**	**2.0000e-005**	**2.1500e-003**	**1.0000e-005**	**2.1600e-003**	**5.7000e-004**	**1.0000e-005**	**5.8000e-004**	**0.0000**	**1.6314**	**1.6314**	**5.0000e-005**	**4.0000e-005**	**1.6459**

SSJID QQC Basin - San Joaquin County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2024

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					0.1088	0.0000	0.1088	0.0584	0.0000	0.0584	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0399	0.4076	0.2750	5.7000e-004		0.0184	0.0184		0.0170	0.0170	0.0000	50.1855	50.1855	0.0162	0.0000	50.5913
Total	**0.0399**	**0.4076**	**0.2750**	**5.7000e-004**	**0.1088**	**0.0184**	**0.1272**	**0.0584**	**0.0170**	**0.0754**	**0.0000**	**50.1855**	**50.1855**	**0.0162**	**0.0000**	**50.5913**

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	7.2000e-004	4.6000e-004	5.6800e-003	2.0000e-005	2.1500e-003	1.0000e-005	2.1600e-003	5.7000e-004	1.0000e-005	5.8000e-004	0.0000	1.6314	1.6314	5.0000e-005	4.0000e-005	1.6459
Total	**7.2000e-004**	**4.6000e-004**	**5.6800e-003**	**2.0000e-005**	**2.1500e-003**	**1.0000e-005**	**2.1600e-003**	**5.7000e-004**	**1.0000e-005**	**5.8000e-004**	**0.0000**	**1.6314**	**1.6314**	**5.0000e-005**	**4.0000e-005**	**1.6459**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2024

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					0.3549	0.0000	0.3549	0.1740	0.0000	0.1740	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1641	1.6512	1.4139	3.1700e-003		0.0681	0.0681		0.0627	0.0627	0.0000	278.0496	278.0496	0.0899	0.0000	280.2977
Total	**0.1641**	**1.6512**	**1.4139**	**3.1700e-003**	**0.3549**	**0.0681**	**0.4230**	**0.1740**	**0.0627**	**0.2366**	**0.0000**	**278.0496**	**278.0496**	**0.0899**	**0.0000**	**280.2977**

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	2.7300e-003	1.7200e-003	0.0215	7.0000e-005	8.1200e-003	4.0000e-005	8.1600e-003	2.1600e-003	3.0000e-005	2.1900e-003	0.0000	6.1630	6.1630	1.7000e-004	1.7000e-004	6.2177
Total	**2.7300e-003**	**1.7200e-003**	**0.0215**	**7.0000e-005**	**8.1200e-003**	**4.0000e-005**	**8.1600e-003**	**2.1600e-003**	**3.0000e-005**	**2.1900e-003**	**0.0000**	**6.1630**	**6.1630**	**1.7000e-004**	**1.7000e-004**	**6.2177**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2024

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					0.1384	0.0000	0.1384	0.0679	0.0000	0.0679	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1641	1.6512	1.4139	3.1700e-003		0.0681	0.0681		0.0627	0.0627	0.0000	278.0492	278.0492	0.0899	0.0000	280.2974
Total	**0.1641**	**1.6512**	**1.4139**	**3.1700e-003**	**0.1384**	**0.0681**	**0.2065**	**0.0679**	**0.0627**	**0.1305**	**0.0000**	**278.0492**	**278.0492**	**0.0899**	**0.0000**	**280.2974**

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	2.7300e-003	1.7200e-003	0.0215	7.0000e-005	8.1200e-003	4.0000e-005	8.1600e-003	2.1600e-003	3.0000e-005	2.1900e-003	0.0000	6.1630	6.1630	1.7000e-004	1.7000e-004	6.2177
Total	**2.7300e-003**	**1.7200e-003**	**0.0215**	**7.0000e-005**	**8.1200e-003**	**4.0000e-005**	**8.1600e-003**	**2.1600e-003**	**3.0000e-005**	**2.1900e-003**	**0.0000**	**6.1630**	**6.1630**	**1.7000e-004**	**1.7000e-004**	**6.2177**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2025

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					0.2224	0.0000	0.2224	0.1012	0.0000	0.1012	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0841	0.8103	0.7636	1.8000e-003		0.0328	0.0328		0.0302	0.0302	0.0000	158.0680	158.0680	0.0511	0.0000	159.3461
Total	**0.0841**	**0.8103**	**0.7636**	**1.8000e-003**	**0.2224**	**0.0328**	**0.2552**	**0.1012**	**0.0302**	**0.1313**	**0.0000**	**158.0680**	**158.0680**	**0.0511**	**0.0000**	**159.3461**

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	1.4400e-003	8.7000e-004	0.0113	4.0000e-005	4.6200e-003	2.0000e-005	4.6400e-003	1.2300e-003	2.0000e-005	1.2500e-003	0.0000	3.3858	3.3858	9.0000e-005	9.0000e-005	3.4147
Total	**1.4400e-003**	**8.7000e-004**	**0.0113**	**4.0000e-005**	**4.6200e-003**	**2.0000e-005**	**4.6400e-003**	**1.2300e-003**	**2.0000e-005**	**1.2500e-003**	**0.0000**	**3.3858**	**3.3858**	**9.0000e-005**	**9.0000e-005**	**3.4147**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2025

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					0.0867	0.0000	0.0867	0.0395	0.0000	0.0395	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0841	0.8103	0.7636	1.8000e-003		0.0328	0.0328		0.0302	0.0302	0.0000	158.0678	158.0678	0.0511	0.0000	159.3459
Total	**0.0841**	**0.8103**	**0.7636**	**1.8000e-003**	**0.0867**	**0.0328**	**0.1195**	**0.0395**	**0.0302**	**0.0696**	**0.0000**	**158.0678**	**158.0678**	**0.0511**	**0.0000**	**159.3459**

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	1.4400e-003	8.7000e-004	0.0113	4.0000e-005	4.6200e-003	2.0000e-005	4.6400e-003	1.2300e-003	2.0000e-005	1.2500e-003	0.0000	3.3858	3.3858	9.0000e-005	9.0000e-005	3.4147
Total	**1.4400e-003**	**8.7000e-004**	**0.0113**	**4.0000e-005**	**4.6200e-003**	**2.0000e-005**	**4.6400e-003**	**1.2300e-003**	**2.0000e-005**	**1.2500e-003**	**0.0000**	**3.3858**	**3.3858**	**9.0000e-005**	**9.0000e-005**	**3.4147**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

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 Non-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 Non-Asphalt Surfaces	9.50	7.30	7.30	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 Non-Asphalt Surfaces	0.541920	0.052620	0.169871	0.146633	0.025153	0.006100	0.012627	0.016953	0.000467	0.000322	0.022878	0.001103	0.003353

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	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					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas 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
NaturalGas 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

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	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
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Non-Asphalt Surfaces	0	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
Total		**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**

Mitigated

	NaturalGas Use	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
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Non-Asphalt Surfaces	0	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
Total		**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**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-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 Non-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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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	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	0.0688	0.0000	1.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.3000e-004	3.3000e-004	0.0000	0.0000	3.5000e-004
Unmitigated	0.0688	0.0000	1.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.3000e-004	3.3000e-004	0.0000	0.0000	3.5000e-004

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	0.0168					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0520					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-005	0.0000	1.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.3000e-004	3.3000e-004	0.0000	0.0000	3.5000e-004
Total	**0.0688**	**0.0000**	**1.7000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**3.3000e-004**	**3.3000e-004**	**0.0000**	**0.0000**	**3.5000e-004**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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	0.0168					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0520					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-005	0.0000	1.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.3000e-004	3.3000e-004	0.0000	0.0000	3.5000e-004
Total	**0.0688**	**0.0000**	**1.7000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**3.3000e-004**	**3.3000e-004**	**0.0000**	**0.0000**	**3.5000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	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 Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-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

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-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 Non-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

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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

SSJID QQC Basin - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

SSJID QQC Basin

San Joaquin County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	18.47	Acre	18.47	804,553.20	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	51
Climate Zone	2			**Operational Year**	2025
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - 18.4 = BASIN
0.07 = PIPE

Construction Phase - Construction Schedule

Grading - Acreage Graded

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	30.00	160.00
tblConstructionPhase	NumDays	10.00	30.00
tblConstructionPhase	PhaseEndDate	9/20/2024	3/21/2025
tblConstructionPhase	PhaseStartDate	7/27/2024	7/1/2024
tblGrading	AcresOfGrading	480.00	90.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblGrading	AcresOfGrading	45.00	15.00

2.0 Emissions Summary

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction (Maximum Daily Emission)

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	lb/day										lb/day					
2024	3.2781	32.4076	28.1923	0.0635	18.7444	1.3361	19.9744	10.0272	1.2293	11.1588	0.0000	6,153.4892	6,153.4892	1.9472	3.4300e-003	6,203.1916
2025	2.9568	27.9701	26.7660	0.0634	6.7829	1.1316	7.9145	3.4182	1.0411	4.4593	0.0000	6,147.1254	6,147.1254	1.9464	3.1900e-003	6,196.7357
Maximum	**3.2781**	**32.4076**	**28.1923**	**0.0635**	**18.7444**	**1.3361**	**19.9744**	**10.0272**	**1.2293**	**11.1588**	**0.0000**	**6,153.4892**	**6,153.4892**	**1.9472**	**3.4300e-003**	**6,203.1916**

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	lb/day										lb/day					
2024	3.2781	32.4076	28.1923	0.0635	7.4005	1.3361	8.6305	3.9345	1.2293	5.0661	0.0000	6,153.4892	6,153.4892	1.9472	3.4300e-003	6,203.1916
2025	2.9568	27.9701	26.7660	0.0634	2.7456	1.1316	3.8772	1.3597	1.0411	2.4008	0.0000	6,147.1253	6,147.1253	1.9464	3.1900e-003	6,196.7357
Maximum	**3.2781**	**32.4076**	**28.1923**	**0.0635**	**7.4005**	**1.3361**	**8.6305**	**3.9345**	**1.2293**	**5.0661**	**0.0000**	**6,153.4892**	**6,153.4892**	**1.9472**	**3.4300e-003**	**6,203.1916**

SSJID QQC Basin - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	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	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	60.25	0.00	55.15	60.62	0.00	52.19	0.00	0.00	0.00	0.00	0.00	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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	lb/day										lb/day					
Area	0.3771	2.0000e-005	1.8800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.0400e-003	4.0400e-003	1.0000e-005		4.3100e-003
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
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
Total	**0.3771**	**2.0000e-005**	**1.8800e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**		**4.0400e-003**	**4.0400e-003**	**1.0000e-005**	**0.0000**	**4.3100e-003**

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	lb/day										lb/day					
Area	0.3771	2.0000e-005	1.8800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.0400e-003	4.0400e-003	1.0000e-005		4.3100e-003
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
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
Total	**0.3771**	**2.0000e-005**	**1.8800e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**		**4.0400e-003**	**4.0400e-003**	**1.0000e-005**	**0.0000**	**4.3100e-003**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	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	N20	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

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	7/1/2024	8/9/2024	5	30	
2	Grading	Grading	8/10/2024	3/21/2025	5	160	

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 90

Acres of Paving: 18.47

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37

Trips and VMT

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2024

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	lb/day										lb/day					
Fugitive Dust					18.5965	0.0000	18.5965	9.9879	0.0000	9.9879			0.0000			0.0000
Off-Road	2.6609	27.1760	18.3356	0.0381		1.2294	1.2294		1.1310	1.1310		3,688.0100	3,688.0100	1.1928		3,717.8294
Total	**2.6609**	**27.1760**	**18.3356**	**0.0381**	**18.5965**	**1.2294**	**19.8259**	**9.9879**	**1.1310**	**11.1189**		**3,688.0100**	**3,688.0100**	**1.1928**		**3,717.8294**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2024

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	lb/day										lb/day					
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
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
Worker	0.0540	0.0276	0.4226	1.2800e-003	0.1479	6.7000e-004	0.1485	0.0392	6.1000e-004	0.0398		129.3665	129.3665	3.1900e-003	3.0900e-003	130.3659
Total	**0.0540**	**0.0276**	**0.4226**	**1.2800e-003**	**0.1479**	**6.7000e-004**	**0.1485**	**0.0392**	**6.1000e-004**	**0.0398**		**129.3665**	**129.3665**	**3.1900e-003**	**3.0900e-003**	**130.3659**

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	lb/day										lb/day					
Fugitive Dust					7.2526	0.0000	7.2526	3.8953	0.0000	3.8953			0.0000			0.0000
Off-Road	2.6609	27.1760	18.3356	0.0381		1.2294	1.2294		1.1310	1.1310	0.0000	3,688.0100	3,688.0100	1.1928		3,717.8294
Total	**2.6609**	**27.1760**	**18.3356**	**0.0381**	**7.2526**	**1.2294**	**8.4820**	**3.8953**	**1.1310**	**5.0263**	**0.0000**	**3,688.0100**	**3,688.0100**	**1.1928**		**3,717.8294**

SSJID QQC Basin - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2024

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	lb/day										lb/day					
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
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
Worker	0.0540	0.0276	0.4226	1.2800e-003	0.1479	6.7000e-004	0.1485	0.0392	6.1000e-004	0.0398		129.3665	129.3665	3.1900e-003	3.0900e-003	130.3659
Total	**0.0540**	**0.0276**	**0.4226**	**1.2800e-003**	**0.1479**	**6.7000e-004**	**0.1485**	**0.0392**	**6.1000e-004**	**0.0398**		**129.3665**	**129.3665**	**3.1900e-003**	**3.0900e-003**	**130.3659**

3.3 Grading - 2024

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	lb/day										lb/day					
Fugitive Dust					6.6186	0.0000	6.6186	3.3746	0.0000	3.3746			0.0000			0.0000
Off-Road	3.2181	32.3770	27.7228	0.0621		1.3354	1.3354		1.2286	1.2286		6,009.7487	6,009.7487	1.9437		6,058.3405
Total	**3.2181**	**32.3770**	**27.7228**	**0.0621**	**6.6186**	**1.3354**	**7.9540**	**3.3746**	**1.2286**	**4.6032**		**6,009.7487**	**6,009.7487**	**1.9437**		**6,058.3405**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2024

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	lb/day										lb/day					
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
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
Worker	0.0600	0.0306	0.4695	1.4200e-003	0.1643	7.4000e-004	0.1650	0.0436	6.8000e-004	0.0443		143.7405	143.7405	3.5500e-003	3.4300e-003	144.8510
Total	**0.0600**	**0.0306**	**0.4695**	**1.4200e-003**	**0.1643**	**7.4000e-004**	**0.1650**	**0.0436**	**6.8000e-004**	**0.0443**		**143.7405**	**143.7405**	**3.5500e-003**	**3.4300e-003**	**144.8510**

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	lb/day										lb/day					
Fugitive Dust					2.5813	0.0000	2.5813	1.3161	0.0000	1.3161			0.0000			0.0000
Off-Road	3.2181	32.3770	27.7228	0.0621		1.3354	1.3354		1.2286	1.2286	0.0000	6,009.7487	6,009.7487	1.9437		6,058.3405
Total	**3.2181**	**32.3770**	**27.7228**	**0.0621**	**2.5813**	**1.3354**	**3.9167**	**1.3161**	**1.2286**	**2.5447**	**0.0000**	**6,009.7487**	**6,009.7487**	**1.9437**		**6,058.3405**

SSJID QQC Basin - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2024

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	lb/day										lb/day					
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
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
Worker	0.0600	0.0306	0.4695	1.4200e-003	0.1643	7.4000e-004	0.1650	0.0436	6.8000e-004	0.0443		143.7405	143.7405	3.5500e-003	3.4300e-003	144.8510
Total	**0.0600**	**0.0306**	**0.4695**	**1.4200e-003**	**0.1643**	**7.4000e-004**	**0.1650**	**0.0436**	**6.8000e-004**	**0.0443**		**143.7405**	**143.7405**	**3.5500e-003**	**3.4300e-003**	**144.8510**

3.3 Grading - 2025

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	lb/day										lb/day					
Fugitive Dust					6.6186	0.0000	6.6186	3.3746	0.0000	3.3746			0.0000			0.0000
Off-Road	2.9012	27.9429	26.3311	0.0621		1.1309	1.1309		1.0404	1.0404		6,008.2814	6,008.2814	1.9432		6,056.8614
Total	**2.9012**	**27.9429**	**26.3311**	**0.0621**	**6.6186**	**1.1309**	**7.7495**	**3.3746**	**1.0404**	**4.4151**		**6,008.2814**	**6,008.2814**	**1.9432**		**6,056.8614**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2025

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	lb/day										lb/day					
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
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
Worker	0.0556	0.0272	0.4349	1.3700e-003	0.1643	7.0000e-004	0.1650	0.0436	6.5000e-004	0.0442		138.8439	138.8439	3.1800e-003	3.1900e-003	139.8743
Total	**0.0556**	**0.0272**	**0.4349**	**1.3700e-003**	**0.1643**	**7.0000e-004**	**0.1650**	**0.0436**	**6.5000e-004**	**0.0442**		**138.8439**	**138.8439**	**3.1800e-003**	**3.1900e-003**	**139.8743**

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	lb/day										lb/day					
Fugitive Dust					2.5813	0.0000	2.5813	1.3161	0.0000	1.3161			0.0000			0.0000
Off-Road	2.9012	27.9429	26.3311	0.0621		1.1309	1.1309		1.0404	1.0404	0.0000	6,008.2814	6,008.2814	1.9432		6,056.8614
Total	**2.9012**	**27.9429**	**26.3311**	**0.0621**	**2.5813**	**1.1309**	**3.7122**	**1.3161**	**1.0404**	**2.3565**	**0.0000**	**6,008.2814**	**6,008.2814**	**1.9432**		**6,056.8614**

SSJID QQC Basin - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2025

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	lb/day										lb/day					
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
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
Worker	0.0556	0.0272	0.4349	1.3700e-003	0.1643	7.0000e-004	0.1650	0.0436	6.5000e-004	0.0442		138.8439	138.8439	3.1800e-003	3.1900e-003	139.8743
Total	**0.0556**	**0.0272**	**0.4349**	**1.3700e-003**	**0.1643**	**7.0000e-004**	**0.1650**	**0.0436**	**6.5000e-004**	**0.0442**		**138.8439**	**138.8439**	**3.1800e-003**	**3.1900e-003**	**139.8743**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

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	lb/day										lb/day					
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
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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-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 Non-Asphalt Surfaces	9.50	7.30	7.30	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 Non-Asphalt Surfaces	0.541920	0.052620	0.169871	0.146633	0.025153	0.006100	0.012627	0.016953	0.000467	0.000322	0.022878	0.001103	0.003353

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	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	lb/day										lb/day					
NaturalGas 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
NaturalGas 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

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	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
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	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
Total		**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**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	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
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	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
Total		**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**

6.0 Area Detail

6.1 Mitigation Measures Area

	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	lb/day										lb/day					
Mitigated	0.3771	2.0000e-005	1.8800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.0400e-003	4.0400e-003	1.0000e-005		4.3100e-003
Unmitigated	0.3771	2.0000e-005	1.8800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.0400e-003	4.0400e-003	1.0000e-005		4.3100e-003

SSJID QQC Basin - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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	lb/day										lb/day					
Architectural Coating	0.0920					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.2850					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.7000e-004	2.0000e-005	1.8800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.0400e-003	4.0400e-003	1.0000e-005		4.3100e-003
Total	**0.3771**	**2.0000e-005**	**1.8800e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**4.0400e-003**	**4.0400e-003**	**1.0000e-005**		**4.3100e-003**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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	lb/day										lb/day					
Architectural Coating	0.0920					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.2850					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.7000e-004	2.0000e-005	1.8800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.0400e-003	4.0400e-003	1.0000e-005		4.3100e-003
Total	**0.3771**	**2.0000e-005**	**1.8800e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**4.0400e-003**	**4.0400e-003**	**1.0000e-005**		**4.3100e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

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

**HARP - Air Dispersion Modeling and Risk Tool v22118																		
**8/2/2023																		
**Exported Risk Results																		
REC	GRP	NET ID	X	Y	RISK_SUM	SCENARIO	INHAL_RISK	SOIL_RISK	DERMAL_RISK	MMILK_RISK	WATER_RISK	FISH_RISK	CROP_RISK	BEEF_RISK	DAIRY_RISK	PIG_RISK	CHICKEN_RISK	EGG_RISK
1	SENSITIV		666735	4183923	1.2002E-09	0.8YrCancerDerived_InhSoilDermMMilk_FAH16to70	1.2002E-09	0	0	0	0	0	0	0	0	0	0	0
2	SENSITIV		666634	4183946	9.811E-10	0.8YrCancerDerived_InhSoilDermMMilk_FAH16to70	9.811E-10	0	0	0	0	0	0	0	0	0	0	0

3	SENSITIV		666665	4184195	4.2531E-09	0.8YrCancerDerived_InhSoilDermMMilk_FAH16to70	4.2531E-09	0	0	0	0	0	0	0	0	0	0	0

**HARP - Air Dispersion Modeling and Risk Tool v22118																				
**8/2/2023																				
**Exported Risk Results																				
REC	GRP	NETID	X	Y	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/DEVEL	RESP	SKIN	EYE	BONE/TEETH	ENDO	BLOOD	ODOR	GENERAL	MAXHI
1	SENSITIV		666735	4183923	NonCancerChronicDerived_InhSoilDermMMilk	0	0	0	0	0	0	1.6555E-06	0	0	0	0	0	0	0	1.6555E-06
2	SENSITIV		666634	4183946	NonCancerChronicDerived_InhSoilDermMMilk	0	0	0	0	0	0	1.3533E-06	0	0	0	0	0	0	0	1.3533E-06

3	SENSITIV		666665	4184195	NonCancerChronicDerived_InhSoilDermMMilk	0	0	0	0	0	0	5.8665E-06	0	0	0	0	0	0	0	5.8665E-06

**HARP - Air Dispersion Modeling and Risk Tool v22118																				
**8/2/2023																				
**Exported Risk Results																				
REC	GRP	NETID	X	Y	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/DEVEL	RESP	SKIN	EYE	BONE/TEETH	ENDO	BLOOD	ODOR	GENERAL	MAXHI
1	SENSITIV		666735	4183923	NonCancerAcute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	SENSITIV		666634	4183946	NonCancerAcute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	SENSITIV		666665	4184195	NonCancerAcute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

HARP Project Summary Report 8/2/2023 8:35:55 AM

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Project Output Directory: G:\South San Joaquin ID-1055\105522005-QQC Basin\200 Technical\215 Env Planning\Appendices\App A -Air Quality\SSJID QQC BASIN
HARP Database: NA

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Y (m):4184063
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No. of Sources:1
No. of Buildings:0

EMISSION INVENTORY
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No. of Background Pollutants:0

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(lbs/yr) (lbs/hr)
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Official: True

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AERMAP: 18081
BPIPPRM: 04274
AERPLOT: 13329

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AERMOD Error File: \SSJID QQC BASIN_AERMOD.ERR
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CON_NCChronicRisk.csv
CON_NCChronicRiskSumByRec.csv
CON_Output.txt
CON_PathwayRec.csv
CON_PolDB.csv

Spatial averaging files (\sa\)
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Appendix B: Biological Evaluation

Biological Evaluation

SOUTH SAN JOAQUIN IRRIGATION DISTRICT

LATERAL QQC REGULATION BASIN PROJECT

OCTOBER 2023

Shaylea Stark, Biologist
PROVOST & PRITCHARD CONSULTING GROUP | 455 W. FIR AVE, CLOVIS CA 93611

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I. Introduction

The following technical report, prepared by Provost & Pritchard Consulting Group (Provost & Pritchard) in compliance with the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA), includes a description of the biological resources present or with potential to occur within the proposed South San Joaquin Irrigation District (SSJID) Lateral QQC Regulation Basin Project (or "project") and surrounding areas, and evaluates potential project-related impacts to those resources.

Project Description

The project site (or "site") is located within the San Joaquin Valley, 4.5 miles east of the City of Manteca, and 7 miles northwest of the City of Modesto in San Joaquin County (see **Figure 1** and **Figure 2**). The project site includes ruderal/agricultural fields, dirt roads, and the Lateral Q Canal, for a total of approximately 23 acres (see **Figure 3**). The Project proposes to construct a regulating reservoir, a concrete flow control structure for Lateral Q Canal, a reservoir inlet pipe from Lateral Q Canal connected to a combined gravity and pumped concrete outlet structure and connection box. All excavation material would be balanced on-site.

Report Objectives

Construction activities such as those proposed by the project could potentially change biological resources or modify habitats that are crucial for sensitive plant and wildlife species. In cases such as these, development may be regulated by state or federal agencies, and/or addressed by local regulatory agencies.

This report addresses issues related to the following:

1. The presence of sensitive biological resources on each site, or with the potential to occur on each site.
2. The federal, state, and local regulations regarding these resources.
3. Mitigation measures that may be required to reduce the magnitude of anticipated impacts and/or comply with permit requirements of state and federal resource agencies.

Therefore, the objectives of this report are:

1. Summarize all site-specific information related to existing biological resources.
2. Make reasonable inferences about the biological resources that could occur on each site based on habitat suitability and the proximity of each site to a species' known range.
3. Summarize all state and federal natural resource protection laws that may be relevant to each site.
4. Identify and discuss project impacts and effects to biological resources likely to occur on each site within the context of the CEQA, NEPA, and/or state or federal laws.
5. Identify and publish a set of avoidance and mitigation measures that would reduce impacts to a less-than-significant level (as identified by CEQA) or avoid and minimize effects (as identified by NEPA) and are generally consistent with recommendations of the resource agencies for sensitive biological resources.

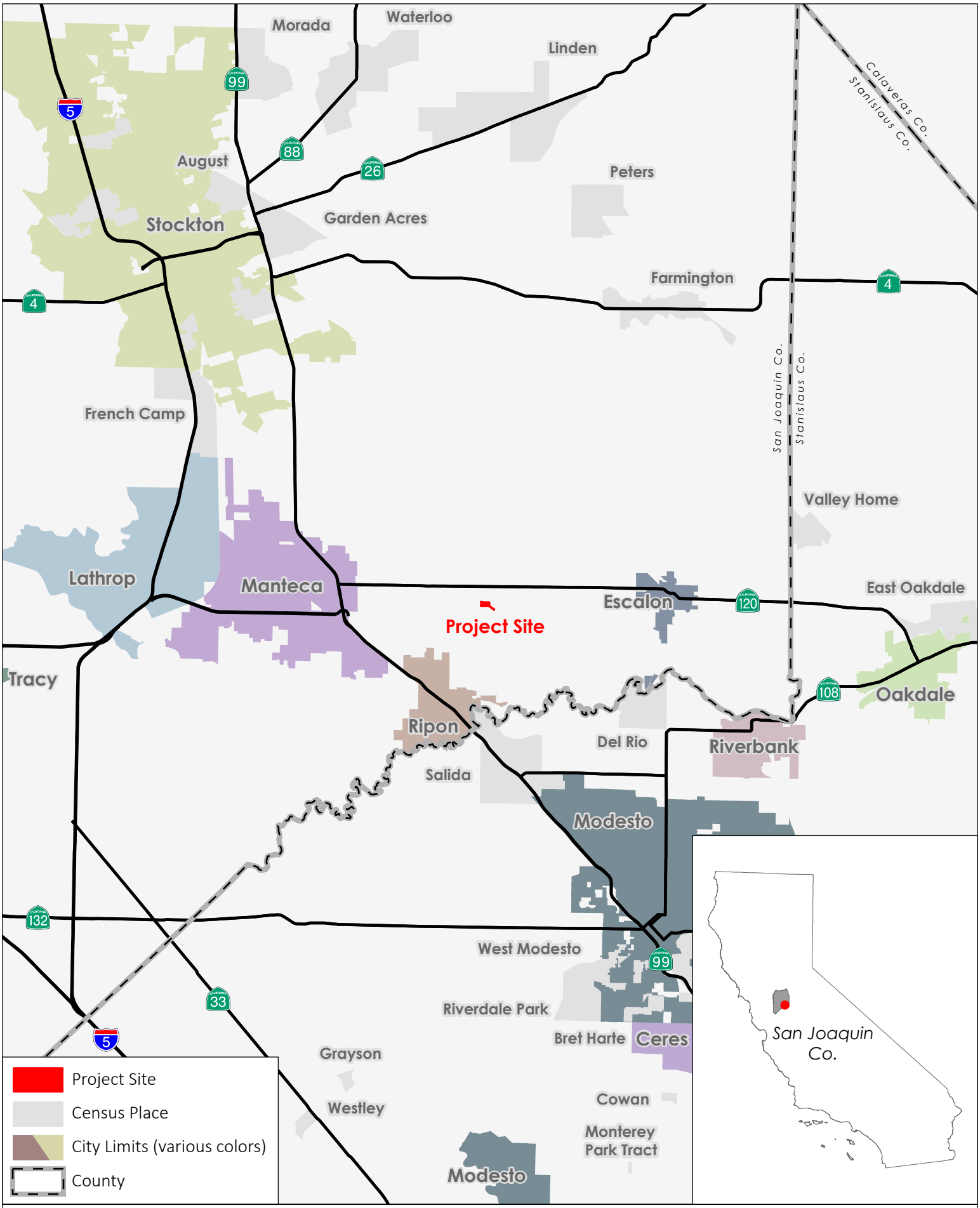
Study Methodology

A reconnaissance-level field survey of the project site was conducted on July 25, 2023, by Provost & Pritchard biologist, Shaylea Stark. The survey consisted of walking and driving within the project site while identifying and noting land uses, biological habitats and communities, and plant and animal species encountered, and

assessing suitable habitats that could be utilized by various special status plant and animal species. Representative photographs of the site were taken and are presented in **Appendix A**.

Ms. Stark then utilized the results of the field survey to conduct an analysis of potential project-related impacts to biological resources based on the resources known to occur or with potential to occur within the project site. Sources of information used in preparation of this analysis included: the California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CNDDB; see **Appendix B** for the species list) and California Wildlife Habitat Relationships (CWHR) database; California Native Plant Society's (CNPS) Online Inventory of Rare and Endangered Vascular Plants of California; CalFlora's online database of California native plants; Jepson Herbarium's online database (i.e., Jepson eFlora); United States Fish and Wildlife Service's (USFWS) Environmental Conservation Online System (ECOS), Information for Planning and Consultation (IPaC; see **Appendix C** for the species list) system, and National Wetlands Inventory (NWI); iNaturalist; NatureServe Explorer's online database; United States Department of Agriculture (USDA) Natural Resources Conservation Service's (NRCS) Web Soil Survey (see **Appendix D** for the Web Soil Survey Report); California Herps website; and various manuals, reports, and references related to plants and animals of the San Joaquin Valley region.

