INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

CITY OF MADERA

NORTHEAST WATER STORAGE TANK, BOOSTER PUMP STATION, AND TRANSMISSION MAIN PROJECT

AUGUST 2025

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Prepared for:

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Project #180483

TABLE OF CONTENTS

Mitigated Negative Declaration *1*

SECTION 1 - Introduction *1-1*

1.1 - Overview 1-1
1.2 - California Environmental Quality Act 1-1
1.3 - Impact Terminology 1-1
1.4 - Document Organization and Contents 1-2
1.5 - Regulation Incorporated by Reference 1-2

SECTION 2 - Project Description *2-1*

2.1 - Introduction/Background 2-1
2.2 - Project Location 2-1
2.3 - Project Environment 2-1
2.4 - Proposed Project 2-1
2.5 - Project Components 2-2
Phase 1 2-2
Phase 2 2-3
Phase 3 2-3
Conditional Use Permit 2-3
2.6 - Alternatives 2-4
2.7 - Comprehensive Response to Climate Change 2-4

SECTION 3 - Initial Study *3-1*

3.1 - Environmental Checklist 3-1
3.2 - Environmental Factors Potentially Affected 3-3
3.3 - Determination 3-3
3.4 - Evaluation of Environmental Impacts 3-5
3.4.1 - Aesthetics 3-7
3.4.2 - Agriculture and Forestry Resources 3-11
3.4.3 - Air Quality 3-15
3.4.4 - Biological Resources 3-23
3.4.5 - Cultural resources 3-39
3.4.6 - Energy 3-43
3.4.7 - Geology and Soils 3-46
3.4.8 - Greenhouse Gas Emissions 3-53
3.4.9 - Hazards and Hazardous Materials 3-58
3.4.10 - Hydrology and Water Quality 3-64
3.4.11 - Land Use and Planning 3-71
3.4.12 - Mineral Resources 3-73

3.4.13 - Noise 3-75
3.4.14 - Population and Housing 3-79
3.4.15 - Public Services 3-81
3.4.16 - Recreation 3-84
3.4.17 - Transportation 3-86
3.4.18 - Tribal Cultural Resources 3-89
3.4.19 - Utilities and Service Systems 3-91
3.4.20 - Wildfire 3-95
3.4.21 - Mandatory Findings of Significance 3-98

SECTION 4 - Mitigation, Monitoring and Reporting Plan 4-1

SECTION 5 - List of Preparers 5-1

SECTION 6 - References 6-2

LIST OF FIGURES

Figure 2-1 Regional Map 2-2
Figure 2-2 City Limits and SOI 2-3
Figure 2-3 Water Tank and Pump Station Area 2-1
Figure 3.4.4-1 NHD and NWI 3-38

LIST OF TABLES

Table 3.4.3-1 NAAQS and CAAQS Thresholds 3-16
Table 3.4.3-2 SJVAPCD Air Quality Thresholds of Significance – Criteria Pollutants 3-17
Table 3.4.3-3 Short-Term Project Emissions 3-18
Table 3.4.3-4 Potential Maximum Impacts Predicted by HARP 3-20
Table 3.4.4-1 Federal and State Listed, Proposed, and Candidate Plant and Wildlife Species Evaluated for Their Potential to Occur within the Project Area 3-24
Table 3.4.8-1 Estimated Annual GHG Emissions (MT/yr) 3-54
Table 3.4.3-3 Typical Construction Equipment Vibration Source Levels 3-77

LIST OF APPENDICES - Included as a Separate PDF Document

Appendix A: Conceptual Site Plan
Appendix B: Focused Air Quality Study
Appendix C: Biological Assessment
Appendix D: Cultural Resources Assessment Report

MITIGATED NEGATIVE DECLARATION

As Lead Agency under the California Environmental Quality Act (CEQA), the City of Madera has reviewed the proposed Project described below to determine whether it could have a significant effect on the environment because of its development. In accordance with CEQA Guidelines Section 15382: "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 significance. Pursuant to § 21067. "Lead agency" means the public agency that has the principal responsibility for carrying out or approving a project that may have a significant effect on the environment. Therefore, the City of Madera will act as the lead agency for the Project.

Project Name

Northeast Water Storage Tank, Booster Pump Station, and Transmission Main Project

Project Location

The Project is generally bounded by Lake Street to the east, Ellis Street to the south, and Martin Street to the north.

The proposed water tanks and other infrastructure will be located on a parcel (APN- 038-030-031) on North Lake Street, which is within unincorporated Madera County and the City of Madera Sphere of Influence (SOI).

The water tank site is proposed to connect via a pipeline that will be placed within the City's road rights-of-way (ROW). The pipeline route will follow the ROW south along Lake Street, west along Ellis Street, and northwest along Sharon Boulevard. This pipeline will connect to an existing well site located at on Sharon Boulevard (APN 013-280-001).

Project Description

The Project will include construction of a water supply and associated distribution infrastructure and facilities to meet the City's water demand conditions identified by hydraulic modeling demands and projections. Provisions for future facility expansion to meet Year 2044 and Year 2058 will be incorporated into the design documents. The initial phase (Phase 1) includes the development of water storage tanks and a pipeline connection to an existing water well site. The conceptual plan for the proposed Project is provided as Appendix A.

Phase 1

Phase 1 includes the following major components:

WATER STORAGE TANK SITE

- Install a 2.5 mg prestressed concrete water storage tank outfitted with inlet and outlet piping at opposite ends of the tank to promote thorough tank mixing, tank overflow and drain piping compliant with Division of Drinking Water (DDW) requirements, mechanical mixer to further promote reservoir mixing, two access manways at the exterior of the tank for operations and maintenance access at ground level, roof access hatch and interior ladder, intrusion alarms on access manways and roof access hatch, level monitoring equipment, and a water sampling station.

- A 3,500-gpm firm capacity (maximum flow rate) booster pump station consisting of three 125-horsepower (hp) horizontal-split case booster pumps and associated equipment located on a concrete slab foundation. Space for a fourth identically sized pump will be provided for future expansion at a later phase.

Further tank site improvements will include:

- New 30-inch drainage piping to convey tank overflow and drainage to the City-owned retention basin.
- Perforated leak detection pipeline at the perimeter of the tank.
- Above-ground reservoir control valve assembly, including inlet flow meter.
- Cement masonry unit (CMU) chemical and electrical building with two separate rooms dedicated to housing electrical and chemical equipment.
- Onsite hypochlorite generation, storage, and feed equipment.
- Water quality analyzers and four chemical injection/analysis points.
- Electrical distribution equipment, service transformer, variable frequency drives (VFD), and programmable logic controller (PLC).
- Standby generator sized for emergency operation of all pumps and critical site equipment.
- Asphalt pavement across approximately half of the tank site with crushed rock across the remaining half of the site, where future installation of a second tank is anticipated.
- CMU wall at the North Lake Street frontage extending 75 feet along the north and south site limit.
- Perimeter fencing around the remainder of the site.
- Onsite fire hydrant, hose bibbs, and equipment washdown facilities.
- Light fixtures with photocells and motion sensors in compliance with Title 24 requirements.
- Provisions for future installation of security cameras.

WATER DISTRIBUTION

- Approximately 13,200 linear feet (LF) of 24-inch transmission main will connect the tank site to the City-owned Well 38. The transmission main will cross below a joint-use irrigation and drainage canal approximately 300 feet west of Ellis Street. The canal crossing will be approximately 200 linear feet and will be completed via trenchless bore and jack construction.

Phase 2

Based on current projections, the initial phase of this project should be sufficient to meet drinking water demands and fire protection requirements through 2043. To meet future system demands, provisions for the following improvements have been incorporated into the preliminary design for the Year 2044 (Phase 2):

- Install an additional 2.5 mg prestressed concrete water storage tank that will be of similar dimensions, character, and configuration as the Phase 1 tank. Yard piping and valves will be installed under Phase 1 to facilitate construction of the future tank with both the Phase 1 tank and pump station remaining in service.

- Increase the firm pumping capacity to 7,000 gpm from 3,500 gpm. The 2044 capacity will be accomplished by adding an identically sized pump and VFD to the Phase 1 pumping station. The Phase 1 pumping station will be developed to accommodate Phase 2 pump equipment.

Phase 3

To meet additional future system demands, provisions for the following improvements have been incorporated into the preliminary design for the Year 2058 (Phase 3):

- Future demand analysis will be required to confirm actual capacity expansion requirements; however, it is anticipated that the firm pumping capacity will be increased to 9,500 gpm. Additionally, at the time of Phase 3 development, the pump station and equipment will be over 30 years old and may require replacement of existing pumps and equipment. Future equipment replacement may increase discharge capacity and meet future demands without complete pump replacement.

Conditional Use Permit

The proposed Project will require the approval of a Conditional Use Permit (CUP) by the County of Madera, pursuant to Section 18.94.160 of the County of Madera Ordinance Code, which states public facilities and emergency services shall be permitted in any zone district subject to approval of a CUP.

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Findings

As Lead Agency, the City of Madera finds that the Project will not have a significant adverse effect on the environment. The Initial Study (IS) (see *Section 3 - Environmental Checklist*) identified one or more potentially significant effects on the environment, but revisions to the Project have been made before the release of this Mitigated Negative Declaration (MND), or mitigation measures would be implemented that reduce all potentially significant impacts to less-than-significant levels. The County further finds that there is no substantial evidence that this Project would have a significant effect on the environment.

Mitigation Measures Included in the Project to Avoid Potentially Significant Effects

BIO-1: A preconstruction survey shall be conducted 14-30 days prior to Project construction activities to verify if special-status or sensitive species are present within 500 feet of the Project. The focal species shall include Swainson's hawk and other migratory nesting birds. A report outlining the results of the survey shall be prepared and submitted to the lead agency as evidence of compliance.

BIO-2: If construction activities occur between February 1 and September 15, pre-disturbance surveys for active raptor and migratory bird nests shall be conducted no more than 10 days prior to the commencement of disturbance. Surveys shall follow USFWS and CDFW guidance and/or protocols, as applicable. If no active nests or nesting birds are identified, then Project construction activities may proceed, and no further mitigation measures for nesting birds are required. If active nest(s) are identified, the active nest(s) should be continuously surveyed for the first 24 hours after detection to establish a behavioral baseline prior to any construction-related activities.

Once construction commences, all nests shall be continuously monitored to detect any behavioral changes because of the Project (i.e., nest avoidance or abandonment). If behavioral changes are observed, the work causing that change shall cease until the qualified biologist consults with the CDFW and/or the USFWS and the qualified biologist implements the recommended measures. During such times as the qualified biological monitor is not on site while construction workers are on site, a minimum non-disturbance buffer of 250 feet shall be established around active nests and a 500-foot no-disturbance buffer around the nests of raptors until the breeding season has ended or until a qualified biologist has determined that the birds have fledged and are no longer reliant upon the nest or parental

care for survival, and any adult birds are no longer occupying the nest. Deviations from these no-disturbance buffers may be implemented if the qualified biologist concludes that work within the buffer area would not cause nest avoidance or abandonment (e.g., when the disturbance area would be concealed from a nest site by topography) provided that notification of this determination of a deviation in the no-disturbance buffer is provided by the qualified biologist no less than 15 days in advance to the California Department of Fish and Wildlife and the United States Fish and Wildlife.

BIO-3: If an active raptor nest is identified, and when construction activities occur within the avoidance buffer of the nest, a qualified biologist shall conduct a daily site visit to observe all construction-related activities and or activity near an active nest. If construction activities are not occurring within the avoidance buffer of a nest, these resources shall be checked during a weekly site visit to observe activity. The qualified biologist shall be familiar with all potential species and their sign (i.e., tracks, scat, etc.) that have the potential to occur within the proposed Project site. The qualified biologist shall prepare a daily datasheet to record all construction-related activities that occurred and activity at an active nest or den, and document the progress of the project with photographs. Copies of daily datasheets and photographs shall be submitted to the lead agency as evidence of compliance.

BIO-4: If construction work occurs after August 30 and ends before March 1 (outside of the breeding season), impacts to the Swainson's hawk would be avoided. Surveys would not be required for work conducted during this part of the year, and no further mitigation for nest disturbance is required.

a. *Protocol Surveys*. For work that begins between March 1 and August 30, a qualified biologist with expertise in Swainson's hawk shall conduct protocol surveys of potential nesting habitat within 0.5 miles of any construction activities prior to initiation of such activities. The project proponent shall conduct a protocol-level survey in conformance with the "Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley," Swainson's Hawk Technical Advisory Committee (TAC) (https://www.wildlife.ca.gov/conservation/survey-protocols#377281284-birds) (May 31, 2000), which is hereby incorporated by reference. This protocol prescribes minimum standards for survey equipment, mode of survey, angle and distance to tree, speed, visual and audible clues, distractions, notes and observations, and timing of surveys.

   A written report with the pre-construction survey results shall be provided to the lead agency and CDFW within 30 days of the commencement of construction-related activities. The report shall include: the date of the report, authors and affiliations, contact information, introduction, methods, study location, including a map, results, discussion, and literature cited.

   If the required protocol surveys show there are no active Swainson's hawk nests within 0.5 miles of construction activities, then no further mitigation for nest disturbance shall be required. If protocol surveys show that there are no active

Swainson's hawk nests within 10 miles of the site, then no further mitigation for foraging impacts will be required.

b. *Nest Avoidance*. If nesting Swainson's hawks are observed within 0.5 miles of the project site during the protocol surveys, the project proponent shall implement CDFW pre-approved mitigation measures to avoid nest impacts during construction. These measures include:

- All Project-related activities with the potential to cause nest abandonment or forced fledging of young shall be avoided until the young have fledged.
- If disturbances, habitat conversions, or other Project-related activities that may cause nest abandonment or forced fledging are necessary, within the nest protection buffer zone (0.5-mile), monitoring of the nest site by a qualified raptor biologist, funded by the project proponent, shall be required to determine if the nest is abandoned. If the nest is abandoned, but the nestlings are still alive, the project developer /contractor is required to fund the recovery and hacking, that is, the controlled release of captive-reared young of the nestling.
- The project proponent shall be required to coordinate with CDFW to determine if project activities with the potential to cause disturbance to nesting Swainson's hawks within the 0.5-mile buffer may proceed with a reduced nest buffer and an approved biological monitor. CDFW may authorize a reduced nest buffer with the presence of a monitoring biologist during construction activities to ensure that the nest is not disturbed. Routine disturbances such as agricultural activities, commuter traffic, and routine maintenance activities within 0.5 miles of an active nest are not prohibited.

BIO-5. Prior to the initiation of construction activities, all construction personnel shall attend a Worker Environmental Awareness Training program developed by a qualified biologist. Any personnel associated with construction that did not attend the initial training shall be trained by the authorized biologist or authorized construction personnel prior to working within the Action Area. Any employee responsible for the operations, maintenance, or decommissioning of Project facilities shall attend the Worker Environmental Awareness Training program prior to starting work on the Project. All on-site workers shall attend training on an annual basis. The Program shall be developed and presented by the Project qualified biologist(s) or designee approved by the qualified biologist(s). The program shall include information about the life histories of State or federally listed species with potential to occur on the Action area, their legal status, course of action should these species be encountered on-site, and avoidance and minimization measures to protect these species. The training shall include the following components:

a. Information about the life history and identification of federally listed plant and wildlife species, as well as other special-status plant and wildlife species that may be affected by project activities. The program shall present the legal protection status of each such species, the definition of "take" under the Federal Endangered Species Act and California Endangered Species Act, measures the Project proponent/operator shall implement to protect the species, reporting requirements, specific measures for

workers to avoid take of special-status plant and wildlife species, and penalties for violation of Project permits or other Project-related environmental measures.

b. An acknowledgment form signed by each worker indicating that the Worker Environmental Awareness Training and Education program has been completed shall be kept on file at the construction site.

c. A copy of the training transcript and/or training video, as well as a list of the names of all personnel who attended the Worker Environmental Awareness Training and Education program, and signed acknowledgment forms, shall be submitted to the contractor's construction manager or on-site superintendent.

d. A copy of the training transcript, training video or informational binder for specific procedures shall be kept available for all personnel to review and be familiar with, as necessary.

The construction crews and contractor(s) shall be responsible for preventing unauthorized impacts from Project activities to sensitive biological resources that are outside the areas defined as subject to impacts by Project permits. Unauthorized impacts may result in Project stoppage, and/or fines, depending on the impact and coordination with the appropriate State or federal biological agency.

BIO-6: Prior to any ground disturbance in this area on Ellis Street, if Lateral 24.2 canal cannot be avoided, the Project proponent/developer shall submit a final Delineation report to the City of Lemoore. A copy of this report shall also be provided to the Bureau of Reclamation. The report shall include information as shown below as a plan, if necessary, and shall outline compliance with the following:

a. Delineation of all jurisdictional features at the project site. Potential jurisdictional features within the project boundary identified in the jurisdictional delineation report may be shown in plan form.

b. If the Project has a potential to directly or indirectly impact jurisdictional aquatic resources, a formal aquatic resource delineation of these areas shall be performed by a qualified professional to determine the extent of agency jurisdiction and permits/authorizations from the appropriate regulating agencies (United States Bureau of Reclamation (USBR)., Central Valley Regional Water Quality Control Board (RWQCB) and CDFW shall be obtained prior to disturbance to jurisdictional features.

   If impacts to the jurisdictional Lateral 24.2 canal cannot be avoided, the Project developer/contractor shall consult with USBR staff to obtain the appropriate permit(s).

   As part of these authorizations, compensatory mitigation may be required by the regulating agencies to offset the loss of aquatic resources. If so, and as part of the permit application process, a qualified professional shall draft a Mitigation and

Monitoring Plan to address implementation and monitoring requirements under the permit to ensure that the Project would result in no net loss of habitat functions and values. The Plan shall contain, at a minimum, mitigation goals and objectives, mitigation location, a discussion of actions to be implemented to mitigate the impact, monitoring methods and performance criteria, extent of monitoring to be conducted, actions to be taken in the event that the mitigation is not successful, and reporting requirements. The Plan shall be approved by the appropriate regulating agencies, and compensatory mitigation shall take place either on-site or at an appropriate off-site location.

c. Any material/spoils generated from project activities containing hazardous materials shall be located away from jurisdictional areas or special-status habitat and protected from storm water run-off using temporary perimeter sediment barriers such as berms, silt fences, fiber rolls, covers, sand/gravel bags, and straw bale barriers, as appropriate. Protection measures should follow project-specific criteria as developed in a Stormwater Pollution Prevention and Protection Plan (SWPPP).

d. Equipment containing hazardous liquid materials shall be stored on impervious surfaces or plastic ground covers to prevent any spills or leakage from contaminating the ground and at least 50 feet outside the delineated boundary of jurisdictional water features.

e. Any spillage of material shall be stopped if it can be done safely. The contaminated area shall be cleaned, and any contaminated materials properly disposed. For all spills, the project foreman or designated environmental representative shall be notified.

BIO-7: If the Project does not impact the Lateral 24.2 canal by using the jack and bore method to install the pipeline underneath the canal, prior to commencing activities at the canal, the Project developer/contractor shall obtain an Encroachment Permit from the USBR. A copy of that approved permit, or communication from the USBR indicating a permit is not required, shall be submitted to the lead agency before the work commences.

CUL-1: If prehistoric or historic-era cultural materials are encountered during construction activities, all work within 50 feet of the find shall halt until a qualified professional archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for prehistoric and historic archaeologists, can evaluate the significance of the find and make recommendations. Cultural resource materials may include prehistoric resources such as flaked and ground stone tools and debris, shell, bone, ceramics, and fire-affected rock, as well as historic resources such as glass, metal, wood, brick, or structural remnants. If the qualified professional archaeologist determines that the discovery represents a potentially significant cultural resource, additional investigations may be required to mitigate adverse impacts from Project implementation. These additional studies may include avoidance, testing, and evaluation, or data recovery excavation.

If a potentially eligible resource is encountered, then the qualified professional archaeologist, the Lead Agency shall arrange for either, (1) total avoidance of the resource or (2) test excavations to evaluate eligibility and, if eligible, total data recovery. The determination shall be formally documented in writing and submitted to the Lead Agency as verification that the provisions for managing unanticipated discoveries have been met.

CUL-2: If human remains are discovered during construction or operational activities, further excavation or disturbance shall be prohibited pursuant to Section 7050.5 of the California Health and Safety Code. The specific protocol, guidelines, and channels of communication outlined by the Native American Heritage Commission, in accordance with Section 7050.5 of the Health and Safety Code, Section 5097.98 of the Public Resources Code (Chapter 1492, Statutes of 1982, Senate Bill 297), and Senate Bill 447 (Chapter 44, Statutes of 1987), shall be followed. Section 7050.5(c) shall guide the potential Native American involvement, in the event of discovery of human remains, at the direction of the Tulare County Coroner. All reports, correspondence, and determinations regarding the discovery of human remains on the Project site shall be submitted to the City of Madera.

According to the California Health and Safety Code, six or more human burials at one location constitute a cemetery (Section 8100), and willful disturbance of human remains is a felony (Section 7052).

GEO-1: If any paleontological resources are encountered during ground disturbance activities, all work within 25 feet of the find shall halt until a qualified paleontologist, as defined by the Society of Vertebrate Paleontology Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources (2010), can evaluate the find and make recommendations regarding treatment. Paleontological resource materials may include resources such as fossils, plant impressions, or animal tracks preserved in rock. The qualified paleontologist shall contact the Natural History Museum of Los Angeles County or other appropriate facility regarding any discoveries of paleontological resources.

If the qualified paleontologist determines that the discovery represents a potentially significant paleontological resource, additional investigations and fossil recovery may be required to mitigate adverse impacts from Project implementation. If avoidance is not feasible, the paleontological resources shall be evaluated for their significance. If the resources are not significant, avoidance is not necessary. If the resources are significant, they shall be avoided to ensure no adverse effects, or such effects must be mitigated. Construction in that area shall not resume until the resource appropriate measures are recommended or the materials are determined to be less than significant. If the resource is significant and fossil recovery is the identified form of treatment, then the fossil shall be deposited in an accredited and permanent scientific institution. Copies of all correspondence and reports shall be submitted to the Lead Agency.

SECTION 1 - INTRODUCTION

1.1 - Overview

The proposed Project will include construction of a water supply and associated distribution infrastructure and facilities to meet the City's water demand. It will be completed in phases over several years.

The proposed water tank site is located in the County of Madera, within the City of Madera Sphere of Influence (SOI); therefore, pursuant to Section 18.94.160 of the County of Madera Ordinance Code, public facilities and emergency services shall be permitted in any zone district subject to approval of a Conditional Use Permit (CUP).

1.2 - California Environmental Quality Act

This IS/MND examines the potential environmental effects of the Project. The Project site is located in the County of Madera, within the City of Madera SOI.

The City of Madera is the Lead Agency for this Project pursuant to the CEQA Guidelines (Public Resources Code Section 15000 et seq.). Section 15063 of the CEQA Guidelines requires the Lead Agency to prepare an IS to determine whether a discretionary project will have a significant effect on the environment. A Mitigated Negative Declaration (MND) is appropriate when an IS has been prepared and a determination can be made that no significant environmental effects will occur because revisions to the project have been made or mitigation measures will be implemented that reduce all potentially significant impacts to less-than-significant levels. The content of an MND is similar to a Negative Declaration, but also includes mitigation measures and a Mitigation Monitoring and Reporting Program (MMRP) (see *Section 4 - Mitigation Monitoring and Reporting Program*).

Based on the IS, the Lead Agency has determined that CEQA compliance in the form of an MND can be achieved to satisfy the environmental review process for the proposed.

1.3 - Impact Terminology

The following terminology is used to describe the level of significance of impacts.

- A finding of *no impact* is appropriate if the analysis concludes that the project would not affect the particular topic area in any way.
- An impact is considered *less than significant* if the analysis concludes that it would cause no substantial adverse change to the environment and requires no mitigation.
- An impact is considered *less than significant with mitigation incorporated* if the analysis concludes that it would cause no substantial adverse change to the environment with the inclusion of environmental commitments that have been agreed to by the applicant.
- An impact is considered *potentially significant* if the analysis concludes that it could have a substantial adverse effect on the environment.

1.4 - Document Organization and Contents

The content and format of this IS/MND is designed to meet the requirements of CEQA. The report contains the following sections:

- *Section 1 – Introduction:* This section provides an overview of CEQA requirements, intended uses of the IS/MND, document organization, and a list of regulations that have been incorporated by reference.
- *Section 2 – Project Description:* This section describes the Project and provides data on the site's location.
- *Section 3 – Initial Study:* This section contains the evaluation of 21 different environmental resource factors contained in Appendix G of the CEQA Guidelines. Each environmental resource factor is analyzed to determine whether the proposed Project would have an impact. One of four findings is made, which includes no impact, less-than-significant impact, less than significant with mitigation, or significant and unavoidable. If the evaluation results in a finding of significant and unavoidable impacts for any of the 21 environmental resource factors, then an Environmental Impact Report will be required.
- *Section 4 – Mitigation Monitoring and Reporting Program:* This section contains a Mitigation Monitoring and Reporting Program that summarizes the impacts, mitigation measures, and level of significance after mitigation.
- *Section 5 – List of Preparers:* This section identifies the individuals who prepared the IS/MND.
- *Section 6 – References:* This section contains a full list of references that were used in the preparation of this IS/MND.

1.5 - Regulation Incorporated by Reference

The following regulation is incorporated into this IS/MND by reference. Other applicable federal, State, and regional regulations are referenced throughout this document:

- City of Madera Urban Water Management Plan 2020 Update
- City of Madera Water System Master Plan
- City of Madera General Plan
- City of Madera General Plan EIR
- City of Madera Ordinance Code
- County of Madera General Plan
- County of Madera Ordinance Code
- County of Madera General Plan Background Report
- Madera Countywide Airport Land Use Compatibility Plan

SECTION 2 - PROJECT DESCRIPTION

2.1 - Introduction/Background

The proposed Project will include the construction of a water supply and associated distribution infrastructure and facilities to meet the demand conditions identified by hydraulic modeling and projections. The Project will be completed in phases over a number of years. The conceptual plan for the proposed Project is provided as Appendix A.

2.2 - Project Location

The Project is generally bounded by Lake Street to the east, Ellis Street to the south, and Martin Street to the north. See Figure 2-2 and Figure 2-3.

The proposed water tanks and other infrastructure will be located on a parcel (APN- 038-030-031) on North Lake Street, which is within unincorporated Madera County and the City of Madera Sphere of Influence (SOI).

The water tank site is proposed to connect via a pipeline that will be placed within the City's road rights-of-way (ROW). The pipeline route will follow the ROW south along Lake Street, west along Ellis Street, and northwest along Sharon Boulevard. This pipeline will connect to an existing well site located at on Sharon Boulevard (APN 013-280-001).

2.3 - Project Environment

The proposed pipeline will be located within public rights-of-way along Lake Street, Ellis Street, and Sharon Boulevard. The proposed water tank site is located in proximity to rural areas that are mostly comprised of rural residential uses and vacant land. The areas to the north, south, and east of the Project sites are comprised of rural residential uses, and land directly west is vacant. The proposed pipeline is anticipated to be located within public right-of-way along Lake Street, Ellis Street, and Sharon Boulevard.

2.4 - Proposed Project

The Project will include construction of a water supply and associated distribution infrastructure and distribution facilities to meet the City's water demands. The Project will be completed in phases over a number of years. The initial phase (Phase 1) includes the development of water storage tanks and a pipeline connection to an existing water well site. The conceptual plan for the proposed Project is provided as Appendix A.

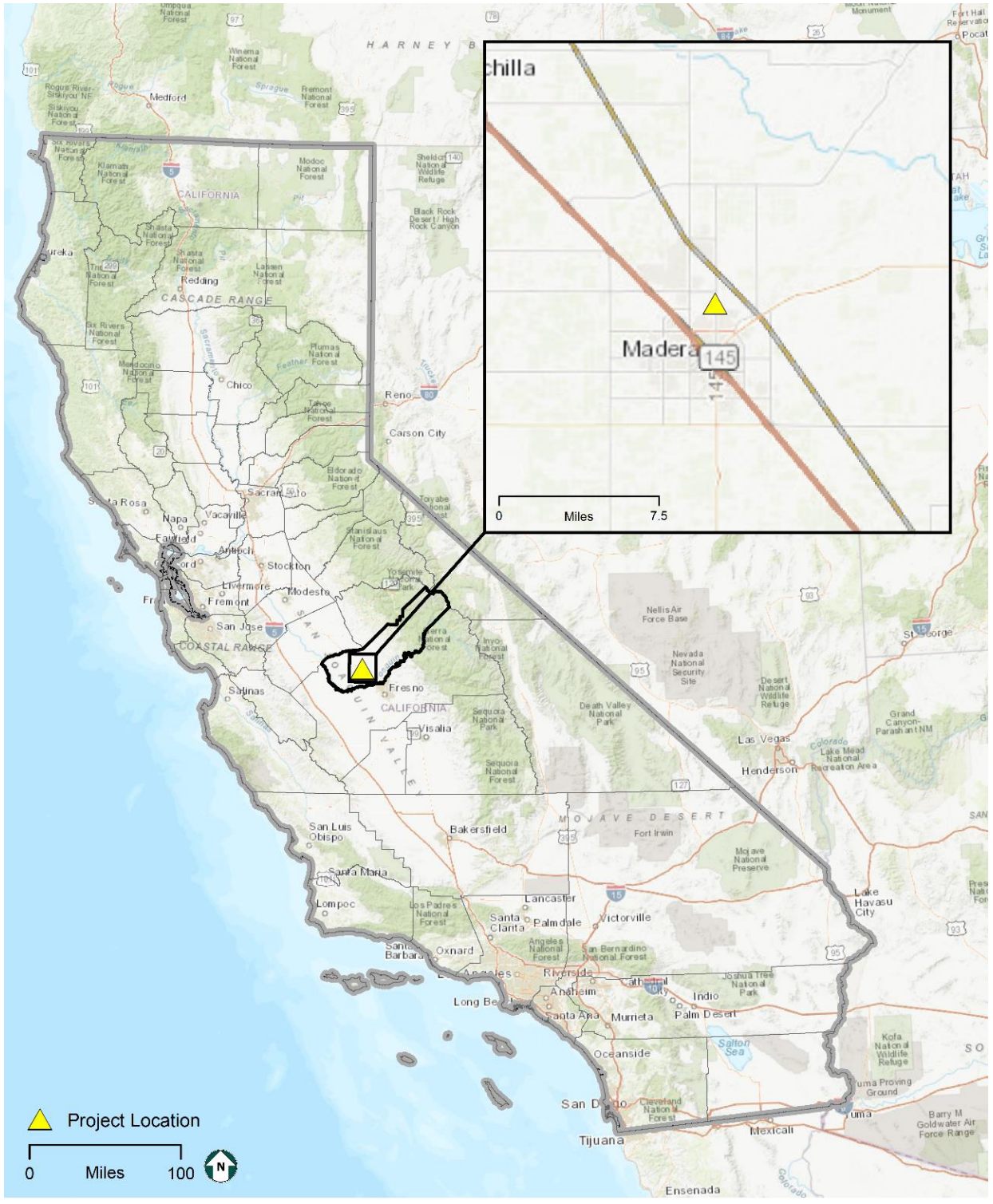


Figure 2-1
Regional Map

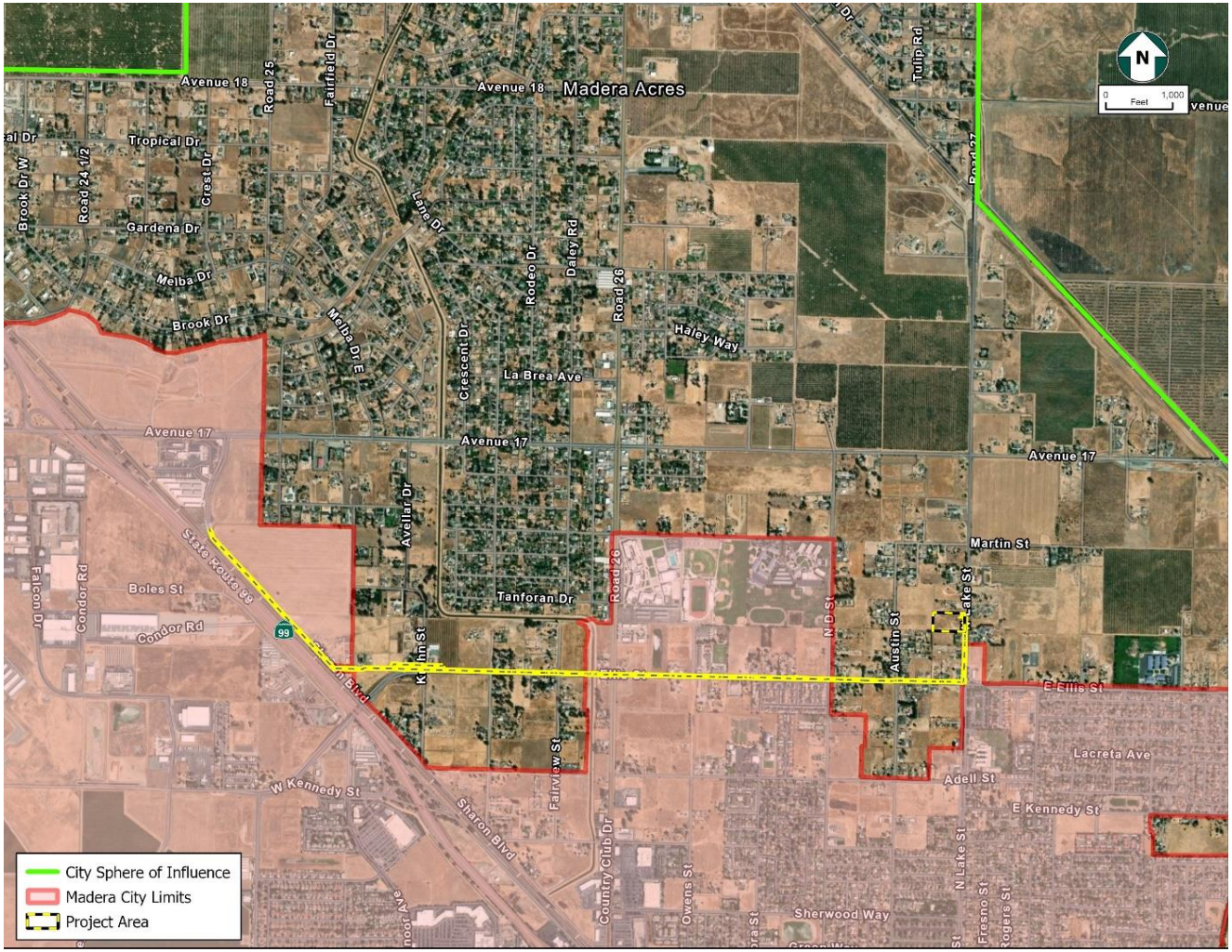


Figure 2-2
City Limits and SOI

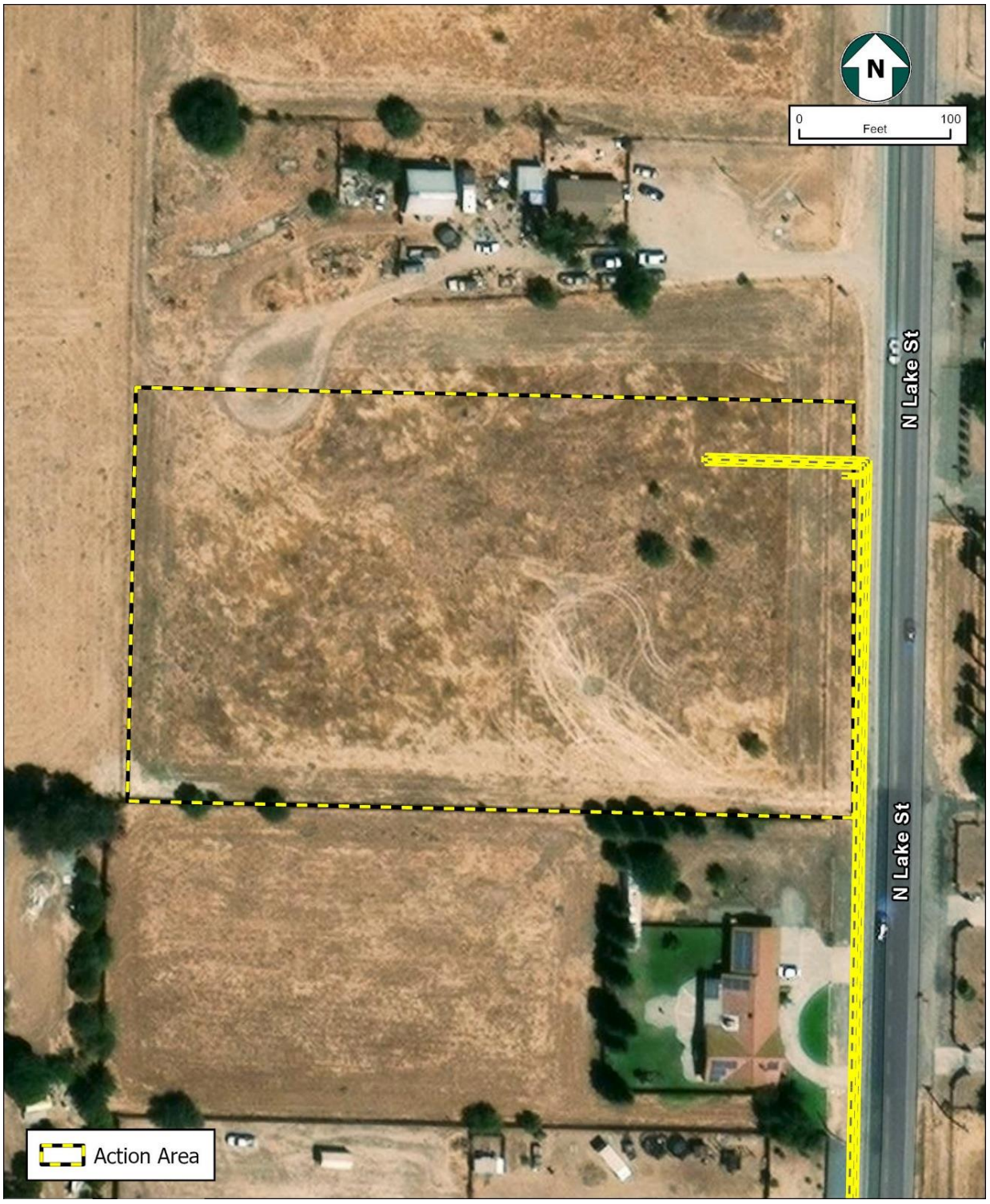


Figure 2-3
Water Tank and Pump Station Area

2.5 - Project Components

PHASE 1

Phase 1 includes the following major components:

WATER STORAGE TANK SITE

- Install a 2.5 mg prestressed concrete water storage tank outfitted with inlet and outlet piping at opposite ends of the tank to promote thorough tank mixing, tank overflow and drain piping compliant with Division of Drinking Water (DDW) requirements, mechanical mixer to further promote reservoir mixing, two access manways at the exterior of the tank for operations and maintenance access at ground level, roof access hatch and interior ladder, intrusion alarms on access manways and roof access hatch, level monitoring equipment, and a water sampling station.

- A 3,500-gpm firm capacity (maximum flow rate) booster pump station consisting of three 125-horsepower (hp) horizontal-split case booster pumps and associated equipment located on a concrete slab foundation. Space for a fourth identically sized pump will be provided for future expansion at a later phase.

Further tank site improvements will include:

- New 30-inch drainage piping to convey tank overflow and drainage to the City-owned retention basin.
- Perforated leak detection pipeline at the perimeter of the tank.
- Above ground reservoir control valve assembly, including inlet flow meter.
- Cement masonry unit (CMU) chemical and electrical building with two separate rooms dedicated to housing electrical and chemical equipment.
- Onsite hypochlorite generation, storage, and feed equipment.
- Water quality analyzers and four chemical injection/analysis points.
- Electrical distribution equipment, service transformer, variable frequency drives (VFD), and programmable logic controller (PLC).
- Standby generator sized for emergency operation all pumps and critical site equipment.
- Asphalt pavement across approximately half of tank site with crushed rock across the remaining half of the site where future installation of a second tank is anticipated.
- CMU wall at the North Lake Street frontage extending 75 feet along the north and south site limit.
- Perimeter fencing around the remainder of the site.
- Onsite fire hydrant, hose bibbs, and equipment washdown facilities.
- Light fixtures with photocells and motion sensors in compliance with Title 24 requirements.
- Provisions for future installation of security cameras.

WATER DISTRIBUTION

- Approximately 13,200 linear feet (LF) of 24-inch transmission main will connect the tank site to the City-owned Well 38. The transmission main will cross below a joint-use irrigation and drainage canal approximately 300 feet west of Ellis Street. The canal crossing will be approximately 200 linear feet and be completed via trenchless bore and jack construction.

PHASE 2

Based on current projections, the initial phase of this project should be sufficient to meet drinking water demands and fire protection requirements through 2043. To meet future system demands, provisions for the following improvements have been incorporated to the preliminary design for the Year 2044 (Phase 2):

- Install an additional 2.5 mg prestressed concrete water storage tank that will be of similar dimensions, character, and configuration as the Phase 1 tank. Yard piping and valves will be installed under Phase 1 to facilitate construction of the future tank with both the Phase 1 tank and pump station remaining in service.

- Increase the firm pumping (maximum flow) capacity to 7,000 gpm from 3,500 gpm. The 2044 capacity will be accomplished by adding an identically sized pump and VFD to the Phase 1 pumping station. The Phase 1 pumping station will be developed to accommodate Phase 2 pump equipment.

PHASE 3

To meet additional future system demands, provisions for the following improvements have been incorporated to the preliminary design for the Year 2058 (Phase 3):

- Future demand analysis will be required to confirm actual capacity expansion requirements; however, it is anticipated that the firm pumping capacity will be increased to 9,500 gpm. Additionally, at the time of Phase 3 development, the pump station and equipment will be over 30 years old and may require replacement of existing pumps and equipment. Future equipment replacement may increase discharge capacity and meet future demands without complete pump replacement.

CONDITIONAL USE PERMIT

The proposed Project will include application and approval of a Conditional Use Permit (CUP) by the County of Madera. As the proposed tank site is located within the County of Madera, pursuant to Section 18.94.160 of the County of Madera Ordinance Code, public facilities and emergency services shall be permitted in any zone district subject to approval of a conditional use permit (CUP).

2.6 - Alternatives

The City of Madera has an adopted Water System Master Plan (WSMP), which outlines the need for the phased and orderly growth of water infrastructure to meet the development needs of the General Plan (City of Madera, 2014). WSMP evaluated two alternatives:

Alternative 1: Continue to place wells where development occurs and treat wells that have adverse water quality conditions.

Alternative 2: Construct two new tanks on the east side of the system and utilize booster stations to meet the demands of a new east pressure zone. This alternative was selected as the "Preferred" alternative for servicing future development.

2.7 - Comprehensive Response to Climate Change

As part of the Drinking Water State Revolving Fund, identification of Project vulnerabilities to climate change and the impact the Project may have on climate change is requested. As shown, the Project is vulnerable to climate change impacts, however adaptations and mitigation are associated with the Project that will combat climate change factors facing the City of Madera.

Vulnerability:

- Water Supply Availability: The City operates a 1-million-gallon elevated water storage tank located in downtown Madera; however, the aquifer provides the vast majority of storage volume required to maintain service levels. In the past, the City has had difficulty meeting peak demands with the existing wellfield during extended dry periods, and the stress on the system has resulted in well failures and low system pressures. The proposed Project will improve the reliability of the water supply for the City and its service area while also providing for capacity expansion as growth continues.

- Drought: The proposed Project relies on groundwater. As such, the proposed water distribution system could be adversely impacted if a drought lowers the groundwater elevation in the area below the depth of the well.

Adaptation:

- Additional Storage: The proposed Project will provide additional water storge tanks to the City's water distribution system. This will allow the City to effectively manage groundwater resources, reduce vulnerability to and from impacts of long-term drought conditions, and provide fire suppression storage capacity for the City service area and potential growth.

- Fire Resistance: The proposed Project will provide new water storage tanks capable of supplying adequate flows to meet Fire Code requirements and provide redundancy capabilities should existing equipment become inoperable.

Mitigation:

- Water Conservation: The proposed Project will provide reliable water supplies during peak hour demands and provide redundancy should existing equipment go offline. The Project is not intended to result in direct urban growth where increases to water consumption would occur. Water conservation methods as provided in the City General Plan and other applicable adopted plans and programs would be applied to all existing and future water consumers.

SECTION 3 - INITIAL STUDY

3.1 - Environmental Checklist

1. **Project Title:**

2. Northeast Water Storage Tank, Booster Pump Station, and Transmission Main Project

3. **Lead Agency Name and Address:**

City of Madera
428 Yosemite Ave.
Madera, California 93638

3 **Contact Person and Phone Number:**

Will Tackett – Director of Community Development
(559) 661-3688
wtackett@madera.gov

4 **Project Location:**

The Project is generally bounded by Lake Street to the east, Ellis Street to the south, and Martin Street to the north. See Figure 2-2 and Figure 2-3.

The proposed water tanks and other infrastructure will be located on a parcel (APN-038-030-031) on North Lake Street, which is within unincorporated Madera County and the City of Madera Sphere of Influence (SOI).

The water tank site is proposed to connect via a pipeline that will be placed within the City's road rights-of-way (ROW). The pipeline route will follow the ROW south along Lake Street, west along Ellis Street, and northwest along Sharon Boulevard. This pipeline will connect to an existing well site located at on Sharon Boulevard (APN 013-280-001).

5 **Project Sponsor's Name and Address:**

City of Madera
428 Yosemite Ave.
Madera, California 93638
Will Tackett – Director of Community Development
(559) 661-3688
wtackett@madera.gov

6 **General Plan Designation:**

The proposed water tank site is located within the County of Madera and within the City of Madera SOI.

County of Madera: Low Density Residential

City of Madera: Low Density Residential

The proposed pipeline is anticipated to be developed within public road rights-of-way.

7 Zoning:

County of Madera: AR-5

8 Description of Project:

The Project will include the construction of water supply and distribution facilities to meet the demand conditions identified by the hydraulic model demands and projections. Provisions for future facility expansion to meet Year 2044 (Phase 2) and Year 2058 (Phase 3) will be incorporated into the design documents. The initial phase (Phase 1) includes the development of water storage tanks and a pipeline connection to an existing water well site. The conceptual plan for the proposed Project is provided as Appendix A.

9 Surrounding Land Uses and Setting:

Proposed water tank and pumping station site

The proposed water tank and pumping site is generally bounded by Lake Street to the east, Ellis Street to the south, and Martin Street to the north. Surrounding land uses include rural residences to the north, east, and south, and vacant land to the west.

Proposed pipeline connecting the tank site to the City of Madera well site

The water tank site is proposed to be connected via a pipeline that will be placed within the City of Madera right-of-way (ROW). The pipeline route will follow ROW south along Lake Street, west along Ellis Street, and northwest along Sharon Boulevard. This pipeline will connect to an existing well site located west of Sharon Boulevard, south of Avenue 17. The pipeline is located in ROW with a mixture of residential, rural residential, agricultural, and vacant uses.

10 Other Public Agencies Whose Approval May be Required:

- County of Madera
- California Public Utilities Commission (CPUC)
- United States Bureau of Reclamation (USBR)
- State Water Resources Control Board- Division of Drinking Water and Water Quality Control

3.2 - Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this Project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

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

3.3 - Determination

On the basis of this initial evaluation:

☐ 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 (a) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (b) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENT 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: Will Tackett Date: August 27, 2025

Printed Name: Will Tackett Title: Director of Community Development

3.4 - Evaluation of Environmental Impacts

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a Lead Agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (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).

2. All answers must take account of the whole action involved, including offsite as well as onsite, cumulative as well as Project-level, indirect as well as direct, and construction as well as operational impacts.

3. Once the Lead Agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there is one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4. "Negative Declaration: Less Than Significant with Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less-Than-Significant Impact." The Lead Agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less-than-significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).

5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

    a. Earlier Analysis Used. Identify and state where they are available for review.

    b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

    c. Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the Project.

6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7. Supporting Information Sources: A source list should be attached, and other sources used, or individuals contacted should be cited in the discussion.

8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9. The explanation of each issue should identify:

    a. The significance criteria or threshold, if any, used to evaluate each question; and
    b. The mitigation measure identified, if any, to reduce the impact to less than significant.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
3.4.1 - AESTHETICS					
Except as provided in Public Resources Code Section 21099, would the Project:					
a.	Have a 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 area, 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 that would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

Discussion

Impact #3.4.1a – Would the Project have a substantial adverse effect on a scenic vista?

The proposed Project is located in a generally rural area that is predominantly comprised of residential, rural residential, agricultural production, and vacant land. The proposed tank site will specifically be surrounded by rural residential and vacant land uses and is not located in or near any designated scenic vistas. The City General Plan identifies significant visual resources, including the Fresno River, Cottonwood Creek, Schmidt Creek, and Dry Creek. Additionally, the City General Plan EIR (City of Madera, 2009a) notes that General Plan buildout would also affect existing visual characteristics of agricultural land to urban uses and potentially distant views of the Sierra Nevada Mountain ranges to the east and Coast Range to the west. The Project will not impact or impede residents from enjoying these identified resources. No known scenic resources exist on or near the Project area.

The majority of the proposed Project components will consist of pipelines that will be installed underground. There are also proposed water storage tanks and a pump station site. Construction-related activities of the new water storage tanks and pump station will have a

short-term, temporary, and intermittent impact and may obstruct public views of agricultural fields and/or neighboring buildings. However, when completed and operational, the Project will not block or preclude views to any area containing important or what would be considered visually appealing landforms. The proposed Project will not have an adverse effect on known scenic vistas. Therefore, the proposed Project will have no impact on a scenic vista.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be *no impact*.

Impact #3.4.1b – Would the Project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?

See Impact #3.4.1a, above.

The Project area does not contain any scenic highways (California Department of Transportation, 2018). Pursuant to the California Streets and Highways Code, Sections 260 through 263, certain elements make a highway scenic, which include the amount of natural landscape that can be seen by drivers, the scenic quality of the landscape, and the extent of development. If a highway meets these criteria, then it becomes eligible to become an officially designated scenic highway. The closest eligible scenic highway is State Route (SR) 168, approximately 21 miles southeast of the Project site.

The area around the proposed Project is improved with agricultural, rural residential, and residential uses. There are no known historic buildings, trees, rock outcroppings, historic buildings, or scenic highways that have been identified near the proposed Project area. Therefore, the proposed Project would have no impact on scenic resources or a scenic highway.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be *no impact*.

Impact #3.4.1c – Would the Project 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 a 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?

See discussion of Impacts #3.4.1a and #3.4.1b.

The Project pipelines will all be placed underground within the public rights-of-way in rural residential areas with single-family homes, commercial properties, and agricultural lands. All construction-related work may temporarily alter or obstruct the views along the subject streets with each section/component of work.

The proposed tank and pump station site is located in a rural residential area on larger lots. Although the site will be visibly altered with the installation of the water tanks and associated infrastructure, as shown on the conceptual site plan included as Appendix A, there will be a 60-foot setback from the street and the Project fence line, as well as a required landscaping strip that will soften, and in some ways obstruct, the view of the equipment from the street and neighboring properties. Although the visual aspect of the currently undeveloped site will be altered, with the implementation of setbacks and landscaping, the Project will not substantially degrade the existing visual character or quality of public views of the site and its surroundings.

The proposed Project will comply with City development codes and requirements related to setbacks and landscaping. Therefore, the Project will not conflict with local zoning or other regulations governing visual quality of the area. Therefore, the proposed Project will have a less-than-significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

Impact #3.4.1d – Would the Project create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?

Construction

Construction-related activities on the proposed Project would typically be conducted during daylight hours, that is, from 7:00 a.m. to 6:00 p.m. Increased truck traffic and the transport of construction materials to the Project site could temporarily increase glare conditions during construction-related activities. In the event that work is performed between dusk and 6:00 a.m., construction crews will use minimal illumination to perform the work safely. All construction lighting would be directed downward and shielded to focus illumination on the desired work areas only and prevent light spillage onto adjacent properties.

Operation

Once operational, the Project may require the use of permanent security lighting at the tank site, and there is potential for light spillage onto adjacent properties. Outdoor lighting will be shielded and directed downward to minimize off-site light spill.

There are several General Plan policies that include comprehensive design guidelines to establish basic design standards (Action CD-2.1) and criteria for public and private development projects (Policy CON-38). These policies and actions are implemented through the City Ordinance Code, specifically Title IX of the Ordinance Code, adopting California Building Code standards, and Title X, requiring review and approval of exterior lighting. Compliance with established City design and construction guidelines would ensure that potential outdoor lighting would conform to adopted standards, would avoid and minimize impacts of light spillage onto adjacent properties, and would reduce the impact to a level below significant. Based on adopted General Plan policies and development standards, the minimization of light and glare impacts would be reduced to a less-than-significant level.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact

3.4.2 - AGRICULTURE AND FORESTRY RESOURCES

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the State's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the Project:

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?	☐	☐	☐	☒

Discussion

Impact #3.4.2a – Would the Project 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?

The proposed water storage tanks and pump station site is located on North Lake Street. This site is in an area that is developed with rural residences and designated as Vacant or Disturbed Land per the Farmland Mapping and Monitoring Program (FMMP) (California Department of Conservation, 2022). As noted, the pipeline portion of the Project will be located within existing public road ROW; therefore, the pipeline component of the wellsite will not impact Farmland. Therefore, the Project will have no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be ***no impact***.

Impact #3.4.2b – Conflict with existing zoning for agricultural use or a Williamson Act contract?

See Impact #3.4.2a.

The water storage tanks, pump station, and proposed pipeline route are not located on a parcel subject to a Williamson Act Contract. Under both the County of Madera General Plan and the City of Madera General Plan (City of Madera, 2009b), the site is designated for Low Density Residential and is zoned AR-5 (Agricultural, Rural 5-acres) under the Madera County zoning ordinance. As previously noted, the proposed pipeline is anticipated to be located along the existing public ROW and would not conflict with existing zoning for agricultural use.

Therefore, the Project does not conflict with a Williamson Contract or existing zoning for agricultural use, and there would be no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be ***no impact***.

Impact #3.4.2c – Would the Project 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))?

The California Public Resources Code Section 12220(g) defines "Forest Land" as "land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including

timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits." There are no forest lands identified on the proposed Project site or within its vicinity; therefore, there would be no conflict with or impacts to zoning for forest land or timberland. The proposed Project would not result in the loss or conversion of forest land to a non-forest use.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be *no impact*.

Impact #3.4.2d – Would the Project result in the loss of forest land or conversion of forest land to non-forest use?

See discussion of Impact #3.4.2c.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be *no impact*.

Impact #3.4.2e – Would the Project 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?

See discussion of Impacts #3.4.2a through #3.4.2c.

As discussed above, the water tank site is designated for low density residential under both the County and City of Madera General Plans. The proposed pipeline is anticipated to be developed within public ROW and does not result in the conversion of Farmland at surrounding sites. The Project does not involve other changes in the existing environment where additional farmland would be converted. There is no impact related to farmland, agricultural uses, or forestlands.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be *no impact.*

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact

3.4.3 - AIR QUALITY

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the Project:

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 odor) adversely affecting a substantial number of people?	☐	☐	☒	☐

Discussion

The following analysis is based on the Focused Air Quality Study prepared for this Project (QK, 2025a) attached as Appendix B.

Impact #3.4.3a – Would the Project conflict with or obstruct implementation of the applicable air quality plan?

A potentially significant impact to air quality, as defined by CEQA, would occur if the project caused one or more of the following to occur:

- Conflict with or obstruct implementation of the applicable air quality plan.
- 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.
- Expose sensitive receptors to substantial pollutant concentrations.
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

CEQA Guidelines state that a project that would "violate any air quality standard or contribute substantially to an existing or projected air quality violation" would create significant impacts on air quality. Therefore, should the emissions from a project exceed

National Ambient Air Quality Standards (NAAQS) or California Ambient Air Quality Standards (CAAQS), then the project would cause or contribute significantly to violations of the NAAQS or CAAQS when added to existing ambient concentrations. The thresholds of significance for NAAQS and CAAQS are provided in Table 3.4.3-1 below.

Table 3.4.3-1
NAAQS and CAAQS Thresholds

Pollutant	Averaging Time	NAAQS	CAAQS
		Concentration	
O_3	8-hour	0.070 ppm (137 µg/m³)[a]	0.070 ppm (137 µg/m³)
	1-hour		0.09 ppm (180 µg/m³)
CO	8-hour	9 ppm (10 µg/m³)	9 ppm (10 µg/m³)
	1-hour	35 ppm (40 µg/m³)	20 ppm (23 µg/m³)
NO_2	Annual Average	53 ppb (100 µg/m³)	0.030 ppm (57 µg/m³)
	1-Hour	100 ppb (188.68 µg/m³)	0.18 ppm (339 µg/m³)
SO_2	3-Hour	0.5 ppm (1,300 µg/m³)	
	24 Hour	0.14 ppm (365 µg/m³)	0.04 ppm (105 µg/m³)
	1-Hour	75 ppb (196 µg/m³)	0.25 ppm (655 µg/m³)
Particulate Matter (PM_{10})	Annual Arithmetic Mean		20 µg/m³
	24-Hour	150 µg/m³	50 µg/m³
Fine Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	12 µg/m³	12 µg/m³
	24-Hour	35 µg/m³	
Sulfates	24-Hour		25 µg/m³
Pb[d]	Rolling Three-Month Average	0.15 µg/m³	
	30 Day Average		1.5 µg/m³
H_2S	1-Hour		0.03 ppm (42 µg/m³)
Vinyl Chloride (chloroethene)	24-Hour		0.010 ppm (26 µg/m³)
Visibility Reducing particles	8 Hour (1000 to 1800 PST)		[b]

ppm = parts per million
ppb = parts per billion
mg/m³ = milligrams per cubic meter
µg/m³ = micrograms per cubic meter

Source: CARB 2024
a. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm
b. In 1989, CARB converted both the general statewide 10-mile visibility standards and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

The Project is located within the jurisdiction of the San Joaquin Valley Air Pollution Control District (District or SJVACPD) and the San Joaquin Valley Air Basin. The District is responsible for controlling emissions primarily from stationary sources. The SJVAPCD has also established emission thresholds in their *Guidance for Assessing and Mitigating Air Quality Impacts* (GAMAQI) to determine whether a project would create any potential air quality impacts that would require further analysis in an Environmental Impact Report (EIR). The SJVAPCD air quality thresholds from GAMAQI are presented in Table 3.4.3-2. Construction and operation of the Project are expected to comply with applicable rules and regulations required by the SJVAPCD. The following examples of SJVAPCD rules and regulations that may be applicable to the proposed Project are described below:

- Rule 2010 (Permits Required)
- Rule 4002 (National Emission Standards for Hazardous Air Pollutants)
- Regulation VIII (Fugitive PM_{10} Prohibitions)
- Rule 9510 Indirect Source Review

Table 3.4.3-2
SJVAPCD Air Quality Thresholds of Significance – Criteria Pollutants

Pollutant/Precursor	Construction Emissions	Operational Emissions	
	Emissions (tons per year; tpy)	Permitted Equipment and Activities Emissions (tpy)	Non-permitted Equipment and Activities Emissions (tpy)
CO	100	100	100
NOx	10	10	10
ROG	10	10	10
SOx	27	27	27
PM_{10}	15	15	15
$PM_{2.5}$	15	15	15

Source: Appendix B

Project-related criteria pollutant emissions were estimated using the California Emissions Estimator Model (CalEEMod) version 2020.4.0. Short-term emissions are primarily from the construction of a Project and would have temporary impacts on air quality. CalEEMod was used to estimate emissions from construction worker vehicles and on-site construction equipment. CalEEMod default construction schedule and equipment were used to estimated Project emissions. The Project also must comply with the required SJVAPCD's mitigation measures to limit fugitive dust emissions.

Table 3.4.3-3
Short-Term Project Emissions

Emissions Source	Pollutant (tons/year)					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
2025	0.05	0.42	0.46	<0.005	0.06	0.04
2026	0.12	0.87	1.36	<0.005	0.07	0.04
2027	0.06	0.49	0.81	<0.005	0.04	0.03
Total	**0.23**	**1.78**	**2.63**	**<0.015**	**0.17**	**0.11**
Significance Threshold	25	25	NA	27	15	15
Is Threshold Exceeded After Mitigation?	No	No	No	No	No	No

Source: Appendix B

The following measures were applied in CalEEMod, resulting in emissions shown in Table 3.4.3-3:

- Water exposed area three times per day.
- Reduce vehicle speed on unpaved roads.

As shown in Table 3.4.3-3, the Project's short-term construction emissions are presented, demonstrating that the Project's construction activities would not exceed construction significance thresholds. Therefore, construction emissions were found to be less than significant, and no further evaluation is required.

Long-term emissions are caused by operational mobile sources and area source emissions from the Project. Because the Project qualifies for the use of a SPAL under the SJVAPCD guidelines, the Project's operational emissions are expected to be less than significant. Once operational, the water pumps will be run by electricity and will not result in an increase in any operational emission sources above a negligible level. Other emissions from other sources, such as from staff work trucks, would be nominal. Therefore, operational emissions were found to be less than significant, and no further evaluation is required.

An ambient air quality analysis, when required, determines if a proposed project has the potential to cause a violation of the ambient air quality standards or a substantial contribution to an existing or projected air quality standard. As stated in the GAMAQI, SJVAPCD has developed screening levels for requiring an Ambient Air Quality Analysis (AAQA). The SJVAPCD recommends that an AAQA be performed for all criteria pollutants when emissions of any criteria pollutant resulting from project construction or operational activities exceed the 100 pounds per day screening level, after compliance with Rule 9510 requirements and implementation of all enforceable mitigation measures.

As demonstrated in Table 3.4.3-3, short-term construction emissions will be minimal, and there will be negligible emissions associated with long-term operational emissions. Therefore, the Project's potential to increase any criteria pollutant's average daily emissions during construction and operational activities associated with it would not exceed 100 pounds per day. Therefore, an AAQA is not required for this Project. In consideration of both

short-term construction emissions and long-term operational emissions, the Project is not anticipated to exceed established thresholds and would result in a less-than-significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant.*

Impact #3.4.3b –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?

As discussed, the District has adopted thresholds of significance where it can be assumed that if a project does exceed the criteria pollutant emission thresholds, then the project would be considered to have a significant impact if not adequately mitigated to below the thresholds. The Air District separates construction emissions from operational emissions and further separates permitted operational emissions from non-permitted operational emissions to determine significance thresholds for air pollutant emissions.

Owing to the inherently cumulative nature of air quality impacts, the threshold for whether a project would make a cumulatively considerable contribution to a significant cumulative impact is currently based on whether the proposed Project would exceed established project-level thresholds. As such, a qualitative evaluation of the Project's cumulative emissions supports a finding that the Project's contribution would not be cumulatively considerable because the proposed Project's incremental emissions do not exceed the established thresholds, and therefore, impacts would be less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant.*

Impact #3.4.3c – Would the Project expose sensitive receptors to substantial pollutant concentrations?

Sensitive receptors are defined as locations where young children, chronically ill individuals, the elderly, or people who are more sensitive than the general population reside, such as schools, hospitals, nursing homes, and daycare centers. The nearest residential sensitive receptor to the proposed tank site is located adjacent to the north, south, and east of the Project site. Residences are also located along portions of the pipeline route.

The closest schools are James Monroe Elementary School and Nishimoto Elementary School, which are located 0.30 miles south and west, respectively, of the Project site. The closest hospital is 3.23 miles south, and the closest assisted living facility is 0.78 miles south. The nearest daycare facility is 0.46 miles southwest of the Project.

Projects are considered for potential health risks wherein a new or modified source of Hazardous Air Pollutants (HAPs) is proposed for a location near an existing residential area or other sensitive receptor when evaluating potential impacts related to HAPs.

The proposed Project would result in emissions of HAPs during construction and would be located near existing residents; therefore, an assessment of the potential risk to the population attributable to emissions of hazardous air pollutants from the proposed Project is required. To predict the potential health risk to the population attributable to emissions of HAPs from the proposed Project, ambient air concentrations were predicted with dispersion modeling to arrive at a conservative estimate of increased individual carcinogenic risk that might occur as a result of continuous exposure over the construction period for construction emissions. Similarly, predicted concentrations were used to calculate non-cancer chronic and acute hazard indices, which are the ratio of expected exposure to acceptable exposure. The basis for evaluating potential health risks is the identification of sources with increased HAPs. HAP emissions from anticipated on-site construction activities were evaluated. Health risk is determined using the Hotspots Analysis and Reporting Program (HARP) software distributed by the CARB. HARP2 requires peak 1-hour emission rates and annual-averaged emission rates for all pollutants for each modeling source.

SJVAPCD has set the level of significance for carcinogenic risk at twenty in one million, which is understood as the possibility of causing 20 additional cancer cases in a population of one million people. The level of significance for chronic non-cancer risk is a hazard index of 1.0. All receptors were modeled with a two-year exposure to construction activities.

The carcinogenic risk and the health hazard index (HI) for chronic non-cancer risk at the point of maximum impact (PMI) do not exceed the significance levels of 20 x 10-6 and 1.0, respectively, for the proposed Project. The PMIs are identified by receptor location and risk and are provided in Table 3.4.3-4.

Table 3.4.3-4
Potential Maximum Impacts Predicted by HARP

	Cancer Risk	Chronic Hazard Index
Total Construction	11.42E-06	6.68E-03
SJVAPCD Threshold	20.0E-06	1.0
Exceedance?	No	No
Receptor #	4361	4361
UTM Easting (m)	762021.86	762021.86
UTM Northing (m)	4097727.45	4097727.45

Note: UTM = Universal Transverse Mercator

As shown above in Table 3.4.3-4, the maximum predicted cancer risk for the proposed Project is 11.42E-06. The maximum chronic non-cancer hazard index for the proposed Project is 6.68E-03. Since the PMI remained below the significance threshold for cancer and chronic risk, this Project would not have an adverse effect on any of the surrounding communities.

The potential health risk attributable to the proposed Project is determined to be less than significant based on the following conclusions:

- Potential carcinogenic risk from the proposed Project is below the significance level of twenty in a million at each of the modeled receptors.
- The hazard index for the potential chronic non-cancer risk from the proposed Project is below the significance level of 1.0 at each of the modeled receptors.
- The hazard index for the potential acute non-cancer risk was not calculated since there is no acute risk associated with DPM emission; therefore, the proposed Project is considered below the significance level.

Therefore, the potential risk to the population attributable to emissions of HAPs from the proposed Project would be less than significant. Based on the predicted operational emissions and activity types, the proposed Project is not expected to affect any on-site or off-site sensitive receptors and is not expected to have any adverse impacts on any known sensitive receptors.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

Impact #3.4.3d – Would the Project result in emissions (such as those leading to odors) adversely affecting a substantial number of people?

An evaluation is typically conducted for both of the following situations: 1) a potential source of objectionable odors is proposed for a location near existing sensitive receptors, and 2) sensitive receptors are proposed to be located near an existing source of objectionable odors. The criteria for this evaluation are based on the Lead Agency's determination of the proximity to one another of the proposed project and the sensitive receptors. A sensitive receptor is a location where human populations, especially children, senior citizens, and sick persons, are present, and where there is a reasonable expectation of continuous human exposure to pollutants, according to the averaging period for ambient air quality standards, i.e., the 24-hour, 8-hour, or 1-hour standards. Commercial and industrial sources are not considered sensitive receptors.

The proposed Project is not considered a source of objectionable odors or odorous compounds. As such, the proposed Project will not be a source of any odorous compounds nor will it likely be impacted by any odorous source.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
3.4.4 - BIOLOGICAL RESOURCES				
Would the Project:				
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 State or federally protected wetlands (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?	☐	☐	☒	☐

Discussion

The following analysis is based on the Biological Assessment prepared for this Project (QK, 2025b) attached as Appendix C.

Impact #3.4.4a – 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?

Qualified biologists conducted a reconnaissance level survey of the Project. The survey included the Project area and a 500-foot survey buffer surrounding the Project area (Biological Survey Area [BSA]). Habitat within the BSA include urban, and non-native annual grassland and was assessed to evaluate the presence of federally and State protected plant and wildlife species and their habitat.

The California Natural Diversity Database (CNDDB), the California Native Plant Society (CNPS) database, and the United States Fish and Wildlife Service (USFWS) Information for Planning and Conservation (IPaC) database were reviewed to assess whether occurrences of federally listed species or USFWS Critical Habitat Units have been documented within the Action Area and USGS nine-quadrangles surrounding the Project.

There were 13 federally listed plants and wildlife identified in the CNDDB, CNPS, and IPaC database searches of the nine quadrangles surrounding the Project. There is no suitable habitat that could support federally listed and protected plant or wildlife species within the Project area.

In addition, there are 15 State-listed wildlife species identified in the CNDDB, CNPS, and IPaC database searches of the nine quadrangles surrounding the Project, 10 of which are also federally listed. The identified federal and State-listed special-status plant and wildlife species with the potential to occur based on database research and survey are summarized in Table 3.4.4-1 below.

Table 3.4.4-1
Federal and State Listed, Proposed, and Candidate Plant and Wildlife Species Evaluated for Their Potential to Occur within the Project Area

Scientific Name	Status Federal/State CRPR/CDFW	General Location/ Habitat Requirements	Potential to Occur
Plants			
Castilleja campestris succulenta succulent owl's-clover	FT/SE 1B.2/-	Vernal pool	No
Orcuttia inaequalis San Joaquin Valley Orcutt grass	FT/SE 1B.1/-	Vernal pool	No
Orcuttia Pilosa hairy Orcutt grass	FE/SE 1B.1/-	Vernal pool	No
Tuctoria greenei Greene's tuctoria	FE/SR 1B.1/-	Small or shallow vernal pools	No

Scientific Name	Status Federal/State CRPR/CDFW	General Location/ Habitat Requirements	Potential to Occur
Wildlife			
Danaus Plexippus monarch butterfly- overwintering population	FPT/- -/-	Fields, meadows, weedy areas, marshes, and roadsides	No
Desmocerus californicus dimorphus valley elderberry longhorn beetle	FT/- -/-	Riparian areas and within elderberry shrubs	No
Branchinecta lynchi vernal pool fairy shrimp	FT/- -/-	Vernal pool	No
Ambystoma californiense California tiger salamander	FT/ST -/WL	Breeding: ephemeral pools or artificial ponds Upland habitat: valley and foothill grassland, oak woodlands, and uncommonly riparian	No
Spea hammondii western spadefoot	FPT/- -/SSC	Breeding: vernal pools Non-breeding habitat: grasslands, coastal scrub, woodlands, chaparral, sandy washes, lowland river floodplains, alkali flats, foothills, and mountains	No
Actinemys marmorata Northwestern pond turtle	FPT/- -/SSC	Ponds, lakes, rivers, streams, creeks, marshes, and irrigation ditches	No
Gambelia sila blunt-nosed leopard lizard	FE/SE -/FP	Open, dry scrub habitats	No
Dipodomys nitratoides exilis Fresno kangaroo rat	FE/SE -/-	Open dry scrub and grassland habitats	No
Vulpes macrotis mutica San Joaquin kit fox	FE/ST -/-	Grasslands, shrublands, fallow fields, dry grain fields, and urban areas	No
Phrynosoma blainvillii coast horned lizard	-/- -/SSC	Loose soils in grasslands, forests, woodlands, and open chaparral	No
Agelaius tricolor tricolored blackbird	-/ST -/SSC	Wetland and agricultural habitat	No
Athene cunicularia western burrowing owl	-/SC -/SSC	Grasslands, shrublands, fallow fields, dry grain fields	No
Buteo swainsoni Swainson's hawk	-/ST -/-	Occurs in open country habitats such as deserts, grasslands, or agricultural areas containing scattered large trees or small groves	Present
Taxidea taxus American badger	-/- -/SSC	Grasslands, forest glades, meadows, marshes, brushy areas, deserts, mountain	No

Scientific Name	Status Federal/State CRPR/CDFW	General Location/ Habitat Requirements	Potential to Occur
		meadows, prairie, and sandy loam soil habitats	
Additional State Listed, Proposed, and Candidate Wildlife Species Evaluated for Their Potential to Occur within the Project Area			
Phrynosoma blainvillii coast horned lizard	-/- -/SSC	Loose soils in grasslands, forests, woodlands, and open chaparral	No
Agelaius tricolor tricolored blackbird	-/ST -/SSC	Wetland and agricultural habitat	No
Athene cunicularia western burrowing owl	-/SC -/SSC	Grasslands, shrublands, fallow fields, dry grain fields,	No
Buteo swainsoni Swainson's hawk	-/ST -/-	Occurs in open country habitats such as deserts, grasslands, or agriculture areas containing scattered large trees or small groves	Present
Taxidea taxus American badger	-/- -/SSC	Grasslands, forest glades, meadows, marshes, brushy areas, deserts, mountain meadows, prairie and sandy loam soil habitats	No

Federal Status:
FE - Federal Endangered Species
FPT - Federal Proposed Threatened
FT - Federal Threatened Species
California Status
SCE - California Candidate Endangered
SR - California State Listed - Rare
SE - California Endangered Species
ST - California Threatened Species
CDFW Status
SSC - CDFW Species of Special Concern
WL - CDFW Watch List

Based on the initial literature review and reconnaissance level survey, the prepared BA indicated that there is a potential for one special-status species to occur at the Project sites. An evaluation of the potentially occurring special-status species, which included habitat requirements, likelihood of required habitat to occur within the Project area, and a comparison to the CNDDB records was conducted. The results of this evaluation concluded that no sensitive natural community or special-status plant species are anticipated to occur on or near the Project area and that one wildlife species has a reasonable potential to occur on or near the Project area.