The field survey did not include focused surveys for special status species. The field survey conducted included the appropriate level of detail to assess the significance of potential impacts to sensitive biological resources resulting from implementing the project. Furthermore, the field survey was sufficient to generally describe those features of the project that could be subject to the jurisdiction of federal and/or state agencies, such as the United States Army Corps of Engineers (USACE), CDFW, Regional Water Quality Control Board (RWQCB) and the State Water Resources Control Board (SWRCB).

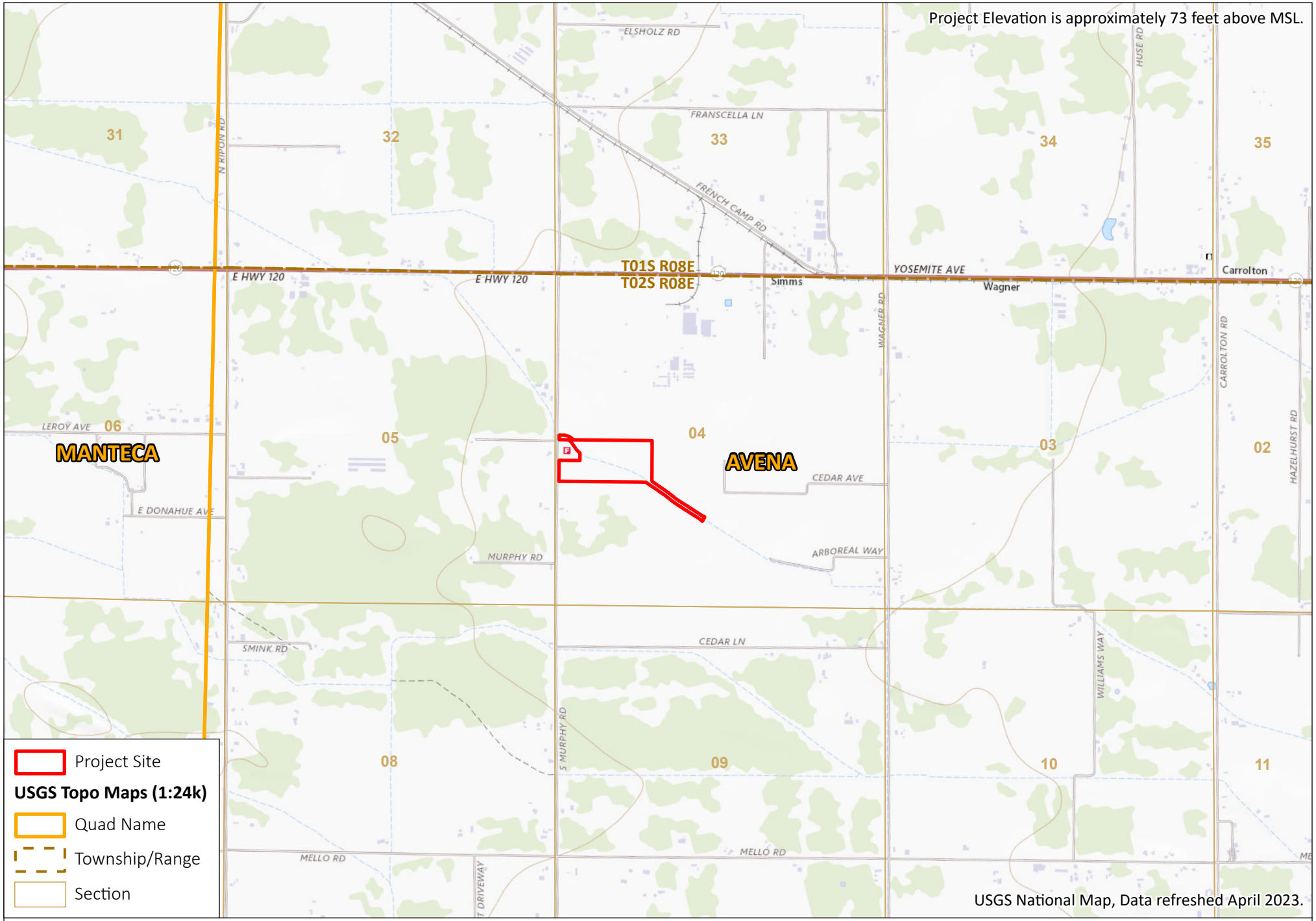


South San Joaquin Irrigation District

Lateral Q-Qc Regulating Reservoir- Regional Location Map

PROVOST& PRITCHARD

Fig. 1 Page 3



0 750 1,500
Feet

South San Joaquin Irrigation District

Lateral Q-Qc Regulating Reservoir- Topographic Quadrangle Map

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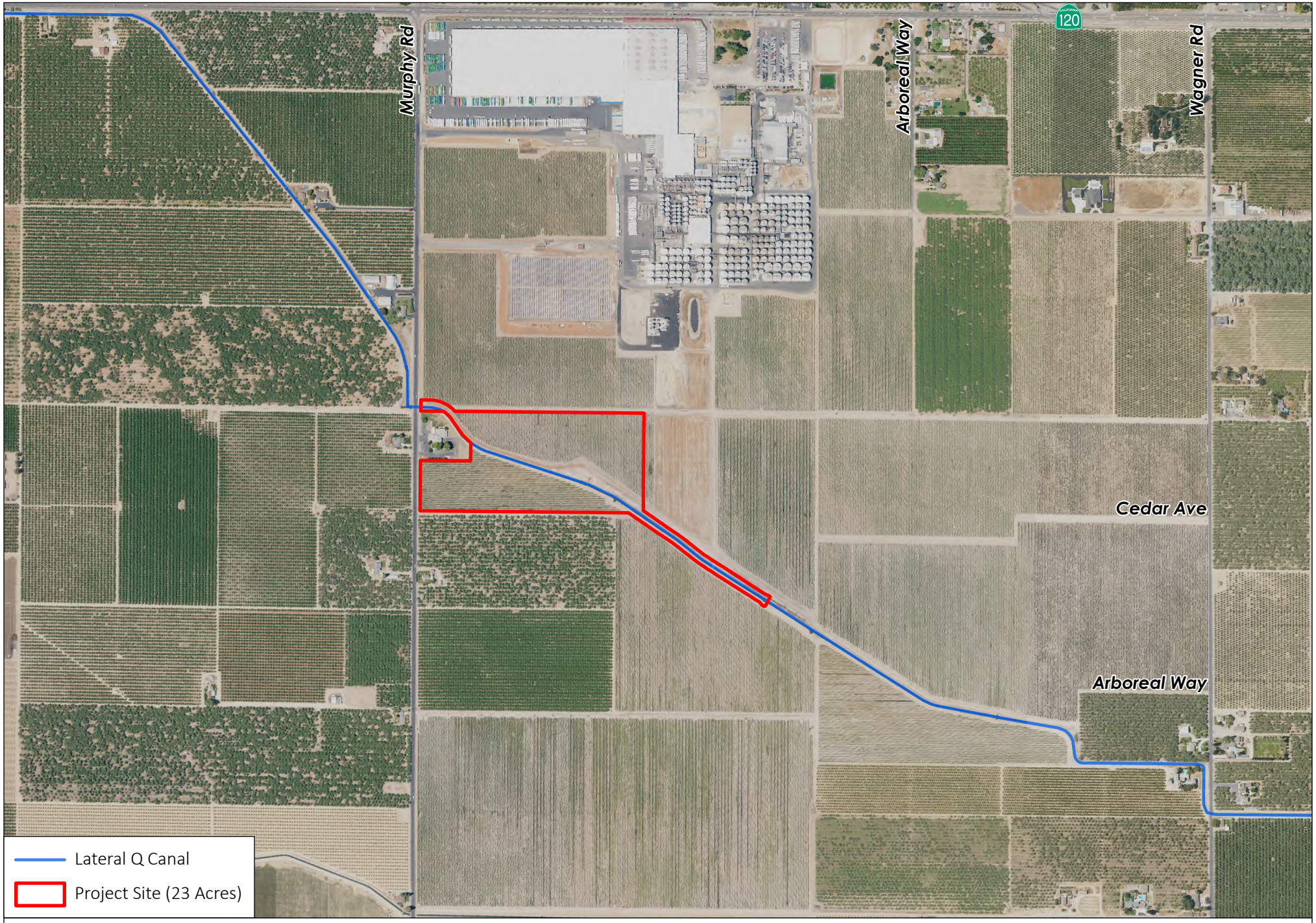

South San Joaquin Irrigation District

Lateral Q-Qc Regulating Reservoir- Project Site Map

PROVOST& PRITCHARD

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II. Existing Conditions

Regional Setting

Topography

The topography of the site is relatively flat with elevations approximately 73 feet above mean sea level.

Climate

The City of Manteca experiences hot, dry summers followed by cold, wet winters. In the summer, average high temperatures range between 80- and 95-degrees Fahrenheit (°F), and the humidity is generally low. Winter temperatures are often below 60 °F during the day and rarely exceed 70 °F. On average, Manteca receives approximately 16 inches of precipitation in the form of rainfall yearly, most of which occurs between October and April (Weatherspark 2023), and the project site would be expected to receive similar amounts of precipitation.

Hydrology

A watershed is the topographic region that drains into a stream, river, or lake. Watersheds are made up of many smaller subwatersheds that drain into a particular stream, river, or lake. The project site lies within the Lone Tree Creek watershed; Hydrologic Unit Code (HUC): 1804005103 and the Lower Lone Tree Creek subwatershed; HUC: 180400510304. The nearest surface water to the project is the Lateral Q Canal which bisects the project site.

Lone Tree Creek watershed is fed by stormwater or snowmelt runoff from upland areas which flows into lone tree creek. Lone tree creek then flows into canals which then connect to the Lateral Q Canal that flows through the project site. The Lateral Q Canal then flows into various unnamed canals and does not contain any downstream connections with jurisdictional waters.

Soils

Two soil mapping units representing two soil types were identified within the project site and are listed in **Table 1** (see **Appendix D** for the Web Soil Survey Report)**.** The soils are displayed with their core properties in the table below, according to the Major Land Resource Area of California. Both soils are primarily used for agriculture.

Table 1. List of Soils Located Onsite and Their Basic Properties

Soil	Soil Map Unit	Percent of Project Site	Hydric Soil Category	Drainage	Permeability	Runoff
Delhi	Loamy sand, 0 to 2 percent slopes	51.4%	Nonhydric	Somewhat excessively drained	Rapid	Negligible to slow
Honcut	Sandy loam, 0 to 2 percent slopes	48.6%	Nonhydric	Well drained	Moderately rapid	Slow to medium

Hydric soils are defined as soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions such that under sufficiently wet conditions, hydrophytic vegetation can be supported. All of the soils on the project site are considered nonhydric.

Biotic Habitats

Two biotic habitats were observed within the project site and included ruderal/agricultural and canal (see **Figure 4**). These habitats and their constituent plant and animal species are described in more detail in the following sections.

Ruderal/Agricultural

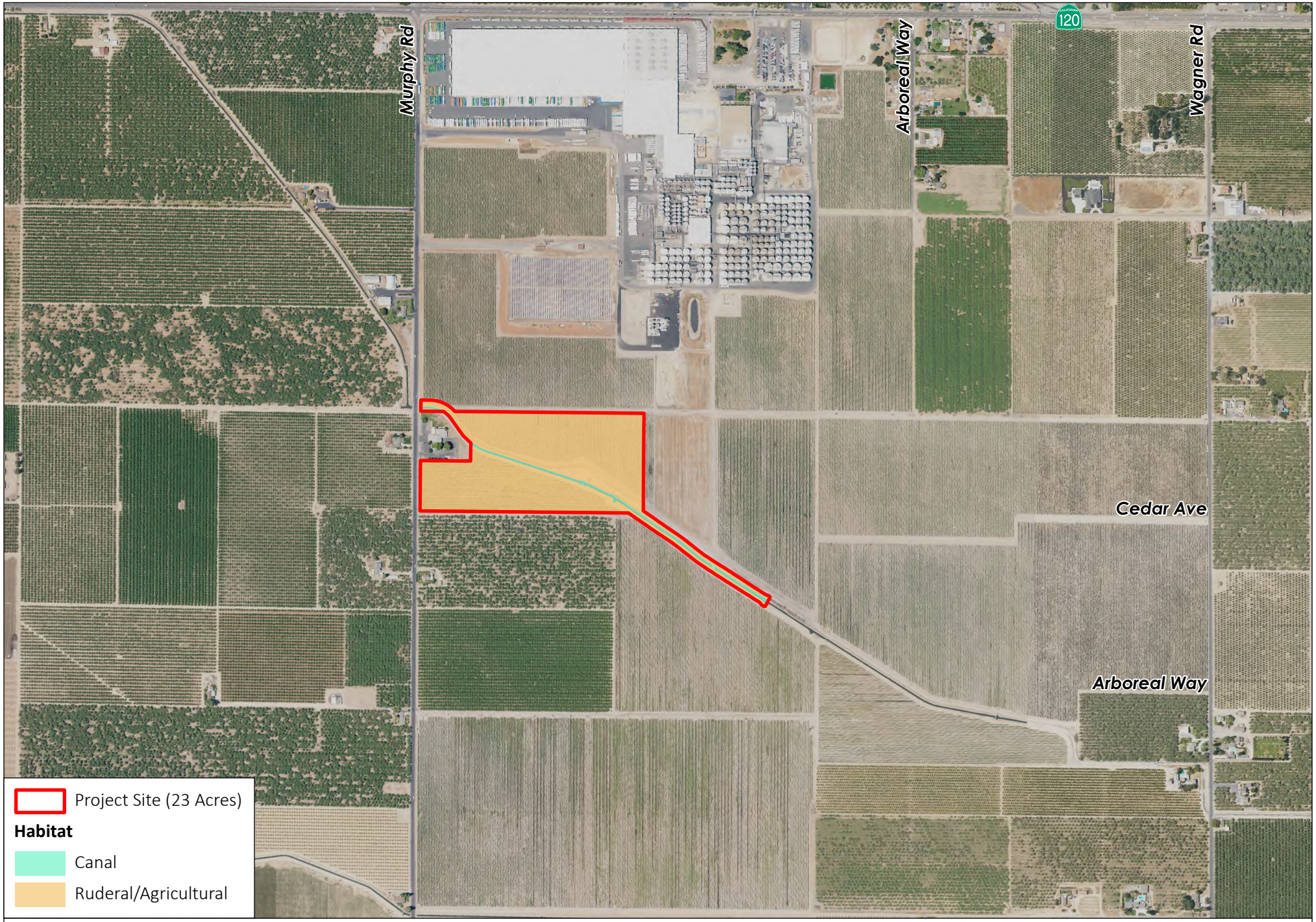
The project site was primarily located within ruderal/agricultural habitat. The property used to contain agricultural wine grapes. The grape vineyards were removed prior to the field survey. Vegetation within this habitat included horseweed (*Erigeron canadensis*), puncture vine (*Tribulus terrestris*), flax leaved horseweed (*Erigeron bonariensis*), sacred datura (*Datura wrightii*), dove weed (*Croton setiger*), Russian thistle (*Salsola tragus*), common lambsquarters (*Chenopodium giganteum*), common purslane (*Portulaca oleracea*), Johnson grass (*Sorghum halepense*), prostrate pigweed (*Amaranthus blitoides*), morning glory (*Ipomoea stans*), velvet leaf (*Abutilon theophrasti*), Bermuda grass (*Cynodon dactylon*), redstem filaree (*Erodium cicutarium*), cheese weed mallow (*Malva parviflora*), barnyard grass (*Echinochloa crus-galli*), watermelon plant (*Citrullus lanatus*), sunflower (*Helianthus* sp.), cutleaf evening primrose (*Oenothera laciniata*), shortpod mustard (*Hirschfeldia incana*), and spotted spurge (*Euphorbia maculate*).

The survey of the project site resulted in the identification of numerus bird species including mourning dove (*Zenaida macroura*), northern mockingbird (*Mimus polyglottos*), red-tailed hawk (*Buteo jamaicensis*), turkey vulture (*Cathartes aura*), black phoebe (*Sayornis nigricans*), house sparrow (*Passer domesticus*), house finch (*Haemorhous mexicanus*), lesser goldfinch (*Spinus psaltria*), cliff swallow (*Petrochelidon pyrrhonota*), and brown-headed cowbird (*Molothrus ater*). Other species observed include black-tailed jackrabbit (*Lepus californicus*), and domestic dog (*Canis lupus familiaris*) tracks through the project site.

The ruderal/agricultural habitat within the project site was highly disturbed by agricultural and irrigation activities and likely provides little value to special status and disturbance intolerant species. The project site potentially provides for foraging birds, including raptors, during the day, as well as bats, coyotes, and other nocturnal animals at night.

Canal

The canal habitat included the Lateral Q Canal which bisects the project site. This is a concrete lined canal that did not contain any vegetation. The canal habitat within the project site was highly disturbed by agricultural and irrigation activities and likely provides little value to special status and disturbance intolerant species. The canal may be used as a water source and wildlife movement corridor. The canal does not appear to connect to a jurisdictional water.



South San Joaquin Irrigation District

Lateral Q-Qc Regulating Reservoir- Habitats Map

PROVOST& PRITCHARD

Fig. 4 Page 8

10/19/2023 \\ppeng.com\pzdata\clients\South San Joaquin ID-1055\105522005-QQC Basin\400 GIS\Map\SSJID_QQC_Basin_Mapping\SSJID_QQC_Basin_Mapping.aprx

Natural Communities of Special Concern and Riparian Habitat

Natural communities of special concern are those that are of limited distribution, distinguished by significant biological diversity, or home to special status species. CDFW has classified and mapped all-natural communities in California. Just as the special status plant and animal species, these natural communities of special concern can be found within the CNDDB. According to the CNDDB and field survey, no natural communities of special concern were present within the project site.

No natural communities of special concern have been recorded within the project site, however there are four recorded observations of natural community of special concern within the vicinity of the project site: Great Valley Cottonwood Riparian Forest, Great Valley Mixed Riparian Forest, Great Valley Valley Oak Riparian Forest, and Northern Hardpan Vernal Pool. These natural communities of special concern were not observed within the boundaries of the project site and would not be impacted by project activities.

Riparian habitat is composed of plant communities that occur along the banks, and sometimes over the banks, of most waterways and is an important habitat for numerous wildlife species. CDFW has jurisdiction over most riparian habitat in California. No natural waterways or riparian habitat was observed within or adjacent to the project site. The only water within the site was the Lateral Q Canal which is a concrete lined canal used for irrigation.

Designated Critical Habitat

The USFWS often designates areas of "Critical Habitat" when it lists species as threatened or endangered. Critical habitat is a specific geographic area that contains features essential for the conservation of a threatened or endangered species, which may require special management and protection. According to the CNDDB and IPaC, critical habitat is absent within the project site. Delta smelt critical habitat is 9.5 miles west of the site, California tiger salamander critical habitat is 13 miles northeast of the site, vernal pool fairy shrimp critical habitat is 13 miles northeast of the site, and conservancy fairy shrimp critical habitat is 9.5 miles south of the site.

Wildlife Movement Corridors and Native Wildlife Nursery Sites

Wildlife movement corridors are routes that animals regularly and predictably follow during seasonal migration, dispersal from native ranges, daily travel within home ranges, and inter-population movements. Movement corridors in California are typically associated with valleys, ridgelines, and rivers and creeks supporting riparian vegetation. The project site is surrounded by agricultural fields in all directions and the disturbed ruderal/agricultural habitat of the site are not likely to function as wildlife movement corridors. The canal habitat through the site may be utilized as a wildlife movement corridor.

Native wildlife nursery sites are areas where a species or group of similar species raise their young in a concentrated place, such as maternity bat roosts. No native wildlife nursery sites were observed within the project site.

Special Status Animals and Plants

California contains several rare animal and plant species. In this context, "rare" is defined as a species known to have low populations or limited distributions. As the human population grows, urban expansion encroaches on the already-limited suitable habitat for rare species. This results in sensitive species becoming increasingly more vulnerable to extirpation. State and federal regulations have provided the CDFW and USFWS with a

mechanism for conserving and protecting the diversity of animal and plant species native to California. Numerous native plants and animals have been formally designated as "threatened" or "endangered" under state and federal endangered species legislation. Other formal designations include "candidate" for listing or "species of special concern" by CDFW. The CNPS has its list of native plants considered rare, threatened, or endangered. Collectively these animals and plants are referred to as "special status species."

A query of the CNDDB for occurrences of special status plant and animal species was conducted for the *Avena* 7.5-minute U.S. Geological Survey (USGS) quadrangle that contains the project site, and for the eight surrounding USGS quadrangles: *Escalon*, *Farmington*, *Manteca*, *Peters*, *Ripon*, *Riverbank*, *Salida*, and *Stockton East*. These species, and their potential to occur within the project site, are listed in **Table 2** and **Table 3** on the following pages. Other special status species that did not show up in the CNDDB query, but have the potential to occur in the vicinity, are also included in **Table 2**. Species lists obtained from CNDDB and IPaC are available in **Appendix B** and **Appendix C**, respectively. All relevant sources of information, as discussed in the *Study Methodology* section of this report, as well as field observations, were used to determine if any special status species have the potential to occur within the project site.

Table 2. List of Special Status Animals with Potential to Occur Onsite and/or in the Vicinity

Species	Status*	Habitat	Occurrence within the Site*
Burrowing owl (*Athene cunicularia*)	CSSC	Resides in open, dry grasslands, deserts, scrublands, and other areas with low growing vegetation. Nests and roosts underground in existing burrows created by mammals, most often ground squirrels, and human-made structures.	**Unlikely.** The site and surrounding areas are regularly maintained for irrigation and agricultural purposes and are unsuitable for this species. No burrows or signs of this species were observed during the field survey. The nearest recorded observation of this species within the vicinity was approximately 9 miles northwest of the site in 1993.
California tiger salamander (*Ambystoma californiense*)	FT, CT	Requires vernal pools or seasonal ponds for breeding and small mammal burrows for aestivation. Generally found in grassland and oak savannah plant communities in central California from sea level to 1,500 feet in elevation. Can migrate up to 1.3 miles to breed.	**Absent.** Required vernal pools and upland habitat with burrows were absent within the site and surrounding areas. The nearest recorded observation of this species within the vicinity was approximately 3 miles south of the site in 1912 but is listed as extirpated.
Conservancy fairy shrimp (*Branchinecta conservatio*)	FE	Found in large, turbid freshwater vernal pools in the Central Valley, from Tehama County in the north to Merced County in the south, with one outlying population in Ventura County's Interior Coast Ranges.	**Absent.** Required vernal pools were absent within the site and surrounding areas. The nearest recorded observation of this species within the vicinity was approximately 11 miles southwest of the site in 1991 within the San Joaquin River National Wildlife Refuge.
Crotch bumble bee (*Bombus crotchii*)	CCE	Occurs throughout coastal California, as well as east to the Sierra Nevada-Cascade crest, and south into Mexico. Food plant genera include *Antirrhinum, Phacelia, Clarkia, Dendromecon, Eschscholzia*, and *Eriogonum*.	**Unlikely.** The site and surrounding areas are regularly maintained for irrigation and agricultural purposes and plants this species forages on were absent. The nearest recorded observation of this species within the vicinity was approximately 7.5 miles southeast of this site in 1968.
Giant gartersnake (*Thamnophis gigas*)	FT, CT	Occurs in marshes, sloughs, drainage canals, irrigation ditches,	**Unlikely.** The canal within the site is concrete lined and did not contain

Species	Status*	Habitat	Occurrence within the Site*
		rice fields, and adjacent uplands. Prefers locations with emergent vegetation for cover and open areas for basking. This species uses small mammal burrows adjacent to aquatic habitats for hibernation in the winter and to escape from excessive heat in the summer.	aquatic vegetation or burrows, making it unsuitable for this species. The nearest recorded observation of this species within the vicinity was approximately 10 miles north of the site in 1987.
Green sturgeon-southern DPS (Ac*ipenser medirostris*)	FT	Spawning occurs primarily in cool (11-15 C) sections of mainstem rivers in deep pools (8-9 meters) with substrate containing small to medium sized sand, gravel, cobble, or boulder, such as the Sacramento, Feather, and Yuba Rivers. Presence in upper Stanislaus and San Joaquin Rivers may indicate spawning. Non-spawning adults occupy marine/estuarine waters. Delta Estuary is important for rearing juveniles.	**Unlikely.** The canal within the site is concrete lined with no aquatic vegetation and is not expected to contain special status fish species. The nearest recorded observation of this species within the vicinity was approximately 3.5 miles south of the site in 2017 within the Stanislaus River.
Hardhead (*Mylopharodon conocephalus*)	CSSC	Occurs in low- to mid-elevation streams in the Sacramento-San Joaquin drainage. Clear, deep pools with sand-gravel-boulder bottoms and slow-moving water are required. This species is often sympatric with Sacramento pikeminnow and Sacramento sucker. Hardhead are typically absent from streams occupied by centrarchids and from heavily altered habitats.	**Unlikely.** The canal within the site is concrete lined with no aquatic vegetation and is not expected to contain special status fish species. The nearest recorded observation of this species within the vicinity was approximately 14 miles south of the site in 2008 within the Tuolumne River.
Monarch butterfly (*Danaus plexippus*)	FC	Roosts in wind-protected tree groves (eucalyptus, Monterey pine, cypress), with nectar and water sources nearby. Larval host plants consist of milkweeds (*Asclepias* sp.). Winter roost sites extend along the Pacific coast from northern Mendocino to Baja California, Mexico.	**Unlikely.** Foraging and roosting habitat was absent within the site. The site did not contain milkweeds or groves of trees. The CNDDB query resulted in no observations of this species within the regional vicinity of the project.
Northern California legless lizard (*Anniella pulchra*)	CSSC	Found primarily underground, burrowing in loose, sandy soil. Forages in loose soil and leaf litter during the day. Occasionally observed on the surface at dusk and night.	**Unlikely.** The site and surrounding areas are regularly maintained for irrigation and agricultural purposes and are unsuitable for this species. The nearest recorded observation of this species within the vicinity was approximately 5 miles east of the site in 1933.
Pallid bat (*Antrozous pallidus*)	CSSC	Found in grasslands, chaparral, and woodlands, where it feeds on ground- and vegetation-dwelling	**Unlikely.** The site did not contain roosting habitat. Adjacent to the site there are large trees where this

Species	Status*	Habitat	Occurrence within the Site*
		arthropods, and occasionally takes insects in flight. Prefers to roost in rock crevices, but may also use tree cavities, caves, bridges, and other man-made structures.	species could roost, but project activities will not disturb the trees. Foraging habitat was present, but this species would be expected to fly away during project activities. The only recorded observation of this species within the vicinity was approximately 10 miles northeast of this site in 1951.
Riparian brush rabbit (*Sylvilagus bachmani riparius*)	FE, CE	Found in the understory of riparian forests adjacent to the San Joaquin River in northern Stanislaus County. Prefers dense vegetation, including wild rose, willows, and blackberries.	**Unlikely.** No riparian habitat or signs of this species were observed during the field survey. The site and surrounding areas are regularly maintained for irrigation and agricultural purposes and are unsuitable. The nearest recorded observation of this species within the vicinity was approximately 7 miles southwest of the site in 2012 along the Stanislaus River.
Riparian (San Joaquin Valley) woodrat (*Neotoma fuscipes riparia*)	CSSC	Found in riparian areas along the San Joaquin, Stanislaus, and Tuolumne rivers. This species needs areas with a mix of brush and trees. Suitable nesting sites include trees, snags, or logs.	**Unlikely.** No nests or signs of this species were observed during the field survey. The site and surrounding areas are regularly maintained for irrigation and agricultural purposes and are unsuitable. The nearest recorded observation of this species within the vicinity was approximately 7 miles southwest of the site in 2012 along the Stanislaus River.
Steelhead – Central Valley DPS (*Oncorhynchus mykiss irideus* pop.11)	FT	This winter-run fish begins migration to fresh water during peak flows in December through February. The spawning season is typically from February to April. After hatching, they will move to deeper, mid-channel habitats in late summer and fall. In general, both juveniles and adults prefer complex habitat boulders, submerged clay and undercut banks, and large woody debris.	**Unlikely.** The canal within the site is concrete lined with no aquatic vegetation and is not expected to contain special status fish species. The nearest recorded observation of this species within the vicinity was approximately 7 miles southwest of the site in 2014 along the Stanislaus River.
Swainson's hawk (*Buteo swainsoni*)	CT	Nests in large trees in open areas adjacent to grasslands, grain or alfalfa fields, or livestock pastures suitable for supporting rodent populations.	**Possible.** There were large coast redwood trees directly adjacent to the site that were suitable for this species to nest in. The nearest recorded observation of this species within the vicinity was approximately 2.5 miles northwest of the site in 2009.
Tricolored blackbird (*Agelaius tricolor*)	CT, CSSC	Nests colonially near fresh water in dense cattails or tules, or in thickets of riparian shrubs. Forages in grassland and cropland. Large colonies are often	**Unlikely.** The canal within the site is concrete lined and did not contain riparian vegetation for this species to nest in. Foraging habitat is present, but this species would be expected to fly away during project activities. The

Species	Status*	Habitat	Occurrence within the Site*
		found foraging in dairy farm feed fields.	nearest recorded observation of this species within the vicinity was approximately 5.5 miles west of the site in 1936.
Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)	FT	Lives in mature elderberry shrubs of the Central Valley and adjacent foothills from Tehama County south through Merced and Mariposa Counties with two scattered populations in Madera and Fresno Counties. Adults are active from March to June.	**Absent.** No elderberry shrubs were observed within the site or surrounding areas. The nearest recorded observation of this species within the vicinity was approximately 5.5 miles southeast of the site in 2009.
Vernal pool fairy shrimp (*Branchinecta lynchi*)	FT	Occupies vernal and seasonal pools, with clear to tea-colored water, in grass or mud-bottomed swales, and basalt depression pools.	**Absent.** Vernal pool habitat was absent from the site and surrounding lands. The nearest recorded observation of this species within the vicinity was approximately 10 miles southwest of the site in 1998 within the San Joaquin River National Wildlife Refuge.
Vernal pool tadpole shrimp (*Lepidurus packardi*)	FE	Occurs in vernal pools, clear to tea-colored water, in grass or mud-bottomed swales, and basalt depression pools.	**Absent.** Vernal pool habitat was absent from the site and surrounding lands. The nearest recorded observation of this species within the vicinity was approximately 8.5 miles southwest of the site in 2000 within the San Joaquin River National Wildlife Refuge.
Western bumble bee (*Bombus occidentalis*)	CCE	The western bumble bee has three basic habitat requirements: suitable nesting sites for the colonies, nectar and pollen from floral resources available throughout the duration of the colony period (spring, summer and fall), and suitable overwintering sites for the queens (Jepson et al. 2014).Nests occur primarily in underground cavities such as old squirrel or other animal nests and in open west-southwest slopes bordered by trees, although a few nests have been reported from above-ground locations such as in logs among railroad ties (Hobbs 1968, MacFarlane et al. 1994, Plath 1922, Thorp et al. 1983, all cited in Jepson et al. 2014).	**Unlikely.** The site and surrounding areas are regularly maintained for irrigation and agricultural purposes and plants this species forages on were absent. The nearest recorded observation of this species was mapped within the location of the project site in 1962.
Western mastiff bat (*Eumops perotis californicus*)	CSSC	Found in open, arid to semi-arid habitats, including dry desert washes, flood plains, chaparral, oak woodland, open ponderosa pine forest, grassland, and agricultural areas, where it feeds	**Unlikely.** The site and surrounding areas did not contain roosting habitat. Foraging habitat was present, but this species would be expected to fly away during project activities. The nearest recorded observation of this

Species	Status*	Habitat	Occurrence within the Site*
		on insects in flight. Roosts most commonly in crevices in cliff faces but may also use high buildings and tunnels.	species within the vicinity was approximately 12.5 miles east of this site in 1957.
Western spadefoot (*Spea hammondii*)	CSSC	The majority of the time this species is terrestrial and occurs in small mammal burrows and soil cracks, sometimes in the bottom of dried pools. Prefers open areas with sandy or gravelly soils, in a variety of habitats including mixed woodlands, grasslands, coastal sage scrub, chaparral, sandy washes, lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. Vernal or seasonal pools, that hold water for a minimum of three weeks, are necessary for breeding.	**Unlikely.** The site and surrounding areas are regularly maintained for irrigation and agricultural purposes and are unsuitable for this species. The nearest recorded observation of this species within the vicinity was approximately 8.5 miles southwest of the site in 1998 within the San Joaquin River National Wildlife Refuge.
Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)	FT, CE	Suitable nesting habitat in California includes dense riparian willow-cottonwood and mesquite habitats along a perennial river. Once a common breeding species in riparian habitats of lowland California, this species currently breeds consistently in only two locations in the state: along the Sacramento and South Fork Kern Rivers.	**Unlikely.** Suitable habitat for this species is absent within the site and surrounding areas. The site and surrounding areas are regularly maintained for irrigation and agricultural purposes. The nearest recorded observation of this species within the vicinity was approximately 10 miles southwest of the site in 1977 along the Stanislaus River but is listed as possibly extirpated.