Sensitive Natural Communities and Special-Status Species

SENSITIVE NATURAL COMMUNITIES AND SPECIAL-STATUS PLANTS

Habitat within the Project area is classified as Annual Grassland and Urban. The three-acre Project tank site consists of a previously tilled, undeveloped parcel surrounded by residential development and undeveloped pastures/non-native grassland. Historical satellite imagery shows that this lot has been regularly disturbed by tilling or disking since as early as 1998. The BSA was dominated by nonnative grasses and forbs that did not contain native habitat.

Annual Grassland is composed primarily of annual plant species, many of which occur as understory plants in valley oak woodland and other habitats. It is dominated by introduced annual grasses that include wild oats, soft chess, ripgut brome, red brome, wild barley, and foxtail fescue. Many wildlife species use Annual Grasslands for foraging, but some require special habitat features such as cliffs, caves, ponds, or habitats with woody plants for breeding, resting, and escape cover. Species associated with this community include western fence lizard, common garter snake, western rattlesnake, burrowing owl, short-eared owl, horned lark, western meadowlark, black-tailed jackrabbit, California ground squirrel, Botta's pocket gopher, western harvest mouse, California vole, badger, coyote, and the San Joaquin kit fox. This habitat also provides important foraging habitat for the turkey vulture, northern harrier, American kestrel, black-shouldered kite, and prairie falcon. Annual Grassland habitat occurs mostly on flat plains to gently rolling foothills. Common soil orders include Entisols and Alfisols. This habitat occurs in various-sized patches throughout the State.

Urban is described as a developed habitat with five types of vegetative structure, including tree grove, street strip, shade tree/lawn, lawn, and shrub cover. Common in city parks, green belts, and cemeteries, tree groves vary in height, tree spacing, crown shape, and understory conditions, depending on species planted and landscape design. Street tree strips show variation in spacing of trees, depending upon species and design considerations, and are typically planted in grass. Shade trees/lawns are typical of residential areas and reminiscent of natural savannas. Lawns are structurally the most uniform vegetative units of the Urban habitat and shrub cover, including hedges, is more limited in distribution. Species composition in Urban habitats varies with planting design and climate, and monoculture is commonly observed in tree groves and street tree strips. Three urban categories relevant to wildlife are distinguished: downtown, urban residential, and suburbia. Downtown has the lowest diversity, comprised of over 90 percent avian density and biomass, including rock dove, European starling, and house sparrow. Wildlife that utilize urban residential scrub jay, mockingbird, house finch, raccoon, opossum, striped skunk, and California slender salamander. Wrentits, bushtits, plain titmouse, chestnut-backed chickadee, California quail, black-tailed deer, ringtail, black-tailed jackrabbit, gopher snake, and western fence lizard typically occur in suburban areas. Urban habitat is the result of modifying pre-settlement vegetation and introducing new species. They are not limited to any particular physical setting and occur throughout California.

The BSA consists predominantly of residences with various urban settings and ruderal plants such as ornamental trees, plants, and grass lawns. These species include non-native grasses such as wild oat (*Avena fatua*), and ripgut brome (*Bromus diandrus*) and forbs such as curly dock (*Rumex crispus*), field bindweed (*Convolvulus arvensis*), red-stem filaree (*Erodium cicutarium*), sorrel (*Rumex acetosa*), short-pod mustard (*Hirschfeldia incana*), and Jimson weed (*Datura wrightii*). Within the BSA, numerous ornamental trees were present on private residential development. There were no special-status plants or habitats capable of supporting special-status plants observed.

SPECIAL-STATUS WILDLIFE

Species present within the BSA were typical for urban habitat, and nonnative grassland included European starling (*Sturnus vulgaris*), mourning dove (*Zenaida macroura*), white crowned sparrow (*Zonotrichia leucophrys*), red-tailed hawk (*Buteo jamaicensis*), Swainson's hawk (*Buteo swainsoni*), turkey vulture (*Cathartes aura*), common crow (*Corvus brachyrhynchos*), garter snake (*Thamnophis sirtalis*), and various domesticated livestock.

The BSA is heavily disturbed by urban development. Several small mammal burrows were found within the BSA, likely belonging to California ground squirrel (*Otostermophilus beecheyi*) and Botta's pocket gopher (*Thomomys bottae*). No raptor, passerine, or ground nests were identified, but the BSA contains suitable habitat for nesting bird species. No nesting migratory birds were present in the BSA. However, there is potential for migratory birds to nest within the BSA in ornamental trees in nearby residential properties and the nonnative grassland in undeveloped lots throughout the BSA. Of the fourteen special-status species, one species, the Swainson's hawk, was identified as having the potential to occur within the Project area and one adult Swainson's hawk was observed during the survey. However, no nest was located in the vicinity of the Project site. A discussion of the Swainson's hawk is provided below.

Swainson's Hawk

Swainson's hawks occur in grassland, desert, and agricultural landscapes throughout the Central Valley and Antelope Valley. Some hawks may be resident, especially in the southern portion of their range, while others may migrate between winter and breeding habitats. They prefer larger isolated trees or small woodlots for nesting, usually with grassland or dryland grain fields nearby for foraging, and have been known to nest in large eucalyptus trees (*Eucalyptus sp.*) along heavily traveled freeway corridors. Swainson's hawks forage in grassland, open scrub, pasture, and dryland grain agricultural habitats, primarily for rodents. Swainson's hawks exhibit moderate to high nest site fidelity for successful nest sites. The primary threat to Swainson's hawk is loss of native foraging and breeding grounds due to habitat conversion. Other threats include climate change, drought, infrastructure placement, wind turbine strikes, nest tree trimming, vehicle collisions, disease, pesticide poisoning, and electrocution.

There are four CNDDB records within 10 miles of the BSA. The closest CNDDB record (EONDX 103593) is approximately 2.5 miles southwest of the BSA and is presumed extant.

As noted above, one adult Swainson's hawk was observed during the survey, but no nest was located in the vicinity. The individual did not display any nest-building behaviors; most likely, the individual was flying over in search of foraging habitat. Suitable nesting habitat is present within 0.5 miles of the BSA, specifically in areas with large trees. However, the few open non-native grasslands present within the BSA provide very low-quality foraging opportunities for the species. Several California ground squirrel burrows were identified within the Project area, but it is unlikely that they could provide an adequate prey base to support the species. One other raptor species, the red-tailed hawk (*Buteo jamaicensis*), was observed during the survey

CONCLUSION

The overall Project and surrounding areas have been disturbed for years by ongoing agriculture and residential development. The Project area and vicinity do not provide suitable habitat for any special-status plant species, and no mitigation measures to protect, avoid, or minimize impacts to special-status plant species are warranted.

The Project area and vicinity have a lack of sufficient prey base and provide low-quality foraging habitat for Swainson's hawk and other raptor species. There is the potential for nesting migratory birds and raptors, including the Swainson's hawk, which are protected by the Migratory Bird Treaty Act, to nest on or near the Project area. To account for potential impacts, implementation of Mitigation Measures (MM) BIO-1 through BIO-5 as recommended in the BA would protect, avoid, and minimize impacts to potential nesting migratory birds and raptors, including the Swainson's hawk. MM BIO-1 will require a preconstruction survey to be conducted, and MM BIO-2 requires that pre-disturbance surveys be conducted if construction occurs during nesting season, and additional measures should nests be identified. MM BIO-3 establishes procedures for active raptor nests, MM BIO-4 provides for Swainson's hawk-specific protocol surveys and avoidance measures, and MM BIO-5 requires training for all construction personnel for biological resources.

Compliance with Mitigation Measures BIO-1 through BIO-5 would protect, avoid, and minimize impacts to special-status wildlife species. When implemented, these measures would reduce impacts to these species to below significant levels.

MITIGATION MEASURE(S)

BIO-1: A preconstruction survey shall be conducted 14-30 days prior to Project construction activities to verify if special-status or sensitive species are present within 500 feet of the Project. The focal species shall include Swainson's hawk and other migratory nesting birds. A report outlining the results of the survey shall be prepared and submitted to the lead agency as evidence of compliance.

BIO-2: If construction activities occur between February 1 and September 15, pre-disturbance surveys for active raptor and migratory bird nests shall be conducted no more than 10 days prior to the commencement of disturbance. Surveys shall follow USFWS and CDFW guidance and/or protocols, as applicable. If no active nests or nesting birds are

identified, then Project construction activities may proceed, and no further mitigation measures for nesting birds are required. If active nest(s) are identified, the active nest(s) should be continuously surveyed for the first 24 hours after detection to establish a behavioral baseline prior to any construction-related activities.

Once construction commences, all nests shall be continuously monitored to detect any behavioral changes because of the Project (i.e., nest avoidance or abandonment). If behavioral changes are observed, the work causing that change shall cease until the qualified biologist consults with the CDFW and/or the USFWS and the qualified biologist implements the recommended measures. During such times as the qualified biological monitor is not on site while construction workers are on site, a minimum non-disturbance buffer of 250 feet shall be established around active nests and a 500-foot no-disturbance buffer around the nests of raptors until the breeding season has ended or until a qualified biologist has determined that the birds have fledged and are no longer reliant upon the nest or parental care for survival, and any adult birds are no longer occupying the nest. Deviations from these no-disturbance buffers may be implemented if the qualified biologist concludes that work within the buffer area would not cause nest avoidance or abandonment (e.g., when the disturbance area would be concealed from a nest site by topography) provided that notification of this determination of a deviation in the no-disturbance buffer is provided by the qualified biologist no less than 15 days in advance to the California Department of Fish and Wildlife and the United States Fish and Wildlife.

BIO-3: If an active raptor nest is identified, and when construction activities occur within the avoidance buffer of the nest, a qualified biologist shall conduct a daily site visit to observe all construction-related activities and or activity near an active nest. If construction activities are not occurring within the avoidance buffer of a nest, these resources shall be checked during a weekly site visit to observe activity. The qualified biologist shall be familiar with all potential species and their sign (i.e., tracks, scat, etc.) that have the potential to occur within the proposed Project site. The qualified biologist shall prepare a daily datasheet to record all construction-related activities that occurred and activity at an active nest or den, and document the progress of the project with photographs. Copies of daily datasheets and photographs shall be submitted to the lead agency as evidence of compliance.

BIO-4: If construction work occurs after August 30 and ends before March 1 (outside of the breeding season), impacts to the Swainson's hawk would be avoided. Surveys would not be required for work conducted during this part of the year, and no further mitigation for nest disturbance is required.

a. *Protocol Surveys*. For work that begins between March 1 and August 30, a qualified biologist with expertise in Swainson's hawk shall conduct protocol surveys of potential nesting habitat within 0.5 miles of any construction activities prior to initiation of such activities. The project proponent shall conduct a protocol-level survey in conformance with the "Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley," Swainson's Hawk Technical Advisory Committee (TAC)

(https://www.wildlife.ca.gov/conservation/survey-protocols#377281284-birds) (May 31, 2000), which is hereby incorporated by reference. This protocol prescribes minimum standards for survey equipment, mode of survey, angle and distance to tree, speed, visual and audible clues, distractions, notes and observations, and timing of surveys.

A written report with the pre-construction survey results shall be provided to the lead agency and CDFW within 30 days of the commencement of construction-related activities. The report shall include: the date of the report, authors and affiliations, contact information, introduction, methods, study location, including a map, results, discussion, and literature cited.

If the required protocol surveys show there are no active Swainson's hawk nests within 0.5 miles of construction activities, then no further mitigation for nest disturbance shall be required. If protocol surveys show that there are no active Swainson's hawk nests within 10 miles of the site, then no further mitigation for foraging impacts will be required.

b. *Nest Avoidance*. If nesting Swainson's hawks are observed within 0.5 miles of the project site during the protocol surveys, the project proponent shall implement CDFW pre-approved mitigation measures to avoid nest impacts during construction. These measures include:

- All Project-related activities with the potential to cause nest abandonment or forced fledging of young shall be avoided until the young have fledged.
- If disturbances, habitat conversions, or other Project-related activities that may cause nest abandonment or forced fledging are necessary, within the nest protection buffer zone (0.5-mile), monitoring of the nest site by a qualified raptor biologist, funded by the project proponent, shall be required to determine if the nest is abandoned. If the nest is abandoned, but the nestlings are still alive, the project developer /contractor is required to fund the recovery and hacking, that is, the controlled release of captive-reared young of the nestling.
- The project proponent shall be required to coordinate with CDFW to determine if project activities with the potential to cause disturbance to nesting Swainson's hawks within the 0.5-mile buffer may proceed with a reduced nest buffer and an approved biological monitor. CDFW may authorize a reduced nest buffer with the presence of a monitoring biologist during construction activities to ensure that the nest is not disturbed. Routine disturbances such as agricultural activities, commuter traffic, and routine maintenance activities within 0.5 miles of an active nest are not prohibited.

BIO-5. Prior to the initiation of construction activities, all construction personnel shall attend a Worker Environmental Awareness Training program developed by a qualified biologist. Any personnel associated with construction that did not attend the initial training shall be trained by the authorized biologist or authorized construction personnel prior to working within the Action Area. Any employee responsible for the operations, maintenance, or

decommissioning of Project facilities shall attend the Worker Environmental Awareness Training program prior to starting work on the Project. All on-site workers shall attend training on an annual basis. The Program shall be developed and presented by the Project qualified biologist(s) or designee approved by the qualified biologist(s). The program shall include information about the life histories of State or federally listed species with potential to occur on the Action area, their legal status, course of action should these species be encountered on-site, and avoidance and minimization measures to protect these species. The training shall include the following components:

a. Information about the life history and identification of federally listed plant and wildlife species, as well as other special-status plant and wildlife species that may be affected by project activities. The program shall present the legal protection status of each such species, the definition of "take" under the Federal Endangered Species Act and California Endangered Species Act, measures the Project proponent/operator shall implement to protect the species, reporting requirements, specific measures for workers to avoid take of special-status plant and wildlife species, and penalties for violation of Project permits or other Project-related environmental measures.

b. An acknowledgment form signed by each worker indicating that the Worker Environmental Awareness Training and Education program has been completed shall be kept on file at the construction site.

c. A copy of the training transcript and/or training video, as well as a list of the names of all personnel who attended the Worker Environmental Awareness Training and Education program, and signed acknowledgment forms, shall be submitted to the contractor's construction manager or on-site superintendent.

d. A copy of the training transcript, training video or informational binder for specific procedures shall be kept available for all personnel to review and be familiar with, as necessary.

The construction crews and contractor(s) shall be responsible for preventing unauthorized impacts from Project activities to sensitive biological resources that are outside the areas defined as subject to impacts by Project permits. Unauthorized impacts may result in Project stoppage, and/or fines, depending on the impact and coordination with the appropriate State or federal biological agency.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant with mitigation incorporated.***

Impact #3.4.4b – 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?

As discussed above, the Project site consists of land classified as Annual Grassland and Urban with both habitats not considered sensitive or a riparian habitat. The water tank and pump site is located on an undeveloped but disturbed parcel surrounded by residential development and vacant land. The pipeline is anticipated to be developed within public ROW and is not located within riparian habitat or a sensitive natural community. Therefore, the Project would result in no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would result in *no impact*.

Impact #3.4.4c – Would the Project have a substantial adverse effect on State or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

The National Hydrography Dataset (NHD) and National Wetlands Inventory (NWI) datasets show one historical water feature that intersects the BSA west of Road 26 (Figure 3.4.4-1) along the pipeline route. There are no water features identified within the water tank and pump station site.

The NHD identified the feature as a canal ditch, and NWI identified the feature as a riverine feature (R4SBCx and R5UBFx). This is the Lateral 24.2 canal that is operated by the Madera Irrigation District and under the jurisdiction of the United States Bureau of Reclamation (USBR). Should the Project impact the canal ditch, implementation of MM BIO-6 would require that specific impacts be identified by a water delineation and the appropriate regulatory permit be obtained, or through confirmation that regulatory permits are not required.

As noted, the Project proposes the pipeline to cross underneath the canal via the trenchless jack and bore method. Through the use of the jack and bore, the Project anticipates no impacts to the canal bed or bank. However, an encroachment permit would be required from USBR in order to install the pipeline, as outlined in MM BIO-7. With implementation of MM BIO-7, impacts to water features such as Lateral 24.2 would be less than significant.

The Federal Emergency Management Agency (FEMA) dataset shows the Action Area to be in an area of minimal flood hazard.

Therefore, with implementation of MM BIO-6 and MM BIO-7, the Project will result in a less-than-significant impact.

MITIGATION MEASURE(S)

BIO-6: Prior to any ground disturbance in this area on Ellis Street, if Lateral 24.2 canal cannot be avoided, the Project proponent/developer shall submit a final Delineation report to the City of Lemoore. A copy of this report shall also be provided to the Bureau of Reclamation. The report shall include information as shown below as a plan, if necessary, and shall outline compliance with the following:

a. Delineation of all jurisdictional features at the project site. Potential jurisdictional features within the project boundary identified in the jurisdictional delineation report may be shown in plan form.

b. If the Project has a potential to directly or indirectly impact jurisdictional aquatic resources, a formal aquatic resource delineation of these areas shall be performed by a qualified professional to determine the extent of agency jurisdiction and permits/authorizations from the appropriate regulating agencies (United States Bureau of Reclamation (USBR)., Central Valley Regional Water Quality Control Board (RWQCB) and CDFW shall be obtained prior to disturbance to jurisdictional features.

   If impacts to the jurisdictional Lateral 24.2 canal cannot be avoided, the Project developer/contractor shall consult with USBR staff to obtain the appropriate permit(s).

   As part of these authorizations, compensatory mitigation may be required by the regulating agencies to offset the loss of aquatic resources. If so, and as part of the permit application process, a qualified professional shall draft a Mitigation and Monitoring Plan to address implementation and monitoring requirements under the permit to ensure that the Project would result in no net loss of habitat functions and values. The Plan shall contain, at a minimum, mitigation goals and objectives, mitigation location, a discussion of actions to be implemented to mitigate the impact, monitoring methods and performance criteria, extent of monitoring to be conducted, actions to be taken in the event that the mitigation is not successful, and reporting requirements. The Plan shall be approved by the appropriate regulating agencies, and compensatory mitigation shall take place either on-site or at an appropriate off-site location.

c. Any material/spoils generated from project activities containing hazardous materials shall be located away from jurisdictional areas or special-status habitat and protected from storm water run-off using temporary perimeter sediment barriers such as berms, silt fences, fiber rolls, covers, sand/gravel bags, and straw bale barriers, as appropriate. Protection measures should follow project-specific criteria as developed in a Stormwater Pollution Prevention and Protection Plan (SWPPP).

d. Equipment containing hazardous liquid materials shall be stored on impervious surfaces or plastic ground covers to prevent any spills or leakage from contaminating

the ground and at least 50 feet outside the delineated boundary of jurisdictional water features.

e. Any spillage of material shall be stopped if it can be done safely. The contaminated area shall be cleaned, and any contaminated materials properly disposed. For all spills, the project foreman or designated environmental representative shall be notified.

BIO-7: If the Project does not impact the Lateral 24.2 canal by using the jack and bore method to install the pipeline underneath the canal, prior to commencing activities at the canal, the Project developer/contractor shall obtain an Encroachment Permit from the USBR. A copy of that approved permit, or communication from the USBR indicating a permit is not required, shall be submitted to the lead agency before the work commences.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant with mitigation incorporated.***

Impact #3.4.4d – Would the Project 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?

Wildlife migratory corridors are described as a linear stretch of land that connects two open pieces of habitat that would otherwise be unconnected. These routes provide shelter and sufficient food resources to support wildlife species during migratory movements. Movement corridors generally consist of riparian, woodlands, or forested habitats that span contiguous acres of undisturbed habitat and are important elements of resident species' home ranges.

The Project area and surrounding areas do not overlap any wildlife linkages or movement corridors identified by the Essential Habitat Connectivity Project (QK, 2025b). The proposed Project does not occur within any terrestrial migration route, significant wildlife corridor, or wildlife linkage area as identified in the *Recovery Plan for Upland Species in the San Joaquin Valley*. The survey conducted for the Project did not find any evidence of a wildlife nursery or important migratory habitat being present within the Project area. Migratory birds and raptors could use habitat on or near the Project area for foraging and/or as stopover sites during migrations or movement between local areas. As discussed in Impact #3.4.4a, implementation of MM BIO1 through BIO-5 would address potential impacts to migratory birds and raptors that could utilize the Project area for foraging or nesting and would result in a less-than-significant impact.

The Project would not substantially affect migrating birds or other wildlife. The Project will not restrict, eliminate, or significantly alter a wildlife movement corridor, wildlife core area, or essential habitat connectivity area, either during construction-related activities or after the Project construction has been completed. Project construction-related activities will not substantially interfere with wildlife movements or reduce breeding opportunities.

The land surrounding the Project area has been developed for both rural- and urban-type uses and agricultural-related uses, and thus is generally a low-quality habitat for many species. There would be little opportunity for wildlife to pass through the Project area to travel between these low-quality habitats. As noted in Impact #3.4.4a, the proposed Project has the potential to affect migratory nesting birds and raptors, however, the potential impacts are reduced to a less-than-significant level with the implementation of MM BIO-1 through BIO-5. There is no impact on established wildlife corridors or on the use of native wildlife nursery sites. Therefore, the Project would have a less-than-significant impact on wildlife movements, would not affect movement corridors, or impede a nursery site.

MITIGATION MEASURE(S)

Implementation of Mitigation Measures BIO-1 through BIO-5.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant with mitigation incorporated.***

Impact #3.4.4e – Would the Project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Both the County and City of Madera General Plans have adopted a number of policies and implementation measures that aim to preserve biological resources within the County and City limits. The proposed Project is designed to be in compliance with both General Plans. There are no additional adopted local policies or ordinances protecting biological resources that would apply to this Project area. Therefore, implementation of the proposed Project would not conflict with any adopted local policies or ordinances protecting biological resources.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would result in ***no impact***.

Impact #3.4.4f – Would the Project conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?

The Recovery Plan for Upland Species of the San Joaquin Valley covers 34 species of plants and animals that occur in the San Joaquin Valley. The USFWS is responsible for the implementation of the recovery plan. Of the species covered, eleven species are federal and/or State listed as endangered or threatened (six plants and five animals), and 23 species are candidate species or species of concern. The goal of this recovery plan is to delist the eleven endangered (of which one has been delisted) and threatened species and ensure the

long-term conservation of 23 candidate species and species of special concern. An interim goal is to down-list the endangered species to threatened status. The proposed Project, as analyzed above, would not result in a significant impact on special-status species. Therefore, the Project does not conflict with the provisions of the Recovery Plan for Upland Species of the San Joaquin Valley, or any other adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or State habitat conservation plan.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

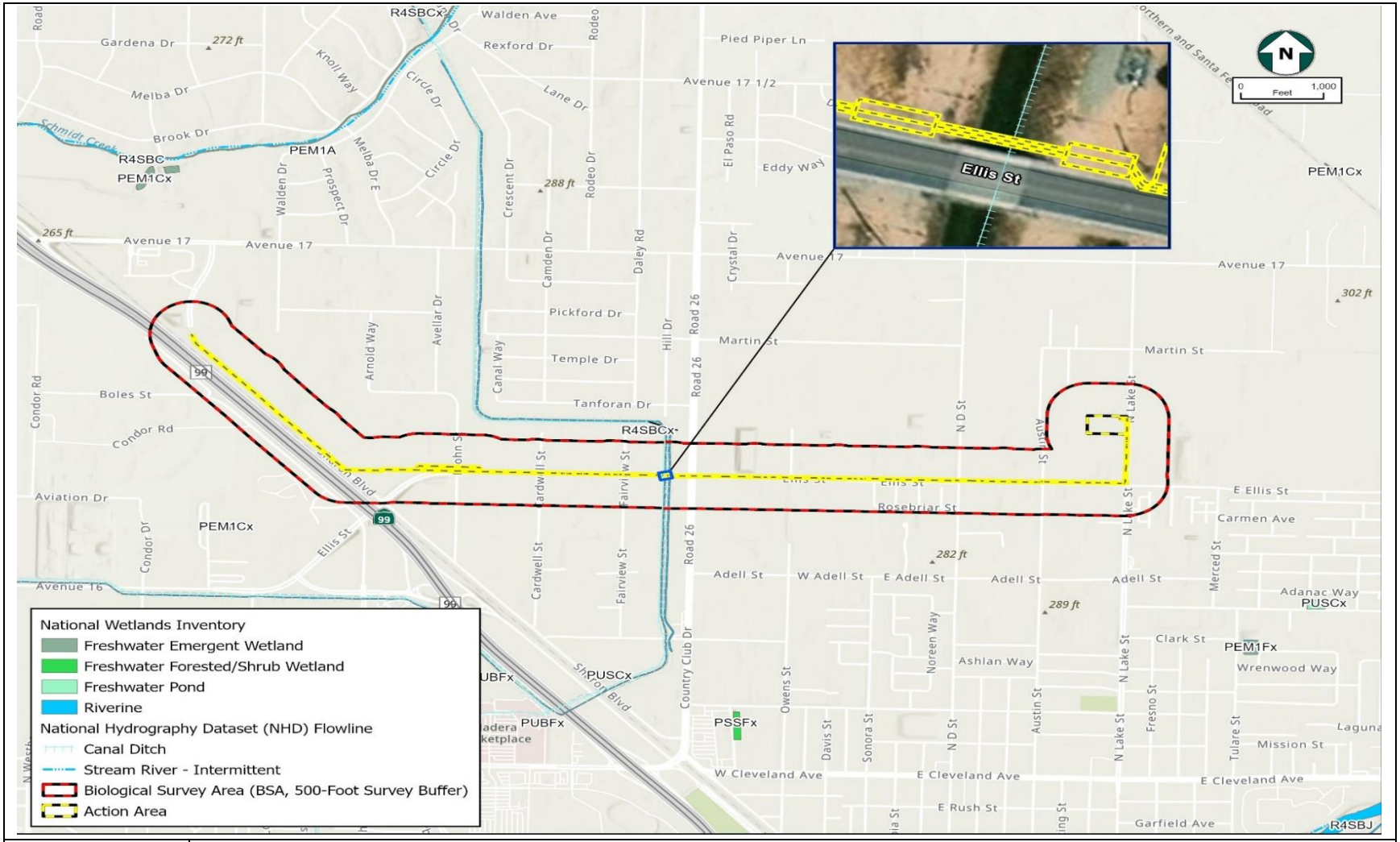




Figure 3.4.4-1
NHD and NWI

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
3.4.5 - CULTURAL RESOURCES				
Would the Project:				
a. Cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines Section 15064.5?	☐	☒	☐	☐
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5?	☐	☒	☐	☐
c. Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

Discussion

The impact analyses in this section are based on a Cultural Resources Assessment Report (Cogstone, 2025) which is attached as Appendix D.

Impact #3.4.5a – Would the Project cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines Section 15064.5?

A cultural resources records search was conducted by the Southern San Joaquin Valley Archaeological Information Center (SJVAIC), California State University, Bakersfield, for the Project. The purpose of the search was to determine whether any known cultural resources or previously conducted cultural resource surveys were located on or near the proposed Project area. Additionally, a Sacred Lands File (SLF) search was requested from the Native American Heritage Commission (NAHC) on April 29, 2025. On April 30, 2025, the NAHC responded that the SLF search was completed with negative results.

The records search covered an area within a one-mile buffer of the Project site's Area of Potential Effect (APE) and included a review of the *National Register of Historic Places, California Points of Historical Interest, California Registry of Historic Resources, California Historical Landmarks, California State Historic Resources Inventory*, and a review of cultural resource reports on file.

Results of the record search were received on May 12, 2025, and indicated that 11 previous studies have been completed within the APE, while an additional 21 studies have been completed previously within a one-mile radius of the APE. One cultural resource, Madera Canal (P-20-002308/CA-MAD-2649H), has been previously recorded within the APE. An additional resource, Madera Irrigation District (M.I.D.), outside of the APE, a total of seven cultural resources have been previously documented within the one-mile search radius from

the APE. These consist of two cultural resources within a quarter-mile of the APE, two cultural resources within a quarter to half-mile of the APE, and three cultural resources within a half-mile to one mile of the APE. The proposed Project would not impact any of these off-site resources.

A pedestrian survey of the APE was conducted on May 14, 2025. All undeveloped ground surface areas within the ground disturbance portion of the Project area were examined for artifacts (e.g., flaked stone tools, tool-making debris, stone milling tools, or fire-affected rock), soil discoloration that might indicate the presence of a cultural midden, soil depressions and features indicative of the former presence of structures or buildings (e.g., postholes, foundations), or historic-era debris (e.g., metal, glass, ceramics). Existing ground disturbances (e.g., cutbanks, ditches, animal burrows, etc.) were visually inspected. The built environment resources survey identified and verified the location of all structures and buildings within the Project area aged 45 years or older. Once identified, historic built environment resources were examined to ascertain if they are recommended for listing as a historical resource at the local, state, or national level and if the original integrity of the resource remains intact. The seven aspects of integrity that are considered as part of a determination of eligibility include: location, design, setting, materials, feeling, workmanship, and association.

A segment of the Madera Canal, Lateral 24.2 (P-20-002308/CA-MAD-2649H) and the M.I.D. Canal Bridge (41C0132) are present within the APE.

P-20-002308/CA-MAD-2649H, Segment of Madera Canal, Lateral 24.2

This segment of the Madera Canal's Lateral 24.2 is earthen-lined and intersects with the M.I.D. Canal Bridge (41C0132) on Ellis Street. Lateral 24.2 transports water from Dry Creek to the north. The flow of Dry Creek into the canal is controlled by the Diversion Dam.

M.I.D. Canal Bridge (41C0132)

Built in 1975, this concrete beam bridge is located on Ellis Street and crosses over the Madera Canal. The bridge is simple in its design with concrete wing walls, a girder, an asphalted deck, and galvanized steel guardrails.

Both cultural resources were documented and evaluated for historic significance. Due to a lack of historic significance, these resources are recommended not eligible for listing at the national, State, or local level (Cogstone, 2025). Although Lateral 24.2 is not considered a historic resource, it should be noted that the Project intends to install the pipeline underneath the canal, which would not impact on the integrity of the canal itself.

Since there is no indication of any historic resources in the Project area, subsurface construction-related activities associated with the proposed Project could potentially damage or destroy previously undiscovered historic resources. This is considered to be a potentially significant impact. To reduce the potential impacts of the Project on unknown cultural resources, Mitigation Measure CUL-1 shall be implemented as applicable.

Although it is unlikely, due to the possible presence of undocumented tribal or cultural resources within the Project area, construction-related impacts on tribal or cultural resources could be potentially significant prior to mitigation. Implementation of the following mitigation measure would require appropriate steps to preserve and/or document any previously undiscovered resources that may be encountered during construction-related activities, including human remains. With implementation of Mitigation Measure CUL-1, impacts to cultural resources would be less than significant.

MITIGATION MEASURE(S)

CUL-1: If prehistoric or historic-era cultural materials are encountered during construction activities, all work within 50 feet of the find shall halt until a qualified professional archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for prehistoric and historic archaeologists, can evaluate the significance of the find and make recommendations. Cultural resource materials may include prehistoric resources such as flaked and ground stone tools and debris, shell, bone, ceramics, and fire-affected rock, as well as historic resources such as glass, metal, wood, brick, or structural remnants. If the qualified professional archaeologist determines that the discovery represents a potentially significant cultural resource, additional investigations may be required to mitigate adverse impacts from Project implementation. These additional studies may include avoidance, testing, and evaluation, or data recovery excavation.

If a potentially eligible resource is encountered, then the qualified professional archaeologist, the Lead Agency shall arrange for either, (1) total avoidance of the resource or (2) test excavations to evaluate eligibility and, if eligible, total data recovery. The determination shall be formally documented in writing and submitted to the Lead Agency as verification that the provisions for managing unanticipated discoveries have been met.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant with mitigation incorporated*.

Impact #3.4.5b – Would the Project cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5?

See discussion for Impact #3.4.5a.

Although considered unlikely since there is no indication of any historical or archaeological resources in the Project area, subsurface construction-related activities associated with the proposed Project could potentially damage or destroy previously undiscovered archaeological resources. This is considered to have a potentially significant impact. Mitigation is proposed, requiring implementation of standard inadvertent discovery procedures to reduce potential impacts to previously undiscovered subsurface historical and archaeological resources.

MITIGATION MEASURE(S)

Implementation of Mitigation Measure CUL-1.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant with mitigation incorporated*.

Impact #3.4.5c – Would the Project disturb any human remains, including those interred outside of formal cemeteries?

The records searches did not indicate the presence of any human remains, burials, or cemeteries within the Project area. No human remains have been discovered within the Project area, and no burials or cemeteries are known to occur within the \ Project area. However, construction-related activities would involve earth-disturbing actions, and it is still possible that human remains may be inadvertently discovered, possibly in association with archaeological sites. Mitigation Measure CUL-2 has been included in the unlikely event that human remains are found during ground-disturbing activities. Accordingly, this is a potentially significant impact. Implementation of Mitigation Measure CUL-2 would reduce this potentially significant impact to less than significant.

MITIGATION MEASURE(S)

CUL-2: If human remains are discovered during construction or operational activities, further excavation or disturbance shall be prohibited pursuant to Section 7050.5 of the California Health and Safety Code. The specific protocol, guidelines, and channels of communication outlined by the Native American Heritage Commission, in accordance with Section 7050.5 of the Health and Safety Code, Section 5097.98 of the Public Resources Code (Chapter 1492, Statutes of 1982, Senate Bill 297), and Senate Bill 447 (Chapter 44, Statutes of 1987), shall be followed. Section 7050.5(c) shall guide the potential Native American involvement, in the event of discovery of human remains, at the direction of the Tulare County Coroner. All reports, correspondence, and determinations regarding the discovery of human remains on the Project site shall be submitted to the City of Madera.

According to the California Health and Safety Code, six or more human burials at one location constitute a cemetery (Section 8100), and willful disturbance of human remains is a felony (Section 7052).

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant with mitigation incorporated*.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
3.4.6 - ENERGY				
Would the Project:				
a. Result in a 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?	☐	☐	☒	☐

Discussion

Impact #3.4.6a – Would the Project result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during Project construction or operation?

Construction-related activities of the proposed Project would increase energy (in the form of fuel) consumption due to the operation of construction-related equipment. Construction-related activities will be short-duration and temporary in nature regarding gasoline and diesel fuel consumption. The increase in fuel (energy) consumption associated with construction-related activities would be minimal in comparison to Statewide and regional fuel consumption. Construction-related equipment and vehicles would be operated in accordance with energy efficiency standards required under the California Energy Code and State level policies adopted by the California Energy Commission (CEC) including the Energy Action Plan that prioritizes energy resources efficiency for California's future energy needs, thereby minimizing energy consumption associated with the construction-related equipment and vehicles primarily powered by non-renewable fuels. This includes limiting idling time, ensuring that all equipment is maintained as recommended by manufacturer manuals, using electric equipment whenever possible in lieu of diesel- or gasoline-powered equipment, etc.

The County of Madera is currently connected to the utility grid and obtains electricity services from the Pacific Gas and Electric Company (PG&E). In 2023, Madera County consumed 1,548 gigawatt-hours (GWh) of electricity. Non-residential users were responsible for about 69 percent of all electricity consumption, or approximately 1,067 GWh, in the County. The total consumption of energy within the State is approximately 276,213 GWh (California Energy Commission, 2025). In the CalEEMod outputs prepared as part of the FAQS, the estimated construction energy usage is less than one kilowatt-hour for the construction period. This indicates that construction-related energy use would be minimal

and result in a less-than-significant consumption of energy resources. Once operational, the pumps at the tank site will be operated using electricity as needed. A 3,500-gpm firm capacity (maximum flow rate) booster pump is proposed in Phase 1, and an additional pump is proposed in Phase 2. The new pumps will be as energy efficient as is feasible, and the amount of electricity used by these pumps will be considered a less-than-significant impact.

It is noted in the City General Plan EIR, that implementation of Policy CI-49 ensures that adequate public utility services are timed with development and Action Item CON-37.3 would ensure that City energy use is efficient. It is also stated in the General Plan EIR that the electricity service provider will continue to meet demand within the Planning Area as growth occurs.

With consideration of anticipated construction and operational energy use, the Project is expected to comply with General Plan Policy and Action Items for energy efficiency and result in a less-than-significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be a *less-than-significant impact*.

Impact #3.4.6b – Would the Project conflict with or obstruct a State or local plan for renewable energy or energy efficiency?

Assembly Bill 32 (Health and Safety Code Sections 38500–38599), also known as the California Global Warming Solutions Act of 2006, commits the State to achieving year 2000 GHG emission levels by 2010 and year 1990 levels by 2020. To achieve these goals, AB 32 tasked the California Public Utilities Commission and the California Energy Commission with providing information, analysis, and recommendations to the California Air Resources Board regarding ways to reduce GHG emissions in the electricity and natural gas utility sectors.

In 2009, the SJVAPCD (Air District) adopted the following guidance documents applicable to projects within the San Joaquin Valley:

- Guidance for Valley Land Use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA.
- District Policy: Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency.

This guidance and policy are the documents referenced in the Air District's Guidance for Assessing and Mitigating Air Quality Impacts, adopted in March 2015. Consistent with the District guidance and District policy above, the Air District acknowledges the current absence of numerical thresholds and recommends a tiered approach to establish the significance of the GHG impacts on the environment:

- If a project complies with an approved GHG emission reduction plan or GHG mitigation program, which avoids or substantially reduces GHG emissions within the geographic area in which the project is located, then the project would be determined to have a less-than-significant individual and cumulative impact for GHG emissions.
- If a project does not comply with an approved GHG emission reduction plan or mitigation program, then it would be required to implement Best Performance Standards (BPS).
- If a project is not implementing BPS, then it should demonstrate that its GHG emissions would be reduced or mitigated by at least 29 percent compared to Business as Usual (BAU).

In the decade after SJVAPCD adopted its Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA, several new laws and executive orders were adopted that require additional reductions in years after 2020. For instance, Senate Bill 32 requires that GHG emissions be 40 percent less than 1990 levels by 2030. More drastic still, Senate Bill 100, which was signed by the Governor recently, requires 100 percent zero-carbon electricity by 2045. On the day SB 100 was signed into law, the Governor also signed Executive Order B-55-18, which commits California to total, economy-wide carbon neutrality by 2045. Clearly, the 2009 Guidance may be somewhat inadequate in producing a meaningful comparison by today's standards, which propose a grand vision that, if achieved, would fundamentally change how business is conducted and how citizens live in the State. Thus, as discussed in the most recent updates to the Scoping Plan, the objectives of the Scoping Plan affect all sectors of the economy, and it no longer makes sense to evaluate GHG emissions on a Project-level. The Project would generate GHGs from electricity use and combustion of gasoline/diesel fuels, each of which is regulated near the top of the supply chain. As such, each citizen of California (including those creating emissions of this Project) will have no choice but to purchase electricity and fuels produced in a way that is acceptable to the California market. Thus, Project GHG emissions will be consistent with the relevant plan (i.e., AB 32 Scoping Plan). The Project would meet its fair share of the cost to mitigate the cumulative impact of global climate change based on energy purchases from the California market. Thus, consumers of electricity and transportation fuels are in effect regulated by higher-level emissions restrictions on the producers of these energy sources.

The proposed Project will not conflict with or obstruct a State or local plan for renewable energy or energy efficiency. The proposed Project will not significantly increase energy consumption associated with long-term (operational) activities and would be within existing growth levels as provided in the General Plan EIR.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant.***

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
3.4.7 - GEOLOGY AND SOILS				
Would the Project:				
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 onsite or offsite 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 risks to life or property?	☐	☐	☒	☐
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐

Discussion

Impact #3.4.7a – 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.

The Alquist-Priolo Earthquake Fault Zoning Act (formerly the Alquist-Priolo Special Studies Zone Act) requires the delineation of zones along active faults in California. The purpose of the Alquist-Priolo Act is to regulate development on or near active fault traces to reduce the hazard of fault rupture; however, surface fault rupture is not necessarily restricted to the area within the Alquist-Priolo Zone. The Alquist-Priolo Act prohibits the location of most structures for human occupancy across active fault traces. Within these zones, cities and counties must regulate certain developments, which include withholding permits until geologic investigations demonstrate that development sites are not threatened by future surface displacement. The Project is not located within an Alquist-Priolo seismic hazard zone and does not propose to construct any habitable structures. City staff will visit the site on an as-needed basis to conduct maintenance and other routine activities.

The majority of the proposed Project will consist of trenching to install water transmission pipelines, above-ground water storage tanks, and a pump station facility. The proposed Project would not expose any people or structures to adverse effects associated with fault rupture. Therefore, there will be no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be ***no impact***.

(ii) – Strong seismic ground shaking?

See Impact #3.4.7a (i) above. Ground movement during an earthquake can vary depending on the overall moment magnitude, distance to the fault, focus of earthquake energy, and type of geologic material. As a rule, the greater the earthquake magnitude and the closer the fault rupture to the site, the greater the intensity of ground shaking. However, different geologic materials respond differently to earthquake waves. The composition of underlying soils, even those relatively distant from faults, can intensify ground shaking.

In the event of an earthquake on one of the nearby faults, it is likely that the Project sites would experience ground shaking. However, the Project does not propose to construct any habitable structures that might be damaged during a seismic event. The proposed Project

will construct water storage tanks and a pump station facility and install a water transmission pipeline to an existing City wellsite. These improvements are expected to comply with the adopted design requirements under City improvement standards. The proposed Project would not expose any people or structures to adverse effects associated with seismic ground shaking; therefore, there would be no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be ***no impact***.

(iii) – Seismic-related ground failure, including liquefaction?

See discussions for Impact #3.4.7a(i) and Impact #3.4.7a(ii).

The Madera County General Plan Background Report states that areas most prone to liquefaction are those that are water-saturated (specifically where the water table is less than 30 feet below the surface) and consist of relatively uniform sands that are of loose to medium density. Of particular concern in terms of developed and developing areas are fill areas that have been poorly consolidated. Although there are areas of Madera County where the water table is at 30 feet or less below the surface, soil types in the area are not conducive to liquefaction because they are either too coarse in texture or too high in clay content. In other words, the soil types mitigate against the potential for liquefaction. This is further reinforced in the City General Plan EIR. Therefore, the proposed Project-specific effects would be less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

(iv) – Landslides?

The Five County Seismic Safety Element identified four "risk categories." Areas of "no risk" are mainly flatlands, valley bottoms, and "areas of minimal topographic relief." "Low risk" areas consist of "hillside and mountainous terrain of competent igneous and metamorphic rocks and sedimentary rocks with favorable bedding and composition." This is a relatively stable category that includes much of the Sierras. The "moderate risk" zone includes dip slopes (natural slopes parallel to bedding in sedimentary rocks), complexly folded metamorphic rocks, and zones of fractured rock. The "high risk" zone includes several areas of the Sierras, which consist of weak, landslide-prone rock and existing landslides.

The Project site is located within the SOI of the City of Madera in an area that is relatively flat and does not have a high potential for landslides. Therefore, the Project is not likely to directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides and result in a less-than-significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

Impact #3.4.7b – Would the Project result in substantial soil erosion or the loss of topsoil?

The National Pollutant Discharge Elimination System (NPDES) stormwater permitting programs regulate stormwater quality from construction sites, which includes erosion and sedimentation. Under the NPDES permitting program, the preparation and implementation of a standard Stormwater Pollution Prevention Plan (SWPPP) for projects that disturb one acre of land or above. (California Water Board, 2018). A SWPPP must identify potential sources of erosion or sedimentation that may be reasonably expected to affect the quality of stormwater discharges, as well as identify and implement Best Management Practices (BMPs) that ensure the reduction of these pollutants during stormwater discharges. Typical BMPs intended to control erosion include sandbags, detention basins, silt fencing, storm drain inlet protection, street sweeping, and monitoring of water bodies. In addition to a standard SWPPP for projects that disturb more than one acre, a Type 1Linear Underground/Overhead Projects (LUP) SWPPP are required for construction activities where greater than 30 percent of construction activities occur within the non-paved shoulders or land immediately adjacent to paved surfaces, or where construction occurs on unpaved improved roads, including their shoulders or land immediately adjacent to them.

The site for the water storage tanks and pump station will be built on an approximately 2.89-acre parcel and must comply with all rules and regulations of a SWPPP for construction-related activities, and the proposed pipelines would be subject to the rules and regulations stipulated under LUP SWPPP requirements. Regulations include, but are not limited to, the following BMP requirements to minimize the potential for pollution related to material spills:

- Soil stabilization BMPs
- Sediment control BMPs
- Temporary gravel construction entrance/exit
- Run-on control

No soil erosion or loss of topsoil will result from the installation of the proposed Project's underground pipeline distribution system. However, construction activities associated with the proposed water storage tanks and pump station would disrupt surface vegetation and

soils and would expose these disturbed areas to erosion by wind and water. Therefore, the proposed Project impacts would be less than significant with the incorporation of mitigation measures.

In the long term, and after construction activities have been completed on the proposed water storage tanks and pump station site, the ground surface will have impermeable surfaces. The impermeable surface would include the concrete pad for the storage tank and pump station. The storage tank and pump station will be constructed on the 2.89-acre site and will impact an area larger than one acre. Development of the proposed Project would result in conditions where substantial surface soils would be exposed to wind and water erosion; however, this would be mitigated through implementation of the SWPPP. The proposed Project would not result in substantial soil erosion or the loss of topsoil. Impacts would be less than significant with the incorporation of mitigation measures.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant.***

Impact #3.4.7c – 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 onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?

Both the County and City of Madera, pursuant to their respective General Plan, indicate that adoption of the Uniform Building Code and the California Building Code provides for common engineering practices requiring special design and construction methods that reduce or eliminate potential expansive soil-related impacts. Compliance with CBC regulations ensures the adequate design and construction of building foundations to resist soil movement. With regard to the pipeline, standards under the California Plumbing Code and City adopted Standard Specifications, Section 22 for water distribution infrastructure would be applicable to the development of the water distribution pipeline.

The County General Plan found that compliance with CBC regulations ensures that adequate design and construction of building foundations will be installed to resist soil movement in addition to control surface drainage and reduce seasonal fluctuations in soil moisture content.

With adherence to all applicable State and local building codes and regulations, impacts associated with onsite or offsite landslide, subsidence, liquefaction, or collapse will be minimized. The City of Madera General Plan policies designed to minimize geologic hazard impacts to people and structures in the County include the following:

- County – Implementation Program 6.1: The County shall continue to enforce provisions of the California Building Code that address seismic concerns.

- City - HS-8: The City shall seek to ensure that new structures are protected from damage caused by earthquakes, geologic conditions, or soil conditions.

The proposed Project sites for the new water storage tanks and pump station, and pipeline will be designed in conformance with adopted UBC and CBC requirements, as applicable. Therefore, the proposed Project will have a less-than-significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

Impact #3.4.7d – Would the Project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

See Impact #3.4.7c.

As noted above, both the County and City of Madera General Plan EIR found that new construction that abides by the design and construction standards adopted under the CBC and UBC reduces or eliminates potential expansive soil-related impacts. The proposed Project will comply with all applicable requirements of the California Code of Regulations and the most recent California Building Standards Code, which provides criteria for developing buildings with appropriate design and safety standards. Therefore, the proposed Project would have a less-than-significant impact with mitigations.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant.*

Impact #3.4.7e – Would the Project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?

The proposed Project will not include septic tank installation or alternative wastewater disposal systems. Therefore, the proposed Project would have no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be ***no impact***.

Impact #3.4.7f – Would the Project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Activities will involve trenching and ground disturbance, and could potentially reveal undiscovered paleontological resources, although it is highly unlikely due to past ground disturbance throughout the Project area. Project-related potential impacts to paleontological resources would be less than significant with the implementation of MM GEO-1. MM GEO-1 would require the establishment of a procedure should paleontological resources be encountered during the construction of the Project. Potential paleontological resources would be reduced to a less-than-significant impact.

Implementation of Mitigation Measure GEO-1 would reduce potential impacts to a less-than-significant level and is in compliance with County of Madera General Plan Policy 4.D.3 and City of Madera General Plan Action Item HC-9.2 that require the protection of paleontological resources.

MITIGATION MEASURE(S)

GEO-1: If any paleontological resources are encountered during ground disturbance activities, all work within 25 feet of the find shall halt until a qualified paleontologist, as defined by the Society of Vertebrate Paleontology Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources (2010), can evaluate the find and make recommendations regarding treatment. Paleontological resource materials may include resources such as fossils, plant impressions, or animal tracks preserved in rock. The qualified paleontologist shall contact the Natural History Museum of Los Angeles County or other appropriate facility regarding any discoveries of paleontological resources.

If the qualified paleontologist determines that the discovery represents a potentially significant paleontological resource, additional investigations and fossil recovery may be required to mitigate adverse impacts from Project implementation. If avoidance is not feasible, the paleontological resources shall be evaluated for their significance. If the resources are not significant, avoidance is not necessary. If the resources are significant, they shall be avoided to ensure no adverse effects, or such effects must be mitigated. Construction in that area shall not resume until the resource appropriate measures are recommended or the materials are determined to be less than significant. If the resource is significant and fossil recovery is the identified form of treatment, then the fossil shall be deposited in an accredited and permanent scientific institution. Copies of all correspondence and reports shall be submitted to the Lead Agency

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant with mitigation incorporated***.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

3.4.8 - GREENHOUSE GAS EMISSIONS

Would the Project:

a.	Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b.	Conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

The following analysis is based on the Focused Air Quality Study prepared for this Project (QK, 2025a) attached as Appendix B.

Discussion

Impact #3.4.8a – Would the Project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

On December 17, 2009, SJVAPCD adopted Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA (SJVAPCD 2009), which outlined the SJVAPCD's methodology for assessing a project's significance for GHGs under CEQA. The following criteria was outlined in the document to determine whether a project could have a significant impact:

- Projects determined to be exempt from the requirements of CEQA would be determined to have a less-than-significant individual and cumulative impact for GHG emissions and would not require further environmental review, including analysis of project-specific GHG emissions. Projects exempt under CEQA would be evaluated consistent with established rules and regulations governing project approval and would not be required to implement BPS.

- Projects complying with an approved GHG emission reduction plan or GHG mitigation program that avoids or substantially reduces GHG emissions within the geographic area in which the project is located would be determined to have a less-than-significant individual and cumulative impact for GHG emissions. Such plans or programs must be specified in law or approved by the lead agency with jurisdiction over the affected resource and supported by a CEQA-compliant environmental review document adopted by the lead agency. Projects complying with an approved GHG emission reduction plan or GHG mitigation program would not be required to implement BPS.

- Projects implementing Best Performance Standards would not require quantification of project-specific GHG emissions. Consistent with CEQA Guidelines, such projects would be determined to have a less-than-significant individual and cumulative impact for GHG emissions.

- Projects not implementing Best Performance Standards would require quantification of project-specific GHG emissions and demonstration that project-specific GHG emissions would be reduced or mitigated by at least 29%, compared to Business-as-Usual (BAU), including GHG emission reductions achieved since the 2002-2004 baseline period. Projects achieving at least a 29% GHG emission reduction compared to BAU would be determined to have a less-than-significant individual and cumulative impact for GHG.

- Notwithstanding any of the above provisions, projects requiring preparation of an Environmental Impact Report for any other reason would require quantification of project-specific GHG emissions. Projects implementing BPS or achieving at least a 29% GHG emission reduction compared to BAU would be determined to have a less-than-significant individual and cumulative impact for GHG.

The City has not adopted specific thresholds for GHGs. The SJVAPCD has developed thresholds to determine the significance of a proposed project – either implement Best Performance Standards or achieve a 29 percent reduction from BAU (a specific numerical threshold). However, the SJVAPCD has established their BAU and baseline emissions based on the years 2002-2004 and 2020, respectively. Since the 2020 projected baseline has passed, no new guidance has been approved for determining the BAU and projected baseline for the next target year. Therefore, the 29 percent reduction from BAU cannot be applied to the subject Project in order to determine significance. Additionally, a Best Performance Standards threshold has not been established.

For this Project, compliance with locally adopted climate plans will be used to determine the level of significance for GHG. Therefore, the GHG analysis for this Project follows the suggestions from the Court's ruling on the Newhall Ranch development project in order to determine significance using the project design features.

The Project's greenhouse gas (GHG) emissions are primarily from construction equipment source activities and operational mobile and energy sources. Not all GHGs exhibit the same ability to induce climate change; as a result, GHG contributions are commonly quantified as carbon dioxide equivalents (CO_2e). The proposed Project's operational CO_2e emissions were estimated using CalEEMod. These emissions are summarized in Table 3.4.8-1.

Table 3.4.8-1
Estimated Annual GHG Emissions (MT/yr)

Source	CO_2	CH_4	N_2O	CO_2e
Total Construction Emissions	596	0.02	0.02	601

In the decade after SJVAPCD adopted their Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA, several new laws and executive orders were adopted that require additional reductions in years after 2020. For instance, Senate Bill 32 requires that GHG emissions be 40 percent less than 1990 levels by 2030. More drastic still, Senate Bill 100, which was signed by the Governor recently, requires 100 percent zero-carbon electricity by 2045. On the day SB 100 was signed into law, the Governor also signed Executive Order B-55-18, which commits California to total, economy-wide carbon neutrality by 2045. Clearly, the 2009 Guidance may be somewhat inadequate in producing a meaningful comparison by today's standards, which propose a grand vision that, if achieved, would fundamentally change how business is conducted, and citizens live in the State. Thus, as discussed in the most recent updates to the Scoping Plan, objectives of the Scoping Plan affect all sectors of the economy, and it no longer makes sense to evaluate GHG emissions on a project-level.

For these reasons, the Project GHG emissions levels presented in Table 3.4.8-1 are primarily for disclosure purposes. The Project's largest contributors to GHG emissions are from construction activities. Transportation fuels are, in effect, regulated by requiring providers and importers of fuel to participate in the GHG Cap-and-Trade Program and other Programs (e.g., low carbon fuel standard, renewable portfolio standard, etc.). Each sector-wide program exists within the framework of AB 32 and its descendant laws the purpose of which is to achieve GHG emissions reductions consistent with the AB 32 Scoping Plan.

The Project would generate GHGs from the combustion of gasoline/diesel fuels, each of which is regulated near the top of the supply chain. As such, each consumer in California (including those creating emissions of this Project) will have no choice but to purchase fuels produced in a way that is acceptable to the California market. Thus, Project GHG emissions will be consistent with the relevant plan (i.e., AB 32 Scoping Plan). The Project would meet its fair share of the cost to mitigate the cumulative impact of global climate change based on fuel purchases from the California market. Thus, consumers of transportation fuels are in effect regulated by higher-level emissions restrictions on the producers of these fuels. Therefore, the Project would have a less-than-significant impact on applicable GHG reduction plans, and the Project's contribution to cumulative global climate change impacts would not be cumulatively considerable.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

Impact #3.4.8b – Would the Project conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Assembly Bill (AB) 32 (Health and Safety Code Sections 38500–38599), also known as the California Global Warming Solutions Act of 2006, commits the State to achieving year 2000 greenhouse gas (GHG) emission levels by 2010 and year 1990 levels by 2020. To achieve these goals, AB 32 tasked the California Public Utilities Commission and the California Energy Commission with providing information, analysis, and recommendations to the California Air Resources Board regarding ways to reduce GHG emissions in the electricity and natural gas utility sectors.

In 2009, the SJVAPCD (Air District) adopted the following guidance documents applicable to projects within the San Joaquin Valley:

- Guidance for Valley Land Use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA.
- District Policy: Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency.

This guidance and policy are the documents referenced in the Air District's Guidance for Assessing and Mitigating Air Quality Impacts, adopted in March 2015. Consistent with the District guidance and District policy above, the Air District acknowledges the current absence of numerical thresholds and recommends a tiered approach to establish the significance of the GHG impacts on the environment:

- If a project complies with an approved GHG emission reduction plan or GHG mitigation program, which avoids or substantially reduces GHG emissions within the geographic area in which the project is located, then the project would be determined to have a less-than-significant individual and cumulative impact for GHG emissions.
- If a project does not comply with an approved GHG emission reduction plan or mitigation program, then it would be required to implement Best Performance Standards (BPS).
- If a project is not implementing BPS, then it should demonstrate that its GHG emissions would be reduced or mitigated by at least 29 percent compared to Business as Usual (BAU).

In the decade after SJVAPCD adopted its Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA, several new laws and executive orders were adopted that require additional reductions in years after 2020. For instance, Senate Bill 32 requires that GHG emissions be 40 percent less than 1990 levels by 2030. More drastic still, Senate Bill 100, which was signed by the Governor recently, requires 100 percent zero-carbon electricity by 2045. On the day SB 100 was signed into law, the Governor also signed Executive Order B-55-18, which commits California to total, economy-wide carbon neutrality by 2045. Clearly, the 2009 Guidance may be somewhat inadequate in producing a meaningful comparison by today's standards, which propose a grand vision that, if achieved, would fundamentally change how business is conducted and how citizens live in the State. Thus, as discussed in the most recent updates to the Scoping Plan, the objectives of the Scoping Plan affect all sectors of the economy, and it no longer makes sense to evaluate GHG emissions on a Project-level. The Project would generate GHGs from electricity use and

combustion of gasoline/diesel fuels, each of which is regulated near the top of the supply chain. As such, each citizen of California (including those creating emissions of this Project) will have no choice but to purchase electricity and fuels produced in a way that is acceptable to the California market. Thus, Project GHG emissions will be consistent with the relevant plan (i.e., AB 32 Scoping Plan). The Project would meet its fair share of the cost to mitigate the cumulative impact of global climate change based on energy purchases from the California market. Thus, consumers of electricity and transportation fuels are in effect regulated by higher-level emissions restrictions on the producers of these energy sources.

The City adopted its Climate Action Plan (CAP) in December 2015. The CAP provides a strategy for reducing GHG emissions and includes objectives and policies from the General Plan that address long-term emissions reduction efforts. The timeframe for the CAP extends from the date of adoption through the year 2030. The CAP reduction targets are based on AB 32, Executive Order S-3-05, and Executive Order B-30-15. The State has since adopted updated emission targets for 2030 and an additional 2045 (codified by AB 1279); therefore, additional reductions would be required.

As discussed in Impact #3.4.8a, GHG emissions resulting from the Project are generally regulated at the top of the supply chain, providing for compliance with State emission reduction goals adopted under the AB 32 Scoping Plan and any subsequent plan/goal. Therefore, the Project is also compliant with the City CAP for the purpose of reducing GHG emissions. The proposed Project will not conflict with or obstruct a State or local plan for greenhouse gas emission reduction and will have a less-than-significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact

3.4.9 - HAZARDS AND HAZARDOUS MATERIALS

Would the Project:

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 involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d.	Be located on a site that 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?	☐	☐	☐	☒

Discussion

Impact #3.4.9a – Would the Project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

The construction-related activities and operation of the water system connection to the existing wellsite and proposed water storage tanks and pump station would not involve the transport or use of large quantities of hazardous materials. The quantity threshold is typically 55 gallons for liquids, 500 pounds for solids, and 200 cubic feet for compressed gases. Although construction of the proposed Project would involve the transport and use of minor quantities of hazardous materials, such materials would be limited to fuels, oils, lubricants, hydraulic fluids, paints, and solvents utilized at the Project areas for construction purposes. Moreover, the use of such materials would be temporary in nature and would cease upon completion of the Project construction.

The presence and use of these materials, which can be classified as hazardous materials, create the potential for accidental spillage and exposure of workers to these substances. Regulatory compliance, including preparation of a hazardous materials business plan (HMBP), would be applicable to the Project should hazardous materials be handled or stored in excess quantity thresholds. The HMBP would be reviewed and approved by the local Certified Unified Program Agency (CUPA), which is the Madera County Environmental Health Department. Hazardous and non-hazardous wastes would likely be transported to and from the proposed Project site during the construction phase of the proposed Project. Construction-related activities could involve the use of some hazardous materials, such as diesel fuel, hydraulic oil, grease, solvents, adhesives, paints, and other petroleum-based products, although these materials are commonly used during construction-related activities and would not be disposed of on any site within the Project area. Installation of the proposed new water storage tanks and pump station, and pipelines will occur in accordance with all applicable regulations to minimize potential public exposure.

The Project does not propose to construct any habitable structures. Once constructed, City staff will visit the tank and pump station site on an as-needed basis to conduct maintenance and other routine activities. Operational activities are not anticipated to handle hazardous materials in excess of quantity thresholds; however, should a hazardous material be utilized in excess of quantity thresholds, the Project will be required to receive approval of an HMBP and follow the standards of the approved HMBP. The Project will not result in a significant hazard to the public and would result in a less-than-significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

Impact #3.4.9b – 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?

See discussion on Impact #3.4.9a, above.

During the installation of the new water storage tanks and pump station, pipeline, and associated improvements, applicable precautions will be taken to reduce the likelihood of an accident resulting in the release of hazardous materials into the environment. Facility design includes the development of two catch basins to handle stormwater. All contractors shall transport, store, handle, and dispose of construction-related hazardous materials consistent with relevant regulations and guidelines, including those recommended and enforced by Caltrans, the Central Valley RWQCB, and Madera County Environmental Health Department standards. Regulatory requirements related to preparation of an HMBP will be required should the Project handle hazardous materials at or in excess of reporting thresholds, and will address material handling requirements and procedures for reporting and handling any accidental spills. With the implementation of State and local hazardous materials handling requirements, the Project will not result in a significant hazard to the environment through an upset or accident and would result in a less-than-significant impact.

The proposed Project would not 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. Therefore, the proposed Project would have a less-than-significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant.***

Impact #3.4.9c – Would the Project emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

The proposed water storage tanks and pump station are not located within 0.25 miles of an existing or proposed school. The nearest school is the water storage tanks and pump station, which is a middle school approximately 0.3 miles west of the Project site.

The proposed pipeline route is located along the developed public ROW. The pipeline route runs within a quarter mile of a charter school. As discussed above, temporary construction-related activities could involve the use of some small amounts of hazardous materials, such as diesel fuel, hydraulic oil, grease, solvents, adhesives, paints, and other petroleum-based products. The use of these materials would comply with State and local handling and accidental release standards. Construction of the Project would be temporary, and the potential of hazardous materials near the existing school would be removed once construction is completed. Operation of the pipeline would not result in hazardous emissions from the use of hazardous materials, substances, or waste.

Therefore, the proposed Project would have a less-than-significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant.*

Impact #3.4.9d – Would the Project be located on a site that 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?

The California Department of Toxic Substances Control (DTSC) Envirostor website determined Cortese Act locations on or near the Project site (California Department of Toxic Substances Control, 2025). The DTSC indicated that there are no listed hazardous material sites or cleanup actions within the proposed water storage tanks and pump station site or adjacent to the pipeline route.

The proposed Project does not involve land that is listed as a hazardous materials site pursuant to Government Code Section 65962.5 and is not included on a list compiled by the Department of Toxic Substances Control. Therefore, the proposed Project would have no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There will be *no impact*.

Impact #3.4.9e – 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?

There are no public or private airports within two miles of the proposed water storage tanks and pump station site, and it is outside of the Airport Land Use Compatibility Plan (ALUCP) compatibility zones. The pipeline route is approximately 0.77 miles east of the Madera Municipal Airport and is located within Compatibility Zone D pursuant to the ALUCP. Although located within two miles of an airport, construction activities will be temporary and will not result in a significant safety hazard or excessive noise.

Once construction is complete, the operation of the pipeline is below ground and would not be a potential safety hazard to aircraft or generate excessive noise. The proposed water storage tanks site is located outside of the ALUCP compatibility zones and safety zones of the Madera Municipal Airport and would not result in a safety hazard. Therefore, there would be

a less-than-significant impact on people residing or working in the proposed Project area due to excessive noise or a safety hazard from an airport.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

Impact #3.4.9f – Would the Project impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan?

The City of Madera General Plan EIR found that the General Plan buildout does not conflict with the City's emergency response and/or evacuation plans. It is further stated that an efficient roadway and circulation system is vital for the evacuation of residents and the mobility of fire suppression, emergency response, and law enforcement vehicles. Implementation of the General Plan will add additional traffic and residences requiring evacuation in case of an emergency. Implementation of the proposed roadway system under the proposed General Plan Update would provide for a "modified grid" roadway system, particularly for new development, and encourage pedestrian circulation access around the city and at the neighborhood level through the design of roadways and pedestrian facilities. Implementation of the proposed roadway system within the General Plan Update would improve city roadway connectivity, allowing for better emergency vehicle access to residences as well as evacuation routes for area residents. Adopted General Plan policies and action plans related to an emergency response plan or emergency evacuation plan include the following:

- Action HS-8.1: Adopt an All Hazards (natural and manmade) Disaster Plan. The Plan should be sufficiently broad in scope to include the designation of evacuation routes, staging areas, shelters, PODs (points of distribution), and protocols for coordinating all local government and volunteer agencies in assisting local residents in the event of a major earthquake, large-scale fire or explosion, or hazardous chemical spill or release of hazardous airborne gas.

- Policy HS-34: The City shall continue to maintain and update emergency service plans, including the Madera City Fire Department Emergency Operations Plan and the Hazardous Material Spills Emergency Response Plan.

The proposed Project will comply with all guidelines required by the City of Madera General Plan policy and action. The proposed Project would not significantly impair the implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan. Therefore, the proposed Project would have a less-than-significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant.*

Impact #3.4.9g – Would the Project expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?

The proposed Project is surrounded by a mix of urban commercial uses, rural residences, and agricultural-related uses, and does not consist of any wildlands. According to CAL FIRE's Fire Hazard Severity Zones Maps, the proposed Project site is not located within a hazard zone classified as Very High, High, or Moderate for wildland fires (California Department of Forestry and Fire Protection, 2025). Construction and operation of the proposed Project is not expected to increase the risk of wildfires on and adjacent to the proposed Project site. However, the proposed Project will provide new water storage tanks capable of supplying adequate flows to meet Fire Code requirements and provide redundancy capabilities should existing equipment become inoperable.

The proposed Project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fire. Therefore, the proposed Project would have no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be *no impact.*

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
3.4.10 - HYDROLOGY AND WATER QUALITY				
Would the Project:				
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface 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 onsite or offsite?	☐	☐	☒	☐
(ii) Substantially increase the rate of amount of surface runoff in a manner which would result flooding onsite or offsite?	☐	☐	☒	☐
(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?	☐	☐	☒	☐

Discussion

Impact #3.4.10a – Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface water quality?

The proposed Project will result in the development of water storage tanks and pump station site, and the installation of underground water pipelines. Accidental spills or disposal of potentially harmful materials used during construction could wash into and pollute surface water runoff. Materials that could potentially contaminate the construction area are spills, leaks, diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids.

As noted in Impact #3.4.7b**, t**he construction of the water storage tanks and pump station site is anticipated to require the grading of more than one acre of soil, which would require the filing of a Notice of Intent (NOI) to comply with the NPDES General Construction Permit and prepare a SWPPP. The proposed Project SWPPP (tanks site) and LUP SWPPP (pipeline) would include BMPs targeted at minimizing and controlling the construction runoff and erosion to the maximum extent practicable.

Once constructed, the pipeline would be below ground level and would not degrade or impact surface water quality. Once constructed, the water storage tanks and pump station site would maintain stormwater on site within a proposed retention basin. As the water storage tanks site will be paved, there will be catch basins (retention basins) that will filter debris and allow captured stormwater to be diverted to public stormwater drainage facilities. Under Phase I of the Project, the remaining portions of the site are proposed to be layered with crushed rock surfacing in addition to the landscaping buffer around the site to provide for a pervious surface to allow stormwater to percolate. The retention basins will provide stormwater filtering and diversion for impervious surfaces onsite, and the remaining portions of the Project site will have pervious surfaces to allow stormwater to percolate onsite. All improvements associated with stormwater drainage, including connection to City infrastructure, will be developed to City of Madera standards.

The proposed Project is not anticipated to violate any water quality standards or result in significant impacts to the waste discharge requirements or otherwise substantially degrade surface water quality. Therefore, the proposed Project would have a less-than-significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant.***

Impact #3.4.10b – 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?

The proposed Project includes the development of new water storage tanks and a pump station facility to improve the available City water supply. Pursuant to the 2020 City of Madera Urban Water Management Plan (UWMP) (City of Madera, 2022) and City of Madera Water System Master Plan (City of Madera, 2014). The proposed Capital Improvement Programs for the City would include 114 miles of pipeline improvements, 24 new wells (22 of which are planned from 2020 through 2050), two new storage reservoirs, and two new booster stations to meet the future water supply demands of the City. Under the 2020 City of Madera UWMP, water supply and demands will be met through the year 2040 under the normal year, single-dry year, and multiple-dry year scenarios.

The proposed Project will not expand the size of the community beyond what is projected with the full buildout of the General Plan or involve any elements that require excessive water use outside of the estimated supply and demand scenarios anticipated in the 2020 City of Madera UWMP. The proposed water storage tanks and pump station facility and its connection to the existing City well site will implement the planned water infrastructure development consistent with the City's UWMP and WSMP. Therefore, the proposed Project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge. Impacts would be less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

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 onsite or offsite?

The water storage tanks and pump station facility site is flat and has no water features such as a stream or river. Construction activities would be subject to the requirements and implementation of BMPs of an approved SWPPP. The proposed Project's new water storage tanks and pump station will alter the existing drainage pattern by constructing a concrete pad and impermeable surfaces. Although the proposed new tank and pump station will change the drainage pattern, the proposed Project site is not anticipated to substantially alter the drainage pattern of the area, including the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation onsite or offsite. As discussed, the water tanks site includes stormwater retention basins and a landscaped buffer

to provide additional stormwater percolation. These improvements would follow City of Madera development standards and reduce the potential for substantial erosion or siltation on- or off-site.

The proposed pipeline route will be located within the existing road ROW and underground; it will not impact drainage patterns. Along Ellis Street, the pipeline intersects with an existing canal, Lateral 24.2. Installation of the pipeline underneath the canal will utilize the jack and bore construction method. This construction method is anticipated to have no impact on the existing canal and would not alter its water course. There would be no risk of erosion or siltation from the construction of the water pipeline.

Development of the Project would be subject to the requirements of the approved SWPPP and City design standards. A new 30-inch drainage pipe will be installed to convey tank overflow and stormwater drainage to the City-owned retention basin. Therefore, the proposed Project would have a less than significant impact with compliance of regulatory requirements, as applicable.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

(ii) – Substantially increase the rate of amount of surface runoff in a manner which would result flooding onsite or offsite?

The proposed water pipeline, the new water storage tanks, and the pump station facility would not result in increased runoff where flooding onsite or offsite would occur. The proposed pipeline would be constructed within existing road rights-of-way. Following construction, the trenches would be backfilled and restored to roadways and gravel roadway shoulders. The water storage tanks and pump station facility would be developed to City of Madera standards for stormwater drainage improvements. Therefore, the proposed Project would not alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation onsite or offsite. Therefore, the proposed Project would have a less-than-significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

(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?

The extent of erosion on specific locations would typically vary depending upon slope steepness and stability, vegetation, percentage of cover, concentration of runoff, and weather conditions. No streams or rivers exist within the proposed water storage tanks and pump station site vicinity that would result in substantial erosion or siltation onsite or offsite. The proposed pipeline route will intersect with an existing canal and proposes to utilize jack and bore construction methods to install the pipeline under the canal. This construction method is anticipated to have no impact on the existing canal and would not alter its water course.

The proposed water storage tanks and pump station facility site will alter the existing drainage pattern of the site by the construction and increase in impervious surfaces; however, drainage impacts are expected to be minimal. Construction activities would be required to comply with regulatory requirements, including approval and implementation of a SWPPP and BMPs to minimize impacts from construction-related water runoff. The proposed Project sites would require grading for a concrete foundation for the storage tank and various other proposed Project-related items.

The proposed Project would alter the existing drainage pattern of the site or area but would not alter the course of a stream or river, substantially increase the rate or amount of surface runoff in a manner that would result in flooding onsite or offsite, contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems, nor provide additional sources of polluted runoff.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant.***

(iv) – Impede or redirect flood flows?

As noted in Impact #3.4.4c, the entire Project is within a FEMA-identified minimal flood hazard area.

As noted in Impact # 3.4.10c(i) through Impact #3.4.10c(iii), the proposed Project will not impede or redirect floodwaters and will not change the drainage pattern of the site or the area through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would impede or redirect flood flows. Therefore, the proposed Project will have a less-than-significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant.*

Impact #3.4.10d – Woul the Project in flood hazard, tsunami, or seiche zones, risk release of pollutants due to Project inundation?

As noted, the Project is not located within a special flood hazard zone. Additionally, the Project is generally flat, as is the surrounding area, and the City is not located near any body of water where a tsunami or seiche would have the potential to significantly impact the Project sites.

The City General Plan EIR indicates that the Hidden Dam located at Hensley Lake could potentially result in the inundation of properties within the City. The probability is not considered to be a reasonably foreseeable event, and impacts are considered less than significant under the City General Plan EIR. As the Project is not within a special flood hazard area, is not located in an area where tsunami or seiche risks are present, and inundation due to a dam failure is not likely to occur, the Project is anticipated to result in a less-than-significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

Impact #3.4.10e – Would the Project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

See Impact #3.4.10b. The California Sustainable Groundwater Management Act (SGMA) was enacted by the State of California in 2014 and provides a guideline for regulating groundwater production. SGMA also gives local agencies the ability to manage groundwater and create Groundwater Sustainability Agencies (GSA). The GSA is responsible for developing and implementing a Groundwater Sustainability Plan (GSP). The purpose of the GSP is to provide measurable goals to prevent unreasonable physical harm to the basin or the water resource. The Project is located within the Madera Subbasin and is associated with the Madera Subbasin Joint Groundwater Sustainability Plan.