Table 3. List of Special Status Plants with Potential to Occur Onsite and/or in the Vicinity

Species	Status*	Habitat	Occurrence within the Site*
Alkali-sink goldfields (*Lasthenia chrysantha*)	CNPS 1B	Found in vernal pool and wet saline flat habitats. Occurrences documented in the Central Valley at elevations below 660 feet. Blooms February - April.	**Absent.** Vernal pool habitat was absent within the site and surrounding areas. The nearest recorded observation of this species within the vicinity was approximately 11 miles southwest of the site in 1939 within the San Joaquin River National Wildlife Refuge.
California alkali grass (*Puccinellia simplex*)	CNPS 1B	Found in the San Joaquin Valley and other parts of California in saline flats and mineral springs within valley grassland and wetland-riparian communities at elevations below 3,000 feet. Blooms March–May.	**Absent.** Suitable habitat was absent from the site and surrounding areas. The nearest recorded observation of this species within the vicinity was approximately 10.5 miles southwest of the site in 1942 within the San Joaquin River National Wildlife Refuge.
Delta button-celery (*Eryngium racemosum*)	CE, CNPS 1B	Found in riparian scrublands in floodplains near the California Delta at elevations between 10 and 100 feet. Blooms June – August.	**Absent.** Required vernal pool habitat was absent within the site and surrounding areas. The nearest recorded observation of this species

Species	Status*	Habitat	Occurrence within the Site*
			within the vicinity was approximately 7 miles southwest of the site in 1985 within the Caswell Memorial State Park.
Greene's tuctoria (*Tuctoria greenei*)	FE, CNPS 1B	Found in the San Joaquin Valley and other parts of California in vernal pools within valley grassland, wetland, and riparian communities at elevations below 3,500 feet. Blooms May – September.	**Absent.** Required vernal pool habitat was absent within the site and surrounding areas. The nearest recorded observation of this species within the vicinity was approximately 7.5 miles east of the site in 1987 but is listed as extirpated.
Legenere (*Legenere limosa*)	CNPS 1B	Found in wet areas and vernal pool beds at elevations between 5 and 2,900 feet. Blooms April - June.	**Absent.** Required vernal pool habitat was absent within the site and surrounding areas. The nearest recorded observation of this species within the vicinity was approximately 10 miles northeast of the site in 1983 but is listed as extirpated.
Lesser saltscale (*Atriplex minuscula*)	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.	**Absent.** The site and surrounding areas are regularly maintained for irrigation and agricultural purposes and are unsuitable for this species. The nearest recorded observation of this species within the vicinity was approximately 11 miles southwest of the site in 1954 within the San Joaquin River National Wildlife Refuge.
Recurved larkspur (*Delphinium recurvatum*)	CNPS 1B	Occurs in poorly drained, fine, alkaline soils in grassland and alkali scrub communities at elevations between 100 and 2,600 feet. Blooms March–June.	**Absent.** The site and surrounding areas are regularly maintained for irrigation and agricultural purposes and are unsuitable for this species. The nearest recorded observation of this species within the vicinity was approximately 8 miles northwest of the site in 1937.

***EXPLANATION OF OCCURRENCE DESIGNATIONS AND STATUS CODES**

Present:	Species observed on the site at time of field surveys or during recent past.
Likely:	Species not observed on the site, but it may reasonably be expected to occur there on a regular basis.
Possible:	Species not observed on the site, but it could occur there from time to time.
Unlikely:	Species not observed on the site, and would not be expected to occur there except, perhaps, as a transient.
Absent:	Species not observed on the site and precluded from occurring there due to absence of suitable habitat.

STATUS CODES

FE	Federally Endangered	CE	California Endangered
FT	Federally Threatened	CCE	California Endangered (Candidate)
FC	Federal Candidate	CT	California Threatened
		CSSC	California Species of Special Concern

CNPS LISTING

1B Plants rare, threatened, or endangered in California and elsewhere.

III. Impacts and Mitigation

Significance Criteria

CEQA

General plans, area plans, and specific projects are subject to the provisions of CEQA. The purpose of CEQA is to assess the impacts of proposed projects on the environment prior to project implementation. Impacts to biological resources are just one type of environmental impact assessed under CEQA and vary from project to project in terms of scope and magnitude. Projects requiring removal of vegetation may result in the mortality or displacement of animals associated with this vegetation. Animals adapted to humans, roads, buildings, and pets may replace those species formerly occurring on a site. Plants and animals that are rare may be destroyed or displaced. Sensitive habitats such as wetlands and riparian woodlands may be altered or destroyed. Such impacts may be considered either "significant" or "less than significant" under CEQA. According to *CEQA Statute and Guidelines* (AEP 2023), "significant effect on the environment" means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic interest. Specific project impacts to biological resources may be considered "significant" if they would:

- 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 CDFW or USFWS;
- 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 CDFW or USFWS;
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (CWA) (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites.
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- Conflict with the provisions of an adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP), or other approved local, regional, or state HCP.

Furthermore, CEQA Guidelines Section 15065(a) states that a project may trigger the requirement to make a "mandatory finding of significance" if the project has 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, reduce the number or restrict the range of an endangered, rare or threatened species, or eliminate important examples of the major periods of California history or prehistory."

NEPA

Federal projects are subject to the provisions of NEPA. The purpose of NEPA is to assess the effects of a proposed action on the human environment, assess the significance of those effects, and recommend measures that if implemented would mitigate those effects. As used in NEPA, a determination that certain effects on the human environment are "significant" requires considerations of both context and intensity (40 Code of Federal Regulations (CFR) 1508.27).

For the purposes of assessing effects of an action on biological resources, the relevant context is often local. The analysis may, however, require a comparison of the action area's biological resources with the biological resources of an entire region. Project activities must have a federal nexus and discuss federally listed species, and/or designated critical habitat that may be affected in the action area.

Federal agencies are required to determine whether their actions may affect listed or proposed species and designated critical habitat. The primary role of this document is to provide agencies conclusion and the rationale to support those conclusions regarding the effects of any proposed actions of the project on protected resources. Document content and recommended elements are identified in 50 CFR 402.12(f).

Under section 7 of the Endangered Species Act, federal agencies must consult with NOAA Fisheries or the USFWS, depending on the species, through an informal or formal consultation when any action the agency carries out, funds, or authorizes may affect either a species listed as threatened or endangered under the Act, or any critical habitat designated for it.

Once resources are assessed an Endangered Species Act Section 7 finding needs to be made regarding proposed or listed species and/or designated critical habitat that may be present in the project area. This report will provide the necessary information for the lead federal agency to make a determination on affects. This finding may result in one of the following determinations:

- *"*No effect*"* - means there will be no impacts, positive or negative, to listed or proposed resources. Generally, this means no listed resources will be exposed to action and its environmental consequences. Concurrence from the Service is not required.

- *"*May affect, but not likely to adversely affect" means that all effects are beneficial, insignificant, or discountable. Beneficial effects have contemporaneous positive effects without any adverse effects to the species or habitat. Insignificant effects relate to the size of the impact and include those effects that are undetectable, not measurable, or cannot be evaluated. Discountable effects are those extremely unlikely to occur. These determinations require written concurrence from the Service.

- *"*May affect, likely to adversely affect" means that listed resources are likely to be exposed to the action or its environmental consequences and will respond in a negative manner to the exposure.

Relevant Goals, Policies, and Laws

San Joaquin County General Plan

The San Joaquin County General Plan Policy Document (San Joaquin County 2016) contains the following goals and policies related to the project:

Wildlife Habitat

Goal Natural and Resources Element (NCR)-2: To preserve and protect wildlife habitat areas for the maintenance and enhancement of biological diversity and ecological integrity.

Policy NCR-2.1: Protect Significant Biological and Ecological Resources. The County shall protect significant biological and ecological resources including wetlands; riparian areas; vernal pools; significant oak woodlands and heritage trees; and rare, threatened, and endangered species and their habitats.

Policy NCR-2.2: Collaboration for Species Protection. The County shall collaborate with the California Department of Fish and Wildlife during the review of new development proposals to identify methods to protect listed species.

Policy NCR-2.3: San Joaquin County Multi-Species Habitat Conservation and Open Space Plan. The County shall continue to implement the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan to mitigate biological impacts resulting from open space land conversion.

Policy NCR-2.7: Protect Waterfowl Habitat. The County shall strive to preserve, protect, and enhance feeding areas and winter habitat for migratory waterfowl.

Policy NCR-2.8: Natural Open Space Buffer. The County shall require a natural open space buffer to be maintained along any natural waterway to provide nesting and foraging habitat and to protect waterway quality.

Policy NCR-2.9: Protect Fisheries. The County shall encourage and support efforts to protect fisheries, including:

- reducing the level of pesticides and fertilizers and other harmful substances in agricultural and urban runoff;
- designing and timing waterway projects to protect fish populations; and
- operating water projects to provide adequate flows for spawning of anadromous fish.

Water Resources and Water Quality

Goal NCR-3: To ensure the quality of water for municipal and industrial uses, agriculture, recreation, and fish and wildlife.

Policy NCR-3.1: Preserve Groundwater Recharge Areas. The County shall strive to ensure that substantial groundwater recharge areas are maintained as open space.

Policy NCR-3.2: Groundwater Recharge Projects. The County shall encourage the development of groundwater recharge projects of all scales within the County and cities to increase groundwater supplies.

Policy NCR-3.8: Support Sufficient River Flows. The County support properly timed flows of sufficient quality in local waterways necessary to sustain healthy fisheries.

Policy NCR-3.9 Require Water Projects to Mitigate Impacts. The County shall require water projects to incorporate safeguards for fish and wildlife and mitigate erosion and seepage to adjacent lands.

Policy NCR-3.10 Coordination for Waterway Protection. The County shall coordinate with city, state, and Federal agencies to implement policies regarding protection and enhancement of waterways and levees.

San Joaquin County Multi-Species Habitat Conservation and Open Space Plan

The San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP) (San Joaquin County 2000) contains the following objectives related to the project:

Objectives

Habitat Conditions and Covered Species Presence on Open Space Lands Converted. Habitat conditions and the presence of Covered Species shall be determined on each parcel or project site scheduled for development under the SJMSCP prior to the commencement of any construction or project related activities. The purpose of this is to establish generally what habitats or land uses exist on the site, the condition or quality of those habitats, the context of the site in relation to surrounding lands or land uses, the presence of any Covered Species, and the need for implementation of appropriate Incidental Take Minimization Measures. This will typically involve a site visit but may also be conducted, if possible, based on information contained in the SJMSCP GIS Database. Specific factors determining whether pre-construction surveys must include a site visit are described in Section 5.2.2.3 of the November 14, 2000 5-191 SJMSCP.

Threatened and Endangered Species

Permits may be required from CDFW and/or USFWS if activities associated with a project have the potential to result in the "take" of a species listed as threatened or endangered under the California Endangered Species Act (CESA) and/or Endangered Species Act (ESA), respectively. Take is defined by CESA as, "to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill" (California Fish and Game Code, Section 86). Take is more broadly defined by the ESA to include "harm" (16 USC, Section 1532(19), 50 CFR, Section 17.3). CDFW and USFWS are responsible agencies under CEQA and NEPA. Both agencies review CEQA and NEPA documents in order to determine the adequacy of the treatment of endangered species issues and to make project-specific recommendations for their conservation.

Designated Critical Habitat

When species are listed as threatened or endangered, the USFWS often designates areas of "critical habitat" as defined by section 3(5)(A) of the ESA. Critical habitat is a term defined in the ESA as a specific geographic area that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. Critical habitat is a tool that supports the continued conservation of imperiled species by guiding cooperation with the federal government. Designations only affect federal agency actions or federally funded or permitted activities. Critical habitat does not prevent activities that occur within the designated area. Only activities that involve a federal permit, license, or funding and are likely to destroy or adversely modify critical habitat will be affected.

Migratory Birds

The Migratory Bird Treaty Act (MBTA: 16 USC 703-712) prohibits killing, possessing, or trading in any bird species covered in one of four international conventions to which the United States is a party, except in accordance with regulations prescribed by the Secretary of the Interior. The name of the act is misleading, as it covers almost all bird's native to the United States, even those that are non-migratory. The MBTA encompasses whole birds, parts of birds, and bird nests and eggs. Additionally, California Fish and Game Code makes it unlawful to take or possess any non-game birds covered by the MBTA (Section 3513), as well as any other native non-game birds (Section 3800).

Birds of Prey

Birds of prey are protected in California under provisions of California Fish and Game Code (Section 3503.5), which states that it is unlawful to take, possess, or destroy any birds in the order Falconiformes (hawks and eagles) or Strigiformes (owls), as well as their nests and eggs. The bald eagle and golden eagle are afforded additional protection under the Bald and Golden Eagle Protection Act (16 USC 668), which makes it unlawful to kill birds or their eggs, or take feathers or nests, without a permit issued by the U.S. Secretary of the Interior.

Nesting Birds

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.

Wetlands and other "Jurisdictional Waters"

The definition of "waters of the United States" (WOTUS) often changes from one presidential administration to the next. The current definition, established under the Biden Administration that became effective on March 20, 2023 (i.e. "new rule"), has adopted much of the same WOTUS designations as the pre-2015 rules, but has incorporated the most recent science and court case rulings. Traditional navigable waters, territorial seas, and interstate waters remain covered under the new rule. Natural drainage channels and adjacent wetlands may be considered "waters of the United States" or "jurisdictional waters" subject to the jurisdiction of the USACE based on the "relatively permanent standard," which is defined in the new rule as "relatively permanent, standing or continuously flowing waters connected to paragraph Traditional Navigable Waters, and waters with a continuous surface connection to such relatively permanent waters or to Traditional Navigable Waters. The extent of jurisdiction has been defined in the Code of Federal Regulations but is also subject to interpretation by the federal courts. Jurisdictional waters generally include the following categories:

1) Traditional Navigable Waters, the territorial seas, or interstate waters (not including interstate wetlands);
2) Impoundments of waters of the United States;
3) Tributaries of:
    a. Traditional Navigable Waters, territorial seas, or interstate waters (not including interstate wetlands); or
    b. Impoundments of water of the United States when the tributaries meet the relatively permanent standard.
4) Wetlands:
    a. Adjacent to Traditional Navigable Waters, the territorial seas, or interstate waters;
    b. Adjacent to and with a continuous surface connection to relatively permanent impoundments of waters of the United States
    c. Adjacent to and with a continuous surface connection to relatively permanent jurisdictional tributaries.
5) Intrastate lakes and ponds not identified in items 1 through 4 of this section that are relatively permanent, standing or continuously flowing bodies of water with a continuous surface connection to the waters identified in items 1 or 3 above.

Exclusions under the new definition include the following:

1) Waste treatment systems, including treatment ponds or lagoons, designed to meet the requirements of the CWA;

2) Prior converted cropland designated by the Secretary of Agriculture. The exclusion would cease upon a change of use, which means that the area is no longer available for the production of agricultural commodities. Notwithstanding the determination of an area's status as prior converted cropland by any other Federal agency, for the purposes of the CWA, the final authority regarding CWA jurisdiction remains with USEPA;
3) Ditches (including roadside ditches) excavated wholly in and draining only dry land and that do not carry a relatively permanent flow of water;
4) Artificially irrigated areas that would revert to dry land if the irrigation ceased;
5) Artificial lakes or ponds created by excavating or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing;
6) Artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating or diking dry land to retain water for primarily aesthetic reasons;
7) Waterfilled depressions created in dry land incidental to construction activity and pits excavated in dry land for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the United States; and
8) Swales and erosional features (e.g., gullies, small washes) characterized by low volume, infrequent, or short duration flow.

The new rule has incorporated the best available science, relevant supreme court cases, public comment, technical expertise, and experience gained from more than 45 years of implementing the Pre-2015 "waters of the United States" framework to inform jurisdictional limits. One significant court case involves the U.S. Supreme Court in its *2001 Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers (SWANCC)* decision. It was determined that channels and wetlands isolated from other jurisdictional waters cannot be considered jurisdictional on the basis of their use, hypothetical or observed, by migratory birds.

Similarly, in its 2006 consolidated *Carabell/Rapanos* decision, the United States Supreme Court ruled that a significant nexus between a wetland and other navigable waters must exist for the wetland itself to be considered jurisdictional waters. The Supreme Court heard *Sackett v. United States Environmental Protection Agency (EPA)* in May 2023, to determine governing standards of a significant nexus between waters of the United States and adjacent wetlands. The court decided that adjacent wetlands would be protected under the CWA only if it maintained a continuous surface water connection with a federal water body. This decision has limited protection for networks of wetlands connected to navigable waters through subsurface flow. The final decision was enacted in September 2023.

The USACE regulates the filling or grading of waters of the United States. under the authority of Section 404 of the CWA. The extent of jurisdiction within drainage channels is defined by "ordinary high-water marks" on opposing channel banks. All activities that involve the discharge of dredge or fill material into Waters of the United States are subject to the permit requirements of the USACE. Such permits are typically issued on the condition that the applicant agrees to provide mitigation that results in no net loss of wetland functions or values. No permit can be issued until the RWQCB issues a Section 401 Water Quality Certification (or waiver of such certification) verifying that the proposed activity will meet state water quality standards.

Under the Porter-Cologne Water Quality Control Act of 1969, the SWRCB has regulatory authority to protect the water quality of all surface water and groundwater in the State of California ("Waters of the State"). Nine RWQCBs oversee water quality at the local and regional level. The RWQCB for a given region regulates discharges of fill or pollutants into Waters of the State through the issuance of various permits and orders. Discharges into Waters of the State that are also Waters of the United States require a Section 401 Water Quality Certification from the RWQCB as a prerequisite to obtaining certain federal permits, such as a Section 404 Clean Water Act permit. Discharges into all Waters of the State, even those that are not also Waters of the United States, require Waste Discharge Requirements (WDRs), or waivers of WDRs, from the RWQCB. The

RWQCB also administers the Construction Storm Water Program and the federal National Pollution Discharge Elimination System (NPDES) program. Projects that disturb one acre or more of soil must obtain a Construction General Permit under the Construction Storm Water Program. A prerequisite for this permit is the development of a Storm Water Pollution Prevention Plan (SWPPP) by a certified Qualified SWPPP Developer. Projects that discharge wastewater, storm water, or other pollutants into a Water of the United States may require a NPDES permit.

CDFW has jurisdiction over the bed and bank of natural drainages and lakes according to provisions of Section 1601 and 1602 of the California Fish and Game Code. Activities that may substantially modify such waters through the diversion or obstruction of their natural flow, change or use of any material from their bed or bank, or the deposition of debris require a notification of a Lake or Streambed Alteration. If CDFW determines that the activity may adversely affect fish and wildlife resources, a Lake or Streambed Alteration Agreement will be prepared. Such an agreement typically stipulates that certain measures will be implemented to protect the habitat values of the lake or drainage in question.

Potentially Significant Project-Related Impacts and Mitigation

Species and biological resources identified as candidate, sensitive, or special status species by California Fish and Game Code, CDFW, USFWS, or CNPS or are protected by state or federal laws that have the potential to be impacted by project activities include: Swainson's hawk and other nesting birds and raptors, and wildlife movement corridors. Corresponding mitigation measures can be found below.

Project-Related Mortality and/or Nest Abandonment of Migratory Birds, Raptors, and Special Status Birds, including Swainson's Hawk

Birds could nest on the ground or in trees adjacent to the project site. While there are no suitable trees for Swainson's hawk within the project site, large coast redwood trees suitable for nesting for this species are located directly west of the project site and could be utilized. Protected birds located within or adjacent to the project site during construction have the potential to be injured or killed by project-related activities. In addition to the direct "take" of protected birds within the project site or adjacent areas, these birds nesting in these areas could be disturbed by project-related activities resulting in nest abandonment. Projects that adversely affect the nesting success of protected birds or result in the mortality of these birds would be a violation of state and federal laws and considered a potentially significant impact under CEQA and NEPA.

While foraging habitat for protected birds is present on the site, suitable foraging habitat is located adjacent to the site and within the vicinity of the site. Loss of the foraging habitat from implementation of the project is not considered a significant impact.

Implementation of the following measures would reduce potential impacts to protected nesting birds to a less than significant level under CEQA and NEPA and ensure compliance with state and federal laws protecting these bird species.

> **Mitigation Measure BIO-1a (*Avoidance*):** The project's construction activities will occur, if feasible, between September 15 and January 31 (outside of the nesting bird season) to avoid impacts to nesting birds.
>
> **Mitigation Measure BIO-1b (*Pre-construction Surveys*):** If activities must occur within the nesting bird season (February 1 to September 14), a qualified biologist will conduct a pre-construction survey for Swainson's hawk nests onsite and within a 0.5-mile radius. This one time take avoidance survey will be conducted 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), or current guidance. The pre-construction survey would also provide a presence/absence survey for all other

nesting birds within the project site, and up to 100 feet outside of the project site for nesting migratory birds and up to 500 feet outside of the project site for nesting raptors. Raptor nests would be considered "active" upon the nest-building stage. If no active nests are observed, no further mitigation is required.

Mitigation Measure BIO-1c (*Avoidance Buffers*): On discovery of any active nests or breeding colonies near work areas, a qualified biologist will determine appropriate avoidance buffer distances based on applicable CDFW and/or USFWS guidelines, the biology of the species, conditions of the nest(s), and the level of project disturbance. If necessary, avoidance buffers will be identified with flagging, fencing, or other easily visible means, and will be maintained until the biologist has determined that the nestlings have fledged.

Project-Related Impacts to Wildlife Movement Corridors and Native Wildlife Nursery Sites

Most of the project site does not contain features that would be likely to function as wildlife movement corridors. Lateral Q Canal could be potentially used as a wildlife movement corridor, but disturbance to this canal would be temporary in nature.

The project site lacks suitable features that could be used as native wildlife nursery sites. It is unlikely native species would utilize any features of the project site as a wildlife nursery site. Therefore, the project would have no impact on native wildlife nursery sites, and no additional mitigation measures are warranted.

Mitigation Measure BIO-2a (*Operational Hours*): Construction activities would be limited to a half hour after sunrise through a half hour before sunset to reduce potential impacts to wildlife movement corridors.

Mitigation Measure BIO-2b (*Wildlife Access*): Access will not be blocked outside of construction hours or during overnight hours or weekends. If construction must block both sides of a wildlife access route, an alternative route through the construction area should be identified by a qualified biologist and maintained throughout the construction schedule timeframe.

Mitigation Measure BIO-2c (*Cover Excavations*): Pipeline/culvert/siphon excavations and vertical pipes will be covered each night to prevent wildlife from falling in and becoming trapped or injured during migratory or dispersal movements.

Section 7 Determinations

In addition to the effects analysis performed in **Table 2** and **Table 3** of this document, **Table 4** summarizes project effect determinations for federally listed species found on the CNDDB list generated on July 10, 2023, and the USFWS IPaC list generated on October 19, 2023 (see **Appendix B** and **Appendix C** respectively), in accordance with Section 7 of the Endangered Species Act.

Table 4. Section 7 Determinations

Species	Determination	Rationale for Determination
California tiger salamander (*Ambystoma californiense*)	**No effect**	**Habitat absent.** Required vernal pools and upland habitat with burrows were absent within the site and surrounding lands.
Conservancy fairy shrimp (*Branchinecta conservatio*)	**No effect**	**Habitat absent**. Vernal pool habitat was absent within the site and surrounding lands.

Species	Determination	Rationale for Determination
Giant gartersnake (*Thamnophis gigas*)	**No effect**	**Habitat absent.** Required aquatic vegetation and upland habitat with burrows were absent within the site and surrounding lands.
Green sturgeon- southern DPS (*Acipenser medirostris*)	**No effect**	**Habitat absent**. Aquatic habitat with suitable vegetation was absent within the site and surrounding lands.
Greene's tuctoria (*Tuctoria greenei*)	**No effect**	**Habitat absent**. Vernal pool habitat was absent within the site and surrounding lands.
Monarch butterfly (*Danaus plexippus*)	**No effect**	**Habitat absent**. Foraging and roosting habitat was absent within the site and surrounding areas.
Riparian brush rabbit (*Sylvilagus bachmani riparius*)	**No effect**	**Habitat absent**. Riparian habitat was absent within the site and surrounding lands.
Steelhead – Central Valley DPS (*Oncorhynchus mykiss irideus* pop.11)	**No effect**	**Habitat absent**. Aquatic habitat with suitable vegetation was absent within the site and surrounding lands.
Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)	**No effect**	**Habitat absent.** No elderberry shrubs were observed within the site or surrounding areas.
Vernal pool fairy shrimp (*Branchinecta lynchi*)	**No effect**	**Habitat absent**. Vernal pool habitat was absent within the site and surrounding lands.
Vernal pool tadpole shrimp (*Lepidurus packardi*)	**No effect**	**Habitat absent**. Vernal pool habitat was absent within the site and surrounding lands.
Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)	**No effect**	**Habitat absent**. Riparian habitat was absent within the site and surrounding lands.

Less Than Significant Project-Related Impacts

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

Of the 22 regionally occurring special status animal species, 21 are considered absent from or unlikely to occur within the project site due to past or ongoing disturbance and/or the absence of suitable habitat. These species include: burrowing owl, California tiger salamander, conservancy fairy shrimp, Crotch bumble bee, giant gartersnake, green sturgeon, hardhead, monarch butterfly, northern California legless lizard, pallid bat, riparian woodrat, riparian brush rabbit, steelhead, tricolored blackbird, valley elderberry longhorn beetle, vernal pool fairy shrimp, vernal pool tadpole shrimp, western bumble bee, western mastiff bat, western spadefoot, and western yellow-billed cuckoo.

Since it is unlikely that these species would occur onsite, implementation of the project should have no impact on these 21 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 Site

Of the seven regionally occurring special status plant species, all seven are considered absent from or unlikely to occur within the project site due to past or ongoing disturbance and/or the absence of suitable habitat. These

species include: alkali-sink goldfields, California alkali grass, Delta button-celery, Greene's tuctoria, legenere, lesser saltscale, and recurved larkspur.

Since it is unlikely that these species would occur onsite, implementation of the project should have no impact on these seven special status species through construction mortality, disturbance, or loss of habitat. Mitigation measures are not warranted.

Project-Related Impacts to Riparian Habitat and Natural Communities of Special Concern

Riparian habitat is absent from the project site and adjacent lands. There are no CNDDB-designated "natural communities of special concern" recorded within the project site or surrounding lands. Mitigation measures are not warranted.

Project-Related Impacts to Regulated Waters, Wetlands, and Water Quality

Typical wetlands, vernal pools, and other waters were not observed onsite at the time of the biological survey. The nearest water source is the Lateral Q Canal located within the project site. This canal is concrete lined so it lacks riparian vegetation and would not be considered a Waters of the United States or state. There are no designated wild and scenic rivers within the project site; therefore, the project would not result in direct impacts to wild and scenic rivers.

Since construction would involve ground disturbance over an area greater than one acre, the project would also be required to obtain a Construction General Permit under the Construction Storm Water Program administered by the RWQCB. A prerequisite for this permit is the development of a Storm Water Pollution Prevention Plan (SWPPP) to ensure construction activities do not adversely affect water quality.

Project-Related Impacts to Critical Habitat

Designated critical habitat is absent from the project site. Delta smelt critical habitat is 9.5 miles west of the site, California tiger salamander critical habitat is 13 miles northeast of the site, vernal pool fairy shrimp critical habitat is 13 miles northeast of the site, and conservancy fairy shrimp critical habitat is 9.5 miles south of the site. The project would not impact these critical habitats and mitigation measures are not warranted.

Local Policies or Habitat Conservation Plans

The project appears to be consistent with the goals and policies of the San Joaquin County General Plan and the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan. There are no other known HCPs or NCCPs in the project vicinity. Mitigation measures are not warranted.

Coastal Zone and Coastal Barriers Resources Act

The project would not be located within the coastal zone. The project would not impact or be located within or near the Coastal Barrier Resources System or its adjacent wetlands, marshes, estuaries, inlets, and near-shore waters. Mitigation measures are not warranted.

Project-Related Impact to Essential Fish Habitat

Essential Fish Habitat (EFH) and Habitat Areas of Particular Concern (HAPC) are absent from the project site and surrounding lands, and consultation with the National Marine Fisheries (NMFS) Service would not be required. Query results of the NMFS EHF Mapper can be found in **Appendix E** at the end of this document. Mitigation measures are not warranted.

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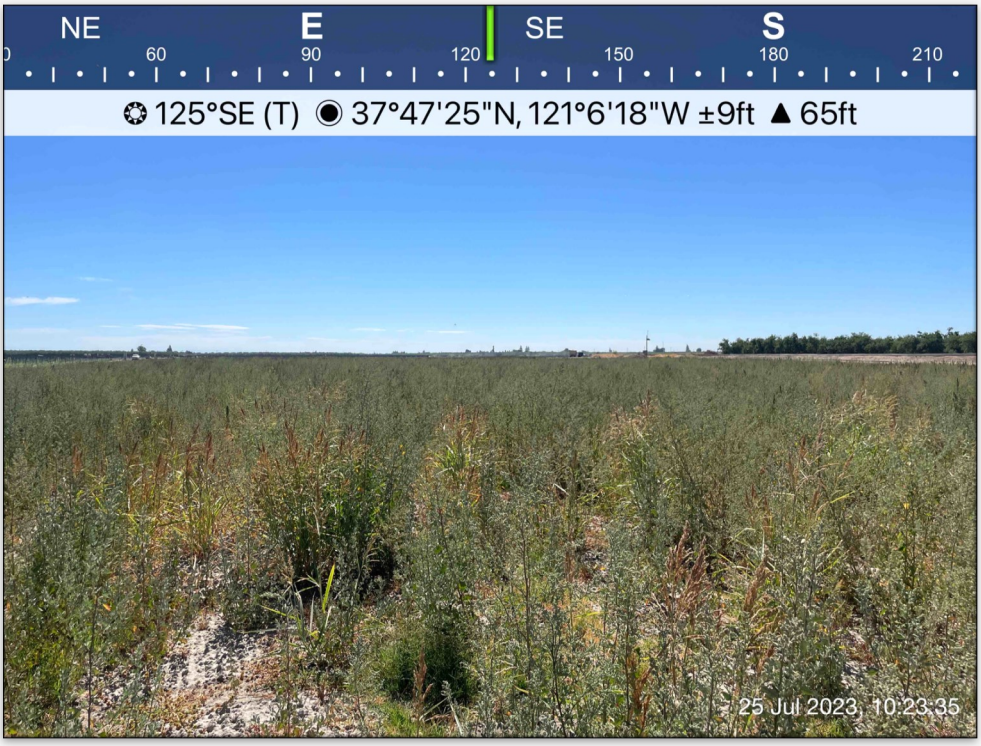
Appendix A: Representative Photos of the Project Site

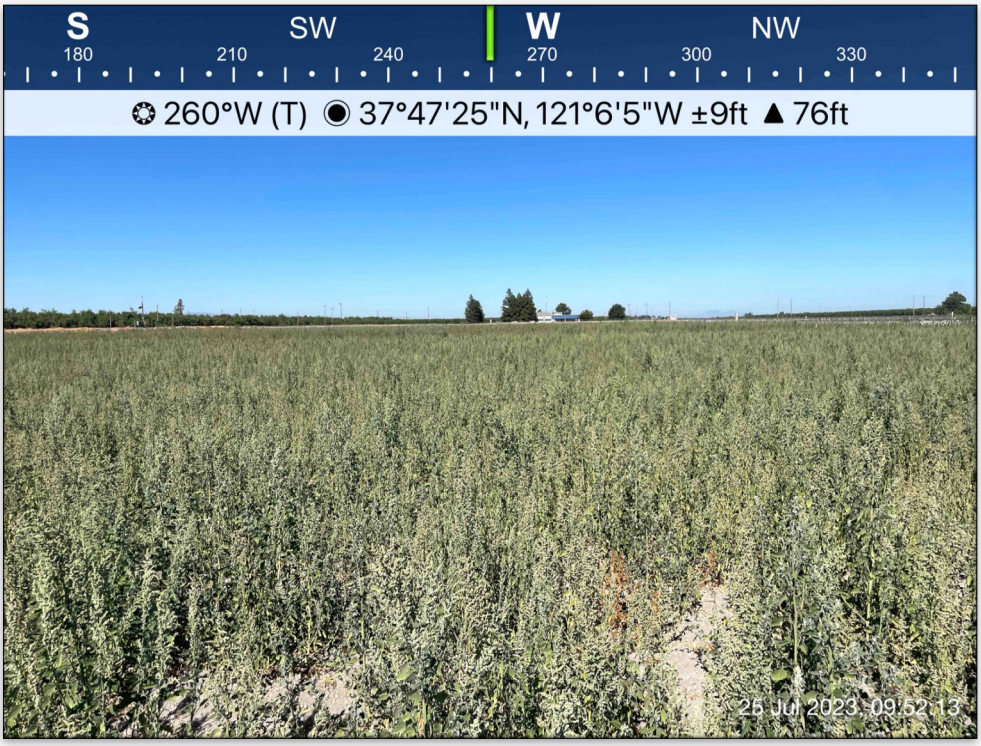
SOUTH SAN JOAQUIN IRRIGATION DISTRICT

LATERAL QQC REGULATION BASIN PROJECT



Photograph 1

Overview of the ruderal/ agricultural habitat on the north side of the project site.



Photograph 2

Another overview of the ruderal/agricultural habitat on the north side of the project site.

Photograph 3

Overview of the ruderal/ agricultural habitat on the north side of the project site. An access road is located along the canal and between the agricultural fields.

Photograph 4

Overview of the access road on the north side of the property within the ruderal/ agricultural habitat.

Photograph 5

Overview of the north boundary of the project site.

Photograph 6

Overview of the east boundary of the project site.

Photograph 7

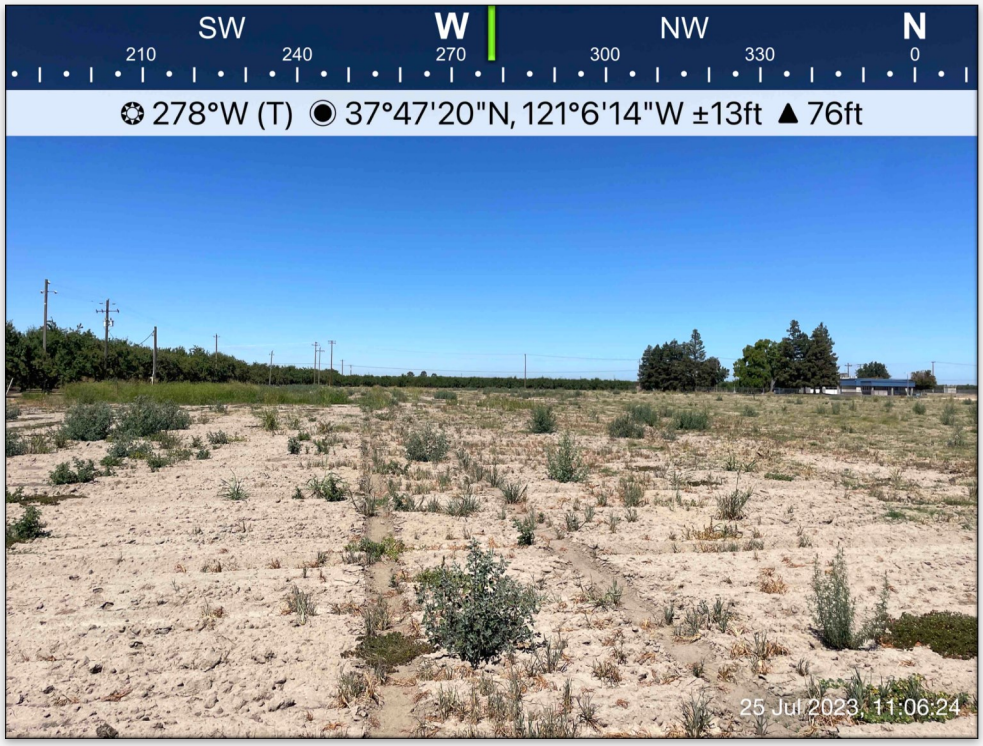
Overview of the Lateral Q Canal looking southeast in the project site.

Photograph 8

Overview of the Lateral Q Canal looking northwest in the project site.

Photograph 9

Overview of the ruderal/ agricultural habitat on the south side of the project site.



Photograph 10

Another overview of the ruderal/agricultural habitat on the south side of the project site.

Photograph 11

Overview of the Lateral Q Canal from the south side of the project site.

Photograph 12

Overview of the south boundary of the project site.

Photograph 13

Overview of the west boundary of the project site.

Photograph 14

Directly adjacent to the project site is the Ripon Fire Station that is surrounded by large trees and a fence.

Photograph 15

Overview of the large trees directly adjacent to Ripon Fire Station and project site.

Photograph 16

Surrounding land on the north and east side of the project site contained agricultural fields.

Photograph 17

Surrounding land on the south side of the project site contained agricultural orchards.

Photograph 18

Surrounding land on the west side of the project site contained agricultural orchards.

Appendix B: CNDDB 9-Quad Species List

SOUTH SAN JOAQUIN IRRIGATION DISTRICT

LATERAL QQC REGULATION BASIN PROJECT

Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Avena (3712171) OR Stockton East (3712182) OR Peters (3712181) OR Farmington (3712088) OR Escalon (3712078) OR Riverbank (3712068) OR Salida (3712161) OR Ripon (3712162) OR Manteca (3712172))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
alkali-sink goldfields *Lasthenia chrysantha*	PDAST5L030	None	None	G2	S2	1B.1
American bumble bee *Bombus pensylvanicus*	IIHYM24260	None	None	G3G4	S2	
burrowing owl *Athene cunicularia*	ABNSB10010	None	None	G4	S2	SSC
cackling (=Aleutian Canada) goose *Branta hutchinsii leucopareia*	ABNJB05035	Delisted	None	G5T3	S3	WL
California alkali grass *Puccinellia simplex*	PMPOA53110	None	None	G2	S2	1B.2
California linderiella *Linderiella occidentalis*	ICBRA06010	None	None	G2G3	S2S3	
California tiger salamander - central California DPS *Ambystoma californiense pop. 1*	AAAAA01181	Threatened	Threatened	G2G3T3	S3	WL
Conservancy fairy shrimp *Branchinecta conservatio*	ICBRA03010	Endangered	None	G2	S2	
Crotch bumble bee *Bombus crotchii*	IIHYM24480	None	Candidate Endangered	G2	S2	
Delta button-celery *Eryngium racemosum*	PDAPI0Z0S0	None	Endangered	G1	S1	1B.1
Elderberry Savanna *Elderberry Savanna*	CTT63440CA	None	None	G2	S2.1	
giant gartersnake *Thamnophis gigas*	ARADB36150	Threatened	Threatened	G2	S2	
Great Valley Cottonwood Riparian Forest *Great Valley Cottonwood Riparian Forest*	CTT61410CA	None	None	G2	S2.1	
Great Valley Mixed Riparian Forest *Great Valley Mixed Riparian Forest*	CTT61420CA	None	None	G2	S2.2	
Great Valley Valley Oak Riparian Forest *Great Valley Valley Oak Riparian Forest*	CTT61430CA	None	None	G1	S1.1	
green sturgeon - southern DPS *Acipenser medirostris pop. 1*	AFCAA01031	Threatened	None	G2T1	S1	
Greene's tuctoria *Tuctoria greenei*	PMPOA6N010	Endangered	Rare	G1	S1	1B.1
hardhead *Mylopharodon conocephalus*	AFCJB25010	None	None	G3	S3	SSC
legenere *Legenere limosa*	PDCAM0C010	None	None	G2	S2	1B.1

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
lesser saltscale *Atriplex minuscula*	PDCHE042M0	None	None	G2	S2	1B.1
merlin *Falco columbarius*	ABNKD06030	None	None	G5	S3S4	WL
midvalley fairy shrimp *Branchinecta mesovallensis*	ICBRA03150	None	None	G2	S2S3	
moestan blister beetle *Lytta moesta*	IICOL4C020	None	None	G2	S2	
Northern California legless lizard *Anniella pulchra*	ARACC01020	None	None	G3	S2S3	SSC
Northern Hardpan Vernal Pool *Northern Hardpan Vernal Pool*	CTT44110CA	None	None	G3	S3.1	
obscure bumble bee *Bombus caliginosus*	IIHYM24380	None	None	G2G3	S1S2	
pallid bat *Antrozous pallidus*	AMACC10010	None	None	G4	S3	SSC
recurved larkspur *Delphinium recurvatum*	PDRAN0B1J0	None	None	G2?	S2?	1B.2
riparian (=San Joaquin Valley) woodrat *Neotoma fuscipes riparia*	AMAFF08081	Endangered	None	G5T1	S1	SSC
riparian brush rabbit *Sylvilagus bachmani riparius*	AMAEB01021	Endangered	Endangered	G5T1	S2	
San Joaquin Valley giant flower-loving fly *Rhaphiomidas trochilus*	IIDIP05010	None	None	G1	S1	
steelhead - Central Valley DPS *Oncorhynchus mykiss irideus pop. 11*	AFCHA0209K	Threatened	None	G5T2Q	S2	
Swainson's hawk *Buteo swainsoni*	ABNKC19070	None	Threatened	G5	S4	
tricolored blackbird *Agelaius tricolor*	ABPBXB0020	None	Threatened	G1G2	S2	SSC
valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	IICOL48011	Threatened	None	G3T3	S3	
vernal pool fairy shrimp *Branchinecta lynchi*	ICBRA03030	Threatened	None	G3	S3	
vernal pool tadpole shrimp *Lepidurus packardi*	ICBRA10010	Endangered	None	G3	S3	
western bumble bee *Bombus occidentalis*	IIHYM24252	None	Candidate Endangered	G3	S1	
western mastiff bat *Eumops perotis californicus*	AMACD02011	None	None	G4G5T4	S3S4	SSC
western ridged mussel *Gonidea angulata*	IMBIV19010	None	None	G3	S2	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
western spadefoot	AAABF02020	None	None	G2G3	S3S4	SSC
Spea hammondii						
western yellow-billed cuckoo	ABNRB02022	Threatened	Endangered	G5T2T3	S1	
Coccyzus americanus occidentalis						

Record Count: 42

Appendix C: IPaC Species List

SOUTH SAN JOAQUIN IRRIGATION DISTRICT

LATERAL QQC REGULATION BASIN PROJECT

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To: October 19, 2023
Project Code: 2023-0110868
Project Name: South San Joaquin Irrigation District Lateral QQC Regulation Basin Project

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see https://www.fws.gov/program/migratory-bird-permit/what-we-do.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

PROJECT SUMMARY

Project Code: 2023-0110868

Project Name: South San Joaquin Irrigation District Lateral QQC Regulation Basin Project

Project Type: Water Supply Facility - New Constr

Project Description: The project involves constructing a regulating reservoir, a concrete check structure for Lateral Q, a reservoir inlet pipe from Lateral QC, a combined gravity and pumped concrete outlet structure and connection box, and a new turnout that would deliver surface water to a vineyard.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@37.78925305,-121.1041082733108,14z

Counties: San Joaquin County, California

ENDANGERED SPECIES ACT SPECIES

There is a total of 5 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

AMPHIBIANS

NAME	STATUS
California Tiger Salamander *Ambystoma californiense* Population: U.S.A. (Central CA DPS) There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2076	Threatened

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate
Valley Elderberry Longhorn Beetle *Desmocerus californicus dimorphus* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7850	Threatened

CRUSTACEANS

NAME	STATUS
Vernal Pool Fairy Shrimp *Branchinecta lynchi*	Threatened
There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/498	
Vernal Pool Tadpole Shrimp *Lepidurus packardi*	Endangered
There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2246	

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency: Provost & Pritchard Consulting
Name: Shaylea Stark
Address: 455 W Fir Ave
City: Clovis
State: CA
Zip: 93612
Email sstark@ppeng.com
Phone: 5594492700

Appendix D: NRCS Web Soil Survey Report

SOUTH SAN JOAQUIN IRRIGATION DISTRICT

LATERAL QQC REGULATION BASIN PROJECT

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for San Joaquin County, California

South San Joaquin Irrigation District Lateral QQC Regulation Basin Project

October 19, 2023

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: San Joaquin County, California
Survey Area Data: Version 17, Sep 11, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 9, 2022—Mar 11, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
142	Delhi loamy sand, 0 to 2 percent slopes, MLRA 17	11.7	51.4%
175	Honcut sandy loam, 0 to 2 percent slopes	11.0	48.6%
Totals for Area of Interest		**22.7**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

San Joaquin County, California

142—Delhi loamy sand, 0 to 2 percent slopes, MLRA 17

Map Unit Setting

National map unit symbol: 2ss9g
Elevation: 30 to 150 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 60 to 64 degrees F
Frost-free period: 225 to 300 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Delhi and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Delhi

Setting

Landform: Alluvial fans, sand sheets, flood plains, dunes
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Typical profile

Ap1 - 0 to 3 inches: loamy sand
Ap2 - 3 to 8 inches: loamy sand
A - 8 to 16 inches: loamy sand
C1 - 16 to 26 inches: loamy sand
C2 - 26 to 44 inches: sand
C3 - 44 to 60 inches: sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.9 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: A
Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans
Hydric soil rating: No

Minor Components

Honcut

Percent of map unit: 5 percent
Landform: Alluvial fans
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Tinnin

Percent of map unit: 5 percent
Landform: Fan remnants, alluvial fans
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Veritas

Percent of map unit: 5 percent
Landform: Fan remnants
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

175—Honcut sandy loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: hhtd
Elevation: 30 to 120 feet
Mean annual precipitation: 11 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 270 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Honcut and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Honcut

Setting

Landform: Alluvial fans
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granitic rock sources

Typical profile

A - 0 to 21 inches: sandy loam
C - 21 to 60 inches: sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.6 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: A
Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans
Hydric soil rating: No

Minor Components

Tinnin

Percent of map unit: 4 percent
Landform: Alluvial fans
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans
Hydric soil rating: No

Chuloak

Percent of map unit: 4 percent
Landform: Alluvial fans
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans
Hydric soil rating: No

Delhi

Percent of map unit: 4 percent
Landform: Alluvial fans
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans
Hydric soil rating: No

Veritas

Percent of map unit: 3 percent
Landform: Alluvial fans
Landform position (three-dimensional): Tread

Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans
Hydric soil rating: No

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Appendix E: NMFS EFH Mapper

SOUTH SAN JOAQUIN IRRIGATION DISTRICT

LATERAL QQC REGULATION BASIN PROJECT

EFH Mapper Report

EFH Data Notice

Essential Fish Habitat (EFH) is defined by textual descriptions contained in the fishery management plans developed by the regional fishery management councils. In most cases mapping data can not fully represent the complexity of the habitats that make up EFH. This report should be used for general interest queries only and should not be interpreted as a definitive evaluation of EFH at this location. A location-specific evaluation of EFH for any official purposes must be performed by a regional expert. Please refer to the following links for the appropriate regional resources.

West Coast Regional Office

Query Results

Degrees, Minutes, Seconds: Latitude = 37º 47' 24" N, Longitude = 122º 53' 42" W
Decimal Degrees: Latitude = 37.790, Longitude = -121.105

The query location intersects with spatial data representing EFH and/or HAPCs for the following species/management units.

EFH

No additional Essential Fish Habitats (EFH) were identified at the report location.

Pacific Salmon EFH

No Pacific Salmon Essential Fish Habitat (EFH) were identified at the report location.

Atlantic Salmon

No Atlantic Salmon were identified at the report location.

HAPCs

No Habitat Areas of Particular Concern (HAPC) were identified at the report location.

EFH Areas Protected from Fishing

No EFH Areas Protected from Fishing (EFHA) were identified at the report location.

Spatial data does not currently exist for all the managed species in this area. The following is a list of species or management units for which there is no spatial data.
****For links to all EFH text descriptions see the complete data inventory: open data inventory -->**

Pacific Coastal Pelagic Species,
Jack Mackerel,
Pacific (Chub) Mackerel,
Pacific Sardine,

Spatial data does not currently exist for all the managed species in this area. The following is a list of species or management units for which there is no spatial data.
****For links to all EFH text descriptions see the complete data inventory: open data inventory -->**

Northern Anchovy - Central Subpopulation,
Northern Anchovy - Northern Subpopulation,
Pacific Highly Migratory Species,
Bigeye Thresher Shark - North Pacific,
Bluefin Tuna - Pacific,
Dolphinfish (Dorado or Mahimahi) - Pacific,
Pelagic Thresher Shark - North Pacific,
Swordfish - North Pacific

Appendix C: Phase I Pedestrian Survey

SOUTH SAN JOAQUIN IRRIGATION DISTRICT LATERAL Q-QC REGULATION BASIN PROJECT, SAN JOAQUIN COUNTY, CALIFORNIA

Prepared for:

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Provost & Pritchard Consulting Group
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Prepared by:

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December 2023

PN 36510.48

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MANAGEMENT SUMMARY

An intensive Class III cultural resources inventory/Phase I survey was conducted for the South San Joaquin Irrigation District Lateral Q-QC Regulation Basin Project (Project). The Project is located just west of Alba, in San Joaquin County, California. ASM Affiliates conducted this study with Peter A. Carey, M.A., RPA, serving as Principal Investigator. The study was undertaken to assist with compliance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and the California Environmental Quality Act (CEQA).

The Project consists of irrigation capacity enhancing improvements within the South San Joaquin Irrigation District (SSJID) sphere of influence. Project components will include the development of a regulating reservoir, a concrete flow control structure for Lateral Q, a reservoir inlet pipe from Lateral Q connected to a combined gravity and pumped concrete outlet structure and connection box, and a new turnout. The horizontal Area of Potential Effects (APE) was defined as the area of potential ground surface disturbance including access, staging, work, lay-down, spoils piles and construction areas. The combined Project APE totals approximately 29.4-acres (ac). The vertical APE for the Project is 10-feet (ft), the maximum depth of excavation at the sublateral Qc structure cutoff wall and the sublateral Qc control box. The majority of the Project area will experience excavation of 6-ft or less.

A records search of site files and maps was conducted at the Northwest Information Center (NEIC), Sonoma State University, California. A *Sacred Lands File* search request was also submitted to the Native American Heritage Commission (NAHC). The IC records search indicated that no previous studies have been conducted within the study area and no cultural resources are known to exist within it. An additional six surveys had been completed within 0.5-mi of the APE with no cultural resources recorded within that outer radius.

A search of the *Sacred Lands Files* by the NAHC was obtained on 29 August 2023. This indicated that no known tribal cultural resources or sacred sites were within or near the Project. Outreach letters were sent on 15 August 2023 prior to receipt of the *Sacred Lands File* based on a previous NAHC contact-list obtained for a nearby project. Follow-up emails were sent on 18 October 2023.

A response was received from the Auburn Rancheria on 16 August 2023 expressing that they had no knowledge of tribal resources in the vicinity. The Auburn Rancheria added additional information related to the location (near creeks and rivers) and geologic features (Piper fine sandy loam) where sites are typically located and identified. Further, it was expressed that they prefer to be contacted by lead agencies through an online portal. The Confederated Villages of Lisjan Nation responded on 23 August 2023 that they had no information to supply about the proposed project but wished to be contacted if anything were identified. The Yocha Dehe Wintun Nation responded to the email follow-up on 23 October 2023 that the Project APE was not within their aboriginal territories and deferring to the Tachi Yokut Tribe. No further responses were received.

The Class III inventory/Phase I survey fieldwork was conducted in December 2023 with parallel transects spaced at 15-meter (m) intervals walked across the entire APE. Three newly identified resources are present within the Project APE: a segment of Lateral Q, an isolated historic-era refuse

deposit (temporary designation SSJID-ISO-1), and a historic-era refuse deposit with two main concentrations (SSJID-SITE-1).

ASM conducted National Register of Historic Places (NRHP)/California Register of Historical Resources (CRHR) eligibility evaluations for the three resources. Isolated finds are categorically not eligible for listing in the NRHP or CRHR and, therefore, SSJID-ISO-1 is recommended not eligible. SSJID-SITE-1 consists of fragment historic-era refuse with no association or research potential and is recommended not eligible for listing in the NRHP or CRHR. No further archaeological consideration is recommended for SSJID-ISO-1 or SSJID-SITE-1.

ASM recommends Lateral Q is eligible for listing in the NRHP/CRHR under Criteria A/1 and Criteria C/3 for local significance. Given that the proposed reservoir will require the removal of a segment of the extant canal within the footprint of the reservoir and a contributing resource (historic check gate structure) will be removed, ASM recommends a determination of significant impact to a historical resource under CEQA, and a determination of adverse effect under Section 106 of the NHPA. ASM recommends mitigation that includes the following:

- Historic context of SSJID that focuses on how the irrigation system developed (what previous canals were incorporated into the 1913-1915 system) and identifies all the major structures and known changes made to those structures. It should also identify alignment changes made to segments of the Main Distribution Canal, Lateral Q, and Lateral R. It should not include sublaterals as they are secondary features of the system.
- Intensive survey and evaluation of the entire Lateral Q
- Photographic documentation of Lateral Q, including photos of the major structures (turnouts not included), and a photographic log.
- GIS map identifying the location of contributing and non-contributing segments and structures of Lateral Q.

In the unlikely event that cultural resources are discovered during the construction and operation of the proposed Project, it is recommended that an archaeologist be contacted to evaluate the find and to assist with the development of a treatment plan, if warranted.

1. INTRODUCTION AND REGULATORY CONTEXT

ASM Affiliates was retained by the Provost and Pritchard Consulting Group to conduct an intensive Class III inventory/Phase I cultural resources survey for the South San Joaquin Irrigation District Lateral Q-QC Regulation Basin Project #1055-22-005, in San Joaquin County, California. The study was undertaken to assist with compliance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and the California Environmental Protection Act (CEQA). The investigation was conducted, specifically, to ensure that significant impacts or adverse effects to historical resources or historic properties do not occur as a result of Project construction.

This current study included:

- A background records search and literature review to determine if any known cultural resources were present in the project area and/or whether the area had been previously and systematically studied by archaeologists;
- An on-foot, intensive inventory of the Project area to identify and record previously undiscovered cultural resources and to examine known sites; and
- A preliminary assessment of any such resources found within the Project area.

Peter A. Carey, M.A., RPA, served as Principal Investigator and fieldwork was conducted by ASM Senior Archaeologist Nichole Abbott, M.A., ASM Associate Archaeologist Brieann DeOrnellas, M.A., and ASM Assistant Archaeologist David Ingbar.

This document constitutes a report on the Class III inventory/Phase I survey. Subsequent chapters provide background to the investigation, including historic context studies; the findings of the archival records search; Native American outreach; a summary of the field surveying techniques employed; and the results of the fieldwork. We conclude with management recommendations for the Project area.

1.1 PROJECT LOCATION

The Project area is located in San Joaquin County approximately 3.2-mi north of the Stanislaus River, approximately 4.5-mi east of the City of Manteca, approximately 2.5-mi northeast of the City of Ripon, and approximately 5.5-mi west of the City of Escalon (Figure 1). The proposed Project is located within the Avena USGS 7.5-minute Topographic Quadrangle in Section 4, Township 2 South, Range 8 East (T2S/R8E), Mount Diablo Base and Meridian (MDBM).

The Project area is bounded on the west by Murphy Road, approximately .5-mi from intersection of Murphy Road and Highway 120.

1.2 PROJECT DESCRIPTION AND AREA OF POTENTIAL EFFECTS

The Project proposes to construct a regulating basin, a concrete flow control structure for Lateral Q, and a basin inlet pipe from Lateral Qc connected to a combined gravity and pumped concrete outlet structure and connection box (Figure 2 and Figure 3). Project construction components are described in detail below:

- The proposed regulating basin would be approximately 18.8 acres with an operational volume of 52-acre feet. The basin would either be lined with high density polyethylene (HDPE) or clay. There would also be a three (3)-foot canal liner raise for Lateral Q upstream of the proposed basin for +/- 1,100 linear feet to the existing check structure.
- The Lateral Q concrete outlet flow control structure would be capable of passing 150 cubic feet per second (CFS) maximum. It would include three (3) Rubicon SMB 1050-3000-C Slip Meters.
- The Lateral Qc combined gravity and pumped concrete outlet structure and connection box would be capable of passing 25 CFS. It would consist of an approximately 42-inch Rubber-Gasketed Reinforced Concrete Pipe (RGRCP), one (1) Rubicon SMB 1050-2400-C Slip Meter, and would include pump, 24-inch PVC pipe, and miscellaneous fittings, meters, appurtenances, etc.

The Area of Potential Effects (APE) for the Project is defined as the area of potential ground surface disturbance including access, staging, work, lay-down, spoils piles and construction areas as mentioned above. The combined eastern APE totals approximately 29.4-ac. The vertical APE is defined as the maximum limit of ground surface excavation. The vertical APE for the Project is 10-ft, the maximum depth of excavation at the Qc structure cutoff wall and the Qc control box. The majority of the Project area will experience excavation of 6-ft or less.