The proposed Project will not conflict with or obstruct the implementation of the Madera Subbasin Joint Groundwater Sustainability Plan. The proposed Project is associated with planned improvements to continue to provide water and fire protection services as

identified in the City WSMP and UWMP. The proposed Project will not conflict with any water quality and sustainable groundwater management plans.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
3.4.11 - LAND USE AND PLANNING					
Would the Project:					
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?	☐	☐	☒	☐

Discussion

Impact #3.4.11a – Would the Project physically divide an established community?

The proposed water storage tanks and pump station facility site is small and surrounded by predominantly rural residences, vacant land and agricultural uses directly west of Lake Street. The proposed pipeline will be installed underground within existing public ROW. Therefore, the proposed Project would not physically divide an established community and result in no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be ***no impact***.

Impact #3.4.11b – Would the Project 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?

As previously discussed, the water storage tanks and pump station facility site is located within the unincorporated County but within the SOI of the City. Pursuant to Section 18.94.160 of the County Municipal Code, the proposed water storage tanks and pump station are subject to approval of a Conditional Use Permit. Therefore, consideration to both the County and City with regard to General Plan Goals, Policies, and Actions is listed below.

Madera County General Plan

Policy 1.J.1: The County will coordinate land use, infrastructure, and public facility planning with cities in the county, regional planning agencies, neighboring jurisdictions, and state and federal agencies, and shall comment on land use and transportation plans concerning Madera County.

City of Madera General Plan

Policy CI-56: The City shall require that water flow and pressure be provided at sufficient levels to meet domestic, commercial, industrial, and firefighting needs.

Policy LU-12: The City shall plan and install infrastructure to serve only the area inside the Growth Boundary. The expansion of urban services (specifically including residential sewer service) outside this boundary shall not be permitted unless the City Council finds that:

1) The extension is needed to address a clear public health or safety need; and

2) The infrastructure provided is sized to the minimum level necessary in order to reduce any excess capacity that could be used to support additional growth outside the boundary.

Action Item LU-13.1: Maintain and periodically update a set of Facility Master Plans for major municipal infrastructure and public facilities, including, at a minimum, wastewater, water, storm drainage, and parks and recreation facilities.

The proposed new water storage tanks and pump station facility is within the County and as such will be subject to the approval of a Conditional Use Permit. As found in the identified General Plan policies of both the County and City, the development of public facilities and infrastructure does not conflict with the growth management and public facility development policies.

As shown in Figure 2-2, the tank and pump station facility and the pipeline route are located within the SOI of the City, so these services can be provided for under City General Plan Policy LU-12 with coordination with the County. The proposed Project does not consist of elements that would cause a significant environmental impact. Therefore, the Project will have a less-than-significant impact.

MITIGATION MEASURE(S)

No mitigation required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
3.4.12 - MINERAL RESOURCES					
Would the Project:					
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?	☐	☐	☐	☒

Discussion

Impact #3.4.12a – 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 current mineral extraction activities exist on the proposed Project site nor are any mineral extraction activities included in the proposed Project design. The City of Madera General Plan EIR found that General Plan implementation would not have the potential to affect the availability or any State or locally designated mineral resource. Therefore, the proposed Project would not result in the loss of availability of mineral resources as the proposed Project does not propose the extraction of mineral resources. Additionally, the proposed Project would not restrict the ability of mineral rights holders in the area to exercise their legal rights to access surrounding sites for the exploration and/or extraction of underlying oil resources or other natural resources.

The proposed Project would not 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. Therefore, the proposed Project would have no impacts.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be ***no impact***.

Impact #3.4.12b – 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?

Pursuant to the City of Madera General Plan EIR, the General Plan Planning Area does not have the potential to affect the availability of any State or locally designated mineral resource. Therefore, as the Project sites are located within the Planning Area of the City of Madera, it can be seen that Project development would not impact any locally important mineral resource recovery site delineated on a local general plan or other land use plans. Therefore, there would be no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would result in ***no impact***.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
3.4.13 - NOISE					
Would the Project result in:					
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 a local general plan or noise ordinance or applicable standards of other agencies?	☐	☐	☒	☐
b.	Generation of excessive groundborne vibration or groundborne 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?	☐	☐	☐	☒

Discussion

Impact #3.4.13a –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 a local general plan or noise ordinance or applicable standards of other agencies?

Proposed Project construction-related activities would involve temporary and intermittent noise sources, including site preparation; activities related to the installation of the new pipeline system, and construction of the new water storage tanks and pump station. Construction-related noise levels would be higher than existing ambient noise levels in the proposed Project area, but would not occur after construction-related activities are completed. Operation and maintenance noise would be similar in character to existing noise in the area, resulting from existing neighboring agricultural-related operations.

The Noise Element of the City General Plan has adopted several policies to establish exterior noise thresholds and design considerations to mitigate noise generation. Specifically, Policy N-5 provides for the maximum 24-hour exterior noise levels for land designated by the General Plan for residential, commercial/retail, and public parks. Additionally, Policy N-6 provides for maximum exterior non-transportation noise levels for land designated residential for any 30-minute period on any day. Based on these thresholds, the established

noise standards for non-transportation noise measured as dBA Leq (30 minutes) is 60 dBA from 7 AM to 10 PM and 50 dBA from 10 PM to 7 AM.

Under the City Municipal Code, Section 3-11.02, between the hours of 8 PM and 6 AM of the following day, noise sources associated with operating or causing the operation of any tools or equipment used in construction, drilling, repair, alteration, remodeling, paving, or grading of any real property or demolition work which creates sound is prohibited. Construction-related activities would be restricted to daytime hours and would be short-term, temporary, and intermittent in nature.

Operation of the facility and pipeline is not anticipated to result in a significant generation of noise. The majority of the noise would originate from running equipment, including the pump station. The facility is designed to minimize noise generation through the use of landscape buffers and equipment setbacks from the existing residences. The pump station is would have approximately 180 feet of separation from the nearest residence. Noise generated from facility equipment would dissipate and not adversely affect sensitive noise receptors in the vicinity of the water storage tanks and pump station site. By complying with City of Madera General Plan Policies and Municipal Code for noise generation, the proposed Project would have a less-than-significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

Impact #3.4.13b – Would the Project result in generation of excessive groundborne vibration or groundborne noise levels?

There are no federal or State standards that address construction noise or vibration. Additionally, the City does not have regulations that define acceptable levels of vibration. One reference suggesting vibration standards is the Federal Transit Administration (FTA) publication concerning noise and vibration impact assessment from transit activities. Although the FTA guidelines are to be applied to transit activities and construction, they may be reasonably applied to the assessment of the potential for annoyance or structural damage resulting from other activities. To prevent vibration annoyance in residences, a level of 80 VdB (vibration velocity level in dB) or less is suggested when there are fewer than 70 vibration events per day.

A level of 100 VdB or less is suggested by the FTA guidelines to prevent damage to fragile buildings. Table 3.4.13-1 describes the typical construction equipment vibration levels. While these construction-related activities would result in groundborne vibration, such groundborne noise or vibration, would attenuate rapidly from the source and would not be generally perceptible outside of the construction-related areas. In addition, there would not

be any vibrational impacts from operation and maintenance activities at the tank and pump station facility.

Table 3.4.13-2
Typical Construction Equipment Vibration Source Levels

Equipment	PPV at 25 ft. (in/sec)	Approximate L_v*at25 ft.
Large bulldozer	0.089	87
Caissson drilling	0.089	87
Loaded trucks	0.076	86
Jackhammer	0.035	79
Small bulldozer	0.003	58

[a] *From NRS Table 3-5, included in Appendix "D" of this draft EIR.*
** RMS velocity in decibels (VdB) re 1 minch/second*

Construction-related activities in general can have the potential to create groundborne vibrations. However, based on the soil types found in the general proposed Project vicinity, it is unlikely that any blasting or pile-driving would be required in connection with construction of the proposed Project. Therefore, the potential for groundborne vibrations to occur as part of construction-related activities of the proposed Project will be considered excessive. Furthermore, the operation of the proposed Project would not contain any activities that would create excessive groundborne vibrations. The proposed Project would not result in excessive vibratory exposure to residents or generate excessive groundborne vibration or groundborne noise levels. Therefore, the proposed Project would have a less-than-significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

Impact #3.4.13c – 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?

The proposed water storage tanks and pump station site is not within two miles of a public use airport. The pipeline route is approximately 0.77 miles east of the Madera Municipal Airport. Although located within two miles of an airport, the pipeline is not within an identified ALUCP noise hazard zone. Construction activities will be temporary and will not result in significant safety or excessive noise exposure. Once construction is complete, the operation of the pipeline does not have a permanent structure or staff. Therefore, there

would be a less-than-significant impact on people residing or working in the proposed Project area due to excessive noise from an airport.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would result in ***no impact***.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
3.4.14 - POPULATION AND HOUSING				
Would the Project				
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?	☐	☐	☐	☒

Discussion

Impact #3.4.14a – 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)?

The proposed Project will allow the City to meet existing and future water supply and fire protection requirements. As noted in Impact #3.4.10b, the proposed Project will not generate unplanned population growth beyond what is projected with the full buildout of the General Plan.

The proposed Project would not induce any population growth in the area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure). Therefore, the proposed Project would result in no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be ***no impact***.

Impact #3.4.14b – Would the Project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

The proposed Project would result in the construction of a new water storage tank and pump station on a currently undeveloped property located on the west side of Lake Street. The pipeline would be constructed within the road rights-of-way within Lake Street, Ellis Street, and Sharon Boulevard. No residences would be affected by the proposed Project-related activities.

In addition, it is anticipated that construction-related workers would come from the surrounding area and would not require new housing. The proposed Project would not displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere. Therefore, the proposed Project would have no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be ***no impact***.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
3.4.15 - PUBLIC SERVICES				
Would the Project:				
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 to other performance objectives for any of the public services:				
(i) Fire protection?	☐	☐	☐	☒
(ii) Police protection?	☐	☐	☐	☒
(iii) Schools?	☐	☐	☐	☒
(iv) Parks?	☐	☐	☐	☒
(v) Other public facilities?	☐	☐	☐	☒

Discussion

Impact #3.4.15a - 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 to other performance objectives for any of the public services:

(i) - Fire Protection?

Fire protection and emergency medical services are provided by the City Fire Department, which is administered by the California Department of Forestry and Fire Protection (CalFire) through a cooperative fire protection agreement (City of Madera, 2009a). The Project will not construct any habitable structures that would increase the need for fire protection services. The proposed underground water pipeline system will not require electricity or flammable materials that could ignite a fire. The potential for a fire to ignite at the new water storage tanks and pump station is highly unlikely and would not pose a significant threat to nearby properties. The intent of the Project is to provide water storage tanks to continue to provide for current and future water demand and fire protection requirements.

There are two City fire stations, one located at 317 North Lake Street and the other located at 200 South Schnoor Avenue. The closest station is located approximately 1.4 miles south of the proposed water storage tanks and pump station site. Because the Project is not constructing habitable structures that would be considered susceptible to or create fire hazards, it is not anticipated to result in substantial or adverse impacts to or cause an increase in fire protection services. The proposed Project would result in no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be ***no impact***.

(ii) – Police Protection?

The proposed Project will not significantly impact police protection services. The City Police Department provides law enforcement services for the City of Madera. A 2024 Annual Report for the City of Madera Police Department indicates that the Police Department has 74 sworn officers with an average emergency response time of four minutes and 40 seconds (Madera Police Department, 2024).

While the City Police Department may be contacted for non-emergency situations (such as vandalism), the proposed Project is not anticipated to require increased police protection. Therefore, the proposed Project would result in no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be ***no impact***.

(iii) – Schools?

The Project does not include any new City employees. The existing City staff will maintain the pipeline, the water tank, and the pump station facility. As such, the proposed Project would not increase the student population and would have no impact on school facilities.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be ***no impact***.

(iv) – Parks?

The proposed Project does not include construction of homes or habitable structures that have permanent residents. It will not provide or physically alter any parks, nor does it increase the need for new parks or use of existing parks.. Therefore, the proposed Project would result in no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be ***no impact***.

(v) – Other Public Facilities?

The proposed Project does not involve creating any new residential development or other new facilities that could result in an influx of population such that additional libraries, medical services, or other public facilities would be needed. Therefore, the proposed Project would result in no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be ***no impact***.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
3.4.16 - RECREATION				
Would the Project:				
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. Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☐	☒

Discussion

Impact #3.4.16a – 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?

See Impact #3.4.15a(iv). The proposed Project's new water storage tanks, pump station, and pipeline are intended to provide for the current and future water needs of the City service area. These improvements generate unplanned population growth or residential development. No new housing is proposed as part of the proposed Project. Therefore, the proposed Project would have no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would result in *no impact*.

Impact #3.4.16b – Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?

See Impact #3.4.15a(iv) and Impact #3.4.16a. No new housing is proposed as part of the proposed Project. Therefore, the proposed Project would have no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would result in ***no impact***.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
3.4.17 - TRANSPORTATION					
Would the Project:					
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?	☐	☐	☒	☐

Discussion

Impact #3.4.17a – Would the Project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

The proposed Project will not construct any new circulation (transit) systems, roadways, or bicycle and pedestrian facilities. The proposed Project would result in short-term, temporary, and intermittent traffic impacts during construction-related activities of the pipeline within the existing road ROW. The construction of the new storage tank and pump station facility will not impact traffic or other types of transit operations.

Following completion, the Project would not increase traffic on City streets. The typical maintenance activities at the tank facility will be completed by existing City staff and would occur on an as need basis. Therefore, the proposed Project would not conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit. Therefore, the proposed Project would have no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would result in *no impact.*

Impact #3.4.17b – Would the Project conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?

See Impact #3.4.17a.

As of July 1, 2020, SB 743 requires that lead agencies analyze the transportation impacts of new projects regarding the new metric of vehicle miles traveled (VMT). VMT measures how much actual auto travel (additional miles driven) a proposed project would create on California roadways. If a project adds car travel roads beyond an established threshold, the project may cause a significant transportation impact.

The Governor's Office of Planning and Research (OPR) developed guidance for implementation of SB 743. However, CEQA allows lead agencies the ability to provide their own methodologies and significance thresholds for CEQA technical studies. The Madera County Transportation Commission provides for general guidelines, mapping, and modeling for SB 743 implementation.

Pursuant to SB 743, construction-related traffic is not subject to Vehicle Miles Travelled thresholds. Once operational, the Project would generate routine maintenance or other operation-related trips by the existing staff who regularly monitor the City's infrastructure. Therefore, the proposed Project will have a less-than-significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant.*

Impact #3.4.17c – 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)?

The proposed Project would not introduce new curves and/or hazardous intersections into the proposed Project area. No new roads are proposed as part of the Project. No new design or features would be introduced that would result in transportation-related hazards or safety concerns. The proposed Project does not consist of any elements that would add a geometric design feature that would substantially increase hazards or have incompatible

uses (e.g., farm equipment). The majority of the proposed Project's components (i.e., pipelines) will be installed underground. The new water storage tanks, pump station, and accessory infrastructure will be located within the confines of the property, and the new driveway entrance will be constructed to meet City standards. Therefore, the proposed Project impacts would be less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant.***

Impact #3.4.17d – Would the Project result in inadequate emergency access?

The proposed Project will be staged to allow emergency vehicles to have access to all public streets and properties. The construction team will backfill trenches as they move or will use steel plates to allow access to all properties during construction-related activities that may impede the ability to access roadways. Therefore, the Project will have a less-than-significant impact on emergency access.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant.***

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact

3.4.18 - TRIBAL CULTURAL RESOURCES

Would the Project:

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 a 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 Resource Code Section 5024.1, the Lead Agency shall consider the significance of the resource to a California Native American tribe.	☐	☒	☐	☐

Discussion

Impact #3.4.18a – 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 a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?

The Native American Heritage Commission (NAHC) was contacted with a request that they conduct a sacred lands files search. The NAHC provided the results of its search dated April 30, 2025, indicating negative results.

Native American tribes who have asked to consult with the City were contacted in order to solicit their interest regarding tribal consultation: No responses have been received to date (see Appendix D).

The Project includes ground disturbance and trenching where there is minimal potential of a cultural or tribal cultural resource. Mitigation measures CUL-1 and CUL-2 have been included as an abundance of caution in the unlikely event that subsurface resources are discovered. These mitigation measures establish a procedure in the event a cultural resource is discovered during Project construction activities. Therefore, impacts are considered less than significant with mitigation incorporated.

MITIGATION MEASURE(S)

Implementation of Mitigation Measures CUL-1 and CUL-2.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant with mitigation incorporated***.

(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?

See discussion for Impacts #3.4.5a through#3.4.5c and Impact #3.4.18a(i).

MITIGATION MEASURE(S)

Implementation of Mitigation Measures CUL-1 and CUL-2.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant with mitigation incorporated***.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
3.4.19 - UTILITIES AND SERVICE SYSTEMS				
Would the Project:				
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment, or stormwater 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 that 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?	☐	☐	☐	☒

Discussion

Impact #3.4.19a – Would the Project require or result in the relocation or construction of new or expanded water, wastewater treatment, or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

The proposed Project will result in the construction of new water infrastructure to meet water supply and fire protection requirements within the City's water service area. The Project proposes the construction of water storage tanks, a pump station, and a pipeline connecting the station to an existing well site.

The California Public Utilities Commission (CPUC) oversees certain aspects of water infrastructure, including rates and service quality for investor-owned water utilities. The California State Water Resources Control Board may also be involved in water quality and infrastructure improvements.

The proposed improvements will be located on site that are not considered environmentally sensitive, will comply with City General Plan policies and regulatory requirements including SWPPP implementation during construction of the Project. The development of new water facilities would not result in a significant environmental effect. Therefore, impacts related to the Project would be less than significant.

The Project does not result in a addition wastewater treatment, stormwater drainage, electric, natural gas, or telecommunications facilities that could cause a significant environmental effect.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant.***

Impact #3.4.19b – Would the Project have sufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry, and multiple dry years?

As discussed in Impact #3.4.10b, both the City UWMP and WSMP provide for potential service improvements to meet current and future demands based on estimated growth within the City service area. With these improvements provided in the UWMP and Water System Master Plan, the anticipated water supplies and demand of the City are accounted for with the determination of the 2020 UWMP, indicating available water supplies for the normal year, single-dry year, and multiple-dry year scenarios. The Project proposes to connect to an existing well to meet current and future demands for water service and fire protection. There is no intent to expand service or increase the number of connections of water service as a direct result of the Project. The proposed Project is not contributing to future development in the area. Therefore, the proposed Project will have a less-than-significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant.***

Impact #3.4.19c – Would the Project result in a determination by the wastewater treatment provider that 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?

The proposed Project's new water storage tanks and pump station, and pipelines are not a part of the wastewater system and will not add or connect to the wastewater pipelines. The proposed Project does not include an increase in population and will not expand the current local wastewater system service requirements. Therefore, the proposed Project would have no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would result in ***no impact.***

Impact #3.4.19d – 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?

Solid waste generated from the City of Madera is disposed of at the Fairmead Solid Waste Disposal Site, which is located at Avenue 22 and Road 19 in the City of Chowchilla (City of Madera, 2009b). This proposed Project would generate small amounts of solid waste from construction-related activities as a result of site preparation for the new storage tank and pump station, and the pipeline. All solid waste will be collected and removed from the sites and will be disposed of at the Fairmead Solid Waste Disposal Site (which is located approximately 9 miles northwest of the proposed Project area).

The Fairmead Solid Waste Disposal Site has an estimated maximum permitted capacity of 9.4 million cubic yards of which approximately 5.5 million cubic yards, or 59.1 percent, remains (CalRecycle, 2025). The proposed Project will comply with State and local standards by picking up and properly disposing of any proposed Project-related solid waste. The proposed Project is not expected to result in excessive amounts of solid waste that would be in excess of State or local standards or be in excess of the capacity of local infrastructure or otherwise impair the attainment of solid waste reduction goals. Any proposed Project-related solid waste will be disposed of following State and local standards. Therefore, the proposed Project will have no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would result in ***no impact.***

Impact #3.4.19e – Would the Project comply with federal, State, and local management and reduction statutes and regulations related to solid waste?

See discussion for Impact #3.4.19d.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would result in ***no impact.***

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
3.4.20 - WILDFIRE				
If located in or near State responsibility areas or lands classified as very high fire hazard severity zones, would the Project:				
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 concentration from a wildfire or the uncontrolled spread of a 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?	☐	☐	☐	☒

Discussion

Impact #3.4.20– If located in or near State responsibility areas or lands classified as very high fire hazard severity zones, would the Project:

(a) Substantially impair an adopted emergency response plan or emergency evacuation plan?

See also Impact #3.4.9g and Impact #3.4.9f. Per the CalFire Fire Hazard Severity Zone Maps for Madera County, the Project site and pipeline route are designated as unzoned and Local Responsibility Area (LRA) (California Department of Forestry and Fire Protection, 2025). The nearest moderate severity zone is approximately 4.4 miles southeast of the water storage tanks and pump station facility site.

The Project will not impair the City Fire Department Emergency Operations Plan, and other guidance as identified in the General Plan (City of Madera, 2009b).

The proposed Project would not impair an adopted emergency response plan or emergency evacuation plan. Therefore, the proposed Project would have result in no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would result in *no impact.*

(b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose Project occupants to, pollutant concentration from a wildfire or the uncontrolled spread of a wildfire?

As previously mentioned, the proposed Project is not located in a high fire hazard severity zone. The area is flat with no slopes, and there are no prevailing winds or other factors in the proposed Project area that would exacerbate wildfire risks, exposing occupants to pollutant concentration from a wildfire or the uncontrolled spread of a wildfire. Therefore, the proposed Project would have no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would result in *no impact.*

(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?

See also Impact #3.4.9g, Impact #3.4.9f, and Impact #3.4.20a, above. The proposed Project would not require the installation or maintenance of associated infrastructure (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. Therefore, the proposed Project will have no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would result in *no impact*.

(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?

See also Impact #3.4.9g, Impact #3.4.9f, and Impacts #3.4.20a-c. The proposed Project is not located in or near an SRA or lands classified as a very high fire hazard severity zone. It is not expected that Project-related activities would result in a fire hazard or 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 change. Therefore, the proposed Project would have no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would result in ***no impact.***

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
3.4.21 - MANDATORY FINDINGS OF SIGNIFICANCE					
a.	Does the Project have the potential to 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.	Does the Project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a Project are significant when viewed in connection with the effects of past Projects, the effects of other current Projects, and the effects of probable future Projects.)	☐	☒	☐	☐
c.	Does the Project have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

Discussion

Impact #3.4.21a – Does the Project have the potential to 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?

As evaluated in this IS/MND, the proposed Project is not anticipated to result in or 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. With implementation of mitigation

measures, the proposed Project would not have the potential to 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 a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory. Therefore, the proposed Project would have a less-than-significant impact with implementation of mitigation measures, as applicable.

MITIGATION MEASURE(S)

Mitigation Measures BIO-1 through BIO-6 and CUL-1 through CUL-2, and GEO-1.

LEVEL OF SIGNIFICANCE

The Project would have a ***less-than-significant impact with mitigation incorporated***.

Impact #3.4.21b - Does the Project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a Project are significant when viewed in connection with the effects of past Projects, the effects of other current Projects, and the effects of probable future Projects.)?

As noted earlier, the Project's impacts will be short-term, temporary, and intermittent during construction-related activities and below significant levels during operation/maintenance-related activities. As described in the impact analyses in Sections 3.4.1 through 3.4.20 of this IS/MND, potentially significant impacts of the proposed Project would be reduced to a less-than-significant level following implementation of the mitigation measures listed in Section 4, *Mitigation, Monitoring and Reporting Program,* as applicable. Previously completed projects have also implemented mitigation as necessary. Accordingly, the proposed Project would not otherwise combine with impacts of related development to add considerably to any cumulative impacts in the region. With mitigation, the proposed Project would not have impacts that are individually limited but cumulatively considerable. Therefore, the proposed Project would have a less than cumulatively considerable impact with implementation of mitigation measures, as applicable.

MITIGATION MEASURE(S)

Implementation of Mitigation Measures BIO-1 through BIO-6, CUL-1 through CUL-2, and GEO-1.

LEVEL OF SIGNIFICANCE

The Project would have a ***less-than-significant impact with mitigation incorporated***.

Impact #3.4.21c - Does the Project have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?

All of the proposed Project's impacts, both direct and indirect, that are attributable to the Project were identified and will be mitigated, as applicable. As shown in Section 4, *Mitigation, Monitoring and Reporting Program (MMRP)*, the project proponent is aware of the significance of implementing the mitigation measures contained in the MMRP, as applicable, to substantially reduce, minimize, or eliminate impacts resulting from the proposed Project. Therefore, the proposed Project would not either directly or indirectly cause substantial adverse effects on human beings because all potentially adverse direct impacts of the proposed Project are identified as having no impact, less-than-significant impact, or less-than-significant impact with implementation of mitigation measures.

MITIGATION MEASURE(S)

Implementation of Mitigation Measures BIO-1 through BIO-6, CUL-1 through CUL-2, and GEO-1.

LEVEL OF SIGNIFICANCE

The Project would have a ***less-than-significant impact with mitigation incorporated***.

SECTION 4 - MITIGATION, MONITORING AND REPORTING PLAN

Reserved

SECTION 5 - LIST OF PREPARERS

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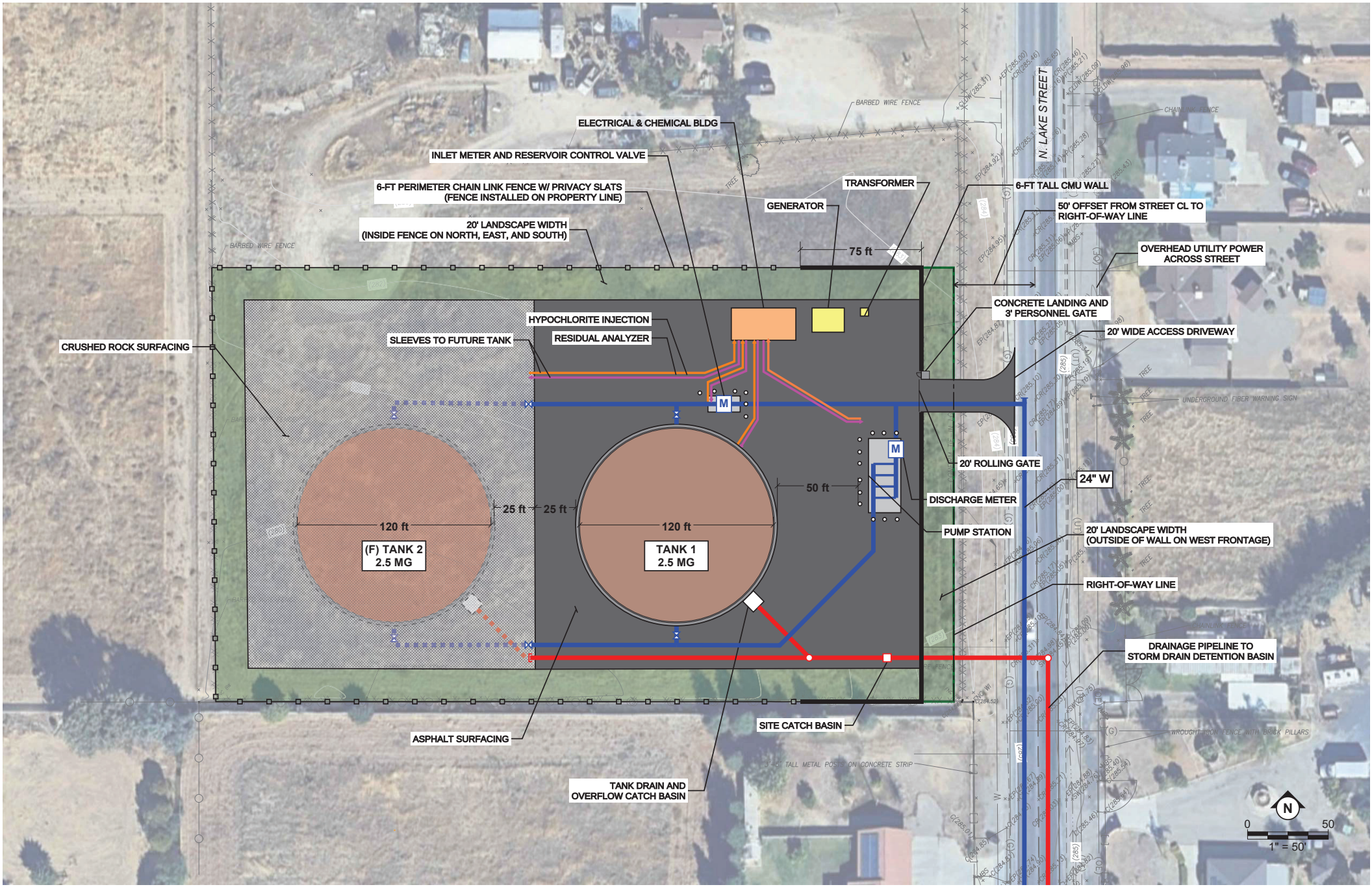
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Appendix A: Conceptual Site Plan


ELECTRICAL & CHEMICAL BLDG
INLET METER AND RESERVOIR CONTROL VALVE
6-FT PERIMETER CHAIN LINK FENCE W/ PRIVACY SLATS
(FENCE INSTALLED ON PROPERTY LINE)
20' LANDSCAPE WIDTH
(INSIDE FENCE ON NORTH, EAST, AND SOUTH)
TRANSFORMER
GENERATOR
6-FT TALL CMU WALL
50' OFFSET FROM STREET CL TO
RIGHT-OF-WAY LINE
OVERHEAD UTILITY POWER
ACROSS STREET
75 ft
CONCRETE LANDING AND
3' PERSONNEL GATE
20' WIDE ACCESS DRIVEWAY
HYPOCHLORITE INJECTION
RESIDUAL ANALYZER
SLEEVES TO FUTURE TANK
CRUSHED ROCK SURFACING
20' ROLLING GATE
24" W
50 ft
DISCHARGE METER
25 ft
25 ft
120 ft
120 ft
(F) TANK 2
2.5 MG
TANK 1
2.5 MG
PUMP STATION
20' LANDSCAPE WIDTH
(OUTSIDE OF WALL ON WEST FRONTAGE)
RIGHT-OF-WAY LINE
DRAINAGE PIPELINE TO
STORM DRAIN DETENTION BASIN
SITE CATCH BASIN
ASPHALT SURFACING
TANK DRAIN AND
OVERFLOW CATCH BASIN
N. LAKE STREET
BARBED WIRE FENCE
CHAIN LINK FENCE
UNDERGROUND FIBER WARNING SIGN
WROUGHT IRON FENCE WITH BRICK PILLARS
3'-0" TALL METAL POSTS ON CONCRETE STRIP
N
0
50
1" = 50'

Appendix B: Focused Air Quality Study

FOCUSED AIR QUALITY STUDY

CITY OF MADERA

WATER TANK AND PUMP STATION PROJECT



JULY 2025

FOCUSED AIR QUALITY STUDY

CITY OF MADERA
WATER TANK AND PUMP STATION PROJECT

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Project #180483

Table of Contents

SECTION 1 - Executive Summary 1-1

SECTION 2 - Introduction 2-1

2.1 - Purpose 2-1
2.2 - General Project Description 2-1

SECTION 3 - Impact Assessment 3-1

3.1 - Significance Criteria 3-1
3.1.1 - Threshold for Ambient Air Quality Impacts 3-1
3.1.2 - Thresholds for Hazardous Air Pollutants 3-3
3.1.3 - Global Climate Change Thresholds of Significance 3-3
3.2 - Project Related Emissions 3-4
3.2.1 - Short-Term Emissions 3-4
3.2.2 - Long-Term Operational Emissions 3-5
3.2.3 - Greenhouse Gas Emissions 3-5
3.3 - Potential Impacts on Sensitive Receptors 3-6
3.4 - Potential Impacts to Visibility to Nearby Class 1 Areas 3-7
3.5 - Predicted Health Impacts 3-7
3.6 - Odor Impacts and Mitigation 3-10
3.7 - Impacts to Ambient Air Quality 3-10
3.8 - Cumulative Impacts 3-10

SECTION 4 - Conclusions 4-1

SECTION 5 - References 5-1

Appendices

Appendix A – Project Emission Calculations
Appendix B –Health Risk Assessment Modeling Files

List of Figures

Figure 2-1 Regional Location 2-4
Figure 2-2 Project Location 2-5
Figure 2-3 Facility Site Plan 2-6

List of Tables

Table 3-1 SJVAPCD CEQA Thresholds of Significance 3-1
Table 3-2 Federal and California Standards 3-2

Table 3-3 Measures of Significance – Toxic Air Contaminants 3-3
Table 3-4 Short-Term Project Emissions 3-5
Table 3-5 Estimated Annual GHG Emissions (MT/Year) 3-6
Table 3-6 Potential Maximum Impacts Predicted by HARP 3-9

SECTION 1 - EXECUTIVE SUMMARY

QK, Inc. (QK) has completed a Focused Air Quality Study (FAQS) for the City of Madera (City). The proposed Project is located in unincorporated Madera County and within the City of Madera Sphere of Influence (SOI). The Project is generally bounded by Lake Street to the east, Ellis Street to the south, and Martin Street to the north, The proposed water tanks and other infrastructure will be located on Assessor's Parcel Number (APN) 038-030-031. The water tank site is proposed to connect via a pipeline that will be placed within City of Madera right-of-way (ROW). The pipeline route will follow ROW south along Lake Street, west along Ellis Street, and northwest along Sharon Boulevard. This pipeline will connect to an existing well site located at APN 013-280-001.

The Project will include construction of water supply and distribution facilities to meet the demand conditions identified by hydraulic model demands and projections. Provisions for future facility expansion to meet Year 2044 and Year 2058 will be incorporated into the design documents. The initial phase (Phase 1) includes the development of a water storage tank and a pipeline connection to an existing water well site. The initial phase of this project should be sufficient to meet drinking water demands and fire protection requirements through 2043. To meet future system demands, Phase 2 and Phase 3 improvements will be incorporated into the preliminary design for the Years 2044 and 2058, respectively.

The proposed Project's construction would include the following criteria pollutant emissions: reactive organic gases (ROG), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and suspended particulate matter (PM_{10} and $PM_{2.5}$). Project operations would not generate air pollutant emissions over negligible amounts and were therefore not analyzed further in this analysis. Project construction activities would also generate greenhouse gas (GHG) emissions. Criteria and GHG emissions were estimated using the California Emissions Estimator Model (CalEEMod) version 2022.1.1.29 (California Air Pollution Control Officers Association (CAPCOA) 2024).

Based on the thresholds established by the SJVAPCD's GAMAQI, the emissions estimates prepared pursuant to this FAQS assessment do not exceed the SJVAPCD's established emissions significance thresholds for all CEQA air quality contaminants, therefore, this Project would not pose a significant impact to the San Joaquin Valley Air Basin and would have a less than significant air quality impact.

SECTION 2 - INTRODUCTION

2.1 - Purpose

This FAQS was prepared pursuant to the SJVAPCD's Guidance for Assessing and Mitigating Air Quality Impacts (GAMAQI) (SJVAPCD 2015), the California Environmental Quality Act (CEQA) (Public Resources Code 21000 to 21189) and the CEQA Guidelines (California Code of Regulations Title 14, Division 6, Chapter 3, Sections 15000 – 15387).

2.2 - General Project Description

The City of Madera (City) proposes the construction of water supply and distribution facilities to meet the demand conditions identified by hydraulic model demands and projections. Provisions for future facility expansion to meet Year 2044 and Year 2058 will be incorporated into the design documents. The initial phase (Phase 1) includes the development of a water storage tank and a pipeline connection to an existing water well site.

PHASE 1

Phase 1 includes the following major components:

- Water Storage Tank Site
    - Install a 2.5 mg prestressed concrete water storage tank outfitted with inlet and outlet piping at opposite ends of the tank to promote thorough tank mixing, tank overflow and drain piping compliant with Division of Drinking Water (DDW) requirements, mechanical mixer to further promote reservoir mixing, two access manways at the exterior of the tank for operations and maintenance access at ground level, roof access hatch and interior ladder, intrusion alarms on access manways and roof access hatch, level monitoring equipment, and a water sampling station.
    - A 3,500 gpm firm capacity booster pump station consisting of three 125 horsepower (hp) horizontal-split case booster pumps and associated equipment located on a concrete slab foundation. Space for a fourth identically sized pump will be provided for future expansion at a later phase.
    - New 30-inch drainage piping to convey tank overflow and drainage to the City-owned detention basin;
    - Perforated leak detection pipeline at the perimeter of the tank;
    - Above ground reservoir control valve assembly, including inlet flow meter;
    - Cement masonry unit (CMU) chemical and electrical building with two separate rooms dedicated to housing electrical and chemical equipment.
    - Onsite hypochlorite generation, storage, and feed equipment.
    - Water quality analyzers and four chemical injection/analysis points.
    - Electrical distribution equipment, service transformer, variable frequency drives (VFD), and programmable logic controller (PLC).