1.3 REGULATORY CONTEXT

1.3.1 California Environmental Quality Act

CEQA is applicable to discretionary actions by state or local lead agencies. Under CEQA, lead agencies must analyze impacts to cultural resources. Significant impacts under CEQA occur when "historically significant" or "unique" cultural resources are adversely affected, which occurs when such resources could be altered or destroyed through project implementation. Historically significant cultural resources are defined by eligibility for or by listing in the California Register of Historical Resources (CRHR). In practice, the federal NRHP criteria (below) for significance applied under Section 106 are generally (although not entirely) consistent with CRHR criteria (see PRC § 5024.1, Title 14 CCR, Section 4852 and § 15064.5(a)(3)).

Significant cultural resources are those archaeological resources and historical properties that:

(A) Are associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

(B) Are associated with the lives of persons important in our past;

(C) Embody the distinctive characteristics of a type, period, region, or method of construction, or represent the work of an important creative individual, or possess high artistic values; or

(D) Have yielded, or may be likely to yield, information important in prehistory or history.

Unique resources under CEQA, in slight contrast, are those that represent:

> An archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:
>
> (1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
>
> (2) Has a special and particular quality such as being the oldest of its type or the best available example of its type.
>
> (3) Is directly associated with a scientifically recognized important prehistoric or historic event or person (PRC § 21083.2(g)).

Preservation in place is the preferred approach under CEQA to mitigating adverse impacts to significant or unique cultural resources.

1.3.2 National Historic Preservation Act

The NHPA of 1966, as amended (54 United States Code § 300101 *et seq*.), is the primary federal legislation that outlines the federal government's responsibility to consider the effects of its actions on historic properties and affords the Advisory Council on Historic Preservation a reasonable opportunity to comment. Section 106 of the NHPA and its implementing regulations at 36 CFR Part 800 describes the process that the federal agency shall take to identify cultural resources and assess the level of effect that the proposed undertaking will have on historic properties. An undertaking is defined as a "…project, activity or program funded in whole or in part, under the direct or indirect jurisdiction of a federal agency." This includes projects that are carried out by, or on behalf of, the agency; those carried out with federal assistance; those requiring a federal permit, license, or approval; and those subject to state or local regulation administered pursuant to a delegation, or approval by, a federal agency.

A cultural resource is a broad term that includes prehistoric, historic, architectural, and traditional cultural properties. Those cultural resources that are listed on, or are eligible for inclusion in, the National Register of Historic Places (NRHP) are referred to as historic properties. The criteria for NRHP eligibility are outlined at 36 CFR Part 60. Other applicable federal cultural resources laws and regulations that could apply include, but are not limited to, the Native American Graves Protection and Repatriation Act (NAGPRA), and the Archaeological Resources Protection Act (ARPA).

Compliance with Section 106 of the NHPA (36 CFR Part 800) follows a series of steps that are designed to identify and consult with interested parties, determine the APE, determine if historic properties are present within the APE, and assess the effects the undertaking will have on historic properties. Section 106 requires consultation with Indian Tribes concerning the identification of sites of religious or cultural significance and with individuals or groups who are entitled, or requested, to be consulting parties. The regulations at 36 CFR Part 800.5 require federal agencies to apply the criteria of adverse effect to the historic properties identified within the APE. The criteria of adverse effect, defined at 36 CFR Part 800.5(a)(1), states that:

> "An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association."

The 36 CFR Part 800 regulations include consultation with the State Historic Preservation Officer (SHPO) to provide an opportunity to comment on, and concur with, a federal agency's determinations. If the undertaking would result in adverse effects to historic properties, these adverse effects must be resolved in consultation with the SHPO and other parties identified during the Section 106 process before the undertaking can proceed to implementation.

1.3.3 National Register Criteria for Evaluation

The criteria for evaluation of NRHP eligibility are outlined at 36 CFR Part 60.4. A district, site, building, structure, or object must generally be at least 50 years old to be eligible for consideration as a historic property. That district, site, building, structure, or object must retain integrity of location, design, setting, materials, workmanship, feelings, and association as well as meet one of the following criteria to demonstrate its significance in American history, architecture, archeology, engineering, and culture. A district, site, building, structure, or object must:

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

A site must have integrity and meet one of the four criteria of eligibility to demonstrate its historic associations in order to convey its significance. A property must be associated with one or more events important in the history or prehistory in order to be considered for listing under Criterion

A. Additionally, the specific association of the property, itself, must also be considered significant. Criterion B applies to properties associated with individuals whose specific contributions to the history can be identified and documented. Properties significant for their physical design or construction under Criterion C must have features with characteristics that exemplify such elements as architecture, landscape architecture, engineering, and artwork. Criterion D most commonly applies to properties that have the potential to answer, in whole or in part, important research questions about human history that can only be answered by the actual physical materials of cultural resources. A property eligible under Criterion D must demonstrate the potential to contain information relevant to the prehistory and history (*National Register Bulletin* 15).

A district, site, building, structure, or object may also be eligible for consideration as a historic property if that property meets the criteria considerations for properties generally less than 50 years old, in addition to possessing integrity and meeting the criteria for evaluation.

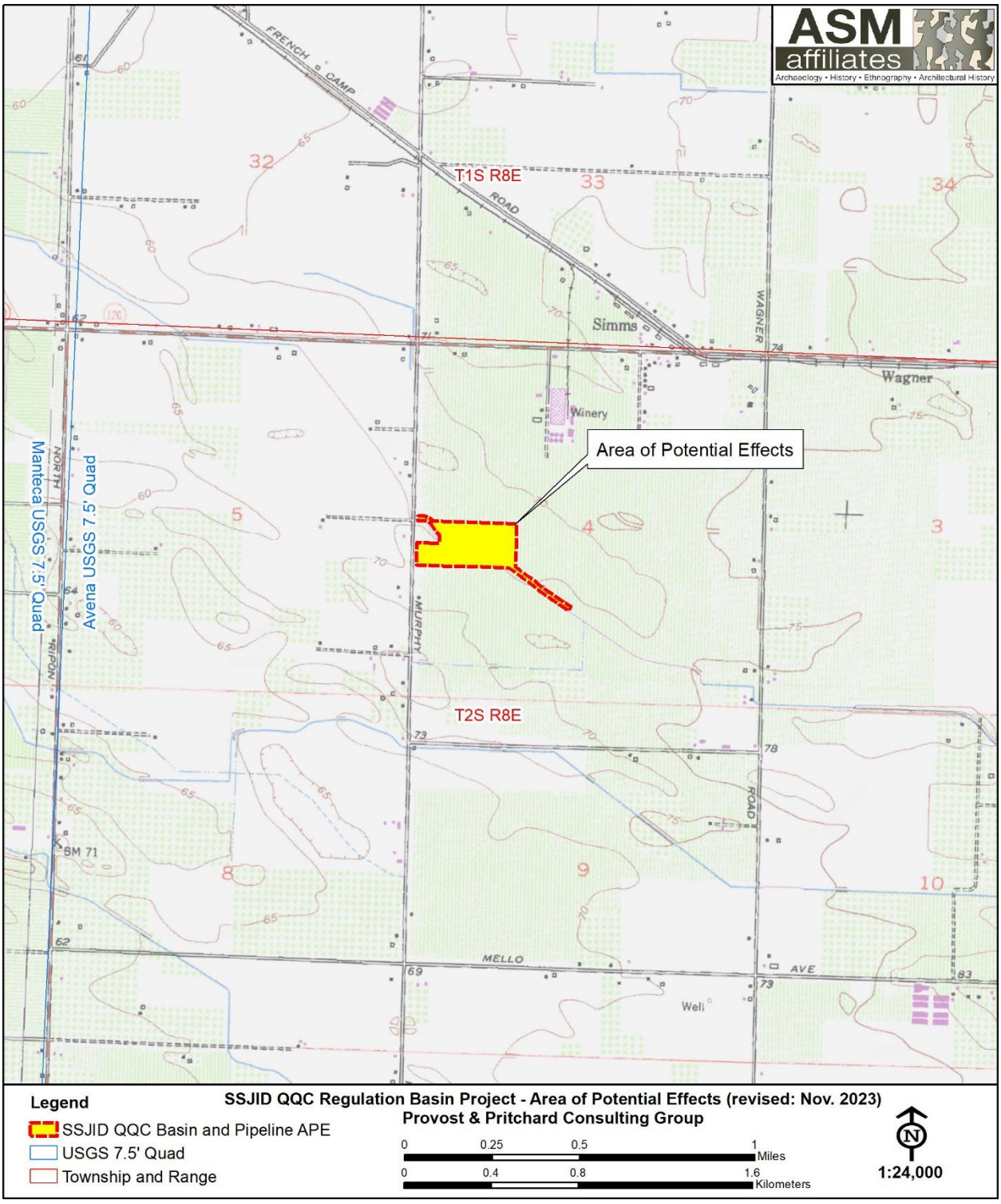

Figure 1. Location of the SSJID Q-QC Regulation Basin Project APE, San Joaquin County, California.

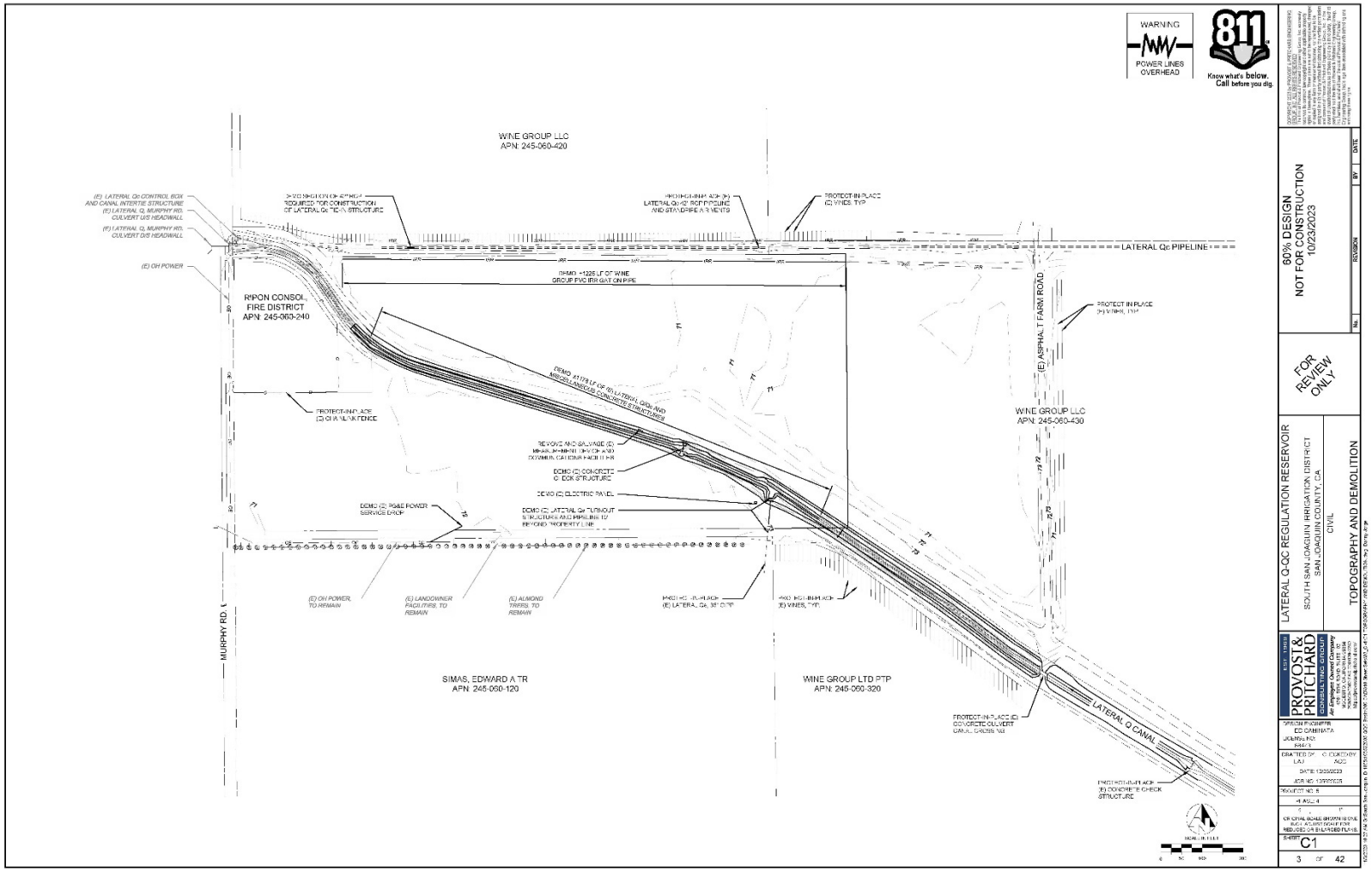

Figure 2. Proposed project prior to construction.

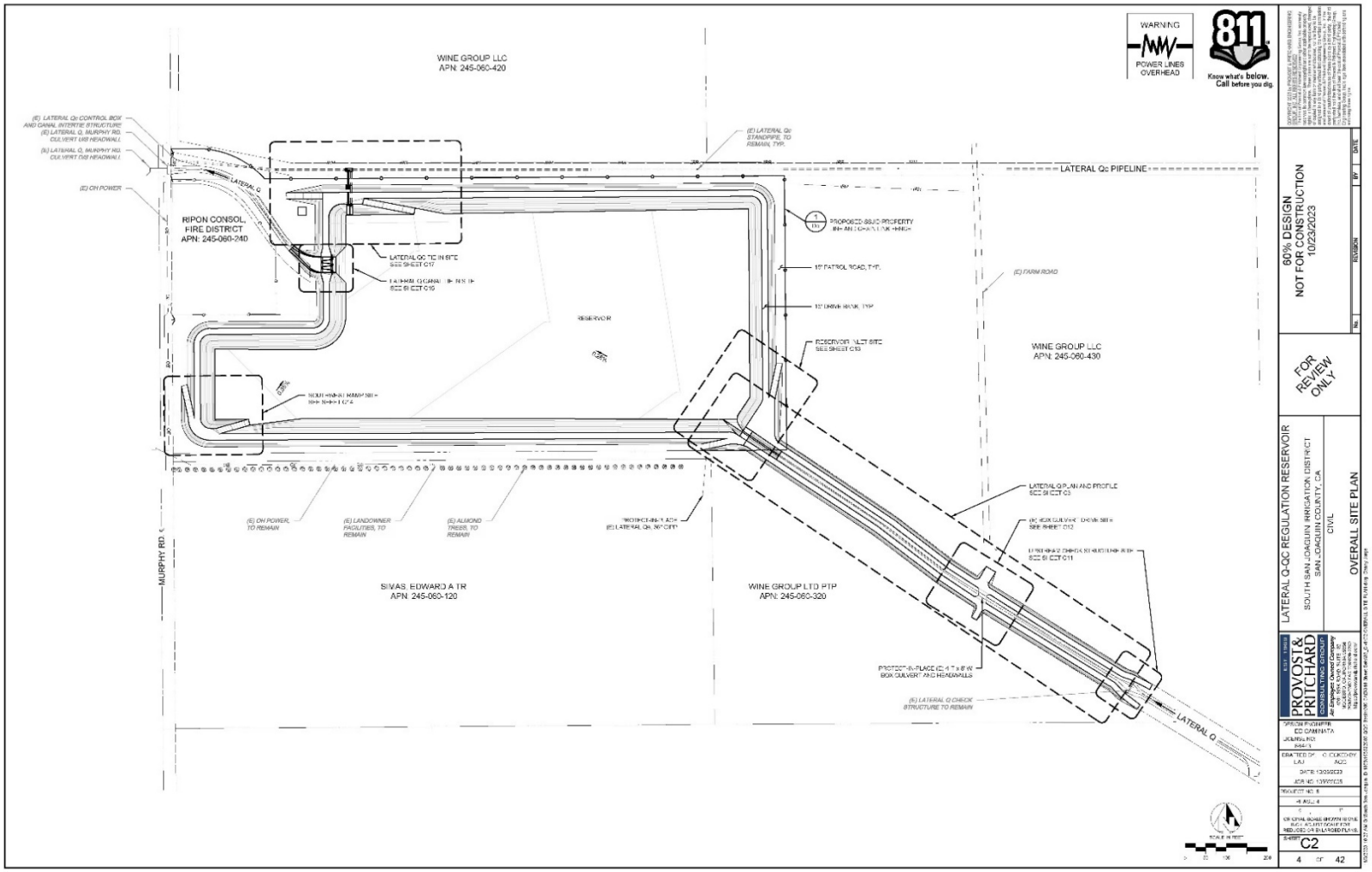

Figure 3. Proposed project post construction.

2. ENVIRONMENTAL AND CULTURAL BACKGROUND

2.1 ENVIRONMENTAL BACKGROUND AND GEOARCHAEOLOGICAL SENSITIVITY

The Project location is on the open flats of the San Joaquin Valley, in San Joaquin County and less that 3.2-mi north of the Stanislaus River. Elevation ranges from roughly 70-ft above mean sea level (amsl) on the western portion of the APE, to about 75-ft amsl on the east. The topography within the Project APE is generally flat. The Project APE currently consists of vineyards, with Lateral Q bisecting the parcel from the southeast to the northwest.

Prior to the appearance of agriculture, starting in the nineteenth century, this area would have been prairie grasslands and riparian environments along creeks and sloughs (Preston 1981). The Project area and immediate surroundings have been farmed and grazed for many years and no native vegetation is present. Perennial bunchgrasses such as purple needlegrass and nodding needlegrass most likely would have been the dominant plant cover in the vicinity prior to cultivation.

A Caltrans District 10 geoarchaeological study that includes the Project area provides a guide for the likelihood of subsurface archaeological deposits within Project APE (Rosenthal and Meyer 2004). The study aimed to determine the age and depositional history of major landforms in District 10 by combining a synthesis of published paleontological, soils, and archaeological chronometric dates with geoarchaeological field testing. The ages of surface landforms were then mapped to provide an assessment for the potential for buried archaeological deposits. These ages were derived primarily from the Soil Survey Geographic Database (SSURGO) and the State Soils Geographic (STATSGO) database. A map was created from this information that ranked locations in 7 ordinal classes for sensitivity for buried soils, from Very Low to Very High. This map can be employed to provide a general measure of the potential for buried archaeological deposits in any given location.

The Project area is located in San Joaquin County approximately 3-mi northeast of Ripon, CA and 4.5-mi east of Manteca, CA. The lower Stanislaus River is approximately 3.2-mi south of the Project APE. According to the Rosenthal and Meyer (2004) model, the potential for buried archaeological deposits in the Project APE is primarily consists of Early to Middle Holocene (7,000-4,000 YBP) sediments, which are classified as having Moderate potential for buried archaeological sites. Portions of the APE, however, are shown as containing Latest Holocene to Historic (2,000 to 150 YBP) sediments, which are classified as having Very High potential for subsurface archaeological deposits. Based on the Rosenthal and Meyer (2004) model, subsurface sites may be located within the Project APE; however, due to local factors (discussed further in Chapter 4, Section 4.3), the sensitivity for buried sites within the Project APE is considered Low.

2.2 ETHNOGRAPHIC BACKGROUND

Penutian-speaking Yokuts tribal groups occupied the southern San Joaquin Valley region and much of the nearby Sierra Nevada. Ethnographic information about the Yokuts was collected primarily by Powers (1971, 1976 [originally 1877]), Kroeber (1925), Gayton (1930, 1948), Driver (1937), Latta (1977) and Harrington (n.d.). For a variety of historical reasons, existing research information emphasizes the central Yokuts tribes who occupied both the valley and particularly the foothills of the Sierra. The northernmost tribes suffered from the influx of Euro-Americans during the Gold Rush and their populations were in substantial decline by the time ethnographic studies began in the early twentieth century. In contrast, the southernmost tribes were partially removed by the Spanish to missions and eventually absorbed into multi-tribal communities on the Sebastian Indian Reservation (on Tejon Ranch), and later the Tule River Reservation and Santa Rosa Rancheria to the north. The result is an unfortunate scarcity of ethnographic detail on southern Valley tribes, especially in relation to the rich information collected from the central foothills tribes where native speakers of the Yokuts dialects are still found. Regardless, the general details of indigenous life-ways were similar across the broad expanse of Yokuts territory, particularly in terms of environmentally influenced subsistence and adaptation and with regard to religion and belief, which were similar everywhere.

As discussed briefly above, there is a dearth of knowledge on the location of ethnographic villages for Northern Valley Yokuts. Neither Kroeber (1925) nor Wallace (1978) list any ethnographic villages in the vicinity of the APE. This lack of knowledge can likely be attributed to its proximity to the bay area and the early expansion of the mission system and subsequent removal and deterioration of local tribes and, thus, tribal knowledge available to early ethnographers (Kroeber 1925; Wallace 1978).

The Yokuts settlement pattern was largely consistent, regardless of specific tribe involved. Winter villages were typically located along lakeshores and major stream courses (as these existed circa AD 1800), with dispersal phase family camps located at elevated spots on the valley floor and near gathering areas in the foothills.

Most Yokuts groups, again regardless of specific tribal affiliation, were organized as a recognized and distinct tribelet; a circumstance that almost certainly pertained to the tribal groups noted above. Tribelets were land-owning groups organized around a central village and linked by shared territory and descent from a common ancestor. The population of most tribelets ranged from about 150 to 500 peoples (Kroeber 1925).

Each tribelet was headed by a chief who was assisted by a variety of assistants, the most important of whom was the *winatum*, a herald or messenger and assistant chief. A shaman also served as religious officer. While shamans did not have any direct political authority, as Gayton (1930) has illustrated, they maintained substantial influence within their tribelet.

Shamanism is a religious system common to most Native American tribes. It involves a direct and personal relationship between the individual and the supernatural world enacted by entering a trance or hallucinatory state (usually based on the ingestion of psychotropic plants, such as jimsonweed or more typically native tobacco). Shamans were considered individuals with an

unusual degree of supernatural power, serving as healers or curers, diviners, and controllers of natural phenomena (such as rain or thunder). Shamans also produced the rock art of this region, depicting the visions they experienced in vision quests believed to represent their spirit helpers and events in the supernatural realm (Whitley 1992, 2000).

The centrality of shamanism to the religious and spiritual life of the Yokuts was demonstrated by the role of shamans in the yearly ceremonial round. The ritual round, performed the same each year, started in the spring with the jimsonweed ceremony, followed by rattlesnake dance and (where appropriate) first salmon ceremony. After returning from seed camps, fall rituals began in the late summer with the mourning ceremony, followed by first seed and acorn rites and then bear dance (Gayton 1930:379). In each case, shamans served as ceremonial officials responsible for specific dances involving a display of their supernatural powers (Kroeber 1925).

Subsistence practices varied from tribelet to tribelet based on the environment of residence. Throughout Native California, and Yokuts territory in general, the acorn was a primary dietary component, along with a variety of gathered seeds. Valley tribes augmented this resource with lacustrine and riverine foods, especially fish and wildfowl. As with many Native California tribes, the settlement and subsistence rounds included the winter aggregation into a few large villages, where stored resources (like acorns) served as staples, followed by dispersal into smaller camps, often occupied by extended families, where seasonally available resources would be gathered and consumed.

Although population estimates vary and population size was greatly affected by the introduction of Euro-American diseases and social disruption, the Yokuts were one of the largest, most successful groups in Native California. Cook (1978) estimates that the Yokuts region contained 27 percent of the aboriginal population in the state at the time of contact; other estimates are even higher. Many Yokuts people continue to reside in the southern San Joaquin Valley today.

2.3 PRE-CONTACT ARCHAEOLOGICAL BACKGROUND

The San Joaquin Valley region has received minimal archaeological attention compared to other areas of the state. In part, this is because the majority of California archaeological work has concentrated in the Sacramento Delta, Santa Barbara Channel, and central Mojave Desert areas (see Moratto 1984). Although knowledge of the region's prehistory is limited, enough is known to determine that the archaeological record is broadly similar to south-central California as a whole (see Gifford and Schenk 1926; Hewes 1941; Wedel 1941; Fenenga 1952; Elsasser 1962; Fredrickson and Grossman 1977; Schiffman and Garfinkel 1981). Based on these sources, the general prehistory of the region can be outlined as follows.

Initial occupation of the region occurred at least as early as the *Paleoindian Period*, or prior to about 10,000 years before present (YBP). Evidence of early use of the region is indicated by characteristic fluted and stemmed points found around the margin of Tulare Lake, in the foothills of the Sierra, and in the Mojave Desert proper.

Both fluted and stemmed points are particularly common around lake margins, suggesting a terminal Pleistocene/early Holocene lakeshore adaptation similar to that found throughout the far

west at the same time; little else is known about these earliest peoples. Over 250 fluted points have been recovered from the Witt Site (CA-KIN-32), located along the western shoreline of ancient Tulare Lake a distance south of the Project area, demonstrating the importance of this early occupation in the San Joaquin Valley specifically (see Fenenga 1993). Additional finds consist of a Clovis-like projectile point discovered in a flash-flood cut-bank near White Oak Lodge in 1953 on Tejon Ranch (Glennan 1987a, 1987b). More recently, a similar fluted point was found near Bakersfield (Zimmerman et al. 1989), and a number are known from the Edwards Air Force Base and Boron area of the western Mojave Desert. Although human occupation of the state is well-established during the Late Pleistocene, relatively little can be inferred about the nature and distribution of this occupation with a few exceptions. First, little evidence exists to support the idea that people at that time were big-game hunters, similar to those found on the Great Plains. Second, the western Mojave Desert evidence suggests small, very mobile populations that left a minimal archaeological signature. The evidence from the ancient Tulare Lake shore, in contrast, suggests much more substantial population and settlements which, instead of relying on big game hunting, were tied to the lacustrine lake edge. Variability in subsistence and settlement patterns is thus apparent in California, in contrast to the Great Plains.

Substantial evidence for human occupation across California, however, first occurs during the middle Holocene, roughly 7,500 to 4,000 YBP. This period is known as the *Early Horizon*, or alternatively as the Early Millingstone along the Santa Barbara Channel. In the south, populations concentrated along the coast with minimal visible use of inland areas. Adaptation emphasized hard seeds and nuts with tool-kits dominated by mullers and grindstones (manos and metates). Additionally, little evidence for Early Horizon occupation exists in most inland portions of the state, partly due to a severe cold and dry paleoclimatic period occurring at this time, although a site deposit dating to this age has been identified along the ancient Buena Vista shoreline in Kern County to the south (Rosenthal et al. 2007). Regardless of specifics, Early Horizon population density was low with a subsistence adaptation more likely tied to plant food gathering than hunting.

Environmental conditions improved dramatically after about 4,000 YBP during the *Middle Horizon* (or Intermediate Period). This period is known climatically as the Holocene Maximum (circa 3,800 YBP) and was characterized by significantly warmer and wetter conditions than previously experienced. It was marked archaeologically by large population increase and radiation into new environments along coastal and interior south-central California and the Mojave Desert (Whitley 2000). In the Delta region to the north, this same period of favorable environmental conditions was characterized by the appearance of the Windmiller culture which exhibited a high degree of ritual elaboration (especially in burial practices) and perhaps even a rudimentary mound-building tradition (Meighan, personal communication, 1985). Along with ritual elaboration, Middle Horizon times experienced increasing subsistence specialization, perhaps correlating with the appearance of acorn processing technology. Penutian speaking peoples (including the Yokuts) are also posited to have entered the state roughly at the beginning of this period and, perhaps to have brought this technology with them (cf. Moratto 1984). Likewise, it appears the so-called "Shoshonean Wedge" in southern California, the Takic speaking groups that include the Gabrielino/Fernandeño, Tataviam and Kitanemuk, may have moved into the region at that time (Sutton 2009, rather than at about 1,500 YBP as first suggested by Kroeber (1925).

Evidence for Middle Horizon occupation of interior south-central California is substantial. For example, in northern Los Angeles County along the upper Santa Clara River, to the south of the San Joaquin Valley, the Agua Dulce village complex indicates occupation extending back to the Intermediate Period, when the population of the village may have been 50 or more people (King et al n.d.). Similarly, inhabitation of the Hathaway Ranch region near Lake Piru, and the Newhall Ranch near Valencia, appears to date to the Intermediate Period (W&S Consultants 1994). To the west, little or no evidence exists for pre-Middle Horizon occupation in the upper Sisquoc and Cuyama River drainages; populations first appear there at roughly 3,500 YBP (Horne 1981). The Carrizo Plain, the valley immediately west of the San Joaquin, experienced a major population expansion during the Middle Horizon (W & S Consultants 2004; Whitley et al. 2007), and recently collected data indicates the Tehachapi Mountains region was first significantly occupied during the Middle Horizon (W&S Consultants 2006). A parallel can be drawn to the inland Ventura County region where a similar pattern has been identified (Whitley and Beaudry 1991), as well as the western Mojave Desert (Sutton 1988a, 1988b), the southern Sierra Nevada (W&S Consultants 1999), and the Coso Range region (Whitley et al. 1988). In all of these areas a major expansion in settlement, the establishment of large site complexes and an increase in the range of environments exploited appear to have occurred sometime roughly around 4,000 years ago. Although most efforts to explain this expansion have focused on local circumstances and events, it is increasingly apparent this was a major southern California-wide occurrence, and any explanation must be sought at a larger level of analysis (Whitley 2000). Additionally, evidence from the Carrizo Plain suggests the origins of the tribelet level of political organization developed during this period (W&S Consultants 2004; Whitley et al. 2007). Whether this same demographic process holds for the southern San Joaquin Valley, including the study area, is yet to be determined.

The beginning of the *Late Horizon* is set variously at 1,500 and 800 YBP, with a growing archaeological consensus for the shorter chronology. Increasing evidence suggests the importance of the Middle-Late Horizons transition (AD 800 to 1200) in the understanding of south-central California prehistory. This corresponds to the so-called Medieval Climatic Anomaly, followed by the Little Ice Age, and this general period of climatic instability extended to about A.D. 1860. It included major droughts matched by intermittent “mega-floods,” and resulted in demographic disturbances across much of the west (Jones et al. 1999). It is believed to have resulted in major population decline and abandonments across south-central California, involving as much as 90% of the interior populations in some regions, including the Carrizo Plain (Whitley et al. 2007). It is not clear whether site abandonment was accompanied by a true reduction in population or an agglomeration of the same numbers of peoples into fewer but larger villages in more favorable locations. Population along the Santa Barbara coast appears to have spiked at about the same time that it collapsed on the Carrizo Plain (ibid). Along Buena Vista Lake, in Kern County to the south, population appears to have been increasingly concentrated towards the later end of the Medieval Climatic Anomaly (Culleton 2006), and population intensification also appears to have occurred in the well-watered Tehachapi Mountains during this same period (W&S Consultants 2006).

What is then clear is that Middle Period villages and settlements were widely dispersed across the south-central California landscape, including in the Sierras and the Mojave Desert. Many of these sites are found at locations that lack existing or known historical fresh water sources. Late Horizon sites, in contrast, are typically concentrated in areas where fresh water was available during the historical period, if not currently.

One extensively studied site that shows evidence of intensive occupation during the Middle-Late Horizons transition (~1,500 – 500 YBP) is the Redtfeldt Mound (CA-KIN-66/H), located south of the Project area, near the north shore of ancient Tulare Lake and Lemoore. There, Siefkin (1999) reported on human burials and a host of artifacts and ecofacts excavated from a modest-sized mound. He found that both Middle Horizon and Middle-Late Horizons transition occupations were more intensive than Late Horizon occupations, which were sporadic and less intensive (Siefkin 1999:110-111).

The Late Horizon can then be understood as a period of recovery from a major demographic collapse. One result is the development of regional archaeological cultures as the precursors to ethnographic Native California; suggesting that ethnographic life-ways recorded by anthropologists extend roughly 800 years into the past.

The position of San Joaquin Valley prehistory relative to patterns seen in surrounding areas is still somewhat unknown. The presence of large lake systems in the valley bottoms appears to have mediated some of the desiccation seen elsewhere. But, as the reconstruction of Soda Lake in the nearby Carrizo Plain demonstrates (see Whitley et al. 2007) environmental perturbations had serious impacts on lake systems too. Identifying certain of the prehistoric demographic trends for the San Joaquin Valley and determining how these trends (if present) correlate with those seen elsewhere, is a current important research objective.

2.4 HISTORICAL BACKGROUND

2.4.1 San Joaquin Valley

Spanish explorers first visited the San Joaquin Valley in 1772, but its lengthy distance from the missions and presidios along the Pacific Coast delayed permanent settlement for many years, including during the Mexican period of control over the Californian region. In the 1840s, Mexican rancho owners along the Pacific Coast allowed their cattle to wander and graze in the San Joaquin Valley (JRP Historical Consulting 2009). The Mexican government granted the first ranchos in the of the San Joaquin Valley in the early 1840s. For instance, the nearly 50,000-ac *Rancho Sanjon de Santa Rit*a, on the east side of the San Joaquin River to the west and southwest of the Project area, was granted in 1841 by Governor Juan Alvarado to Francisco Maria Soberanes. Though a number of these large ranchos were granted throughout the valley in the early 1840s, it was not until the annexation of California in 1848 that the exploitation of the southern San Joaquin Valley began (Pacific Legacy 2006).

The discovery of gold in northern California in 1848 resulted in a dramatic increase of population, consisting in good part of fortune seekers and gold miners, who began to scour other parts of the state. After 1851, when gold was discovered in the Sierra Nevada Mountains in eastern Kern County, the population of the area grew rapidly. Some new immigrants began ranching in the San Joaquin Valley to supply the miners and mining towns. Ranchers grazed cattle and sheep, and farmers dry-farmed or used limited irrigation to grow grain crops, leading to the creation of small agricultural communities throughout the valley (JRP Historical Consulting 2009).

After the American annexation of California, the southern San Joaquin Valley became significant as a center of food production for this new influx of people in California. The expansive unfenced and principally public foothill spaces were well suited for grazing both sheep and cattle (Boyd 1997). As the Sierra Nevada gold rush presented extensive financial opportunities, ranchers introduced new breeds of livestock, consisting of cattle, sheep and pig (Boyd 1997).

With the increase of ranching in the southern San Joaquin came the dramatic change in the landscape, as non-native grasses more beneficial for grazing and pasture replaced native flora (Preston 1981). After the passing of the Arkansas Swamp Lands Act in 1850, efforts were made to reclaim small tracts of land in order to create more usable spaces for ranching. Eventually, as farming supplanted ranching as a more profitable enterprise, large tracts of land began to be reclaimed for agricultural use, aided in part by the extension of the railroad in the 1870s (Pacific Legacy 2006).

Following the passage of state wide 'No-Fence' laws in 1874, ranching practices began to decline, while farming expanded in the San Joaquin Valley in both large land holdings and smaller, subdivided properties. As the farming population grew, so did the demand for irrigation. Settlers began reclamation of swampland in 1866. With the passage of the Wright Act in 1887, the legislature allowed the creation of bonded irrigation districts as public entities. The Alta Irrigation District (AID) was created in 1888 with bonds in the amount of $676,000.00. The district purchased the 76 Land and Water Company canal system for $410,000.00 (Grunsky 1898:24) and was one of the first irrigation districts formed in Tulare County (Preston 1981).

During the period of reclaiming unproductive land in the southern San Joaquin Valley, grants were given to individuals who had both the resources and the finances to undertake the operation alone. One small agricultural settlement, founded by Colonel Thomas Baker in 1861 after procuring one such grant, took advantage of reclaimed swampland along the Kern River. This settlement became the City of Bakersfield in 1869, and quickly became the center of activity in the southern San Joaquin Valley, and in the newly formed Kern County. Located on the main stage road through the San Joaquin Valley, the town became a primary market and transportation hub for stock and crops, as well as a popular stopping point for travelers on the Los Angeles and Stockton Road. The Southern Pacific Railroad reached the Bakersfield area in 1873, connecting it with important market towns elsewhere in the state, dramatically impacting both agriculture and oil production (Pacific Legacy 2006).

In the mid-to-late 1860s, the rise of wheat farming emerged as an increasingly prominent use of land in the Central Valley and contributed to the decline and eventual demise the open range cattle industry in the area during its three-decade reign. Wheat cultivation in the Central Valley was not sustainable, and farmers increasingly turned to irrigated crops. As this transition took place, irrigation grew steadily. In 1860, 60,000 acres were irrigated and grew to 400,000 acres in 1880. By the early years of the twentieth century, irrigated landscapes became the dominant feature of the Central Valley and California at large with 2,644,000 acres under irrigation (JRP Historical Consulting 2019).

However, in the Central Valley, problems were made apparent as the demand for water grew over time. Namely, the Central Valley's great acreage allowed for regional differences in water supply,

and the Mediterranean-type climate of prolonged dry summers necessitated irrigation of summer crops, differing from other climates where rainfall during summer months is more common (JRP Historical Consulting 2019).

To combat this, initially private irrigation systems were initially developed by individuals under private initiative and financing, using the natural flow of local streams. These early projects were concerned with local issues and irrigated relatively small tracts of land. These early irrigation projects were more common in the southern portion of the San Joaquin Valley, where growing crops without the aid of irrigation systems were much more difficult (JRP Historical Consulting 2019). In 1880, State Engineer William Hammond Hall conducted California's first state-wide irrigation survey and found that the San Joaquin Valley was the most heavily irrigated region of the state with 188,000 irrigated acres, which was forty-seven percent of irrigated acreage state-wide.

Three competing partnerships developed during this period which had a great impact on control of water, land reclamation and ultimately agricultural development in the San Joaquin Valley: Livermore and Chester, Haggin and Carr, and Miller and Lux, perhaps the most famous of the enterprises. Livermore and Chester were responsible, among other things, for developing the large Hollister plow (three feet wide by two feet deep), pulled by a 40-mule team, which was used for ditch digging. Haggin and Carr were largely responsible for reclaiming the beds of the Buena Vista and Kern lakes, and for creating the Calloway Canal, which drained through the Rosedale area in Bakersfield to Goose Lake (Morgan 1914). Miller and Lux ultimately became one of the biggest private property holders in the country, controlling the rights to over 22,000 square miles. Among the many landholdings of Miller and Lux was the entirety of *Rancho Sanjon de Santa Rita*, which Henry Miller purchased in 1866. The headquarters of Miller and Lux were located on the rancho near present-day Santa Rita Park (Hoover et al. 2002).

The San Joaquin Valley was dominated by agricultural pursuits until the oil boom of the early 1900s, which saw a shift in the region, as some reclaimed lands previously used for farming were leased to oil companies. Nonetheless, the shift of the San Joaquin Valley towards oil production did not halt the continued growth of agriculture (Pacific Legacy 2006). The Great Depression of the 1930s brought with it the arrival of great numbers of migrants from the drought-affected Dust Bowl region, looking for agricultural labor. These migrants established temporary camps in the valley, staying on long past the end of the drought and the Great Depression, eventually settling in towns such as Bakersfield where their descendants live today (Boyd 1997).

2.4.2 South San Joaquin Irrigation District Overview

Water conveyance from the Stanislaus River began in 1855 when the Stanislaus Power and Irrigation Company constructed mining ditches. Those ditches were later reused for irrigation as more settlers transitioned from mining and cattle raising to agriculture in the late nineteenth and early twentieth centuries (Cone 1911:52). While construction of a more extensive irrigation system was attempted by the Farmington Water Company (established in 1874), it failed. Farmers organized in 1888 as the San Joaquin Land and Water Company, but it too failed. In 1894, the succeeding Stanislaus and San Joaquin Land and Water Company acquired the San Joaquin Land and Water Company water rights and under the direction of the Tulloch family, constructed its own system that utilized a portion of the old Schell ditch for the 60-mile ditch system with two

miles of flume and a tunnel as well as a new dam foundation. However, the company failed (Cone 1911:53). When the Wright Irrigation Law of 1887 passed, local farmers organized across California to form irrigation districts with the same status as municipal water districts. Neighboring Oakdale Irrigation Company had organized and purchased the old ditches and a flume (and then a pipe) to transfer water and expanded the system. The 118 miles of main and lateral ditches were small and undermaintained, prompting the organization of farmers in Escalon, Ripon, and Manteca as the SSJID in 1909 (Cone 1911:53).

Farmers at SSJID and the newly organized Oakdale Irrigation District (OID) collectively purchased the Stanislaus Water Company water rights and water system (including the water rights at the powerplant of the Knights Ferry) for the 71,000 acres within the SSJID and the 65,000 acres within the OID. The two districts agreed to share the water rights and construction costs of the diversion dam (1913) above Knights Ferry (Goodwin Dam) and headworks. The new system was not a patchwork that utilized all the existing canals, but a new irrigation system that only reused ditches if feasible (Cone 1911:54; South San Joaquin Irrigation District 2023). By May 1915, the SSJID irrigation system had been constructed (Figures 4-6). The SSJID submitted photos for the newspaper of the main Canal and Laterals Q and R as the main laterals of the system and boasted that its system was "the most thorough and complete in America. It delivers the water to every forty acres, and the land owns and controls the water" (*The Ripon Record* 1915:3).

The following has been excerpted from the SSJID[1]:

SSJID jointly holds pre-1914 water rights with OID on the Stanislaus River. SSJID delivers this historic water right water to our customers through a gravity conveyance system of canals, siphons, and tunnels from the Stanislaus River into Woodward Reservoir. SSJID regulates water from Woodward Reservoir to irrigation customers via an extensive system, which includes 18 miles of main distribution canal, 312 miles of lateral pipelines, and 38 miles of open-channel canals. Nearly all of SSJID's distribution system relies on gravity to convey water, an engineering feat that provides significant cost savings to local customers.

In 1915, SSJID encountered a water shortage resulting from a lack of precipitation the previous winter. To minimize crop damage from similar shortages in the future, SSJID constructed Woodward Reservoir near Oakdale. The reservoir — named after one of SSJID's founding board members — was completed in 1916 and increased SSJID's storage capacity by 36,000 acre feet. In 1923, SSJID wisely lined nearly all of its canals with cement to help prevent seepage and relieve drainage problems. This innovation resulted in a 48% water savings across SSJID.

SSJID and OID, along with Pacific Gas and Electric (PG&E) and the San Francisco Electric Co., reached an agreement to construct Melones Reservoir in 1927, which held 110,000 acre feet of water and could irrigate 144,000 acres. Years later, the federal government took over the reservoir and greatly increased its capacity. The reservoir is now known as New Melones, and SSJID and OID have rights to the first 600,000 acre feet of water that flows into the reservoir each year.

[1] South San Joaquin Irrigation District, History of SSJID. Available at https://www.ssjid.com/about-us/history-of-ssjid/. Accessed December 4, 2023.

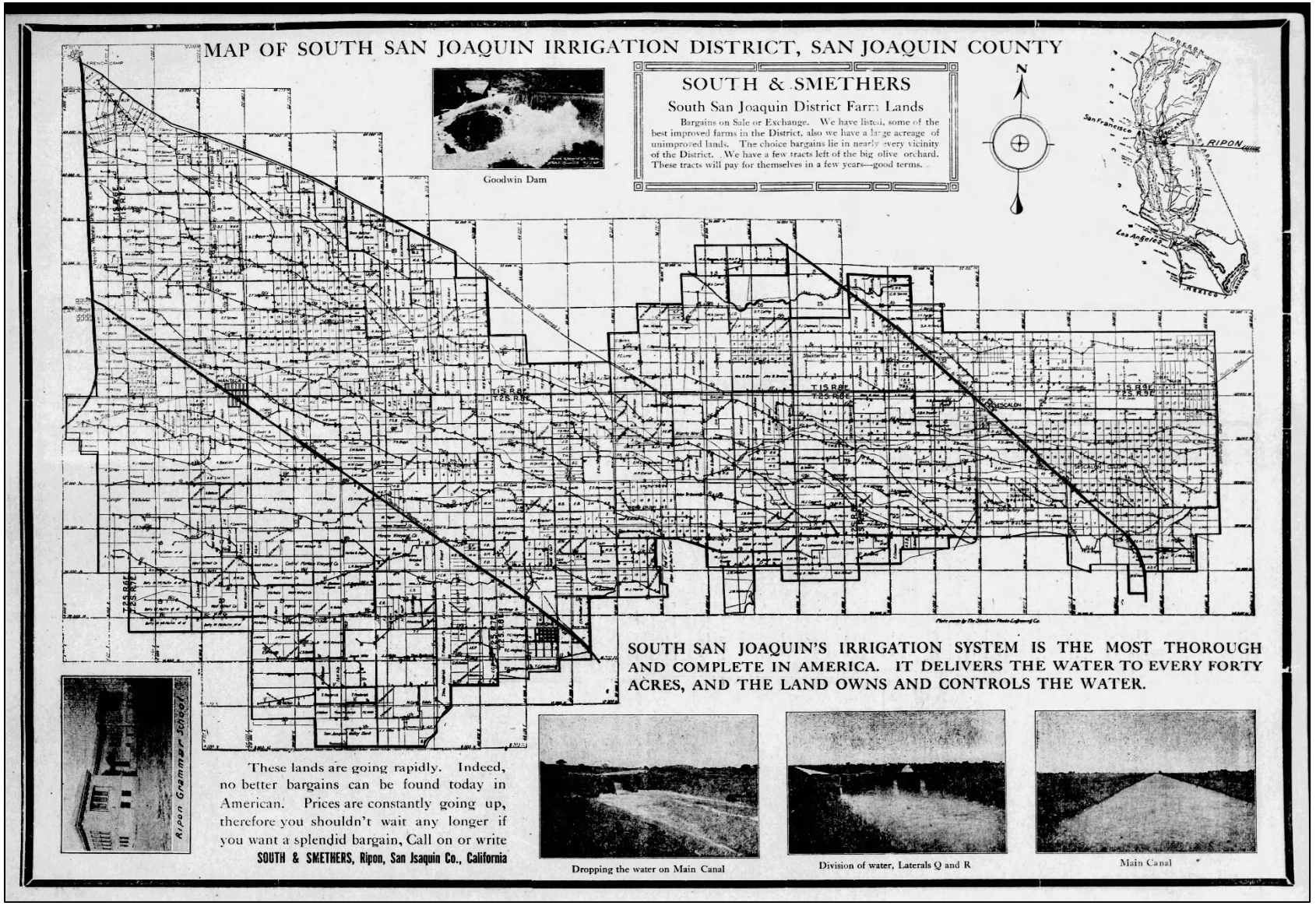

Figure 4. Map of the SSJID system in May 1915. Source: *The Ripon Record* 1915.

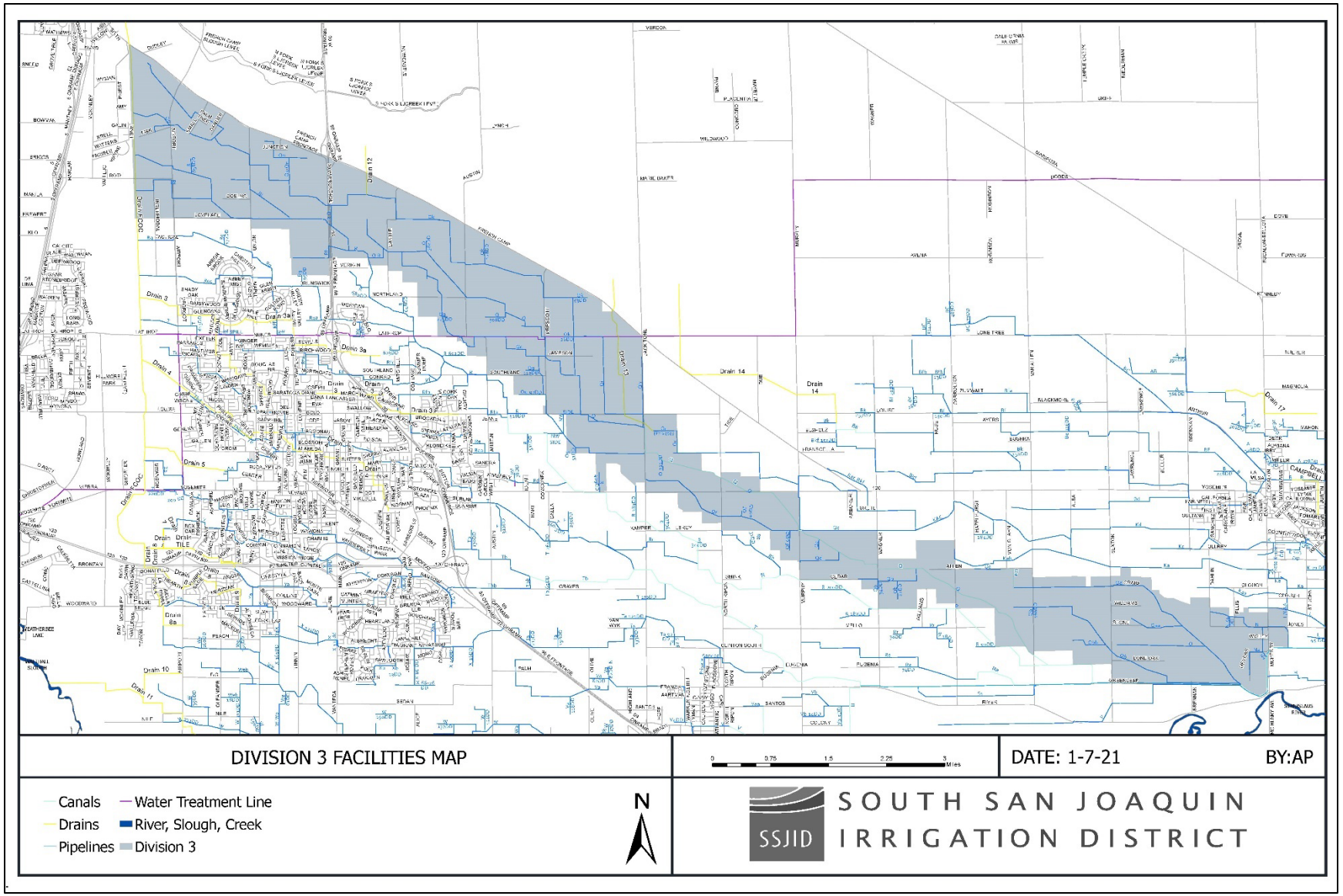

Figure 5. SSJID Division 3 map. Source: SSJID.

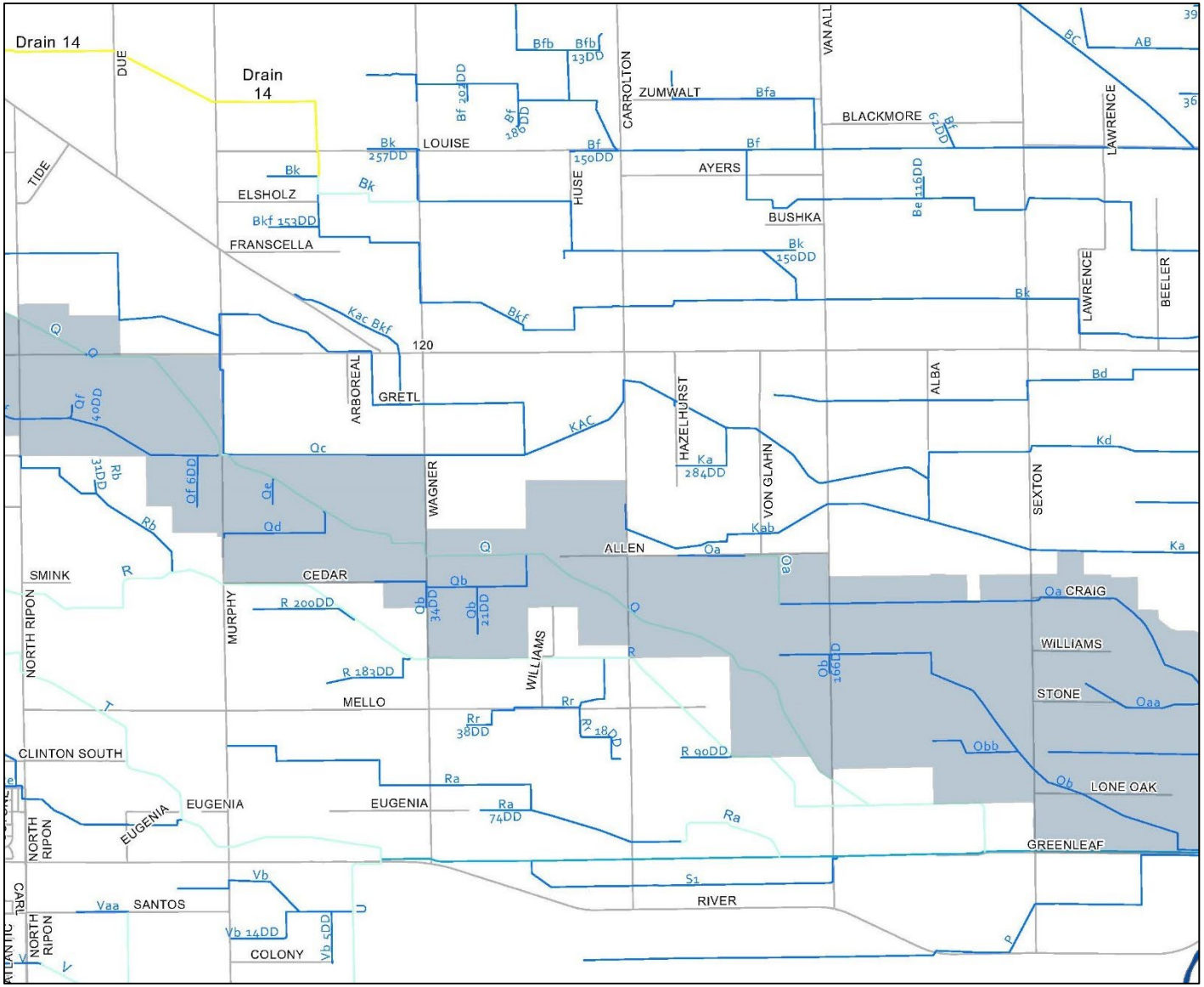

Figure 6. Close-up of SSJID Division 3 map that includes APE. Source: SSJID.

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In 1955, the Tri-Dam organization was formed by SSJID and OID with two goals: to increase water storage to meet irrigation obligations and to add low-cost hydropower electrical production. The Tri-Dam reservoirs – Donnells, Beardsley and Tulloch — became operational in just two years and the project was dedicated on June 15, 1957. The system was built to hold 230,000 acre feet of water and made it possible to generate 102 megawatts of electricity with its spinning turbines.

Beginning in the late 1980's and continuing to today, SSJID has implemented new systems and pursued new initiatives to improve operations. Some of the highlights include:

- Activating a SCADA (Supervisory Control and Data Acquisition) system and automation technology to operate the Main Distribution Canal in 1989.
- Completing the Northwest Project, a portion of the System Improvements for Distribution Efficiency (S.I.D.E) Project, in 2003.
- Completing the state-of-the-art Nick C. DeGroot Water Treatment Plant in Oakdale as a collaboration with the cities of Escalon, Lathrop, Manteca, and Tracy (an initiative known as the South County Water Supply Project) in 2005.

2.4.3 Lateral Q of the SSJID System

Lateral Q originates from SSJID's Main Distribution Canal (MDC) (see Figures 5-6). Lateral Q is one of the two primary service laterals responsible for serving the northwest quadrant of SSJID known as Division 3. The other is Lateral R. Both laterals convey water from the Stanislaus River. Lateral Qc is a sublateral originating from the Lateral K system which is a primary service lateral that diverts water directly from the MDC at Santa Fe Road, south of Escalon, providing water to more than 3,000 acres. The segments of Lateral Q and sublateral Qc within the APE are located in the N½ of the SW¼ of Section 4 (T2S/R8E; MDBM), just south of a historic winery originally owned by Guiseppe and Teresa (Carrara) Franzia since 1907 (San Joaquin County Historical Society 1907). Guiseppe and Teresa Franzia purchased 80 acres in the Central Valley to grow grapes. Teresa Franzia is credited with starting Franzia Bros. Winery. When Guiseppe had retired and visited family in Italy, she took out a $10,000 loan without his knowledge to establish the winery for her five sons (Franzia 2023). The Franzia family operated the Franzia Bros. Winery north of the APE on Yosemite Avenue (*The Ripon Record* 1936: 2). During Prohibition, the company survived by transporting grapes to Chicago. While other vineyards closed, Franzia expanded with the purchase of additional farms (Franzia 2023).

In 1900, Henry Eichoff owned the SW¼ of Section 4 (T2S/R8E; MDBM) (San Joaquin County Historical Society 1900). By 1905, G.H. Eichhoff still owned a majority of the quarter section with the N½ of the NW¼ of the SW¼ of Section 4 (T2S/R8E; MDBM) owned by E.P. Worsham (and others) (San Joaquin County Historical Society 1905). During 1907-1909, G.H. Eichhoff co-owned the property with Crown Vineyard and E.P. Warsham still owned the same property and the SSJID Canal extended through the S½ of the SW¼ of Section 4 (T2S/R8E; MDBM) (San Joaquin County Historical Society 1907, 1909). By 1911, the property had been subdivided amongst multiple owners (San Joaquin County Historical Society 1911, 1912, 1913). In 1912-1913, no laterals extended through the APE, though a portion of a lateral existed in the S½ of the S½ of Section 4 (T2S/R8E; MDBM) (Figure 7) (Denny 1913, USGS 1914).

SSJID opened construction bids for Lateral Q on August 2, 1913, with completed work expected by January 1, 1914 (*The Ripon Record* 1913a:1). By the end of August 1913, Hard Bros company won contract 16 for Lateral Q (*The Ripon Record* 1913b:1). According to the SSJID, Lateral Q was completed in 1913 (Figure 8) (Driesen 2023). The segment of Lateral Q within the APE extends approximately from Station 145 to Station 210. Based on a preliminary earthwork drawing (Plate 150), this segment of the lateral was originally designed with a 9.2-ft canal bed width (Type J) and a 12-ft canal bed width (Type H) (Figure 9). As previously mentioned, all of the new irrigation system had been completed by May 1915. While Lateral Q absorbed some segments of extant ditches, most of the alignments within Section 4 (T2S/R8E; MDBM) were not reused (see Figure 7 and Figure 8). The SSJID started a lining project in 1922, but the SSJID does not know when Lateral "Q" was lined or if any changes have been made to the lining once installed (Driesen 2023). A 1935 road map and 1937 aerial show that current alignment existed within the APE (Figure 10 and Figure 11) (Department of Public Works, Division of Highways 1935 and San Joaquin County Department of Public Works 1937). Figures 12-15 show the retention of the alignment in the 1950s and early 1960s as well as the extant check gates (two) and diversion structure (Sublateral Qe turnout). While a bridge existed in a different location in 1937, the extant bridge retains the same location as the bridge in the 1952 aerial (see Figure 11 and Figure 13).