    - Standby generator sized for emergency operation all pumps and critical site equipment.
    - Asphalt pavement across approximately half of tank site with crushed rock across the remaining half of the site where future installation of a second tank is anticipated.
    - CMU wall at the North Lake Street frontage extending 75 feet along the north and south site limit.
    - Perimeter fencing around the remainder of the site.
    - Onsite fire hydrant, hose bibbs, and equipment washdown facilities.
    - Light fixtures with photocells and motion sensors in compliance with Title 24 requirements.
    - Provisions for future installation of security cameras.
- Water Distribution
    - Approximately 13,200 linear feet (LF) of 24-inch transmission main will connect the tank site to the City-owned Well 38. The transmission main will cross below a joint-use irrigation and drainage canal approximately 300 feet west of Ellis Street. The canal crossing will be approximately 200 linear feet and be completed via trenchless bore and jack construction.
- Phase 1 construction would take approximately 18 months to complete.

PHASE 2

Based on current projections, the initial phase of this project should be sufficient to meet drinking water demands and fire protection requirements through 2043. To meet future system demands, provisions for the following improvements have been incorporated to the preliminary design for the Year 2044 (Phase 2):

- Install an additional 2.5 mg prestressed concrete water storage tank that will be of similar dimensions, character, and configuration as the Phase 1 tank. Yard piping and valves will be installed under Phase 1 to facilitate construction of the future tank with both the Phase 1 tank and pump station remaining in service.
- Increase the firm pumping capacity to 7,000 gpm from 3,500 gpm. The 2044 capacity will be accomplished by adding an identically sized pump and VFD to the Phase 1 pumping station. The Phase 1 pumping station will be developed to accommodate Phase 2 pump equipment.
- Phase 2 construction would take approximately 6 months to complete.

PHASE 3

To meet additional future system demands, provisions for the following improvements have been incorporated into the preliminary design for the Year 2058 (Phase 3):

Future demand analysis will be required to confirm actual capacity expansion requirements; however, it is anticipated that the firm pumping capacity will be increased to 9,500 gpm.

Additionally, at the time of Phase 3 development, the pump station and equipment will be over 30 years old and may require replacement of existing pumps and equipment. Future equipment replacement may increase discharge capacity and meet future demands without complete pump replacement. Since Phase 3 improvements are unknown and will likely consist of replacing existing equipment, analysis of emissions was not conducted as part of this analysis.

This assessment examines the projected gross impact to air quality posed by this Project to the San Joaquin Valley Air Basin to determine whether or not the Project remains below established air quality thresholds of significance. **Figure 2-1** depicts the regional location and **Figure 2-2** depicts an aerial view of the Project location and **Figure 2-3** depicts the conceptual site plan.

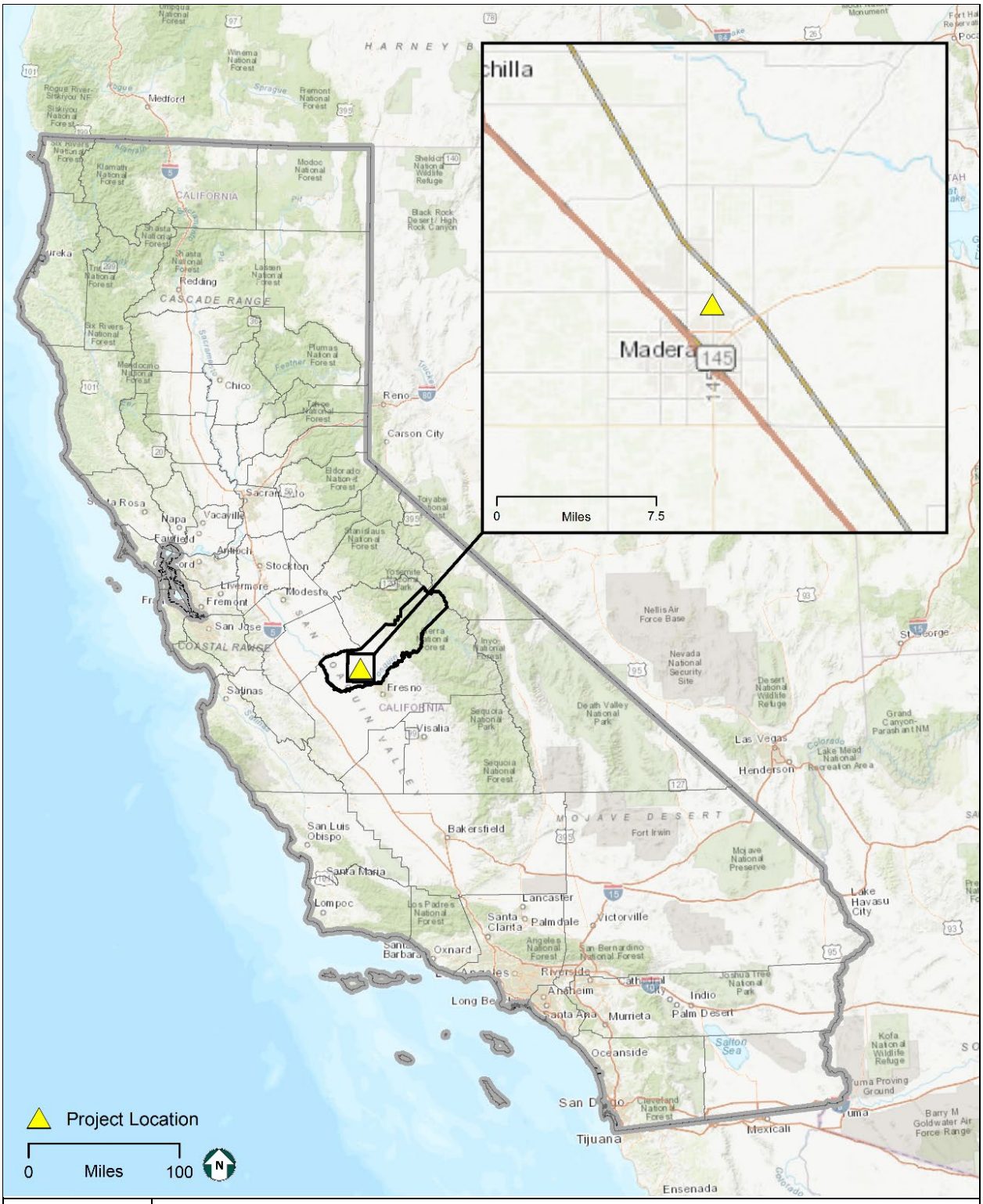


Figure 2-1
Regional Location

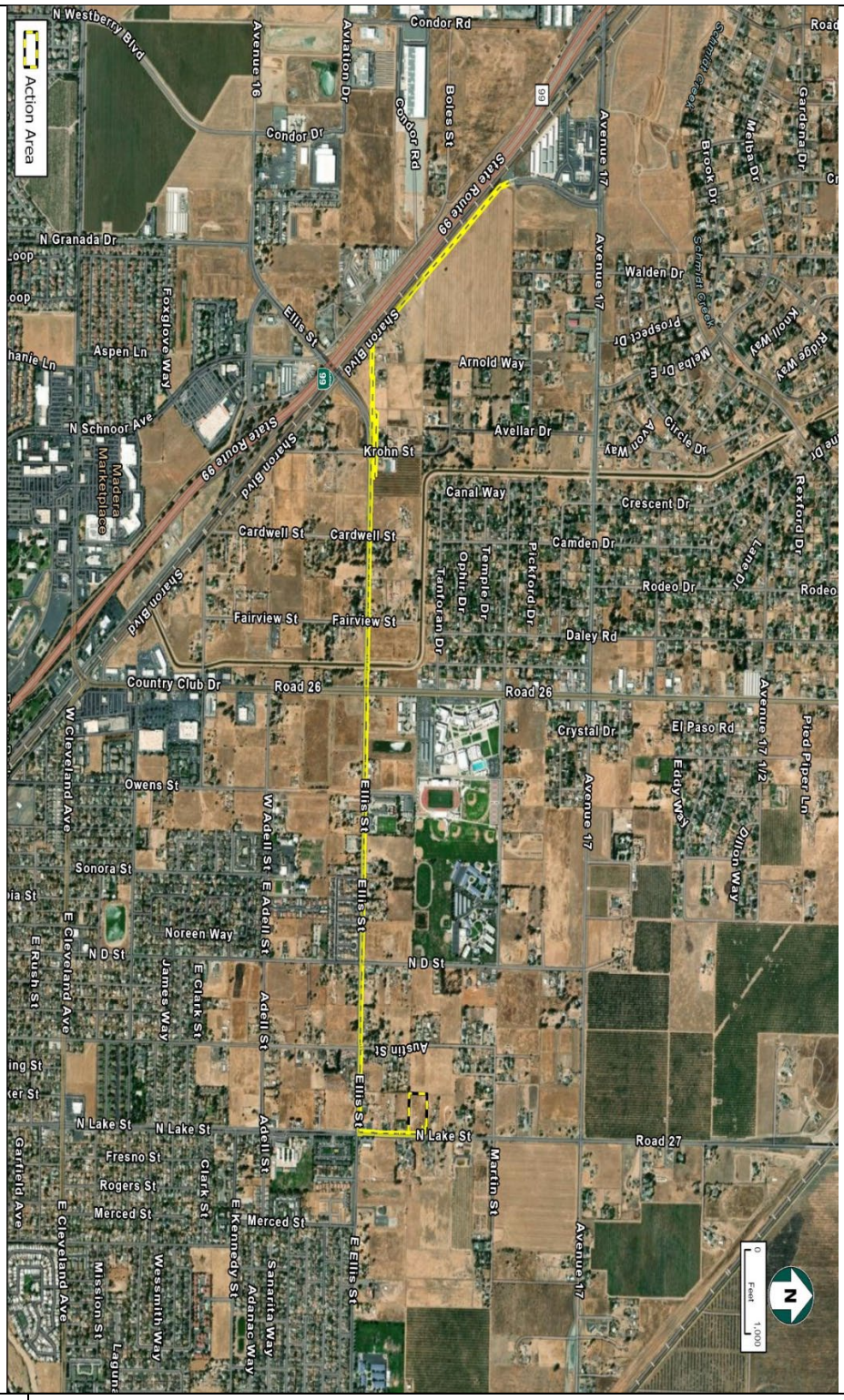


Figure 2-2
Project Location

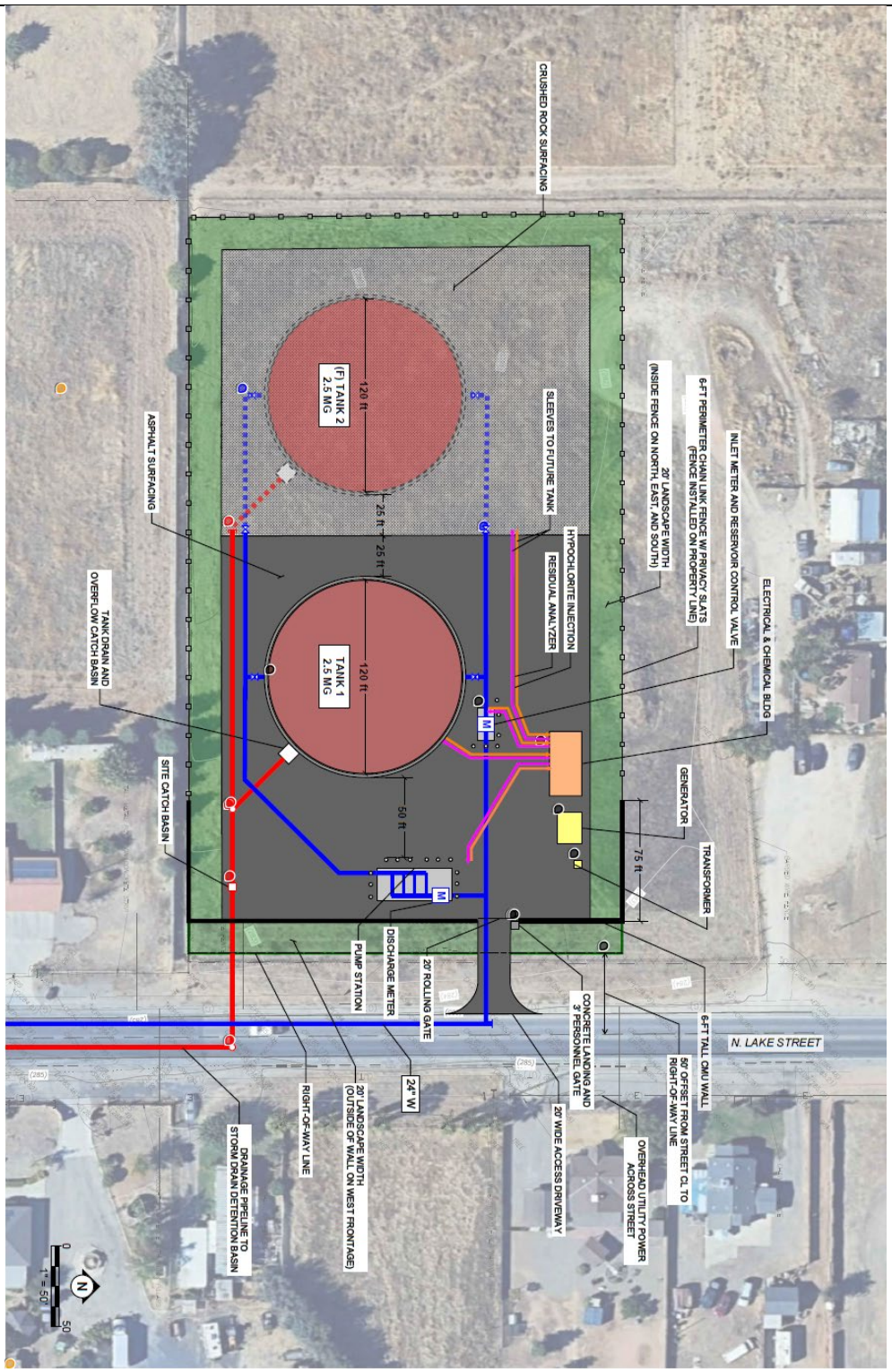


Figure 2-3
Facility Site Plan

SECTION 3 - IMPACT ASSESSMENT

3.1 - Significance Criteria

utilizes the CEQA and the SJVAPCD's GAMAQI to determine the significance thresholds for the proposed Project.

A potentially significant impact to air quality, as defined by the CEQA Appendix G Environmental Checklist Form (not included herein), would occur if the project caused one or more of the following to occur:

- Conflict with or obstruct implementation of the applicable air quality plan;
- 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;
- Expose sensitive receptors to substantial pollutant concentrations; and/or
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

The SJVAPCD has established emission thresholds in their GAMAQI to determine whether a project would create any potential air quality impacts that would require further analysis in an Environmental Impact Report (EIR). The SJVAPCD air quality thresholds from GAMAQI are presented in **Table 3-1** (SJVAPCD 2015).

Table 3-1
SJVAPCD CEQA Thresholds of Significance

Criteria Pollutant	Construction Emissions	Significance Level Operational Permitted Emissions	Operational Non-Permitted Emissions
CO	100 tons/yr	100 tons/yr	100 tons/yr
NOx	10 tons/yr	10 tons/yr	10 tons/yr
ROG	10 tons/yr	10 tons/yr	10 tons/yr
SOx	27 tons/yr	27 tons/yr	27 tons/yr
PM_{10}	15 tons/yr	15 tons/yr	15 tons/yr
$PM_{2.5}$	15 tons/yr	15 tons/yr	15 tons/yr

Source: SJVAPCD 2015.

3.1.1 - THRESHOLD FOR AMBIENT AIR QUALITY IMPACTS

CEQA Guidelines – Appendix G (Environmental Checklist) states that a project that would "*violate any air quality standard or contribute substantially to an existing or projected air quality violation*" would be considered to create significant impacts on air quality. Therefore, an ambient air quality analysis should determine whether the emissions from a project

would cause or contribute significantly to violations of the NAAQS or CAAQS when added to existing ambient concentrations.

Table 3-2
Federal and California Standards

Pollutant	Averaging Time	NAAQS	CAAQS
		Concentration	
O_3	8-hour	0.070 ppm (137 µg/m³)[a]	0.070 ppm (137 µg/m³)
	1-hour		0.09 ppm (180 µg/m³)
CO	8-hour	9 ppm (10 µg/m³)	9 ppm (10 µg/m³)
	1-hour	35 ppm (40 µg/m³)	20 ppm (23 µg/m³)
NO_2	Annual Average	53 ppb (100 µg/m³)	0.030 ppm (57 µg/m³)
	1-Hour	100 ppb (188.68 µg/m³)	0.18 ppm (339 µg/m³)
SO_2	3-Hour	0.5 ppm (1,300 µg/m³)	
	24 Hour	0.14 ppm (365 µg/m³)	0.04 ppm (105 µg/m³)
	1-Hour	75 ppb (196 µg/m³)	0.25 ppm (655 µg/m³)
Particulate Matter (PM_{10})	Annual Arithmetic Mean		20 µg/m³
	24-Hour	150 µg/m³	50 µg/m³
Fine Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	12 µg/m³	12 µg/m³
	24-Hour	35 µg/m³	
Sulfates	24-Hour		25 µg/m³
Pb[d]	Rolling Three-Month Average	0.15 µg/m³	
	30 Day Average		1.5 µg/m³
H_2S	1-Hour		0.03 ppm (42 µg/m³)
Vinyl Chloride (chloroethene)	24-Hour		0.010 ppm (26 µg/m³)
Visibility Reducing particles	8 Hour (1000 to 1800 PST)		[b]

ppm = parts per million
ppb = parts per billion
mg/m³ = milligrams per cubic meter
µg/m³ = micrograms per cubic meter

Source: CARB 2024
a. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm
b. In 1989, CARB converted both the general statewide 10-mile visibility standards and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

3.1.2 - THRESHOLDS FOR HAZARDOUS AIR POLLUTANTS

The SJVAPCD's Guidelines state that a project result in a significant impact if it exceeds that District's health risk notification thresholds presented in **Table 3-3**.

Table 3-3
Measures of Significance – Toxic Air Contaminants

Agency	Level	Description
Significance Thresholds Adopted for the Evaluation of Impacts Under CEQA		
SJVAPCD	Carcinogens	Maximally Exposed Individual risk **equals or exceeds** 20 in one million.
	Non-Carcinogens	**Acute**: Hazard Index **equals or exceeds** 1.0 for the Maximally Exposed Individual. **Chronic**: Hazard Index **equals or exceeds** 1.0 for the Maximally Exposed Individual.

Source: SJVAPCD 2015

3.1.3 - GLOBAL CLIMATE CHANGE THRESHOLDS OF SIGNIFICANCE

On December 17, 2009, SJVAPCD adopted Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA (SJVAPCD 2009); which outlined the SJVAPCD's methodology for assessing a project's significance for GHGs under CEQA. The following criteria was outlined in the document to determine whether a project could have a significant impact:

- Projects determined to be exempt from the requirements of CEQA would be determined to have a less than significant individual and cumulative impact for GHG emissions and would not require further environmental review, including analysis of project specific GHG emissions. Projects exempt under CEQA would be evaluated consistent with established rules and regulations governing project approval and would not be required to implement BPS.
- Projects complying with an approved GHG emission reduction plan or GHG mitigation program which avoids or substantially reduces GHG emissions within the geographic area in which the project is located would be determined to have a less than significant individual and cumulative impact for GHG emissions. Such plans or programs must be specified in law or approved by the lead agency with jurisdiction over the affected resource and supported by a CEQA compliant environmental review document adopted by the lead agency. Projects complying with an approved GHG emission reduction plan or GHG mitigation program would not be required to implement BPS.
- Projects implementing Best Performance Standards would not require quantification of project specific GHG emissions. Consistent with CEQA Guidelines, such projects would be determined to have a less than significant individual and cumulative impact for GHG emissions.
- Projects not implementing Best Performance Standards would require quantification of project specific GHG emissions and demonstration that project specific GHG emissions

would be reduced or mitigated by at least 29%, compared to Business-as-Usual (BAU), including GHG emission reductions achieved since the 2002-2004 baseline period. Projects achieving at least a 29% GHG emission reduction compared to BAU would be determined to have a less than significant individual and cumulative impact for GHG.

- Notwithstanding any of the above provisions, projects requiring preparation of an Environmental Impact Report for any other reason would require quantification of project specific GHG emissions. Projects implementing BPS or achieving at least a 29% GHG emission reduction compared to BAU would be determined to have a less than significant individual and cumulative impact for GHG.

The County of Madera nor the City of Madera has developed specific thresholds for GHGs. The SJVAPCD has developed thresholds to determine significance of a proposed project – either implement Best Performance Standards or achieve a 29% reduction from BAU (a specific numerical threshold). However, the SJVAPCD has established their BAU and baseline emissions based on the years 2002-2004 and 2020, respectively. Since the 2020 projected baseline has passed no new guidance has been approved for determining BAU and projected baseline for the next target year. Therefore, the 29% reduction from BAU cannot be applied to the subject Project in order to determine significance. Additionally, a Best Performance Standards threshold has not been established. For this Project, compliance with locally adopted climate plans will be used to determine level of significance for GHG. Therefore, the GHG analysis for this Project follows the suggestions from the Court's ruling on the Newhall Ranch development project in order to determine significance using the project design features.

3.2 - Project Related Emissions

A cursory review of the Project emissions was conducted to demonstrate that it would not exceed established air quality emissions thresholds, pursuant to the SJVAPCD's GAMAQI.

3.2.1 - SHORT-TERM EMISSIONS

Short-term emissions are primarily from the construction of a project and would have temporary impacts on air quality.

CalEEMod was used to estimate emissions from construction worker vehicles and on-site construction equipment. CalEEMod default construction schedule and equipment was used to estimated Project emissions.

Adjustments to the CalEEMod default values were as follows:

- Land use lot acreage was adjusted to match the Project description;
- Construction timeline, equipment and trips were adjusted to match the anticipated schedule; and
- The demolition Phase was removed.

Even though unmitigated emissions would be less than the air quality thresholds, the Project also must comply with required SJVAPCD's mitigation measures to limit fugitive dust emissions. The following mitigation measures were applied in CalEEMod resulting in Mitigated emissions shown in Table 3-4:

- Water exposed area 3 times per day; and
- Reduce vehicle speed on unpaved roads.

Table 3-4 presents the Project's short-term emissions and demonstrated that the Project's construction activities would not exceed construction significance thresholds. Therefore, construction emissions were found to be less than significant, and no further evaluation is required. Emission calculations are available in **Appendix A**.

Table 3-4
Short-Term Project Emissions

Emissions Source	Pollutant (tons/year)					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
2025	0.05	0.42	0.46	<0.005	0.06	0.04
2026	0.12	0.87	1.36	<0.005	0.07	0.04
2027	0.06	0.49	0.81	<0.005	0.04	0.03
Significance Threshold	25	25	NA	27	15	15
Is Threshold Exceeded After Mitigation?	No	No	No	No	No	No

Source: QK 2025

3.2.2 - LONG-TERM OPERATIONAL EMISSIONS

Long-term emissions are caused by operational mobile sources and area source emissions from the Project. The Project is the construction of a water tank and pump station and will not result in an increase of any operational emission sources above a negligible level. Therefore, operational emissions were found to be less than significant, and no further evaluation is required.

3.2.3 - GREENHOUSE GAS EMISSIONS

The Project's greenhouse gas (GHG) emissions are primarily from construction equipment source activities and operational mobile and energy sources. Not all GHGs exhibit the same ability to induce climate change; as a result, GHG contributions are commonly quantified as carbon dioxide equivalents (CO_2e) (see **Appendix A**). The proposed Project's operational CO_2e emissions were estimated using CalEEMod. These emissions are summarized in **Table 3-5**.

Table 3-5
Estimated Annual GHG Emissions (MT/Year)

Source	CO_2	CH_4	N_2O	CO_2e
Total Construction Emissions	596	0.02	0.02	601

In the decade after SJVAPCD adopted their Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA, several new laws and executive orders were adopted that require additional reductions in years after 2020. For instance, Senate Bill 32 requires that GHG emissions be 40% less than 1990 levels by 2030. More drastic still, Senate Bill 100 which was signed by the Governor recently requires 100% zero-carbon electricity by 2045. On the day SB 100 was signed into law, the Governor also signed Executive Order B-55-18 which commits California to total, economy-wide carbon neutrality by 2045. Clearly, the 2009 Guidance may be somewhat inadequate in producing a meaningful comparison by today's standards which propose a grand vision that, if achieved, would fundamentally change how business is conducted and citizens live in the State. Thus, as discussed in the most recent updates to the Scoping Plan, objectives of the Scoping Plan affect all sectors of the economy and it no longer makes sense to evaluate GHG emissions on a project-level.

For these reasons, Project GHG emissions levels presented in **Table 3-5** are primarily for disclosure purposes. The Project's largest contributors to GHG emissions are from construction activities. Transportation fuels are, in effect, regulated by requiring providers and importers of fuel to participate in the GHG Cap-and-Trade Program and other Programs (e.g., low carbon fuel standard, renewable portfolio standard, etc.). Each sector-wide program exists within the framework of AB 32 and its descendant laws the purpose of which is to achieve GHG emissions reductions consistent with the AB 32 Scoping Plan.

The Project would generate GHGs from combustion of gasoline/diesel fuels, each of which is regulated near the top of the supply-chain. As such, each consumer in California (including those creating emissions of this Project) will have no choice but to purchase fuels produced in a way that is acceptable to the California market. Thus, Project GHG emissions will be consistent with the relevant plan (i.e., AB 32 Scoping Plan). The Project would meet its fair share of the cost to mitigate the cumulative impact of global climate change based on fuel purchases from the California market. Thus, consumers of transportation fuels are in effect regulated by higher level emissions restrictions on the producers of these sources. Therefore, the Project would have a less than significant impact on applicable GHG reduction plans and the Project's contribution to cumulative global climate change impacts would not be cumulatively considerable.

3.3 - Potential Impacts on Sensitive Receptors

Sensitive receptors are defined as locations where young children, chronically ill individuals, the elderly, or people who are more sensitive than the general population reside, such as schools, hospitals, nursing homes, and daycare centers. The nearest residential sensitive

receptor to the proposed Project are located adjacent to the north, south and east of the Project site.

The closest schools are James Monroe Elementary School and Nishimoto Elementary School located 0.30 miles south and west, respectively, of the Project site. The closest hospital is the Madera Hospital located 3.23 miles south and the closest assisted living facility is Madera Senior Center located 0.78 miles to the south. The nearest daycare facility is Mis Angelitos Migrant Head Start located 0.46 miles to the southwest of the Project.

Based on the predicted operational emissions and activity types, the proposed Project is not expected to affect any on-site or off-site sensitive receptors and is not expected to have any adverse impacts on any known sensitive receptor

3.4 - Potential Impacts to Visibility to Nearby Class 1 Areas

Visibility impact analyses are intended for stationary sources of emissions which are subject to the PSD requirements in 40 CFR Part 60; they are not usually conducted for area sources. Under the PSD program, all international parks, national wilderness areas and national memorial parks that exceed 5,000 acres, and of national parks that exceed 6,000 acres are designated as mandatory federal Class I areas which are provided visibility protection under the Clean Air Act. Because the Project's PM10 emissions increases are predicted to be less than the PSD threshold levels, an impact at any Class 1 area or military/airspace operation within 100 kilometers of the Project is extremely unlikely. Therefore, based on the Project's predicted less-than significant PM10 emissions, the Project would be expected to have a *less than significant impact* to visibility at any Class 1 area or military/airspace operation.

3.5 - Predicted Health Impacts

Projects are considered for potential health risks wherein a new or modified source of Hazardous Air Pollutants (HAPs) is proposed for a location near an existing residential area or other sensitive receptor when evaluating potential impacts related to HAPs.

The proposed Project would result in emissions of Hazardous Air Pollutants (HAPs) during construction and would be located near existing residents; therefore, an assessment of the potential risk to the population attributable to emissions of hazardous air pollutants from the proposed Project is required.

To predict the potential health risk to the population attributable to emissions of HAPs from the proposed Project, ambient air concentrations were predicted with dispersion modeling to arrive at a conservative estimate of increased individual carcinogenic risk that might occur as a result of continuous exposure over the construction period for construction emissions. Similarly, predicted concentrations were used to calculate non-cancer chronic and acute hazard indices, which are the ratio of expected exposure to acceptable exposure. The basis for evaluating potential health risks is the identification of sources with increased HAPs. HAP emissions from anticipated on-site construction activities were evaluated.

Health risk is determined using the Hotspots Analysis and Reporting Program (HARP) software distributed by the CARB. HARP2 requires peak 1-hour emission rates and annual-averaged emission rates for all pollutants for each modeling source. The assumptions used to calculate the emission rates for the proposed Project are outlined below.

The most recent version of EPA's AMS/EPA Regulatory Model – AERMOD (recompiled for the Lakes ISC-AERMOD View) was used to predict the dispersion of emissions from the proposed Project. The analysis employed all of the regulatory default AERMOD model keyword parameters, including elevated terrain options.

Diesel combustion emissions from diesel on-site construction equipment were modeled as an area source for on-site construction activity on the property. Diesel particulate matter was calculated using CalEEMod for on-site construction. A unit emission rate of one gram/second (g/sec) was input to AERMOD for each source.

A fenceline discrete receptor grid was placed around the Project site in order to evaluate residences and businesses within close proximity of the Project site. A three-tier grid was used with 25-meter fenceline spacing. The first tier extended 100 meters with 25-meter tier spacing, the second tier extended an additional 200 meters with 50 meter tier spacing and the third tier extended another 400 meters with a tier spacing of 100 meters. A total of 4,695 discrete off-site receptors were analyzed. Elevated terrain options were employed even though there is not complex terrain in the Project area. The 7.5-minute DEM terrain data for Kismet, CA and Madera, CA, were processed with AERMAP to identify elevations for the proposed Project.

SJVAPCD-provided AERMET processed meteorological datasets for the Madera monitoring station, calendar years 2018 through 2022 were input to AERMOD (SJVAPCD, 2025d). This was the most recent available dataset available at the time the modeling was conducted. Rural dispersion parameters were used because the operation and the majority of the land surrounding the facility are considered "rural" under the Auer land use classification method (Auer, 1978).

Plot files generated by AERMOD were uploaded to the Air Dispersion Modeling and Risk Assessment Tool (ADMRT) program in the Hotspots Analysis and Reporting Program Version 2 (HARP2) (CARB, 2015). ADMRT post-processing was used to assess the potential for excess cancer risk and chronic and acute non-cancer effects using the most recent health effects data from the California EPA Office of Environmental Health Hazard Assessment (OEHHA) using the OEHHA Derived Method. HARP2 site parameters were set for the mandatory minimum pathways of inhalation, homegrown gardens, soil ingestion, dermal, and mother's milk. The non-inhalation pathways used a deposition rate of 0.02 m/s along with all other default parameters. Risk reports were generated using the derived OEHHA analysis method for carcinogenic risk and non-carcinogenic chronic and acute risk. Site parameters are included in the HARP2 output files. Total cancer risk was predicted for the inhalation pathway at each receptor. A hazard index was computed for chronic non-cancer health effects for each applicable endpoint and each receptor. A hazard index for acute non-

cancer health effects was not computed since DPM does not have a risk exposure level for acute risk.

SJVAPCD has set the level of significance for carcinogenic risk at twenty in one million, which is understood as the possibility of causing 20 additional cancer cases in a population of one million people. The level of significance for chronic non-cancer risk is a hazard index of 1.0. All receptors were modeled with a 2-year exposure for construction activities.

The carcinogenic risk and the health hazard index (HI) for chronic non-cancer risk at the point of maximum impact (PMI) do not exceed the significance levels of twenty in one million (20 x 10-6) and 1.0, respectively for the proposed Project. The PMIs are identified by receptor location and risk and are provided in **Table 3-6**. The electronic AERMOD and HARP2 output files are provided in **Appendix B**.

Table 3-6
Potential Maximum Impacts Predicted by HARP

	Cancer Risk	Chronic Hazard Index
Total Construction	11.42E-06	6.68E-03
SJVAPCD Threshold	20.0E-06	1.0
Exceedance?	No	No
Receptor #	4361	4361
UTM Easting (m)	762021.86	762021.86
UTM Northing (m)	4097727.45	4097727.45

Note: UTM = Universal Transverse Mercator

As shown above in **Table 3-6**, the maximum predicted cancer risk for the proposed Project is 11.42E-06. The maximum chronic non-cancer hazard index for the proposed Project is 6.68E-03. Since the PMI remained below the significance threshold for cancer and chronic risk, this Project would not have an adverse effect to any of the surrounding communities.

The potential health risk attributable to the proposed Project is determined to be *less than significant* based on the following conclusions:

1. Potential carcinogenic risk from the proposed Project is below the significance level of twenty in a million at each of the modeled receptors; and
2. The hazard index for the potential chronic non-cancer risk from the proposed Project is below the significance level of 1.0 at each of the modeled receptors.
3. The hazard index for the potential acute non-cancer risk was not calculated since there is no acute risk associated with DPM emission; therefore, the proposed Project is considered below the significance level.

Therefore, potential risk to the population attributable to emissions of HAPs from the proposed Project would be less than significant.

3.6 - Odor Impacts and Mitigation

An evaluation is typically conducted for both of the following situations: 1) a potential source of objectionable odors is proposed for a location near existing sensitive receptors, and 2) sensitive receptors are proposed to be located near an existing source of objectionable odors. The criteria for this evaluation are based on the Lead Agency's determination of the proximity to one another of the proposed project and the sensitive receptors. A sensitive receptor is a location where human populations, especially children, senior citizens and sick persons, are present, and where there is a reasonable expectation of continuous human exposure to pollutants, according to the averaging period for ambient air quality standards, i.e. the 24-hour, 8-hour or 1-hour standards. Commercial and industrial sources are not considered sensitive receptors.

The proposed Project is not considered a source of objectionable odors or odorous compounds. Furthermore, there does not appear to be any significant source of objectionable odors in close proximity that may adversely impact the project site when it is in operation. As such, the proposed project will not be a source of any odorous compounds nor will it likely be impacted by any odorous source.

3.7 - Impacts to Ambient Air Quality

An ambient air quality analysis, when required, determines if a proposed project has the potential to cause a violation of the ambient air quality standards or a substantial contribution to an existing or projected air quality standard. As stated in the of GAMAQI (2015, p 96-97), SJVAPCD has developed screening levels for requiring an Ambient Air Quality Analysis (AAQA). The SJVAPCD recommends that an AAQA be performed for all criteria pollutants when emissions of any criteria pollutant resulting from project construction or operational activities exceed the 100 pounds per day screening level, after compliance with Rule 9510 requirements and implementation of all enforceable mitigation measures.

As demonstrated in *Sections 3.2.1 Short Term Operational Emissions and 3.2.2 Long Term Operational Emissions*, the Project's potential increase to any criteria pollutant's average daily emissions for construction and operational activities associated with this Project would not exceed 100 pounds per day. Therefore, an AAQA is not required for this Projectject.

3.8 - Cumulative Impacts

Cumulative impacts were also evaluated; however, cumulative emissions were not quantified because no other tentative projects were found within a one-mile radius of the Proposed Project that provided enough project detail information to accurately estimate emissions. Owing to the inherently cumulative nature of air quality impacts, the threshold for whether a project would make a cumulatively considerable contribution to a significant cumulative impact is currently based on whether the proposed Project would exceed established project-level thresholds. As such, a qualitative evaluation of the cumulative projects supports a finding that the Project's contribution would not be cumulatively

considerable because the proposed Project's incremental emissions increase would be less than significant.

SECTION 4 - CONCLUSIONS

Based on the criteria established by the SJVAPCD's GAMAQI, the proposed Project does not meet the minimum standards to require a full Air Quality Impact Analysis. Furthermore, the Project as proposed would not exceed the SJVAPCD's criteria air pollutant emission levels and would generate *less than significant air quality impacts*.