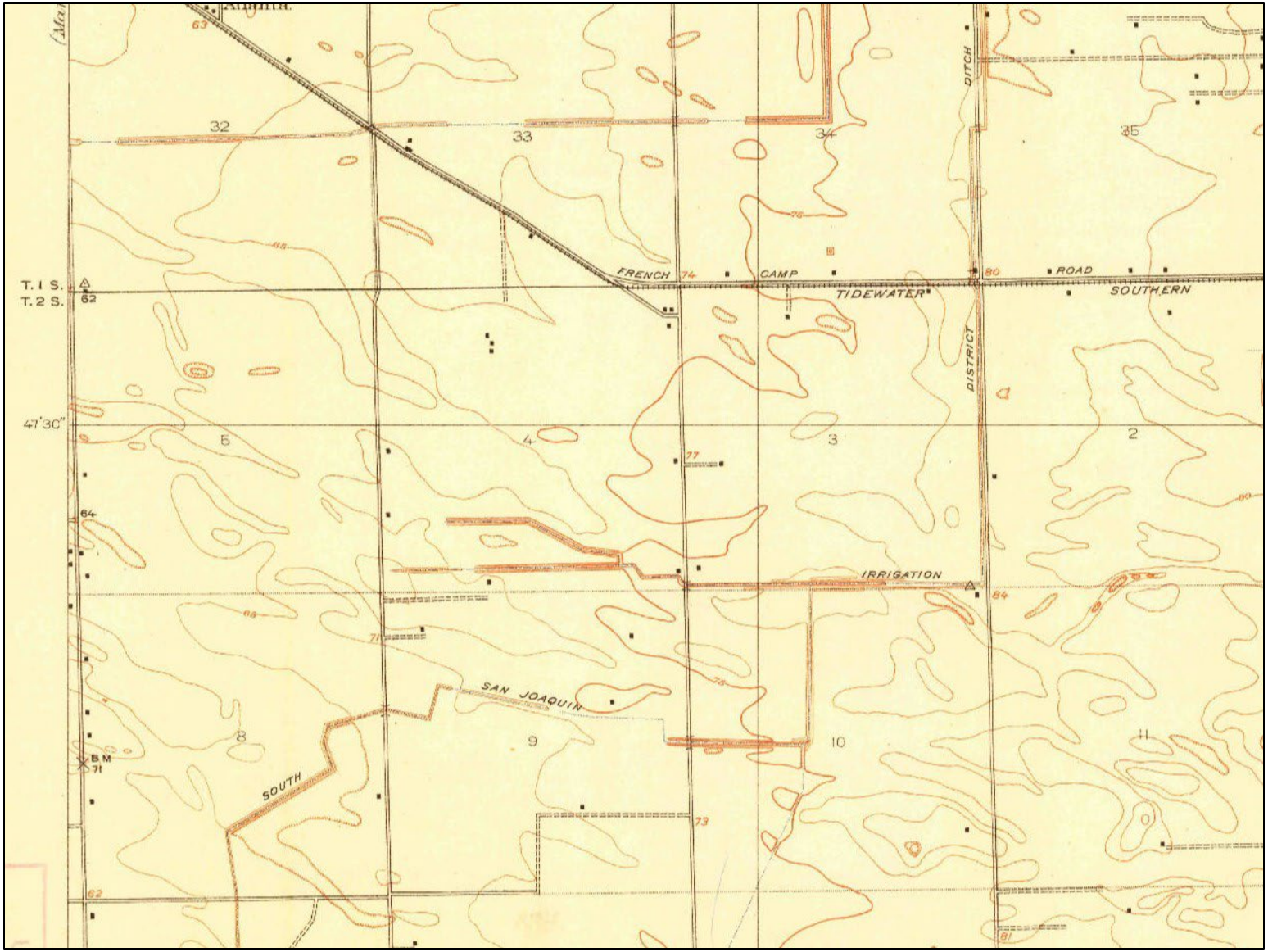

Figure 7. Portion of the 1914 USGS map surveyed in 1912. Source: USGS 1914.

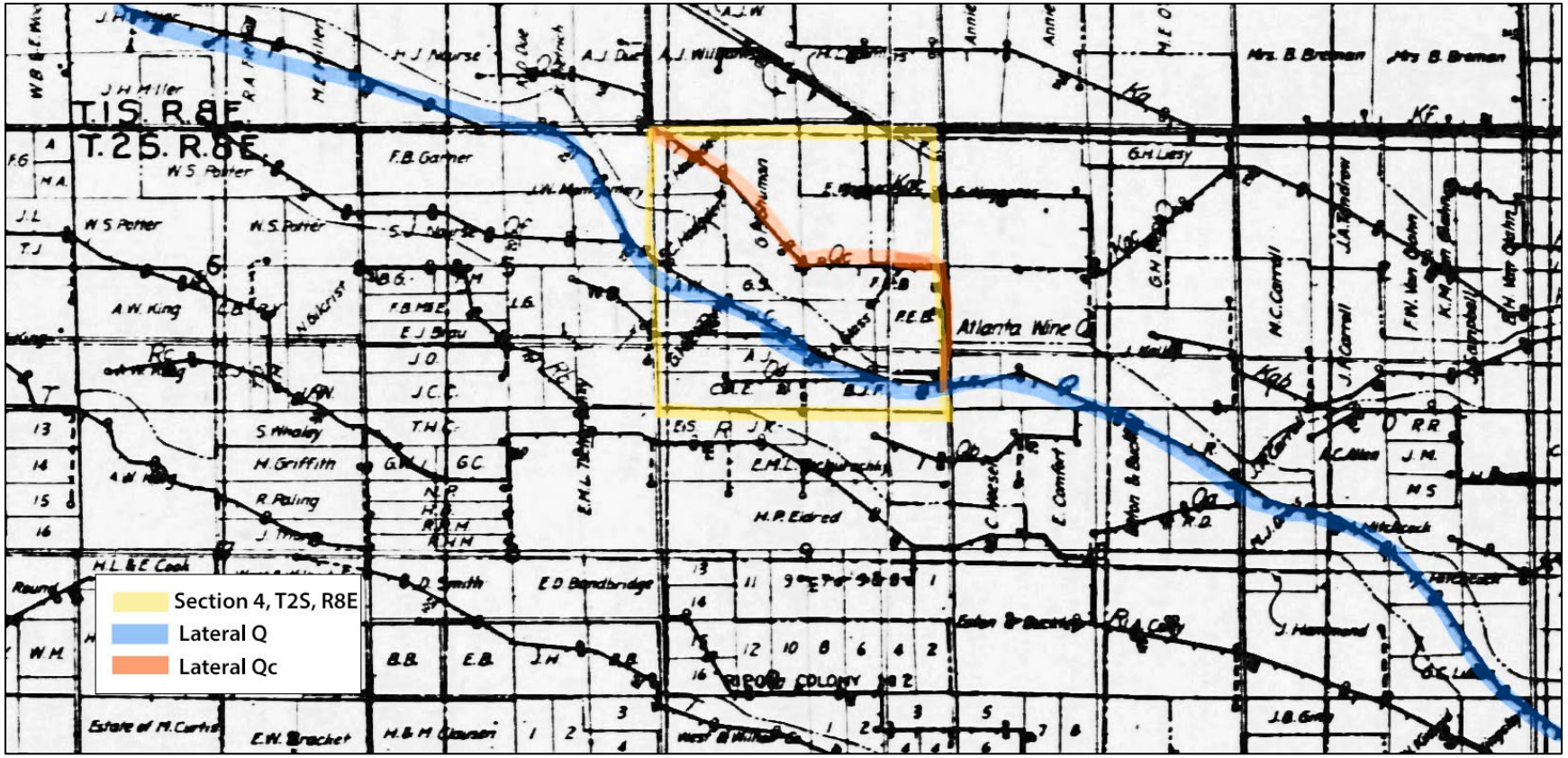

Figure 8. Close-up of the SSJID system map from May 1915 showing the APE.

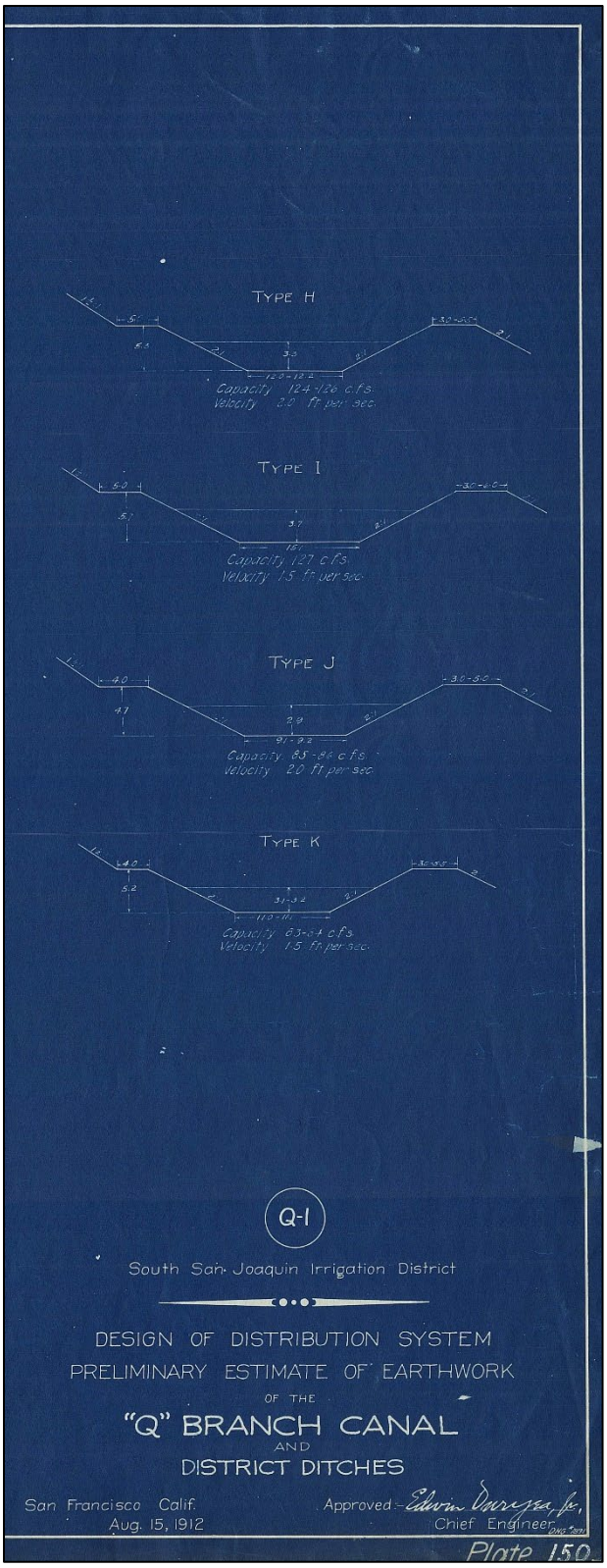

Figure 9. Plate 150 showing canal prism types. Source: SSJID.

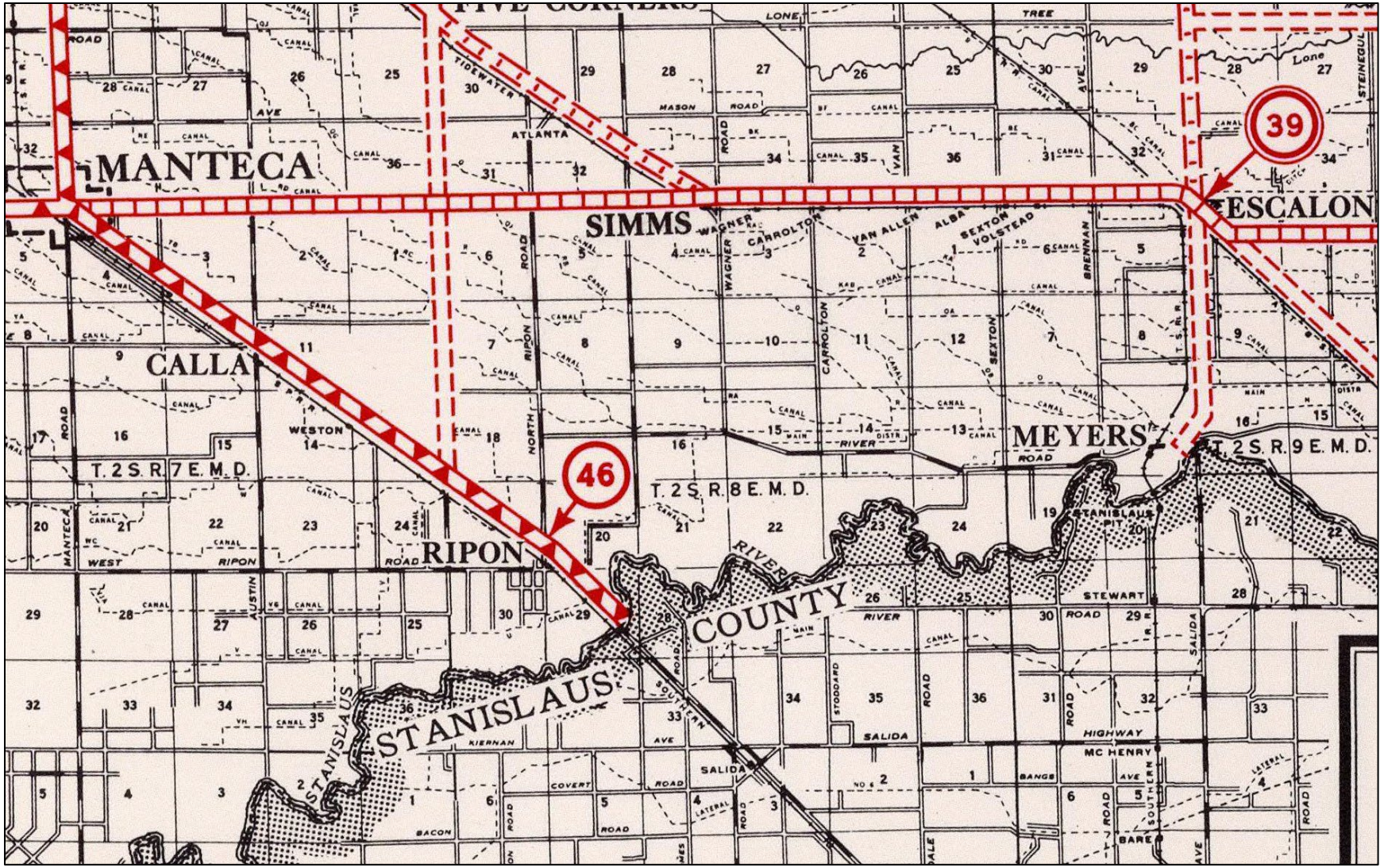

Figure 10. Except of a Department of Public Works, Division of Highways map from a Highway Transportation Survey of 1934, San Joaquin County. Source: Rand McNally and Company, David Rumsey Map Collection.

Figure 11. Aerial from 1937. Source: San Joaquin County Department of Public Works.

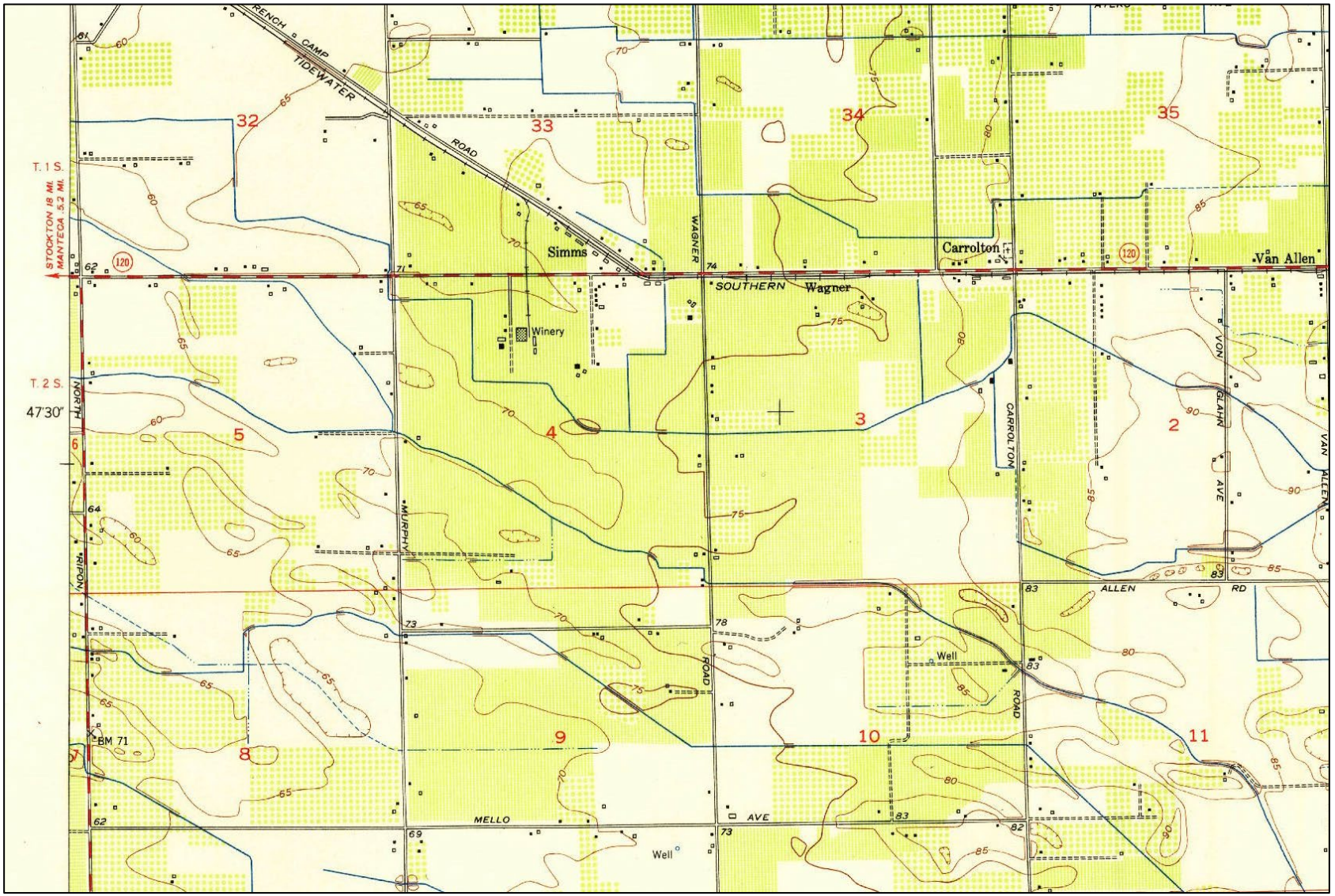

Figure 12. Portion of the 1952 USGS map surveyed in 1949. Source: USGS 1952.

Figure 13. Aerial from 1952. Source: San Joaquin County Department of Public Works.

Figure 14. Aerial from 1957. Source: University of California at Santa Barbara, Library.

Figure 15. Aerial from 1963. Source: San Joaquin County Department of Public Works.

2.5 RESEARCH DESIGN

2.5.1 Pre-Contact Archaeology

Previous research and the nature of the pre-contact archaeological record suggest two significant NRHP themes, both of which fall under the general Pre-Contact Archaeology area of significance. These are the Expansion of Pre-Contact Populations and Their Adaptation to New Environments; and Adaptation to Changing Environmental Conditions.

The Expansion of Pre-Contact Populations and Their Adaptation to New Environments theme primarily concerns the Middle Horizon/Holocene Maximum. Its period of significance runs from about 4,000 to 1,500 YBP. It involves a period during which the prehistoric population appears to have expanded into a variety of new regions, developing new adaptive strategies in the process.

The Adaptation to Changing Environmental Conditions theme is partly related to the Holocene Maximum, but especially to the Medieval Climatic Anomaly. The period of significance for this theme, accordingly, extends from about 4,000 to 800 YBP. This theme involves the apparent collapse of many inland populations, presumably with population movements to better environments such as the coast. It is not yet known whether the southern San Joaquin Valley, with its system of lakes, sloughs and swamps, experienced population decline or, more likely, population increase due to the relatively favorable conditions of this region during this period of environmental stress.

The range of site types that are present in this region include:

- Villages, primarily located on or near permanent water sources, occupied by large groups during the winter aggregation season;
- Seasonal camps, again typically located at water sources, occupied during other parts of the year tied to locally and seasonally available food sources;
- Special activity areas, especially plant processing locations containing bedrock mortars (BRMs), commonly (though not exclusively) near existing oak woodlands, and invariably at bedrock outcrops or exposed boulders;
- Stone quarries and tool workshops, occurring in two general contexts: at or below naturally occurring chert exposures on the eastern front of the Temblor Range; and at quartzite cobble exposures, often on hills or ridges;
- Ritual sites, most commonly pictographs (rock art) found at rockshelters or large exposed boulders, and cemeteries, both commonly associated with villages; and
- A variety of small lithic scatters (low density surface scatters of stone tools).

The first requisites in any research design are the definition of site age/chronology and site function. The ability to determine either of these basic kinds of information may vary between survey and test excavation projects, and due to the nature of the sites themselves. BRM sites without associated artifacts, for example, may not be datable beyond the assumption that they post-date the Early Horizon and are thus less than roughly 4,000 years old.

A second fundamental issue involves the place of site in the settlement system, especially with respect to water sources. Because the locations of the water sources have sometimes changed over time, villages and camps are not exclusively associated with existing (or known historical) water sources (W&S Consultants 2006). The size and locations of the region's lakes, sloughs and delta channels, to cite the most obvious example, changed significantly during the last 12,000 years due to major paleoclimatic shifts. This altered the area's hydrology and thus prehistoric settlement patterns. The western shoreline of Tulare Lake, for example, was relatively stable, because it abutted the Kettleman Hills. But the northern, southern and eastern shorelines comprised the near-flat valley floor. Relatively minor fluctuations up or down in the lake level resulted in very significant changes in the areal expression of the lake on these three sides, and therefore the locations of villages and camps. Although perhaps not as systematic, similar changes occurred with respect to stream channels and sloughs, and potential site locations associated with them. This circumstance has implications for predicting site locations and archaeological sensitivity. Site sensitivity is then hardest to predict in the open valley floor, where changes in stream courses and lake levels occurred on numerous occasions.

Nonetheless, the position of southern San Joaquin Valley prehistory relative to the changing settlement and demographic patterns seen in surrounding areas is still somewhat unknown (cf. Siefkin 1999), including to the two NRHP themes identified above. The presence of large lake systems in the valley bottoms can be expected to have mediated some of the effects of desiccation seen elsewhere. But, as the reconstruction of Soda Lake in the nearby Carrizo Plain demonstrates (see Whitley et al. 2007), environmental perturbations had serious impacts on lake systems too. Identifying certain of the prehistoric demographic trends for the southern San Joaquin Valley, and determining how these trends (if present) correlate with those seen elsewhere, is another primary regional research objective.

Archaeological sites would primarily be evaluated for NRHP eligibility under Criterion D, research potential.

2.5.2 Historical Archaeology: Native American

Less research has been conducted on the regional historical archaeological record, both Native American and Euro-American. For Native American historical sites, the ethnographic and ethnohistoric periods in the southern San Joaquin Valley extended from first Euro-American contact, in AD 1772, to circa 1900, when tribal populations were first consolidated on reservations. The major significant historic NRHP themes during this period of significance involve the related topics of Historic-Aboriginal Archaeology, and Native American Ethnic Heritage. More specifically, these concern the Adaptation of the Indigenous Population to Euro-American Encroachment and Settlement, and their Acculturation to Western Society. These processes included the impact of missionization on the San Joaquin Valley (circa 1800 to about 1845); the introduction of the horse and the development of a San Joaquin Valley "horse culture," including raiding onto the coast and Los Angeles Basin (after about 1810); the use of the region as a refuge for mission neophyte escapees (after 1820); responses to epidemics from introduced diseases (especially in the 1830s); armed resistance to Euro-American encroachment (in the 1840s and early 1850s); the origins of the reservation system and the development of new tribal organizations and ethnic identities; and, ultimately, the adoption of the Euro-American society's economic system and subsistence practices, and acculturation into that society.

Site types that have been identified in the region dating to the ethnographic/ethnohistoric period of significance primarily include villages and habitations, some of which contain cemeteries and rock art (including pictographs and cupules). Dispersed farmsteads, dating specifically from the reservation period or post-1853, would also be expected. The different social processes associated with this historical theme may be manifest in the material cultural record in terms of changing settlement patterns and village organization (from traditional nucleated villages to single family dispersed farmsteads); the breakdown of traditional trading networks with their replacement by new economic relationships; changing subsistence practices, especially the introduction of agriculture initially via escaped mission neophytes; the use of Euro-American artifacts and materials rather than traditional tools and materials; and, possibly, changing mortuary practices.

Inasmuch as culture change is a primary intellectual interest in archaeology, ethnographic villages and habitations may be NRHP eligible under Criterion D, research potential. Rock art sites, especially pictographs, may be eligible under Criterion C as examples of artistic mastery. They may also be eligible under Criterion A, association with events contributing to broad patterns of history. Ethnographic sites, further, may be NRHP eligible as Traditional Cultural Properties due to potential continued connections to tribal descendants, and their resulting importance in traditional practices and beliefs, including their significance for historical memory, tribal- and self-identity formation, and tribal education.

For Criteria A, C and D, eligibility requires site integrity (including the ability to convey historical association for Criterion A). These may include intact archaeological deposits for Criterion D, as well as setting and feel for Criteria C and A. Historical properties may lack physical integrity, as normally understood in heritage management, but still retain their significance to Native American tribes as Traditional Cultural Properties if they retain their tribal associations and uses.

2.5.3 Historical Archaeology: Euro-American

Approaches to historical Euro-American archaeological research relevant to the region have been summarized by Caltrans (1999, 2000, 2007, 2008). These concern the general topics of historical landscapes, agriculture and farming, irrigation (water conveyance systems), and mining. Caltrans has also identified an evaluation matrix aiding determinations of eligibility. The identified research issues include site structure and land-use (lay-out, land use, feature function); economics (self-sufficiency, consumer behavior, wealth indicators); technology and science (innovations, methods); ethnicity and cultural diversity (religion, race); household composition and lifeways (gender, children); and labor relations. Principles useful for determining the research potential of an individual site or feature are conceptualized in terms of the mnemonic AIMS-R, as follows:

1. *Association* refers to the ability to link an assemblage of artifacts, ecofacts, and other cultural remains with an individual household, an ethnic or socioeconomic group, or a specific activity or property use.

2. *Integrit*y addresses the physical condition of the deposit, referring to the intact nature of the archaeological remains. In order for a feature to be most useful, it should be in much the same state as when it was deposited. However, even disturbed deposits can yield important information (e.g., a tightly dated deposit with an unequivocal association).

3. *Materials* refers to the number and variety of artifacts present. Large assemblages provide more secure interpretations as there are more datable items to determine when the deposit was made, and the collection will be more representative of the household, or activity. Likewise, the interpretive potential of a deposit is generally increased with the diversity of its contents, although the lack of diversity in certain assemblages also may signal important behavioral or consumer patterns.

4. *Stratigraphy* refers to the vertically or horizontally discrete depositional units that are distinguishable. Remains from an archaeological feature with a complex stratigraphic sequence representative of several events over time can have the added advantage of providing an independent chronological check on artifact diagnosis and the interpretation of the sequence of environmental or sociocultural events.

5. *Rarity* refers to remains linked to household types or activities that are uncommon. Because they are scarce, they may have importance even in cases where they otherwise fail to meet other thresholds of importance (Caltrans 2007:209).

For agricultural sites, Caltrans (2007) has identified six themes to guide research: Site Structure and Land Use Pattern; Economic Strategies; Ethnicity and Cultural Adaptation; Agricultural Technology and Science; Household Composition and Lifeways; and Labor History. Expected site types would include farm and ranch homesteads and facilities, line camps, and refuse dumps. In general terms, historical Euro-American archaeological sites would be evaluated for NRHP eligibility under Criterion D, research potential. However, they also potentially could be eligible under Criteria A and B for their associate values with major historical trends or individuals. Historical landscapes might also be considered.

Historical structures, which are most likely to be pertinent to the current study area, are typically evaluated for NRHP eligibility under Criteria A and/or B, for their associate values with major historical trends or individuals, and C for potential design or engineering importance. Water conveyance systems comprise a particular sub-set of historical structures that are common in the region.

2.6 NRHP/CRHR CRITERIA FOR WATER CONVEYANCE SYSTEMS

The period of significance for historic water conveyance systems begins with the initial date of construction and considers any alignment changes that have been made over time. The period of significance must also consider the construction history of the linear systems, which may have been constructed and/or reconstructed or realigned by individuals, collectives, and/or irrigation districts and water companies over time.

Main Canals, Laterals, and Ditches

Main canals, laterals, or ditches can be individually eligible for the NRHP (Criteria A-D) and

CRHR (Criteria 1-4). While the following criteria was developed for the Friant-Kern Canal, it is still applicable to smaller irrigation systems:[2]

Criterion A/1: They have had a significant impact on the settlement, agricultural economy, or development patterns of the project area; they have been defining elements in the evolution of the cultural landscape; they are directly associated with important events.

Criterion B/2: They are the result of the direct efforts of a prominent individual associated with the development of the local area or region and are the most prominent feature associated with that individual.

Criterion C/3: They represent the distinctive characteristics of canal design and/or methods of construction used during the period of construction, which may include solving engineering design problems due to topography, grade, length, natural obstacles, and resulted in complex or innovative solutions; they are among the best or a rare surviving example of a distinctive type of water conveyance structure; they represent the evolving technology in the engineering, design, and construction of water conveyance structures; they were identified during the construction period as an individually significant feature; or they embody the work of a significant engineer or builder.

Criterion D/4: They have the ability to yield information important to understanding the history of the local area or region that cannot be found in historical documentation.

Integrity

The need for continual maintenance and repairs to canals requires special consideration of integrity. Irrigation systems are constantly evolving as features are upgraded, repaired, or replaced. Alterations made to canals during the period of significance, and even subsequent thereto, may not nullify eligibility if a canal retains certain key qualities. Most important are integrity of location, association, and overall design configuration of the conveyance prism (i.e. depth and width) and water control features. A canal which has retained its original form and associated appurtenant features has a high degree of integrity. It is not uncommon for canal lining to be replaced, or for previously unlined segments to be lined. Such changes may not preclude a canal's eligibility if replacement features are in-kind, or they do not significantly damage the canal's historic association or its overall design. If in addition to integrity of association, location, and overall design, the historical setting and feeling of a canal are maintained, then the likelihood is even higher that an altered canal could remain eligible. On the other hand, if an entire canal is piped, it would no longer convey any of its original design, workmanship, materials, or historical association and would not be contributing. Conversely, partial piping of a significant canal may not preclude eligibility if a majority of a canal is still open and intact.

[2] The section has been excerpted and adapted from Heather K. Norby and Stephen R. Wee, Historic Property Survey Report: Friant Kern Canal, JRP Historical Consulting, 2019:52-53.

Appurtenant Canal Features[3]

Although appurtenant canal features are all operationally and thematically related to canals/laterals/ditches, each feature type serves a specific purpose. These features can be divided into five categories of structures: conveyance, regulating, protective, water measurement, and bridges. The first four of these types were built to function as part of the canal, while the bridges were built to function independently of the canal.

1. Conveyance Structures
Conveyance structures are features such as inverted siphons, drops, chutes, flumes, tunnels, and pipelines that are used to safely transport water from one location to another traversing various existing natural and manmade topographic features along the way. There are two types of pipelines, those that carry water below ground and those that transport water above ground.

2. Regulating Structures
Regulating structures are used to raise, lower, or control the release and volume of the water flow. Regulating structures that are located at the source of the water supply include headworks and turnouts. Headworks control the release of water into the canal, and they are often located downstream from a major diversion or storage facility. Regulating structures located along the course of a canal include turnouts, checks, check-drops, radial gates, reservoirs, and diversion structures. The smaller regulating structures like checks and turnouts are basic components of an irrigation system.