SECTION 5 - REFERENCES

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APPENDIX A

PROJECT EMISSION CALCULATIONS

Madera Water Tanks Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

1.2. Land Use Types

1.3. User-Selected Emission Reduction Measures by Emissions Sector

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

2.2. Construction Emissions by Year, Unmitigated

3. Construction Emissions Details

3.1. Site Preparation (2025) - Unmitigated

3.3. Grading (2025) - Unmitigated

3.5. Facility Construction (2025) - Unmitigated

3.7. Facility Construction (2026) - Unmitigated

3.9. Paving (2027) - Unmitigated

3.11. Transmission Line (2026) - Unmitigated

3.13. Transmission Line (2027) - Unmitigated

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

5. Activity Data

5.1. Construction Schedule

5.2. Off-Road Equipment

5.2.1. Unmitigated

5.3. Construction Vehicles

5.3.1. Unmitigated

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

5.5. Architectural Coatings

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

5.6.2. Construction Earthmoving Control Strategies

5.7. Construction Paving

5.8. Construction Electricity Consumption and Emissions Factors

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

5.18.2. Sequestration

5.18.2.1. Unmitigated

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

6.2. Initial Climate Risk Scores

6.3. Adjusted Climate Risk Scores

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

7.2. Healthy Places Index Scores

7.3. Overall Health & Equity Scores

7.4. Health & Equity Measures

7.5. Evaluation Scorecard

7.6. Health & Equity Custom Measures

8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Madera Water Tanks
Construction Start Date	10/1/2025
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.90
Precipitation (days)	16.4
Location	36.989601617396445, -120.0568041111288
County	Madera
City	Unincorporated
Air District	San Joaquin Valley APCD
Air Basin	San Joaquin Valley
TAZ	2563
EDFZ	5
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.29

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
User Defined Industrial	1.00	User Defined Unit	10.7	800	27,319	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.20	1.03	7.16	10.3	0.02	0.27	0.34	0.61	0.25	0.08	0.33	—	2,372	2,372	0.08	0.07	1.78	2,397
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.97	2.50	21.8	22.4	0.05	0.94	2.22	3.17	0.87	0.95	1.82	—	5,638	5,638	0.22	0.08	0.05	5,664
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.79	0.67	4.79	7.47	0.02	0.18	0.25	0.39	0.17	0.11	0.22	—	1,852	1,852	0.07	0.05	0.51	1,870
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.14	0.12	0.87	1.36	< 0.005	0.03	0.05	0.07	0.03	0.02	0.04	—	307	307	0.01	0.01	0.08	310

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	1.20	1.03	7.16	10.3	0.02	0.27	0.34	0.61	0.25	0.08	0.33	—	2,372	2,372	0.08	0.07	1.78	2,397

Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	2.97	2.50	21.8	22.4	0.05	0.94	2.22	3.17	0.87	0.95	1.82	—	5,638	5,638	0.22	0.07	0.05	5,664
2026	1.18	1.00	7.21	11.7	0.03	0.27	0.34	0.61	0.25	0.08	0.33	—	3,312	3,312	0.12	0.08	0.05	3,339
2027	0.87	0.73	4.81	11.6	0.03	0.19	0.17	0.36	0.18	0.04	0.22	—	3,302	3,302	0.12	0.08	0.03	3,329
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.32	0.27	2.31	2.53	0.01	0.10	0.25	0.35	0.09	0.11	0.20	—	583	583	0.02	0.01	0.08	587
2026	0.79	0.67	4.79	7.47	0.02	0.18	0.21	0.39	0.17	0.05	0.22	—	1,852	1,852	0.07	0.05	0.51	1,870
2027	0.14	0.12	0.78	1.82	< 0.005	0.03	0.03	0.06	0.03	0.01	0.04	—	481	481	0.02	0.01	0.08	486
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.06	0.05	0.42	0.46	< 0.005	0.02	0.05	0.06	0.02	0.02	0.04	—	96.6	96.6	< 0.005	< 0.005	0.01	97.2
2026	0.14	0.12	0.87	1.36	< 0.005	0.03	0.04	0.07	0.03	0.01	0.04	—	307	307	0.01	0.01	0.08	310
2027	0.03	0.02	0.14	0.33	< 0.005	0.01	< 0.005	0.01	0.01	< 0.005	0.01	—	79.7	79.7	< 0.005	< 0.005	0.01	80.4

3. Construction Emissions Details

3.1. Site Preparation (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.33	1.12	10.2	10.5	0.02	0.46	—	0.46	0.42	—	0.42	—	1,893	1,893	0.08	0.02	—	1,899

Dust From Material Movement	—	—	—	—	—	—	1.70	1.70	—	0.88	0.88	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.64	0.66	< 0.005	0.03	—	0.03	0.03	—	0.03	—	119	119	< 0.005	< 0.005	—	120
Dust From Material Movement	—	—	—	—	—	—	0.11	0.11	—	0.06	0.06	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.12	0.12	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	19.7	19.7	< 0.005	< 0.005	—	19.8
Dust From Material Movement	—	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.15	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.4	25.4	< 0.005	< 0.005	< 0.005	25.8

Vendor	0.01	< 0.005	0.19	0.06	< 0.005	< 0.005	0.04	0.05	< 0.005	0.01	0.01	—	159	159	< 0.005	0.02	0.01	166
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.66	1.66	< 0.005	< 0.005	< 0.005	1.68
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	10.0	10.0	< 0.005	< 0.005	0.01	10.5
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.27	0.27	< 0.005	< 0.005	< 0.005	0.28
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.66	1.66	< 0.005	< 0.005	< 0.005	1.73
Hauling	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	0.00

3.3. Grading (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.91	2.45	21.6	21.9	0.05	0.94	—	0.94	0.87	—	0.87	—	5,415	5,415	0.22	0.04	—	5,434
Dust From Material Movement	—	—	—	—	—	—	2.12	2.12	—	0.92	0.92	—	—	—	—	—	—	—
Onsite truck	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	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.13	1.18	1.20	< 0.005	0.05	—	0.05	0.05	—	0.05	—	297	297	0.01	< 0.005	—	298
Dust From Material Movement	—	—	—	—	—	—	0.12	0.12	—	0.05	0.05	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.22	0.22	< 0.005	0.01	—	0.01	0.01	—	0.01	—	49.1	49.1	< 0.005	< 0.005	—	49.3
Dust From Material Movement	—	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.04	0.39	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	63.6	63.6	< 0.005	< 0.005	0.01	64.6
Vendor	0.01	< 0.005	0.19	0.06	< 0.005	< 0.005	0.04	0.05	< 0.005	0.01	0.01	—	159	159	< 0.005	0.02	0.01	166
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.60	3.60	< 0.005	< 0.005	0.01	3.66

Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	8.72	8.72	< 0.005	< 0.005	0.01	9.11
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.60	0.60	< 0.005	< 0.005	< 0.005	0.61
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.44	1.44	< 0.005	< 0.005	< 0.005	1.51
Hauling	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	0.00

3.5. Facility Construction (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.99	0.83	7.09	8.59	0.02	0.29	—	0.29	0.27	—	0.27	—	1,781	1,781	0.07	0.01	—	1,787
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.43	0.52	< 0.005	0.02	—	0.02	0.02	—	0.02	—	108	108	< 0.005	< 0.005	—	108
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.01	0.01	0.08	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	17.9	17.9	< 0.005	< 0.005	—	17.9
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.22	0.21	0.15	1.55	0.00	0.00	0.25	0.25	0.00	0.06	0.06	—	254	254	0.01	0.01	0.03	258
Vendor	0.01	0.01	0.39	0.12	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	318	318	< 0.005	0.05	0.02	332
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	15.9	15.9	< 0.005	< 0.005	0.03	16.2
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	19.3	19.3	< 0.005	< 0.005	0.02	20.2
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.64	2.64	< 0.005	< 0.005	< 0.005	2.68
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.20	3.20	< 0.005	< 0.005	< 0.005	3.34
Hauling	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	0.00

3.7. Facility Construction (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	0.95	0.80	6.71	8.54	0.02	0.27	—	0.27	0.25	—	0.25	—	1,781	1,781	0.07	0.01	—	1,787
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.95	0.80	6.71	8.54	0.02	0.27	—	0.27	0.25	—	0.25	—	1,781	1,781	0.07	0.01	—	1,787
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.51	0.43	3.58	4.56	0.01	0.14	—	0.14	0.13	—	0.13	—	951	951	0.04	0.01	—	955
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.09	0.08	0.65	0.83	< 0.005	0.03	—	0.03	0.02	—	0.02	—	158	158	0.01	< 0.005	—	158
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.24	0.22	0.11	1.66	0.00	0.00	0.25	0.25	0.00	0.06	0.06	—	279	279	0.01	0.01	0.98	284
Vendor	0.01	0.01	0.35	0.11	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	312	312	< 0.005	0.04	0.80	326
Hauling	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	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.21	0.20	0.13	1.43	0.00	0.00	0.25	0.25	0.00	0.06	0.06	—	249	249	0.01	0.01	0.03	253
Vendor	0.01	0.01	0.37	0.11	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	313	313	< 0.005	0.04	0.02	326
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.11	0.06	0.75	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	137	137	0.01	0.01	0.23	140
Vendor	0.01	< 0.005	0.19	0.06	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	167	167	< 0.005	0.02	0.18	174
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.14	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	22.8	22.8	< 0.005	< 0.005	0.04	23.1
Vendor	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	27.6	27.6	< 0.005	< 0.005	0.03	28.8
Hauling	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	0.00

3.9. Paving (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.43	0.37	3.27	7.25	0.01	0.14	—	0.14	0.13	—	0.13	—	1,243	1,243	0.05	0.01	—	1,247
Paving	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.21	0.46	< 0.005	0.01	—	0.01	0.01	—	0.01	—	78.3	78.3	< 0.005	< 0.005	—	78.6
Paving	0.01	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.04	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.0	13.0	< 0.005	< 0.005	—	13.0
Paving	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.20	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	36.7	36.7	< 0.005	< 0.005	< 0.005	37.3
Vendor	0.01	0.01	0.36	0.11	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	306	306	< 0.005	0.04	0.02	319
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.38	2.38	< 0.005	< 0.005	< 0.005	2.42
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	19.3	19.3	< 0.005	< 0.005	0.02	20.1
Hauling	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	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.39	0.39	< 0.005	< 0.005	< 0.005	0.40
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.19	3.19	< 0.005	< 0.005	< 0.005	3.33
Hauling	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	0.00

3.11. Transmission Line (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.83	0.70	4.78	11.2	0.03	0.21	—	0.21	0.19	—	0.19	—	2,859	2,859	0.12	0.02	—	2,869
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.13	0.86	2.01	< 0.005	0.04	—	0.04	0.03	—	0.03	—	515	515	0.02	< 0.005	—	516
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.16	0.37	< 0.005	0.01	—	0.01	0.01	—	0.01	—	85.2	85.2	< 0.005	< 0.005	—	85.5

Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.03	0.36	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	62.3	62.3	< 0.005	< 0.005	0.01	63.3
Vendor	0.01	0.01	0.47	0.14	< 0.005	0.01	0.11	0.11	0.01	0.03	0.04	—	391	391	< 0.005	0.06	0.03	407
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.6	11.6	< 0.005	< 0.005	0.02	11.8
Vendor	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	70.3	70.3	< 0.005	0.01	0.08	73.4
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.92	1.92	< 0.005	< 0.005	< 0.005	1.95
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	11.6	11.6	< 0.005	< 0.005	0.01	12.2
Hauling	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	0.00

3.13. Transmission Line (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	0.80	0.67	4.34	11.2	0.03	0.19	—	0.19	0.17	—	0.17	—	2,858	2,858	0.12	0.02	—	2,868
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.09	0.08	0.50	1.29	< 0.005	0.02	—	0.02	0.02	—	0.02	—	330	330	0.01	< 0.005	—	331
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.02	0.01	0.09	0.24	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	54.6	54.6	< 0.005	< 0.005	—	54.8
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.03	0.33	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	61.1	61.1	< 0.005	< 0.005	0.01	62.1
Vendor	0.01	0.01	0.45	0.13	< 0.005	0.01	0.11	0.11	0.01	0.03	0.04	—	383	383	< 0.005	0.06	0.02	399
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.28	7.28	< 0.005	< 0.005	0.01	7.40
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	44.2	44.2	< 0.005	0.01	0.04	46.1
Hauling	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	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.21	1.21	< 0.005	< 0.005	< 0.005	1.23
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.31	7.31	< 0.005	< 0.005	0.01	7.64
Hauling	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	0.00

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Remove	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	10/1/2025	10/31/2025	5.00	23.0	—
Grading	Grading	11/1/2025	11/30/2025	5.00	20.0	—
Facility Construction	Building Construction	12/1/2025	9/30/2026	5.00	218	—
Paving	Paving	3/1/2027	3/31/2027	5.00	23.0	—
Transmission Line	Trenching	10/1/2026	2/28/2027	5.00	107	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

Site Preparation	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	150	0.37
Grading	Excavators	Diesel	Average	1.00	8.00	300	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Scrapers	Diesel	Average	1.00	8.00	423	0.48
Grading	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	150	0.37
Facility Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Facility Construction	Forklifts	Diesel	Average	1.00	8.00	82.0	0.20
Facility Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Facility Construction	Tractors/Loaders/Backhoes	Diesel	Average	1.00	7.00	150	0.37
Facility Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	1.00	8.00	150	0.42
Paving	Paving Equipment	Diesel	Average	1.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	1.00	8.00	101	0.38
Transmission Line	Excavators	Diesel	Average	1.00	8.00	300	0.38
Transmission Line	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	150	0.37
Transmission Line	Bore/Drill Rigs	Diesel	Average	1.00	2.00	300	0.50
Transmission Line	Rollers	Diesel	Average	1.00	8.00	120	0.38

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	5.00	7.10	LDA,LDT1,LDT2

Site Preparation	Vendor	4.00	12.8	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	12.5	7.10	LDA,LDT1,LDT2
Grading	Vendor	4.00	12.8	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Facility Construction	—	—	—	—
Facility Construction	Worker	50.0	7.10	LDA,LDT1,LDT2
Facility Construction	Vendor	8.00	12.8	HHDT,MHDT
Facility Construction	Hauling	0.00	20.0	HHDT
Facility Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	7.50	7.10	LDA,LDT1,LDT2
Paving	Vendor	8.00	12.8	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Transmission Line	—	—	—	—
Transmission Line	Worker	12.5	7.10	LDA,LDT1,LDT2
Transmission Line	Vendor	10.0	12.8	HHDT,MHDT
Transmission Line	Hauling	0.00	20.0	HHDT
Transmission Line	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Control Strategies Applied	PM10 Reduction	PM2.5 Reduction

Water unpaved roads twice daily	55%	55%
Limit vehicle speeds on unpaved roads to 25 mph	44%	44%

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	—	—	11.5	0.00	—
Grading	—	—	40.0	0.00	—
Paving	0.00	0.00	0.00	0.00	1.50

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	3	74%	74%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
User Defined Industrial	1.50	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	204	0.03	< 0.005

2026	0.00	204	0.03	< 0.005
2027	0.00	204	0.03	< 0.005

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	29.2	annual days of extreme heat
Extreme Precipitation	1.15	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth

Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	3	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	0	0	0	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	3	1	1	3
Extreme Precipitation	N/A	N/A	N/A	N/A

Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	1	1	1	2
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	80.0
AQ-PM	89.3
AQ-DPM	10.3
Drinking Water	72.3
Lead Risk Housing	40.7
Pesticides	80.3
Toxic Releases	55.8
Traffic	13.2
Effect Indicators	—
CleanUp Sites	51.0

Groundwater	0.00
Haz Waste Facilities/Generators	10.2
Impaired Water Bodies	51.2
Solid Waste	0.00
Sensitive Population	—
Asthma	90.3
Cardio-vascular	99.6
Low Birth Weights	52.5
Socioeconomic Factor Indicators	—
Education	83.0
Housing	62.8
Linguistic	43.9
Poverty	63.0
Unemployment	90.6

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	23.36712434
Employed	30.46323624
Median HI	42.02489414
Education	—
Bachelor's or higher	29.93712306
High school enrollment	24.98395996
Preschool enrollment	14.88515334
Transportation	—
Auto Access	37.4566919

Active commuting	2.515077634
Social	—
2-parent households	42.44835108
Voting	42.37135891
Neighborhood	—
Alcohol availability	92.05697421
Park access	8.122674195
Retail density	5.363788015
Supermarket access	14.14089568
Tree canopy	6.480174516
Housing	—
Homeownership	65.25086616
Housing habitability	54.01000898
Low-inc homeowner severe housing cost burden	47.24752983
Low-inc renter severe housing cost burden	51.96971641
Uncrowded housing	22.40472219
Health Outcomes	—
Insured adults	31.56679071
Arthritis	0.0
Asthma ER Admissions	5.4
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	40.3
Cognitively Disabled	14.5

Physically Disabled	57.4
Heart Attack ER Admissions	6.4
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	19.6
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	7.3
Elderly	60.0
English Speaking	54.4
Foreign-born	33.3
Outdoor Workers	4.3
Climate Change Adaptive Capacity	—
Impervious Surface Cover	92.8
Traffic Density	4.8
Traffic Access	0.0
Other Indices	—
Hardship	73.2
Other Decision Support	—
2016 Voting	25.3

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	78.0
Healthy Places Index Score for Project Location (b)	23.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	Estimates based on site layout
Construction: Construction Phases	Estimated Schedule based on Phase 1 timeline of 18 months
Construction: Off-Road Equipment	Equipment listing based on defaults and similar projects
Construction: Trips and VMT	Worker trips based on defaults and project estimates
Construction: Paving	Estimated half the tank area will be paved with asphalt

Madera Water Tanks Phase 2 Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

1.2. Land Use Types

1.3. User-Selected Emission Reduction Measures by Emissions Sector

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

2.2. Construction Emissions by Year, Unmitigated

3. Construction Emissions Details

3.1. Site Preparation (2027) - Unmitigated

3.3. Facility Construction (2027) - Unmitigated

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

5. Activity Data

5.1. Construction Schedule

5.2. Off-Road Equipment

5.2.1. Unmitigated

5.3. Construction Vehicles

5.3.1. Unmitigated

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

5.5. Architectural Coatings

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

5.6.2. Construction Earthmoving Control Strategies

5.7. Construction Paving

5.8. Construction Electricity Consumption and Emissions Factors

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

5.18.2. Sequestration

5.18.2.1. Unmitigated

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

6.2. Initial Climate Risk Scores

6.3. Adjusted Climate Risk Scores

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

7.2. Healthy Places Index Scores

7.3. Overall Health & Equity Scores

7.4. Health & Equity Measures

7.5. Evaluation Scorecard

7.6. Health & Equity Custom Measures

8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Madera Water Tanks Phase 2
Construction Start Date	10/1/2025
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.90
Precipitation (days)	16.4
Location	36.989601617396445, -120.0568041111288
County	Madera
City	Unincorporated
Air District	San Joaquin Valley APCD
Air Basin	San Joaquin Valley
TAZ	2563
EDFZ	5
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.29

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
User Defined Industrial	1.00	User Defined Unit	1.50	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.82	0.70	5.76	7.84	0.02	0.22	0.24	0.45	0.20	0.06	0.26	—	2,029	2,029	0.07	0.06	1.25	2,052
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.27	0.23	1.94	2.63	0.01	0.07	0.08	0.15	0.07	0.02	0.09	—	684	684	0.02	0.02	0.18	691
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.05	0.04	0.35	0.48	< 0.005	0.01	0.01	0.03	0.01	< 0.005	0.02	—	113	113	< 0.005	< 0.005	0.03	114

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.82	0.70	5.76	7.84	0.02	0.22	0.24	0.45	0.20	0.06	0.26	—	2,029	2,029	0.07	0.06	1.25	2,052
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2027	0.27	0.23	1.94	2.63	0.01	0.07	0.08	0.15	0.07	0.02	0.09	—	684	684	0.02	0.02	0.18	691
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.05	0.04	0.35	0.48	< 0.005	0.01	0.01	0.03	0.01	< 0.005	0.02	—	113	113	< 0.005	< 0.005	0.03	114

3. Construction Emissions Details

3.1. Site Preparation (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.12	1.18	2.86	< 0.005	0.04	—	0.04	0.04	—	0.04	—	489	489	0.02	< 0.005	—	490
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.04	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	14.7	14.7	< 0.005	< 0.005	—	14.8

Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.44	2.44	< 0.005	< 0.005	—	2.45
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.01	0.23	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	41.0	41.0	< 0.005	< 0.005	0.13	41.7
Vendor	0.01	< 0.005	0.17	0.05	< 0.005	< 0.005	0.04	0.05	< 0.005	0.01	0.01	—	153	153	< 0.005	0.02	0.36	160
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.14	1.14	< 0.005	< 0.005	< 0.005	1.16
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.61	4.61	< 0.005	< 0.005	< 0.005	4.82
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.19	0.19	< 0.005	< 0.005	< 0.005	0.19

Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.76	0.76	< 0.005	< 0.005	< 0.005	0.80
Hauling	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	0.00

3.3. Facility Construction (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.67	0.57	5.37	6.82	0.01	0.21	—	0.21	0.20	—	0.20	—	1,559	1,559	0.06	0.01	—	1,565
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.22	0.19	1.76	2.24	< 0.005	0.07	—	0.07	0.06	—	0.06	—	513	513	0.02	< 0.005	—	514
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.32	0.41	< 0.005	0.01	—	0.01	0.01	—	0.01	—	84.9	84.9	< 0.005	< 0.005	—	85.2
Onsite truck	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	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.13	0.06	0.92	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	164	164	0.01	0.01	0.54	167
Vendor	0.01	0.01	0.33	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	306	306	< 0.005	0.04	0.71	320
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.02	0.26	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	49.8	49.8	< 0.005	< 0.005	0.08	50.6
Vendor	< 0.005	< 0.005	0.11	0.03	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	101	101	< 0.005	0.01	0.10	105
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.24	8.24	< 0.005	< 0.005	0.01	8.38
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	16.7	16.7	< 0.005	< 0.005	0.02	17.4
Hauling	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	0.00

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequest	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	4/1/2027	4/15/2027	5.00	11.0	—
Facility Construction	Building Construction	4/16/2027	9/30/2027	5.00	120	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Skid Steer Loaders	Diesel	Average	1.00	6.00	71.0	0.37
Site Preparation	Rollers	Diesel	Average	1.00	4.00	120	0.38
Site Preparation	Forklifts	Diesel	Average	1.00	4.00	100	0.20
Facility Construction	Cranes	Diesel	Average	1.00	6.00	367	0.29
Facility Construction	Forklifts	Diesel	Average	2.00	4.00	82.0	0.20
Facility Construction	Tractors/Loaders/Backhoes	Diesel	Average	1.00	1.00	150	0.37
Facility Construction	Excavators	Diesel	Average	1.00	1.00	300	0.38
Facility Construction	Rubber Tired Dozers	Diesel	Average	1.00	1.00	250	0.40
Facility Construction	Rollers	Diesel	Average	1.00	2.00	120	0.38
Facility Construction	Skid Steer Loaders	Diesel	Average	1.00	8.00	71.0	0.37

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	7.50	7.10	LDA,LDT1,LDT2
Site Preparation	Vendor	4.00	12.8	HHDT,MHDT

Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Facility Construction	—	—	—	—
Facility Construction	Worker	30.0	7.10	LDA,LDT1,LDT2
Facility Construction	Vendor	8.00	12.8	HHDT,MHDT
Facility Construction	Hauling	0.00	20.0	HHDT
Facility Construction	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Control Strategies Applied	PM10 Reduction	PM2.5 Reduction
Water unpaved roads twice daily	55%	55%
Limit vehicle speeds on unpaved roads to 25 mph	44%	44%

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	—	—	0.00	0.00	—

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction

Water Exposed Area	3	74%	74%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
User Defined Industrial	1.50	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2027	0.00	204	0.03	< 0.005

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	29.2	annual days of extreme heat
Extreme Precipitation	1.15	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	3	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	0	0	0	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	3	1	1	3
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	1	1	1	2
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	80.0

AQ-PM	89.3
AQ-DPM	10.3
Drinking Water	72.3
Lead Risk Housing	40.7
Pesticides	80.3
Toxic Releases	55.8
Traffic	13.2
Effect Indicators	—
CleanUp Sites	51.0
Groundwater	0.00
Haz Waste Facilities/Generators	10.2
Impaired Water Bodies	51.2
Solid Waste	0.00
Sensitive Population	—
Asthma	90.3
Cardio-vascular	99.6
Low Birth Weights	52.5
Socioeconomic Factor Indicators	—
Education	83.0
Housing	62.8
Linguistic	43.9
Poverty	63.0
Unemployment	90.6

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—

Above Poverty	23.36712434
Employed	30.46323624
Median HI	42.02489414
Education	—
Bachelor's or higher	29.93712306
High school enrollment	24.98395996
Preschool enrollment	14.88515334
Transportation	—
Auto Access	37.4566919
Active commuting	2.515077634
Social	—
2-parent households	42.44835108
Voting	42.37135891
Neighborhood	—
Alcohol availability	92.05697421
Park access	8.122674195
Retail density	5.363788015
Supermarket access	14.14089568
Tree canopy	6.480174516
Housing	—
Homeownership	65.25086616
Housing habitability	54.01000898
Low-inc homeowner severe housing cost burden	47.24752983
Low-inc renter severe housing cost burden	51.96971641
Uncrowded housing	22.40472219
Health Outcomes	—
Insured adults	31.56679071
Arthritis	0.0

Asthma ER Admissions	5.4
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	40.3
Cognitively Disabled	14.5
Physically Disabled	57.4
Heart Attack ER Admissions	6.4
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	19.6
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	7.3
Elderly	60.0
English Speaking	54.4
Foreign-born	33.3

Outdoor Workers	4.3
Climate Change Adaptive Capacity	—
Impervious Surface Cover	92.8
Traffic Density	4.8
Traffic Access	0.0
Other Indices	—
Hardship	73.2
Other Decision Support	—
2016 Voting	25.3

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	78.0
Healthy Places Index Score for Project Location (b)	23.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	Estimates based on site layout
Construction: Construction Phases	Estimated Schedule based on Phase 2 timeline of 6 months
Construction: Off-Road Equipment	Equipment listing based on defaults and similar projects
Construction: Trips and VMT	Worker trips based on defaults and project estimates
Construction: Paving	none

APPENDIX B

HEALTH RISK ASSESSMENT MODELING FILES

not included in PDF

Appendix C: Biological Assessment

BIOLOGICAL ASSESSMENT

CITY OF MADERA

MADERA WATER STORAGE TANK PROJECT



JUNE 2025

BIOLOGICAL ASSESSMENT

MADERA WATER STORAGE TANK PROJECT

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June 2025

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Project #180483

Table of Contents

Executive Summary *1*

SECTION 1 - Introduction *1-1*

1.1 - Species Considered in this Document 1-1
1.2 - Consultation to Date 1-1
1.3 - Proposed Action 1-2
1.3.1 - Purpose and Need of the Proposed Action 1-2
1.3.2 - Project Location 1-2
1.3.3 - Project Description 1-2
1.3.4 - Work Period 1-2
1.3.5 - Construction 1-2
1.3.6 - Interrelated and Interdependent Actions 1-2
There are no interrelated or interdependent actions associated with the proposed Action 1-2
1.3.7 - General Conservation Measures 1-2

SECTION 2 - Regulatory Setting *2-5*

SECTION 3 - Methods *3-9*

3.1 - Definitions 3-9
3.1.1 - Action Area 3-9
3.1.2 - Biological Survey Area 3-10
3.2 - Literature Review and Database Analysis 3-1
3.3 - Biological Field Surveys 3-2
3.4 - Resource Agency Coordination and Professional Contacts 3-2

SECTION 4 - Environmental Baseline *4-2*

4.1 - Physical Characteristics 4-2
4.1.1 - Topography 4-2
4.1.2 - Climate 4-3
4.1.3 - Regional Land Use 4-3
4.1.4 - Soils 4-3
4.1.5 - Hydrology and Drainage Patterns 4-4
4.2 - Vegetation and Other Land Cover 4-4
4.2.1 - Habitats Within the Action Area 4-4
4.2.2 - Habitats Surrounding the Action Area 4-1
4.3 - General Plant Observations 4-1
4.4 - General Wildlife Observations 4-2
4.5 - Aquatic Resources and Fish Habitat 4-2
4.6 - Designated Critical Habitat in the Action Area 4-2
4.6.1 - Critical Habitat 4-2

4.6.2 - Habitat Connectivity/Movement Corridors....4-3

SECTION 5 - Species and Critical Habitat Considered....5-3

5.1 - Species within the Region....5-3
5.1.1 - Federally Listed Species within the Region....5-4
5.1.2 - Additional State Listed Species within the Region....5-5
5.2 - Discussion of Federally Listed Species with the Potential to Occur....5-6
5.3 - Discussion of State Listed Species with the Potential to Occur....5-6

SECTION 6 - Effects Analysis....6-1

6.1 - Project Effects on Affected Species....6-1
6.1.1 - Effects on Federally and State Listed Plant Species....6-1
6.1.2 - Effects on Federally and State Listed Wildlife Species....6-1
6.1.3 - Effects on Additional State Listed Wildlife Species....6-1
6.1.4 - Nest Project Effects on Species....6-2
6.2 - Effects from Interrelated Actions....6-2
6.3 - Cumulative Effects....6-3

SECTION 7 - Conclusions and Determinations....7-1

7.1 - Conclusions....7-1
7.2 - Determination....7-1

SECTION 8 - References....1

SECTION 9 - List of Preparers....1

Appendices

Appendix A – U.S. Fish and Wildlife Service IPaC, California Department of Fish and Wildlife CNDDB, and California Native Plant Society Threatened and Endangered Species List
Appendix B – Special-Status Species Evaluation Table
Appendix C – Representative Photographs
Appendix D – Plants and Wildlife Species Observed On Site

List of Figures

Figure 1-1 Regional Location Map....1-3
Figure 1-2 Vicinity Map....1-1
Figure 1-3 Water Storage Site Plan....1-1
Figure 3-1 Biological Survey Area....3-1
Figure 4-1 NHD and NWI....4-1
Figure 5-1 Swainson's Hawk Observation....5-1

List of Tables

Table 5-1 Federally Listed, Proposed, and Candidate Plant and Wildlife Species Evaluated for Their 5-4
Table 5-2 Additional State Listed, Proposed, and Candidate Plant and Wildlife Species Evaluated for 5-5

List of Abbreviated Terms

APN	Accessor's Parcel Number
BA	Biological Assessment
BSA	Biological Study Area
Cal-IPC	California Invasive Species Council
CCR	California Code of Regulations
CDFW	California Department Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
City	City of Madera
CM	Conservation Measure
CNDDB	California Natural Diversity Database
CNPPA	California Native Plant Protection Act
CNPS	California Native Plant Society
CWA	Clean Water Act
CWHR	California Wildlife Habitat Relationships
EFH	Essential Fisheries Habitat
FE	Federal Endangered Species
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
FP	Fully Protected
FPT	Federal Proposed Threatened
FT	Federal Threatened Species
IPaC	Information for Planning and Conservation
MBTA	Migratory Bird Treaty Act
NEPA	National Environmental Policy Act
NHD	National Hydrology Dataset
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resources Conservation Service
NWI	National Wetland Inventory
ROW	Right of Way
SCE	California Candidate Endangered
SE	California Endangered Species
SOI	Sphere of Influence
SR	California State Listed – Rare
SSC	CDFW Species of Special Concern
ST	California Threatened Species
USBR	United States Bureau of Reclamation
USFWS	United States Fish and Wildlife Services
USGS	United States Geological Services
WL	CDFW Watch List

EXECUTIVE SUMMARY

The purpose of this Biological Assessment is to provide technical information to review the proposed project in sufficient detail to determine to what extent the proposed project may potentially impact federally listed threatened, endangered, or proposed species. This Biological Assessment is prepared in accordance with 50 Code of Federal Regulations (CFR) 402, legal requirements found in Section 7 (a)(2) of the federal Endangered Species Act (FESA; 16 United States Code (USC) 1536(c)). For the purposes of this report, State listed species will also be analyzed for impacts by the proposed project. The document presents technical information upon which later decisions regarding project effects are developed.

The City of Madera (City; Applicant) proposes to develop a 3-acre property, (Assessor's Parcel Number (APN) 038-030-031), located in Madera, California, with water tanks and distribution facilities to meet the demand conditions identified by hydraulic model demands and projections. The proposed water tank site is located in the City of Madera Sphere of Influence (SOI), generally bounded by Lake Street to the east, Ellis Street to the south, State Highway 99 to the west, and Martin Street to the north. The water tank site is proposed to be connected via a pipeline that will be placed within the City of Madera right-of-way (ROW). The pipeline route will follow ROW south along Lake Street, west along Ellis Street, and northwest along Sharon Boulevard. This pipeline will connect to an existing well site located at APN 013-280-001.

For the purpose of this Biological Assessment the "Action Area" refers to the areas where temporary and permanent impacts due to Project Activities will occur. The Action Area refers to the water tank site and the pipeline route that will be placed within the City of Madera ROW. The Action Area are situated among urban development and nonnative grassland habitat.

The California Natural Diversity Database (CNDDB), the California Native Plant Society (CNPS) database, and the United States Fish and Wildlife Service (USFWS) Information for Planning and Conservation (IPaC) database were reviewed to assess whether occurrences of federally listed species or USFWS Critical Habitat Units have been documented within the Action Area and USGS nine-quadrangles surrounding the Project.

The Biological Survey Area (BSA) was assessed to evaluate the presence of federally protected plant and wildlife species and their habitat. The BSA includes the Action Area and a 500-foot survey buffer surrounding the Action Area. Habitat within the BSA include urban, and non-native annual grassland.

There were thirteen federally listed plant and wildlife identified in the CNDDB, CNPS, and IPaC database searches of the nine quadrangles surrounding the Project. There is no suitable habitat that could support federally listed and protected plant or wildlife species within the Action Area.

There are fifteen State listed wildlife species identified in the CNDDB, CNPS, and IPaC database searches of the nine quadrangles surround the Project, ten of which are also federally listed. None of the five identified additional State listed species were reported within the Action Area based on database records or during the site survey. There is no suitable habitat that could support State listed or protected wildlife or plant species within the Action Area, but the surrounding BSA may support the State listed Swainson's hawk (*Buteo swainsoni*).

The Swainson's hawk and other migratory nesting birds are identified as potentially occurring outside of the Action Area but within the BSA. Project activities could have direct impacts on these species, including direct mortality of individuals from vehicle strikes and modified behavior due to the increase in human activity during construction activities if they occur during the nesting season. Other direct impacts to individuals in the vicinity could result from poisoning due to ingestion of oil or antifreeze leaked from construction vehicles. Indirect impacts include changes in soil moisture and chemistry inducing changes in the local plant community on which the prey base species relies. Implementation of conservation measures and species-specific avoidance and minimization measures would reduce impacts of the Project stressors to Swainson's hawk, and other migratory nesting birds to a level that would be less than significant.

The Project may affect but is not likely to adversely affect the Swainson's hawk and no cumulative effects will occur if the recommended avoidance measures are implemented. The Action will result in no effect to wetlands or non-wetland waters.

SECTION 1 - INTRODUCTION

The purpose of this Biological Assessment (BA) is to review the Madera Water Storage Tank Project (Project) in sufficient detail to determine whether the proposed Action may affect any of the 4 federally listed plant species, 9 federally listed wildlife species, and 5 State listed wildlife species listed below. This BA is prepared in accordance with legal requirements set forth under Section 7 of the Endangered Species Act (16 U.S.C. 1536 (c)).

1.1 - Species Considered in this Document

Federally listed species considered in this document (Note species denoted with an asterisk (*) are also State listed as threatened, endangered, or sensitive species):

- Succulent owl's clover (*Castilleja campestris succulenta*) – Threatened*
- San Joaquin Valley Orcutt grass (*Orcuttia inaequalis*) – Threatened*
- hairy Orcutt grass (*Orcuttia pilosa*) – Threatened*
- Greene's tuctoria (*Tuctoria greenei*) – Endangered*
- monarch butterfly (*Danaus plexippus*) – Proposed Threatened
- valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) – Threatened
- vernal pool fairy shrimp (*Branchinecta lynchi*) – Threatened
- California tiger salamander (*Ambystoma californiense*) – Threatened*
- western spadefoot (*Spea hammondii*) – Proposed Threatened*
- northwestern pond turtle (*Actinemys marmorata*) - Proposed Threatened*
- blunt-nosed leopard lizard (*Gambelia sila*) – Endangered*
- Fresno kangaroo rat (*Dipodomys nitratoides exilis*) – Endangered*
- San Joaquin kit fox (*Vulpes macrotis mutica*) – Endangered*

Additional State listed species considered in this document:

- coast horned lizard (*Phrynosoma blainvillii*) – California Department of Fish and Wildlife (CDFW) Species of Special Concern (SSC)
- tricolored blackbird (*Agelaius tricolor*) – Threatened
- western burrowing owl (*Athene cunicularia* ssp. *hypugaea) – State Candidate*
- Swainson's hawk *(Buteo swainsoni)* – Threatened
- American badger (*Taxidea taxus*) – CDFW SSC

1.2 - Consultation to Date

There has been no consultation to date.