3. Protective Structures
Protective structures protect the canal system and adjacent property from damage which would result from uncontrolled storm runoff or drainage water, or an uncontrolled excess of flow within the canal. Several different types of structures perform this function, including overchutes, drainage inlets, siphon spillways, and wasteways.

4. Water Measurement Structures and Objects
Water measurement structures are used to gauge water flow and ensure its equitable distribution. Many different types of water measurement structures are used in irrigation systems.

5. Bridges
Bridges crossing canals range from single lane bridges, multi-lane highway bridges, farm bridges, pedestrian bridges, and maintenance bridges.

Significance

Secondary to the canals in distributing water are the thousands of appurtenant features. With the exception of bridges, these appurtenant features are important to the overall operation of the main canals, yet are too small in size and repetitive in design to merit individual eligibility. Even though bridges cross canals and can be physically tied to the canal prism, bridges have no connection to

[3] Ibid., 53-54.

the operation of the SSJID and therefore merit separate evaluation from other appurtenant features. Bridges would rarely be individually eligible for the National Register in association with this historic context.

Registration Requirements

Appurtenant canal features can be eligible for listing in the NRHP and the CRHR for the following reasons:

Criterion A/1: They are directly associated with important events that occurred along canals;

Criterion B/2: not applicable;

Criterion C/3: They are among the best or a rare surviving example of a distinctive type of appurtenant canal feature; they represent the evolving technology in the design of appurtenant canal features; they represent a unique design solution developed in response to a difficult engineering challenge; they were identified during the construction period as an individually significant feature;

Criterion D/4: They have the ability to yield information important to understanding the history of the system.

Integrity

As with canals, many appurtenant features are upgraded, altered, or even replaced over time due to the constant ongoing maintenance needs. Integrity of a structure's historic materials, workmanship and design is essential for National Register eligibility under any criterion. Location is of primary importance under Criterion A and C – a structure will rarely qualify under this criterion if it does not remain on its historic site along its associated canal.

Historical structures are typically evaluated for NRHP eligibility under Criteria A and/or B, for their associative values with major historical trends or individuals, and C for potential design or engineering importance. Conveyance systems are typically eligible for listing in the NRHP under Criteria A and/or C.

The CRHR Criteria and registration requirements for conveyance systems mirror the NRHP Criteria and registration requirements. Conveyance systems are typically eligible for listing in the CRHR under Criteria 1 and/or 3.

Settlement through agriculture is an important historical theme applicable to the entire SSJID system. The period of significance of this theme begins with the earliest development of irrigated agriculture in the regional area of Escalon, Ripon and Manteca, with the construction of the earthen ditches for mining in 1855. Irrigated agriculture continues to be an important industry and influence in the San Joaquin Valley. The period of significance ends in 1973 following recommended guidance for closing a period of significance when activities continued to have importance, but no more specific date can be defined to end the historic period, and there is no

justification for exceptional significance to extend the period of significance to an end date within the last 50 years (National Register of Historic Places 1997).

3. RECORDS SEARCH, TRIBAL OUTREACH, AND ARCHIVAL RESEARCH

3.1 RECORDS SEARCH

In order to determine whether the Project APE had been previously surveyed for cultural resources, and/or whether any such resources were known to exist on any of them, an archival records search was conducted by the staff of the Northwest Information Center (NEIC) on 4 August 2023. The records search was completed to determine: (i) if prehistoric or historical archaeological sites had previously been recorded within the study areas; (ii) if the project area had been systematically surveyed by archaeologists prior to the initiation of this field study; and/or (iii) whether the region of the field project was known to contain archaeological sites and to thereby be archaeologically sensitive. Records examined included archaeological site files and maps, the NRHP, Historic Property Data File, California Inventory of Historic Resources, and the California Points of Historic Interest.

According to a record search results from the NEIC, there are no previous studies known to have been conducted within the APE and no cultural resources are known to exist within it. An additional six previous studies had been completed within 0.5-mi of the APE (Table 1), with no cultural resources identified within that outer radius. Details of the records search and a map of previous reports and recorded cultural resources in and around the APE are provided in Confidential Appendix A.

Table 1. Survey Reports within 0.5-miles of the Area of Potential Effects

Report No.	Year	Author (s)/Affiliation	Title
SJ-03654	1999	Wooten, K. and E. Wulf/Sonoma State University Academic Foundation, Inc.	Archaeological Survey Report for the Proposed Road Rehabilitation and Shoulder Widening, on California State Highway 120 Between Jack Tone Road and Escalon in San Joaquin County, California; 10-SJ-120, KP 15.12/26.71 (PM 9.4/16.6).
SJ-03802	1999	Jensen, P./ Jensen & Associates	Archaeological Inventory Survey, Ripon- Escalon Electrical Transmission Line Project, c. 11.5 Mile Corridor near Escalon and Ripon, San Joaquin County, California.
SJ-03847	1999	Wulf, Erick and Kimberly Wooten/Erick Wulf and Kimberly Wooten	Department of Transportation Supplemental Negative Archaeological Survey Report: 10-SJ-120, P.M. 9.4/16.6, Charge Unit 06-171, E.A. 10-OA7400.
SJ-04203	2000	Wooten, K./ California Department of Transportation	Historic Property Survey Report for a Proposed Road Rehabilitation on State Highway 120 Between Jack Tone Road and the City of Escalon, San Joaquin County, California, 10-SJ-120, KP 15.12/26.71 (PM 9.4/16.6), EA 10-0A7400.
SJ-04204	2000	Fisher, J./California Department of Transportation	Historical Architectural Survey Report for a Road Improvement/Widening Project on State Route 120 Between Jack tone Road and the City of Escalon, San Joaquin County, 10-SJ-120, PM 9.6/16.3 (KP 15.1/26.7), 10-0A7400
SJ-08284	2011	AECOM/AECOM; for Central Valley Independent Network	Cultural Resources Inventory Report for the Central Valley Independent Network Fiber Optic Communications Network Project, California (Calaveras, Merced, San Joaquin, Stanislaus and Tuolumne Counties in the CCaIC Area of Responsibility)

Two SSJID canals outside the APE have been evaluated under Section 106, including P-05-000739/P-50-2109, the South San Joaquin Canal. The SSJID and OID rebuilt this ditch again in 1913 as the South San Joaquin Canal. A portion of the hanging flume segment has been determined eligible for the NRHP. The South San Joaquin Canal portion was determined not eligible for listing in the NRHP by consensus through the Section 106 process in 2011 (Federal Highway Administration 2011). CRM Tech evaluated the SSJID Main Distribution Canal (P-39-004233) in 2001 (Love and Tang 2001). In the associated DPR 523 forms, CRM Tech argued that "the South San Joaquin Irrigation District's canal system has played an important role in the development of the Manteca area since its construction in 1913. Pending further documentation, the entire system is likely to be eligible for listing in the National Register if it proves to retain good historic integrity" (Tang and Ballester 2001). While the SSJID Main Distribution Canal (P-39-004233) was determined not eligible for listing in the NRHP by consensus through the Section 106 process in 2002, it was not evaluated for the California Register or local register (Federal Highway Administration 2002).

ASM also reviewed historic topographic quadrangles and aerial imagery for the Project APE. Aerial imagery proved to be the more informative medium for identifying changes within the Project APE over time. The earliest available aerial image from 1937 shows established crops within the APE with Lateral Q in its current alignment. Two structures, likely residential, are present in the northwest corner of the APE. One structure is located on the south side of Lateral Q in the location where the current Ripon Fire Station 52 is located, though occupying a smaller footprint. The second structure is located on the north side of Lateral Q. By 1957, the structure on the north side of Lateral Q is gone, and by 1968, the structure on the south side had also been removed and crops were located in that area. Sometime between 1968 and 1982, disturbances had taken place on the north side of the canal, including grading work to section the parcel and grading work to create an open area adjacent to the canal on the east side of the parcel. Additionally, the road paralleling the canal on the south side had been widened. By 1993, some of the sectioning to the north of the lateral was no longer present and the Ripon Fire Station 52 had been built in its current location and size. By 2002, the parcel appeared as it does today with all the sectioning to the north of the canal removed and only the widened open area remaining.

3.2 TRIBAL OUTREACH

A search of the *Sacred Lands Files* by the NAHC was obtained on 29 August 2023. This indicated that no known tribal cultural resources or sacred sites were within or near the Project. Outreach letters were sent on 15 August 2023 prior to receipt of the *Sacred Lands File* based on a previous NAHC contact-list obtained for a nearby project. Follow-up emails were sent on 18 October 2023.

A response was received from the Auburn Rancheria on 16 August 2023 expressing that they had no knowledge of tribal resources in the vicinity. The Auburn Rancheria added additional information related to the location (near creeks and rivers) and geologic features (Piper fine sandy loam) where sites are typically located and identified. Further, it was expressed that they prefer to be contacted by lead agencies through an online portal. The Confederated Villages of Lisjan Nation responded on 23 August 2023 that they had no information to supply about the proposed project but wished to be contacted if anything were identified. The Yocha Dehe Wintun Nation responded

to the email follow-up on 23 October 2023 that the Project APE was not within their aboriginal territories and deferring to the Tachi Yokut Tribe. No further responses were received.

3.3 ARCHIVAL RESEARCH

ASM contacted the SSJID's engineering department, reviewed readily available Record of Survey documents and aerials from the San Joaquin County Assessor's Office and the San Joaquin County Department of Public Works, contacted the San Joaquin Historical Society, and collected historical maps, aerials, and documents from a multitude of repositories, including, but not limited to, the USGS and University of California at Santa Barbara as well as theses and water supply papers and agricultural bulletins, as appropriate.

4. METHODS AND RESULTS

4.1 FIELD METHODS

An intensive Class III inventor/Phase I survey of the Project APE was conducted by ASM Senior Archaeologist Nichole Abbott, M.A., ASM Associate Archaeologist Brieann DeOrnellas, M.A., and ASM Assistant Archaeologist David Ingbar on 6 December 2023. Parallel survey transects spaced at 15-m apart were employed for the inventory. The field methods employed included intensive pedestrian examination of the ground surface for evidence of archaeological sites in the form of artifacts, surface features (such as bedrock mortars, historical mining equipment), and archaeological indicators (e.g., organically enriched midden soil, burnt animal bone); the identification and location of any discovered sites, should they be present; tabulation and recording of surface diagnostic artifacts; site sketch mapping; preliminary evaluation of site integrity; and site recording, following the California Office of Historic Preservation Instructions for Recording Historic Resources, using DPR 523 forms. All recorded archaeological indicators were in Field Maps using an Arrow 100 GPS unit Bluetooth connected to an Apple iPad. These covered the entirety of the approximately 29.4-ac APE.

4.2 SURVEY RESULTS

The Project APE consists of active and inactive agricultural fields bisected by dirt roads and a segment of Lateral Q (Figures 16 and 17). The APE is bounded on all sides by additional agricultural fields and irrigation canals and dirt roads. A paved road (Murphy Rd), a residential property, and the Ripon Fire Station 52 borders the APE on the west, Agricultural fields within the APE had been tilled less recently and were overgrown with *Artemisia vulgaris* (“mugwort”) and *Abutilion grandifolium* (“hairy Indian mallow”), *Citrullus colocynthis* (“Abu Jahl’s melon”). A sparse presence of modern debris in the form of plastics, paper, cardboard, and clothing was noted within the Project APE. Visibility within the Project APE was moderate to excellent for Class III inventory/Phase I survey.

Three resources were identified within the Project APE during the Class III inventory/Phase I survey. These resources include a segment of Lateral Q, an isolated historic-era refuse deposit (temporary designation SSJID-ISO-I), and a historic-era refuse deposit with two concentrations (temporary designation SSJID-SITE-1). DPR 523 forms for Lateral Q, SSJID-ISO-1, and SSJID-SITE-1 are presented in Confidential Appendix B. Photographs, sketch maps, and location maps are included in the respective DPR 523 forms.

Figure 16. Overview of the Lateral Q within the Project APE, looking west.

Figure 17. Overview of the Lateral Q bisecting the Project APE, looking west.

4.2.1 Newly Identified Resources

Lateral Q

The resource is a short segment of the Lateral Q. This segment of the lateral consists of concrete-lined, u-shaped and moderately sloped prism. At the northwestern most portion of the APE a modern control box and canal intertie structure for Lateral Qc (sublateral) exists at the junction of Lateral Q and the undergrounded Lateral Qc (sublateral). Two original check gates remain as well as an original turnout structure for sublateral Qe. A bridge constructed between 1937 and 1952 crosses Lateral Q in the southeastern portion of the APE. The recorded segment of Lateral Q measures approximately 2,715-ft (northwest-southeast) in length by 25-ft wide and is situated at an elevation of roughly 70-ft amsl on the west to about 75-ft amsl on the east. The canal walls are steep, estimated 60-70 degrees, made of small pebbled concrete cement with wood-grain planks identified underneath the concrete. The lateral measures 92-in. across at its widest, 40-in. at its narrowest at the canal bed. It is 54.5-in. deep and the northern wall measures 90-in. high while the southern wall measures 85-in. high. The berms vary, from 88-in. to 144-in. wide from the edge of canal to lowest point where it meets the road, and 24-in. to 45-in. high from the road to highest point. While the current dimensions do not match the earthwork design drawing (see Figure 9), it is likely that Lateral Q was either constructed differently than originally designed and/or SSJID cleaned the lateral prior to concretely lining sometime in the 1920s. Portions of the lateral have been patched with modern concrete to fix cracks.

At the northwestern most portion of the APE is the modern control box and canal intertie structure for Lateral Qc (sublateral) at the junction of Lateral Q.

The Lateral Qe turnout is comprised primarily of concrete. It is a deep concrete bowl on the south side of the canal at the western end of the concentration. It appears to be the original structure and it retains two turnout gates each with a manual metal hand-lift gate. On the southern side of the irrigation gate is a standpipe made of modern corrugated metal with a concrete base affixed to the ground. There is also a water vault on the south-southeast side of the concrete bowl beyond the western side of the irrigation gate, which has rusted metal grate covers affixed to the concrete on the northern wall of the vault with metal hinges. The irrigation gate measures 3-ft. wide, 5-ft. high, and 12-in. deep.

Check gate 1 is located ~60 meters northwest of the Lateral Qe turnout. It has three gates without doors/locks and four pairs of metal lock frames. A corrugated metal standpipe is on the southern side of the check gate. Given the design and materials, the check gate appears to be historic.

Check gate 2 is located on the easternmost boundary of the APE. It is primarily composed of local aggregate concrete with metal gate frames around each of the five gate chutes (except one) and none of them retained gates. The canal widened where it intersects with the eastern side of the check gate, ranging from 20-ft. wide at its narrowest to 30-ft. wide at its widest. The check gate is 5-ft. high from the canal bed to the top. There was no evidence of insulation that would indicate electronic controls; however, there was a concrete box on the southern end of the check dam that may have been used as a power box. The concrete box was primarily composed of concrete with some exposed horizontal rebar on the top of the northern wall. The southern side of the lateral,

west of the check gate, had a concrete cylinder measuring 3-ft. wide and 2-ft. high. The cylinder had no liquid but was filled with a pile of modern wooden boards.

SSJID-ISO-1

Isolated historic-era refuse deposit SSJID-ISO-1 consists of an olive glass one-gallon jug base embossed with an Owen's Illinois maker's mark. A single-digit "8" date code suggests the date may be 1938, but lack of regulation means that it could just as easily be 1948 (Lockhart and Hoenig 2015) in 1940's. This bottle base is associated with other sparse glass scatter, some of which is possibly historic-era but no diagnostic characteristics were observed due to the fragmentary condition. Some modern refuse was also intermixed.

SSJID-SITE-1

Historic-era refuse site SSJID-SITE-1 consists of a sparse scatter of fragmented historic-era refuse, primarily bottle glass, along the banks of Lateral Q. Refuse is located within and along the berms that are mostly along the south side of the canal. Some refuse is embedded in the canal while the concentrations exhibit dense surface scatters.

Two main concentrations were identified near the southeast corner of the APE. The concentrations consist of approximately 5,000 fragments of bottle glass (milk, cobalt, aqua, colorless, and amber glass—a majority is colorless) with smaller amounts of ceramics, sewer pipe fragments, historic-era brick, and a historic-era metal headlight from a vehicle. Identified bottle maker's marks indicate a majority of the refuse dates to the late-1930s to early-1940s. The refuse is highly fragmentary and appears in a secondary context to where it was originally deposited, which is assumed to be on the flats to the south of Lateral Q and it was subsequently pushed into piles along the canal. The site is in poor condition.

4.3 GEOARCHAEOLOGICAL DISCUSSION

As mentioned in Chapter 2, the Rosenthal and Meyer (2004) study determined the ages of landforms across District 10 using chronometric ages obtained from similar landforms across the district. This can be problematic for site specific studies utilizing the district-wide model for a number of reasons, but specifically in cases where the chronometric ages were obtained from similar landforms at some distance from the project area. The implication being that assumptions of ages for similar landforms across such wide areas by definition do not take into account the intricacies and unique histories of these discrete areas. In the case of the Project APE, the nearest age was obtained from a landform over 11-mi to the northeast in a rockshelter (Rosenthal and Meyer 2004: Sample 243 in Appendix C – Map and Page 5), which is a different depositional environment to that of the Project APE. Other ages from similar depositional environments were obtained on landforms at much greater distances from the Project APE. While the wide-scale model developed for District 10 serves as a good starting point for evaluating the sensitivity for buried sites at a given project area, local conditions should be taken into account to further define the potential sensitivity.

The Project APE is located in an area that has been actively farmed for at least seven decades and possibly longer. A review of aerial imagery revealed that the APE has undergone various disturbances between 1937, the earliest available aerial, and 2002, when the APE appears as it does today. As mentioned in Chapter 3, the review of aerial imagery showed disturbances had taken place, primarily on the north side of Lateral Q, between 1968 and 1982. Lateral Q, which bisects the parcel from southeast to northwest, was originally built in 1913 and has existed in the same alignment since that time. The construction of the lateral is the most significant disturbance that has taken place within the parcel. While no evidence of disturbances on the south side of the lateral aside from agricultural disturbances could be identified from historic aerial imagery, push piles primarily existing on the south side of the lateral suggest such disturbances have taken place. The push piles contain a plethora of historic-era glass bottle fragments which were recorded by ASM. Based on identifiable bottle base maker's marks, the historic-era glass bottles were manufactured in the late 1930s and early 1940s, well after the construction of Lateral Q. This would suggest that the push piles are not related to the construction of the lateral, but rather from surface leveling or grading within the area south of the lateral at a later date, likely between 1968 and 1982 when the road paralleling the canal on the south side was widened.

As a whole, the history of disturbance shows that the entire Project APE has experienced some level of disturbance from agricultural and grading. The presence of 1930s-1940s refuse within the push piles also shows that the area was used as a dumping site during that time. The level of disturbance within the APE together with the level of disturbance (primarily 6-ft or less but up to 10-ft) suggests the potential for subsurface sites to be encountered is low.

5. SUMMARY, NRHP/CRHR ELIGIBILITY EVALUATIONS, AND RECOMMENDATIONS

5.1 SUMMARY

An intensive Class III archaeological inventory/Phase I survey was conducted on a 29.4-acre APE for the SSJID Lateral Q-Qc Regulation Basin Project in San Joaquin County, California. Prior to the field study, ASM requested a records search of site files and maps from the NEIC and a *Sacred Lands File* search from the NAHC. The NEIC records search indicated that no previous studies have been conducted within the APE and no cultural resources are known to exist within it. An additional six surveys had been completed within 0.5-mi of the APE with no cultural resources recorded within that outer radius.

A search of the *Sacred Lands Files* by the NAHC was obtained on 29 August 2023. This indicated that no known tribal cultural resources or sacred sites were within or near the Project. Outreach letters were sent on 15 August 2023 prior to receipt of the Sacred Lands File based on a previous NAHC contact list obtained for a nearby project. Follow-up emails were sent on 18 October 2023.

A response was received from the Auburn Rancheria on 16 August 2023 expressing that they had no knowledge of tribal resources in the vicinity. The Auburn Rancheria added additional information related to the location (near creeks and rivers) and geologic features (Piper fine sandy loam) where sites are typically located and identified. Further, it was expressed that they prefer to be contacted by lead agencies through an online portal. The Confederated Villages of Lisjan Nation responded on 23 August 2023 that they had no information to supply about the proposed project but wished to be contacted if anything were identified. The Yocha Dehe Wintun Nation responded to the email follow-up on 23 October 2023 that the Project APE was not within their aboriginal territories and deferring to the Tachi Yokut Tribe. No further responses were received.

The Class III inventory/Phase I survey fieldwork was conducted in December 2023 with parallel transects spaced at 15-meter (m) intervals walked across the entire APE. Three newly identified resources are present within the Project APE: a segment of Lateral Q, an isolated historic-era refuse deposit (temporary designation SSJID-ISO-1), and a historic-era refuse deposit with two main concentrations (SSJID-SITE-1).

ASM conducted National Register of Historic Places (NRHP)/California Register of Historical Resources (CRHR) eligibility evaluations for the three resources. SSJID-ISO-1, as an isolated find, is categorically not eligible for listing in the NRHP or CRHR. Eligibility evaluations for Lateral Q and SSJID-SITE-1 are provided below.

5.2 NRHP/CRHR ELIGIBILITY EVALUATIONS

5.2.1 Lateral Q

Based on the historic context of the Lateral Q, the segment within the APE is potentially eligible to the NRHP and CRHR under Criterion A/1, for association with important historical events, under the theme of Settlement through Agriculture, as one of two main laterals of the SSJID system constructed in 1913. Water conveyed to the area allowed the farmers and ranchers to produce significant crops and raise many livestock that contributed to regional agricultural growth in the San Joaquin Valley. The period of significance is 1913, when Lateral Q was first constructed as an earthen ditch, and 1922, when Lateral Q was likely lined. The alignment of Lateral Q has remained the same over time and the design and materials remain the same though additional concrete has been added to bolster the strength in corners where structures meet the canal and to fill in cracks in the canal lining. The dimensions of the lateral are not the same assigned in Figure 9, but that may be attributable to one or both possibilities that Lateral Q was constructed differently than the design drawing in this segment and/or a potential cleaning of the canal prior to installing the lining that altered its prism. Given the design and materials, it appears that associated appurtenant structures (two check gates and a sublateral turnout) associated with the segment within the APE largely remain the same. Since Lateral Q is a potential linear resource, ASM reviewed historical maps to confirm that Lateral Q has largely retained the same alignment, which it has. While a majority of the SSJID canal and laterals within the system were constructed between 1913 and 1915, ASM did not assess the possibility of a historic district as it is beyond project limitations. ASM also did not conduct an intensive survey of the entire Lateral Q. However, the segment of Lateral Q within the APE retains high integrity of location, design, setting, materials, workmanship, feeling, and association. As a result, ASM recommends that the segment of Lateral Q within the APE is eligible for listing in the NRHP/CRHR under Criterion A/1 for the theme of Settlement through Agriculture for local significance (1913-1922) as a contributing segment of Lateral Q. While the two check gates and a sublateral turnout appear to be original, the sublateral turnout is a secondary structure and is not a contributing resource. The two check gates are regulating structures that are contributing resources to Lateral Q. Figure 18 identifies the location of the lateral-associated structures identified within the APE and their recommended eligibility status.

Lateral Q has no known association with an important historical individual. Therefore, it is not eligible under Criteria B/2. The segment of Lateral Q within the APE does not represent distinctive characteristics of canal design and/or methods of construction used during the period of construction, and it is not the best or a rare surviving example of a distinctive type of water conveyance structure since much of the SSJID system remains, which was largely constructed between 1913 and 1915. The segment of Lateral Q within the APE does not embody the work of a significant engineer or builder. However, the segment of Lateral Q within the APE and its associated appurtenant structures (two check gates and a sublateral turnout) retain their original design, materials, and workmanship and therefore represent the evolving technology in the engineering, design, and construction of water conveyance structures. Therefore, the segment of Lateral Q within the APE is recommended eligible under Criteria C/3 as a contributing segment of Lateral Q. Lateral Q has no potential research value beyond documentary sources; therefore, it is not eligible under Criterion D/4.

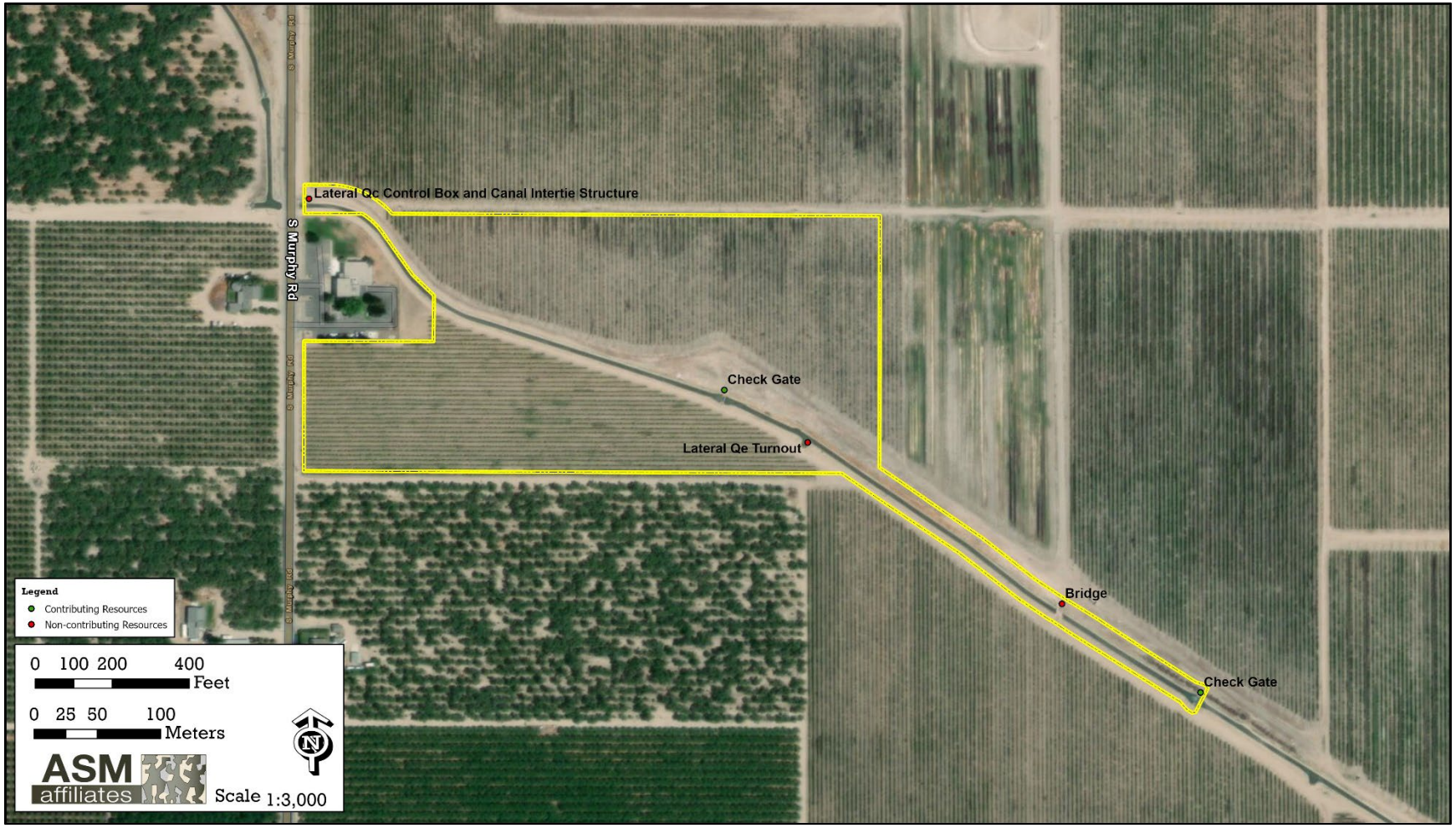

Figure 18. Identifies the location of contributing and non-contributing resources.

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5.2.2 SSJID-SITE-1

Using the AIMS-R evaluation matrix for historical sites, outlined above, site SSJID-SITE-1 can be assessed as follows:

1. *Association* – The site appears to represent a displaced dumping location dating from the late 1930s to early 1940s. The site cannot be tied to any specific individual, household, or ethnic group and has no determinable association.

2. *Integrity* – The site exists in push piles and the exact location of the dumping site is unknown due to the post-depositional disturbance. The refuse is highly fragmentary, and it is not known if the fragmentary nature is due to the disturbance or how the refuse was originally deposited. For these reasons, the integrity of the site has been compromised.

3. *Materials* – The site consists of mass-produced consumer goods that are common in similar sites and on their own do not exhibit any value.

4. *Stratigraphy* – The stratigraphy of the site has been disturbed due to the post-depositional grading and piling.

5. *Rarity* – No rare or unusual features/feature types were identified at the site.

Based on these criteria and facts, resource SSJID-SITE-1, as an individual site, lacks research potential (NRHP Criterion D). Furthermore, it is not associated with important known historical events (Criterion A) or individuals (Criterion B) and it does not represent a distinctive example of structural types or works of master craftsmen (Criterion C). Site SSJID-SITE-1 is therefore recommended as not eligible for inclusion in the NRHP.

5.3 RECOMMENDATIONS

ASM recommends Lateral Q is eligible for listing in the NRHP/CRHR under Criteria A/1 and Criteria C/3 for local significance. Given that the proposed reservoir will require the removal of a segment of the extant canal within the footprint of the reservoir and a contributing resource (historic check gate structure) will be removed, ASM recommends a determination of significant impact to a historical resource under CEQA, and a determination of adverse effect under Section 106 of the NHPA. ASM recommends mitigation that includes the following:

- Historic context of SSJID that focuses on how the irrigation system developed (what previous canals were incorporated into the 1913-1915 system) and identifies all the major structures and known changes made to those structures. It should also identify alignment changes made to segments of the Main Distribution Canal, Lateral Q, and Lateral R. It should not include sublaterals as they are secondary features of the system.
- Intensive survey and evaluation of the entire Lateral Q

- Photographic documentation of Lateral Q, including photos of the major structures (turnouts not included), and a photographic log.
- GIS map identifying the location of contributing and non-contributing segments and structures of Lateral Q.

In the unlikely event that cultural resources are discovered during the construction and operation of the proposed Project, it is recommended that an archaeologist be contacted to evaluate the find and to assist with the development of a treatment plan, if warranted.

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