1.3 - Proposed Action

1.3.1 - Purpose and Need of the Proposed Action

To meet the increasing and future water demands, the City of Madera proposes to construct a water supply and distribution facility to conditions identified by hydraulic model demands and projections. Provisions for future facility expansion to meet Year 2044 and Year 2058 will be incorporated into the design documents.

1.3.2 - Project Location

The proposed water tank site is located in the City of Madera Sphere of Influence (SOI) generally bounded by Lake Street to the east, Ellis Street to the south, and Martin Street to the north and State Highway 99 to the west (Figure 1-1). The Action Area will consist of the construction of a water storage tank, located on Assessor's Parcel Number (APN) 038-030-031 and approximately 2.5-miles for a water pipeline (Figure 1-2 and Figure 1-3). The pipeline will be placed within City of Madera right-of-way (ROW) south along Lake Street, west along Ellis Street, and northwest along Sharon Boulevard. This pipeline will connect to an existing well site located at APN 013-280-001.

1.3.3 - Project Description

The Project will include construction of water supply and distribution facilities to meet the demand conditions identified by hydraulic model demands and projections. Provisions for future facility expansion to meet Year 2044 and Year 2058 will be incorporated into the design documents. The initial phase (Phase 1) includes the development of a water storage tank and a pipeline connection to an existing water well site.

1.3.4 - Work Period

Construction of the water storage tank and pipeline would occur over a maximum of 24 months.

1.3.5 - Construction

It is anticipated that the following pieces of equipment would be used during construction activities:

- Roller
- Loaded trucks
- Excavator
- Generator
- Service truck
- Air compressor

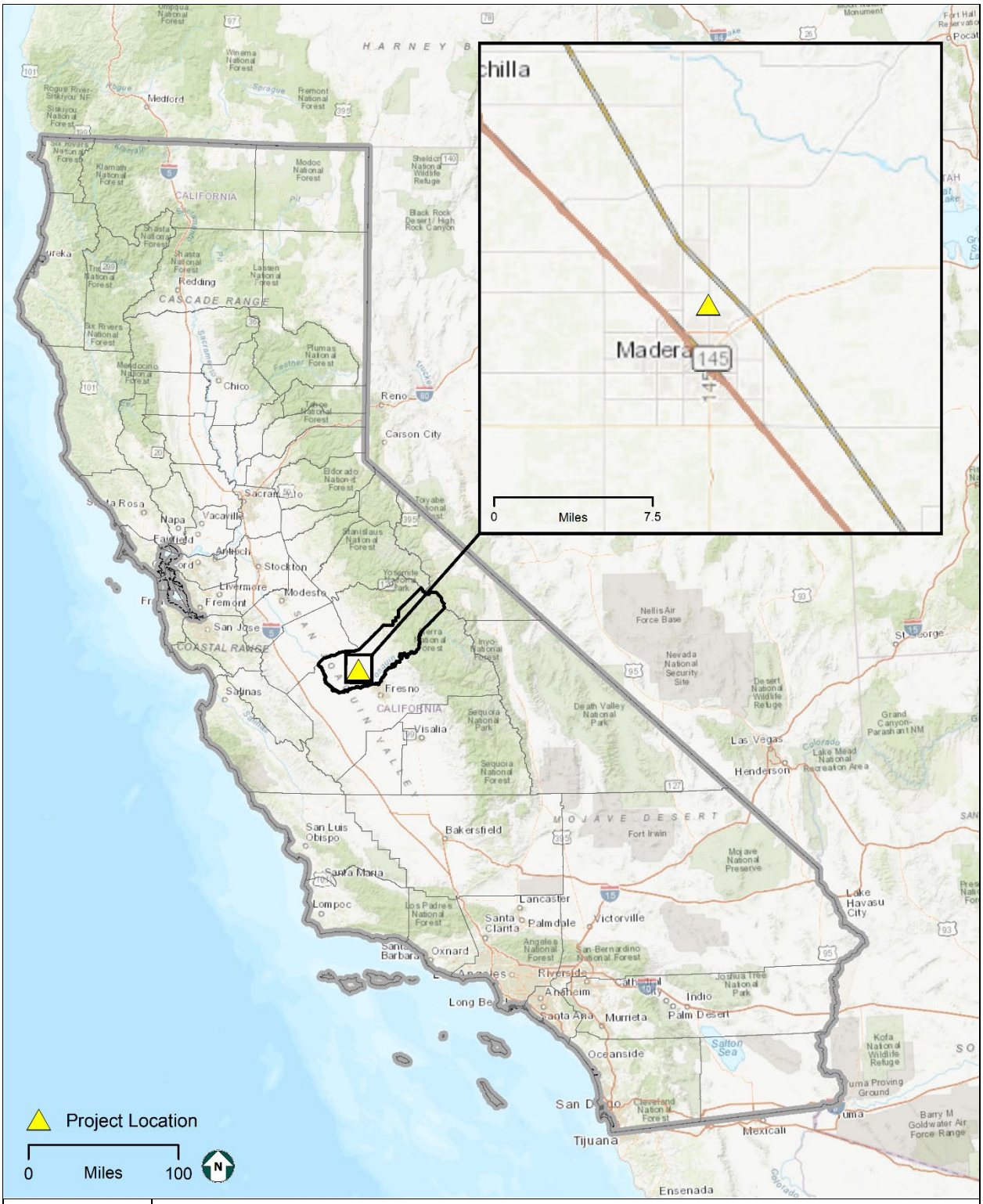


Figure 1-1
Regional Location Map
Madera Water Storage Tank Project
Madera, Madera County California

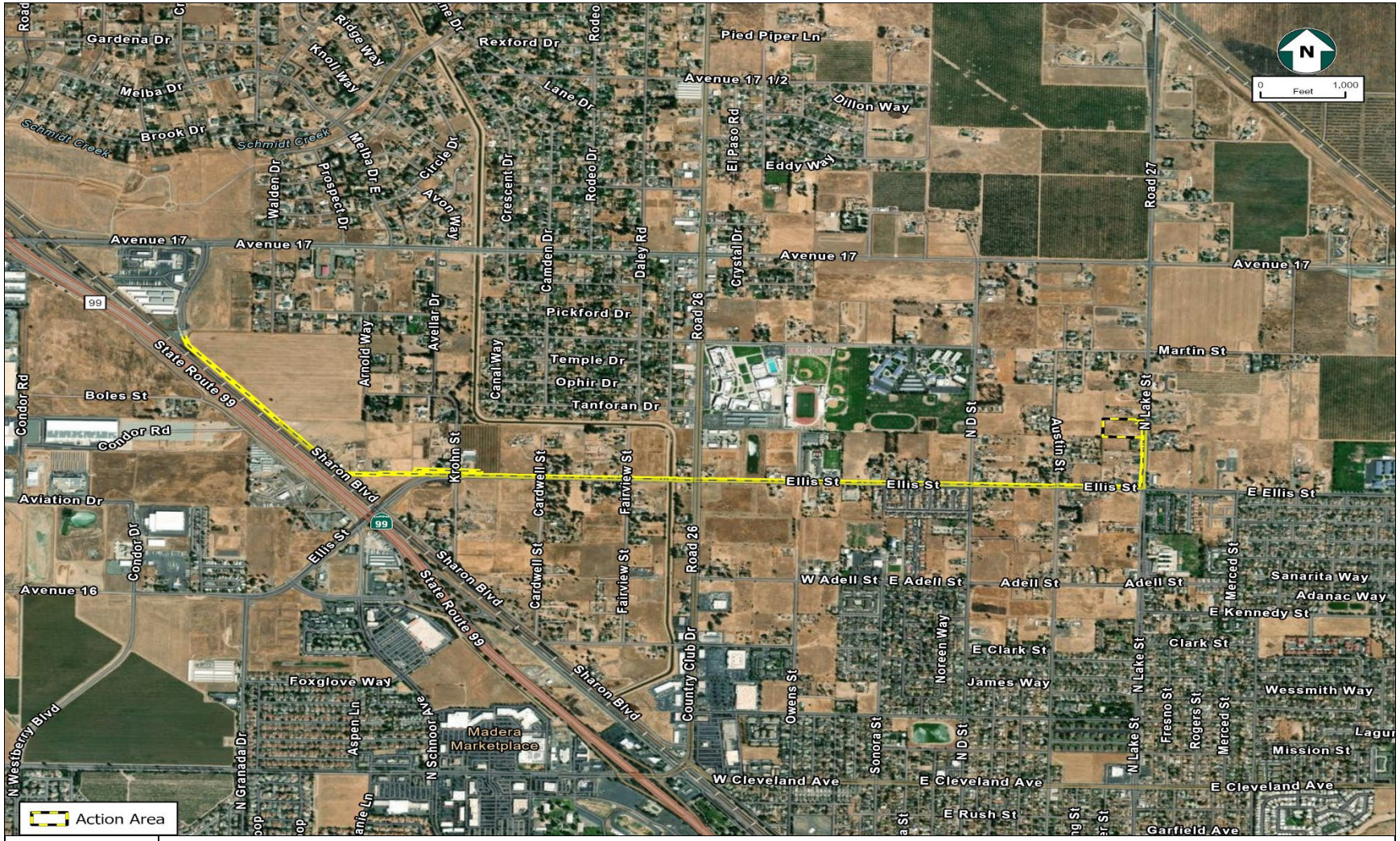


Figure 1-2
Vicinity Map
Madera Water Storage Tank Project
Madera, Madera County California

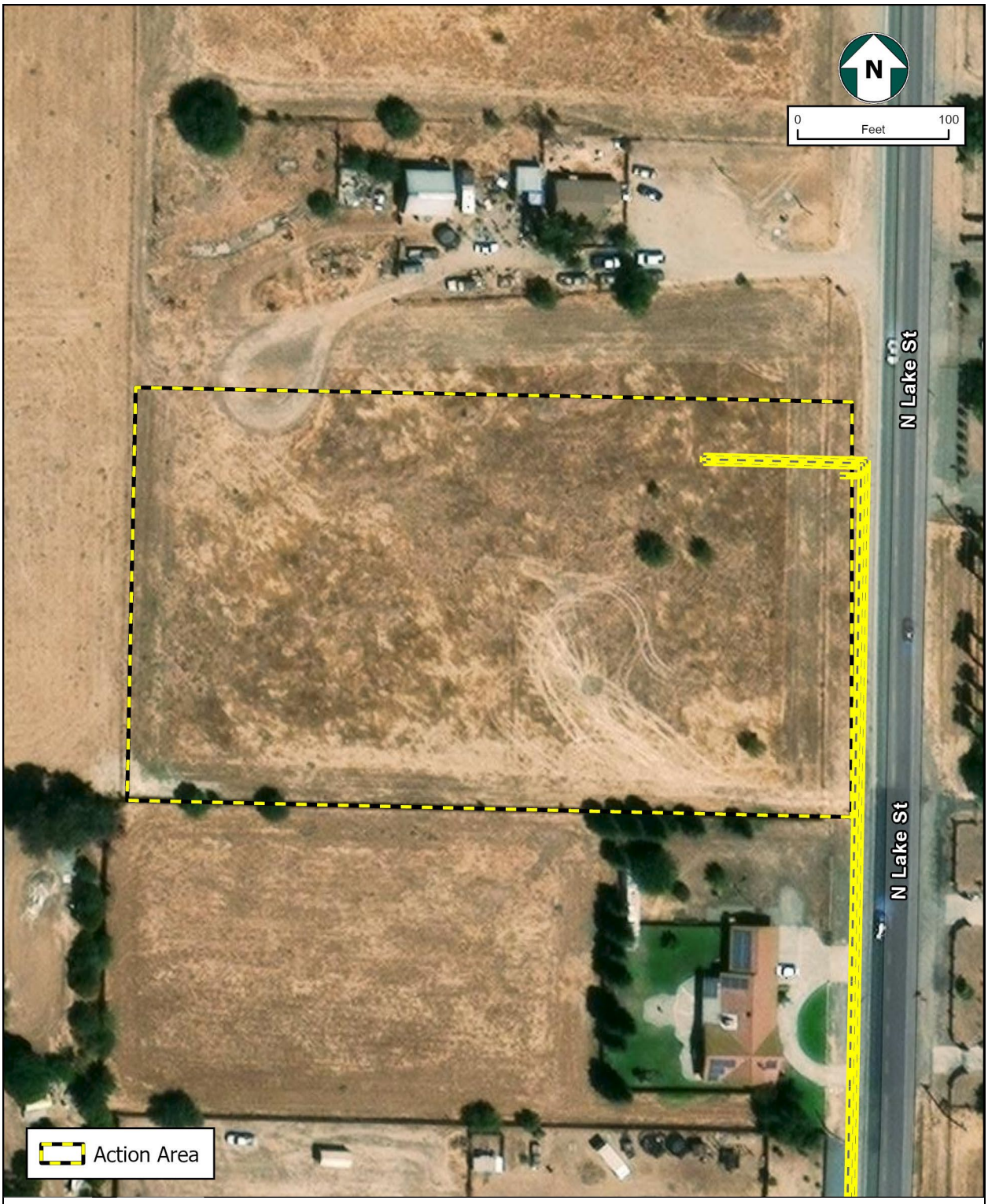


Figure 1-3
Water Storage Site Plan
Madera Water Storage Tank Project
Madera, Madera County California

1.3.6 - INTERRELATED AND INTERDEPENDENT ACTIONS

There are no interrelated or interdependent actions associated with the proposed Action.

1.3.7 - GENERAL CONSERVATION MEASURES

This section describes biological conservation measures (CM) that will be implemented as part of the Project to further avoid and minimize potential effects on federal and State listed and other special-status species. These include general conservation measures that will be incorporated into the Project design and specific conservation measures incorporated for the protection of federal and State listed, and other sensitive species (special-status) expected to occur adjacent to the Action Area. Implementation of these measures will further protect these species from potential indirect effects during the construction phase of the Project.

CM-BIO-1: Preconstruction surveys will be conducted prior to Project Activities to verify if special-status or sensitive species are present within 500 feet of the Project. The focal species shall include Swainson's hawk and other migratory nesting birds.

CM-BIO-2: If construction activities occur between February 1 and September 15, pre-disturbance surveys for active raptor and migratory bird nests must be conducted no more than 10 days prior to the commencement of disturbance. Surveys shall follow USFWS and CDFW guidance and/or protocols, as applicable. If no active nests or nesting birds are identified, then Project construction activities may proceed, and no further mitigation measures for nesting birds are required. If active nest(s) are identified, the active nest(s) should be continuously surveyed for the first 24 hours after detection to establish a behavioral baseline prior to any construction-related activities.

Once construction commences, all nests shall be continuously monitored to detect any behavioral changes because of the Project (i.e., nest avoidance or abandonment). If behavioral changes are observed, the work causing that change shall cease until the applicant's qualified biologist consults with the CDFW and/or the USFWS and the qualified biologist used by the applicant implements the recommended measures. During such times as the qualified biological monitor is not on site while construction workers are on site, a minimum non-disturbance buffer of 250 feet shall be established around active nests and a 500-foot no-disturbance buffer around the nests of raptors until the breeding season has ended or until a qualified biologist has determined that the birds have fledged and are no longer reliant upon the nest or parental care for survival, and any adult birds are no longer occupying the nest. Deviations from these no-disturbance buffers may be implemented if the qualified biologist concludes that work within the buffer area would not cause nest avoidance or abandonment (e.g., when the disturbance area would be concealed from a nest site by topography) provided that notification of this determination of a deviation in the no-disturbance buffer is provided by the qualified biologist no less than 15 days in advance to the California Department of Fish and Wildlife and the United States Fish and Wildlife.

CM-BIO-3: When an active raptor nest is identified, and when construction activities occur within the avoidance buffer of the nest, a qualified biologist shall conduct a daily site visit to observe all construction-related activities and or activity near an active nest. If construction activities are not occurring within the avoidance buffer of a nest, these resources should be checked during a weekly site visit to observe activity. The qualified biologist should be familiar will all potential species and their sign (i.e., tracks, scat, etc.) that have the potential to occur within the proposed Action Area. The qualified biologist will prepare a daily datasheet to record all construction-related activities that occurred and activity at an active nest or den and document the progress of the project with photographs.

CM-BIO-4: If construction work occurs after August 30 and ends before March 1 (outside of the breeding season), impacts to the Swainson's hawk would be avoided. Surveys would not be required for work conducted during this part of the year, and no further mitigation for nest disturbance is required.

1. *Protocol Surveys*. For work that begins between March 1 and August 30, a qualified biologist with expertise in Swainson's hawk shall conduct protocol surveys of potential nesting habitat within 0.5 mile of any construction activities prior to initiation of such activities. The project applicant shall conduct a protocol-level survey in conformance with the "Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley," Swainson's Hawk Technical Advisory Committee (TAC) (https://www.wildlife.ca.gov/conservation/survey-protocols#377281284-birds) (May 31, 2000) hereby incorporated by reference. This protocol prescribes minimum standards for survey equipment, mode of survey, angle and distance to tree, speed, visual and audible clues, distractions, notes and observations, and timing of surveys.

   A written report with the pre-construction survey results must be provided to the Planning Department and CDFW within 30 days of the commencement of construction-related activities. The report shall include: the date of the report, authors and affiliations, contact information, introduction, methods, study location, including map, results, discussion, and literature cited.

   If the required protocol surveys show there are no active Swainson's hawk nests within the 0.5-mile of construction activities, then no further mitigation for nest disturbance will be required. If protocol surveys show that there are no active Swainson's hawk nests within 10 miles of the site, then no further mitigation for foraging impacts will be required.

2. *Nest Avoidance*. If nesting Swainson's hawks are observed within 0.5-mile of the project site during the protocol surveys, the project applicant must implement CDFW pre-approved mitigation measures to avoid nest impacts during construction. These measures include:

a) All project-related activities with the potential to cause nest abandonment or forced fledging of young shall be avoided until the young have fledged.
b) If disturbances, habitat conversions, or other project-related activities, that may cause nest abandonment or forced fledging, are necessary, within the nest protection buffer zone (0.5-mile), monitoring of the nest site by a qualified raptor biologist, funded by the project applicant, shall be required to determine if the nest is abandoned. If the nest is abandoned, but the nestlings are still alive, the project proponent is required to fund the recovery and hacking, that is the controlled release of captive reared young, of the nestling.
c) The project applicant shall be required to coordinate with CDFW to determine if project activities with the potential to cause disturbance to nesting Swainson's hawks within the 0.5-mile buffer may proceed with a reduced nest buffer and an approved biological monitor. CDFW may authorize a reduced nest buffer with the presence of a monitoring biologist during construction activities to ensure that the nest is not disturbed. Routine disturbances such as agricultural activities, commuter traffic, and routine maintenance activities within 0.5-mile of an active nest are not prohibited.

CM-BIO-5. Prior to the initiation of construction activities, all construction personnel shall attend a Worker Environmental Awareness Training program developed by a qualified biologist. Any personnel associated with construction that did not attend the initial training shall be trained by the authorized biologist or authorized construction personnel prior to working within the Action Area. Any employee responsible for the operations and maintenance or decommissioning of Project facilities shall attend the Worker Environmental Awareness Training program prior to starting work on the Project. All on-site workers shall attend training on an annual basis. The Program shall be developed and presented by the Project qualified biologist(s) or designee approved by the qualified biologist(s). The program shall include information about the life histories of State or federally listed species with potential to occur on the Action area, their legal status, course of action should these species be encountered on-site, and avoidance and minimization measures to protect these species. The training shall include the following components:

1. Information about the life history and identification of federally listed plant and wildlife species, as well as other special-status plant and wildlife species that may be affected by project activities. The program shall present the legal protection status of each such species, the definition of "take" under the Federal Endangered Species Act and California Endangered Species Act, measures the Project proponent/operator shall implement to protect the species, reporting requirements, specific measures for workers to avoid take of special-status plant and wildlife species, and penalties for violation of Project permits or other Project-related environmental measures.
2. An acknowledgement form signed by each worker indicating that the Worker Environmental Awareness Training and Education program has been completed shall be kept on file at the construction site.

3. A copy of the training transcript and/or training video, as well as a list of the names of all personnel who attended the Worker Environmental Awareness Training and Education program, and signed acknowledgement forms shall be submitted to the contractor's construction manager or on-site superintendent.
4. A copy of the training transcript, training video or informational binder for specific procedures shall be kept available for all personnel to review and be familiar with, as necessary.
5. The construction crews and contractor(s) shall be responsible for preventing unauthorized impacts from Project activities to sensitive biological resources that are outside the areas defined as subject to impacts by Project permits. Unauthorized impacts may result in Project stoppage, and/or fines depending on the impact and coordination with the appropriate State or federal biological agency.

CM-BIO-6: Prior to the issuance of building permits, if irrigation water drainages cannot be avoided, specific impacts on the features shall be quantified by a water delineation. A Central Valley Regional Water Quality Control Board Section 401 Water Quality Certification and California Department of Fish and Wildlife Streambed Alteration Agreement shall be obtained, or confirmation received from these agencies that regulatory permits are not required.

SECTION 2 - REGULATORY SETTING

Federal Endangered Species Act of 1973 (USC, Title 16, Sections 1531 -1543)

The Federal Endangered Species Act (FESA) and subsequent amendments provide guidance for the conservation of endangered and threatened species and the ecosystems upon which they depend. The FESA defines species as threatened or endangered and provides regulatory protection for listed species. The FESA provides a program for the conservation and recovery of threatened and endangered species as well as the protection of designated critical habitat that USFWS determines is required for the survival and recovery of listed species.

Section 9 lists actions that are prohibited under the FESA. Although take of a listed species is prohibited, it is allowed when it is incidental to an otherwise legal activity. Section 9 prohibits take of listed species of fish, wildlife, and plants without special exemption. The definition of "harm" includes significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns related to breeding, feeding, or shelter. "Harass" is defined as actions that create the likelihood of injury to listed species by disrupting normal behavioral patterns related to breeding, feeding, and shelter.

Section 7 of the FESA requires federal agencies, in consultation with and assistance from the Secretary of the Interior or the Secretary of Commerce, as appropriate, to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction of adverse modification of critical habitat for these species. The USFWS and National Marine Fisheries Service (NMFS) share responsibilities for administering the FESA. Regulations governing interagency

cooperation under Section 7 are found in California Code of Regulations (CCR) Title 50, Part 402. If an activity could result in "take" of a listed species as an incident of an otherwise lawful activity, then a biological opinion can be issued with an incidental take statement that exempts the activity from FESA's take prohibitions.

Section 10 provides a means whereby a nonfederal action with the potential to result in take of a listed species can be allowed under an incidental take permit. Application procedures are found at CFR Title 50, Sections 13 and 17 for species under the jurisdiction of USFWS and CFR, Title 50, Sections 217, 220, and 222 for species under the jurisdiction of NMFS. Section 10 would apply to the Project if take of a species (as defined in Section 9) were determined to occur.

Section 4(a)(3) and (b)(2) of the FESA requires the designation of critical habitat to the maximum extent possible and prudent based on the best available scientific data and after considering the economic impacts of any designations. Critical habitat is defined in section 3(5)(A) of the FESA: 1) areas within the geographic range of a species that are occupied by individuals of that species and contain the primary constituent elements (physical and biological features) essential to the conservation of the species, thus warranting special management consideration or protection; and 2) areas outside of the geographic range of a species at the time of listing but that are considered essential to the conservation of the species.

California Endangered Species Act (California Fish and Game Code Section 2050 et seq.)

The California Endangered Species Act (CESA) establishes the policy of the State to conserve, protect, restore, and enhance threatened or endangered species and their habitats. The CESA mandates that State agencies should not approve Projects that would jeopardize the continued existence of threatened or endangered species if reasonable and prudent alternatives are available that would avoid jeopardy. For Projects that would result in take of a species listed under the CESA, a project proponent would need to obtain a take permit under Section 2081(b). Alternatively, the California Department of Fish and Wildlife (CDFW) has the option of issuing a Consistency Determination (Section 2080.1) for projects that would affect a species listed under both the CESA and the FESA, as long as compliance with the FESA would satisfy the “fully mitigate” standard of CESA, and other applicable conditions.

California Native Plant Protection Act

The California Native Plant Protection Act (CNPPA) protects endangered and rare species, subspecies, and varieties of wild plants native to California. A “native plant” is defined as a plant growing in a wild, uncultivated state normally found native to the vegetation of California. The CNPPA affords the California Fish and Game Commission the authority to designate native plants as endangered or rare, and to require permits for collecting, transporting, or selling such plants.

California Fully Protected Species

Sections 3511, 4700, 5050, and 5515 of Fish and Game Code prohibit the "take" of any fully protected bird, mammal, reptile and amphibian, or fish species, respectively. Except as provided in Sections 2081.7 or 2835, fully protected species may not be taken or possessed at any time, and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research and relocation of the species for the protection of livestock.

California Environmental Quality Act

The California Environmental Quality Act (CEQA) establishes the State policy to prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures. CEQA applies to actions directly undertaken, financed, or permitted by State, County, or local lead agencies.

The purpose of CEQA is to identify the significant effects on the environment from a project or other action and then to identify lower/no impact alternatives to a project and indicate the manner in which significant effects can be mitigated or avoided. The mechanism to ensure protection is the preparation and review of an environmental document that identifies the existing environmental conditions, describes a proposed action or project, assesses the types and significance of impacts on the environment, and identifies mitigation that would mitigate, reduce, or avoid impacts where feasible. If significant impacts cannot be mitigated, CEQA requires the lead agency to reject the project or make findings of fact and issue a statement of overriding considerations. Various responsible and trustee agencies provide review, comments, and input into the decision-making process. Appendix G of the CEQA guidelines identifies sensitive biological resources that must be addressed and fully analyzed, which include wetlands, sensitive natural communities, special-status plant and wildlife species, migratory corridors and nursery sites, and other biological resources of local, regional, State, and federal importance.

Clean Water Act, Sections 401 and 404

The Clean Water Act (CWA) is a federal law that protects the chemical, physical, and biological integrity of the nation's waters by preventing pollutants, providing assistance for the improvement of wastewater treatment, and maintaining the integrity of wetlands. The Environmental Protection Agency defines the CWA as a law that "...establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters." The State of California regulates water quality related to discharge of fill material into waters of the State pursuant to Section 401 of the Clean Water Act (CWA). The local Regional Water Quality Control Board has jurisdiction over all those areas defined as jurisdictional under Section 404 of the CWA and regulates water quality for all waters of the State. The United States Army Corps of Engineers, under Section 404 of the CWA, regulates discharges of dredged or fill material in "waters of the United States." In addition to designated and traditional navigable waters, this term includes "waters such as intrastate lakes, rivers, streams (including intermittent streams),

mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters: (1) which are or could be used by interstate or foreign travelers for recreational or other purposes; or (2) from which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or (3) which are used or could be used for industrial purpose by industries in interstate commerce." Tributaries to "waters of the United States" and adjacent wetlands would also be included [33 California Federal Regulations (CFR) §328.3].

Lake or Streambed Alteration Agreements

The CDFW is authorized under State Fish and Wildlife Code Sections 1600-1607 to develop mitigation measures and enter into a Lake or Streambed Alteration Agreements with applicants (both public and private) that propose a project that would divert or obstruct the natural flow of or change the bed, channel, or bank of any lake or stream in which there is a fish or wildlife resource. Through this agreement, the CDFW may impose conditions to limit and fully mitigate impacts on fish and wildlife resources.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA), first enacted in 1918, is a series of treaties that the United States has with Great Britain (on behalf of Canada), Mexico, Japan, and the former Soviet Union that provide for international migratory bird protection. The MBTA currently includes several hundred species and includes all native birds. The MBTA authorizes the Secretary of the Interior to regulate the taking of migratory birds. The act provides that it shall be unlawful, except as permitted by regulations, "to pursue, take, or kill any migratory bird, or any part, nest or egg of any such bird" (U.S. Code Title 16, Section 703). With only a few exceptions, all birds are included in this prohibition.

Executive Order 13112; Invasive Species

Executive Order 13112, February 3, 1999, established the National Invasive Species Council tasked with acting as an interdepartmental organization to centralize efforts across agencies and political boundaries toward addressing the impacts and ongoing threats of invasive species. Implementation of this Executive Order required, among other actions, limitation, or exclusion of federal funding for projects that may result in promoting the introduction or spread of invasive species (Executive Order 1999). Guidelines established by the Federal Highway Administration (FHWA) stipulate that FHWA funding will not be allocated for projects not in compliance with the Executive Order, and FHWA California Division will not authorize National Environmental Policy Act compliance in the absence of analysis of invasive species for such projects.

Recovery Plan for Upland Species of the San Joaquin Valley

The Recovery Plan for Upland Species of the San Joaquin Valley (USFWS 1998) covers 34 species of plants and animals that occur in the San Joaquin Valley. The USFWS is responsible for the implementation of the recovery plan. Of the species covered, eleven species are

federal and/or State listed as endangered or threatened (six plants and five animals), and 23 species are candidate species or species of concern. The goal of this recovery plan is to delist the eleven endangered (of which one has been delisted) and threatened species and ensure the long-term conservation of 23 candidate species and species of special concern. An interim goal is to down-list the endangered species to threatened status.

City of Madera General Plan

CHAPTER 5: CONSERVATION ELEMENT

The Project is subject to the City of Madera General Plan (City of Madera 2009), which includes a Conservation Element chapter. This chapter provides guidance on the protection of natural resources such as water supply and quality, soils and agriculture, biology, air, climate change, energy and energy efficiency, and green building/ Low Impact Development. The Action will implement measures such as those listed above (measures BIO-1 through BIO-3) to remain compliant with the General Plan. Therefore, implementation of the proposed Action would have no conflict related to any adopted local policies or ordinances protecting biological resources.

Biology

Goal CON-7: Protection of special-status plant and animal species, including their habitats, in compliance with all applicable state, federal, and other laws and regulations.

Goal CON-8: A balance between the protection of special status plants and animals and the need to provide recreational opportunities and other needs.

Goal CON-9: Natural areas which are available to the public to help build knowledge and appreciation of these resources.

Goal CON-10: A revitalized Fresno River which serves as an amenity, a source of civic pride, and a catalyst for residential and commercial development.

SECTION 3 - METHODS

3.1 - Definitions

3.1.1 - ACTION AREA

The "Action Area" refers to the area where direct and indirect effects would occur. For this Project, the Action Area refers to the three-acre undeveloped parcel for the water storage tank and the 2.5-mile pipeline described in Section 1.3.3.

3.1.2 - BIOLOGICAL SURVEY AREA

The "Biological Survey Area" (BSA) includes the Action Area plus a 500-foot buffer surrounding the Action Area that is often required for surveys of sensitive species (Figure 3-1).

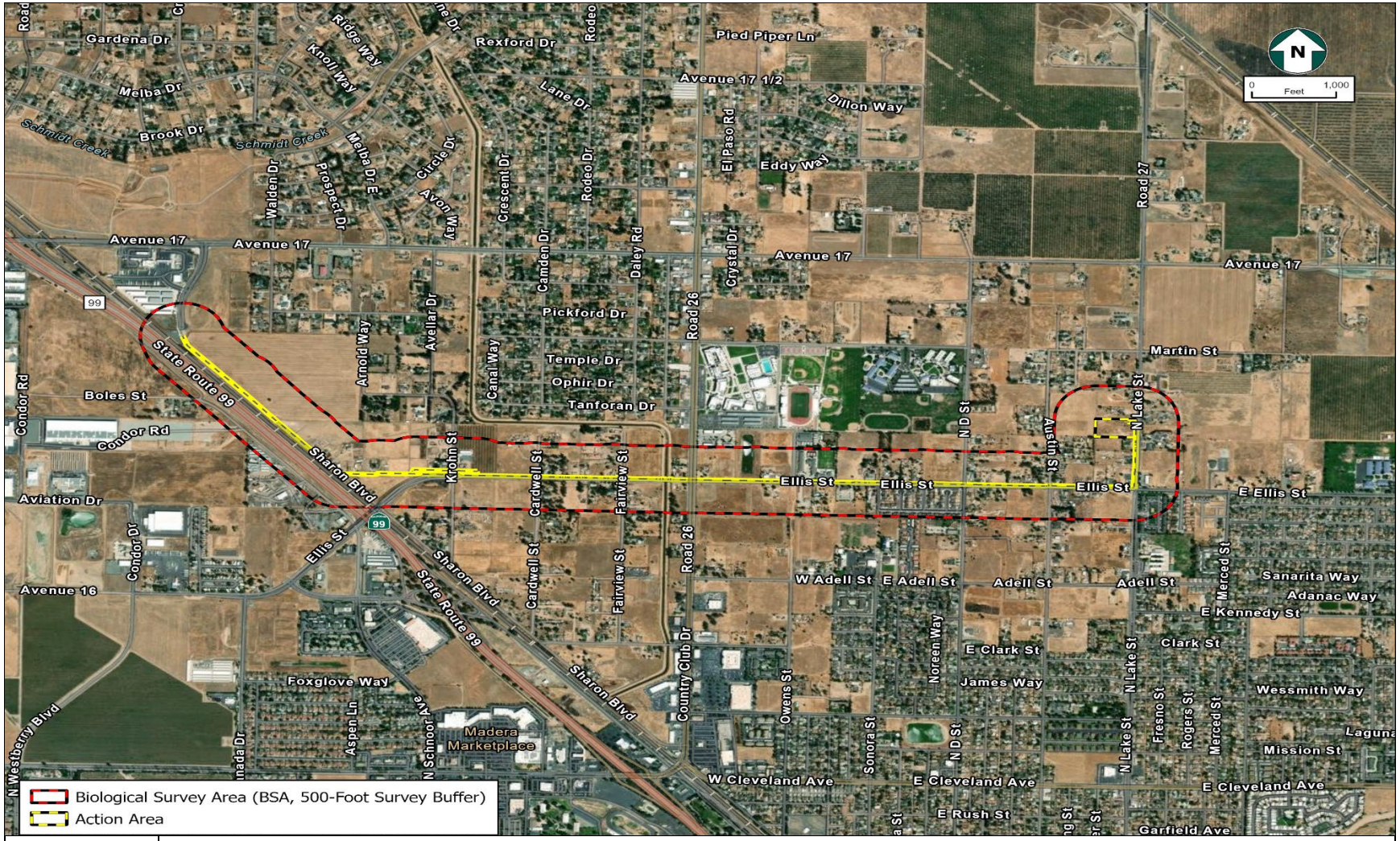


Figure 3-1
Biological Survey Area
Madera Water Storage Tank Project
Madera, Madera County California

3.2 - Literature Review and Database Analysis

The following sources were reviewed for information on federally listed species, critical habitats, and to obtain environmental setting information in the vicinity of the proposed action:

Federally Listed Species or Critical Habitat Database Searches:
- USFWS's Information for Planning and Consultation system (IPaC; USFWS, 2025a)
- CDFW California Natural Diversity Database (CNDDB; CDFW, 2025b)
- California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants of California (CNPS, 2025)
- USFWS Critical Habitat Mapper (USFWS, 2025b)
- CDFW Biogeographic Information and Observation System (Bios; CDFW, 2025a)
- National Oceanic and Atmospheric Administration (NOAA) Habitat Mapper (NOAA, 2025)

Environmental Setting Database Searches:
- USFWS National Wetlands Inventory (NWI; USFWS, 2025c)
- U.S. Geological Survey (USGS) National Hydrography Dataset (NHD; USGS, 2025)
- United States Department of Agriculture, Natural Resources Conservation Service (NRCS) Web Soil Survey (NRCS, 2025a and 2025b)
- Current and historical aerial imagery (Google LLC, 2025)

Federal and State listed and special-status species lists were generated using the USFWS' IPaC system, CDFW's CNDDB, and the CNPS Inventory of Rare and Endangered Plants of California (CDFW 2025a, CNPS 2025, USFWS 2025a). These lists are found in Appendix A.

For Environmental Setting Database searches the focus was on the *Madera* California USGS 7.5-minute quadrangle in which the Action Area is located, plus the surrounding eight quadrangles: *Berenda, Kismet, Daulton, Gregg, Herndon, Biola, Gravelly Ford,* and *Bonita Ranch.*

Much of the information in these databases is obtained opportunistically and is often focused on protected lands or on lands where development has been proposed. Neither database represents a comprehensive survey of special-status resources in the region. As such, the absence of recorded occurrences in these databases at any specific location does not preclude the possibility a special-status resource could be present. The NOAA National Marine Fisheries Service (NMFS) Resources in California tool indicated the Action Area is within an Essential Fisheries Habitat (EFH).

The results of the database inquiries were reviewed to develop a list of special-status resources that may be present within the vicinity of the Action Area. This list was then evaluated against the existing conditions observed during the biological survey of the Action Area to determine which special-status resources have the potential to occur, and then the potential for impacts to those resources as a result of implementation of the proposed action. These lists are found in Appendix B.

3.3 - Biological Field Surveys

A biological survey was conducted by qualified QK Environmental Scientists Karissa Denney and Dyana Mitchell on May 25, 2025. This survey focused on characterizing vegetation associations and habitat conditions, inventorying plant and wildlife species and sign (e.g., scat, tracks, prey remains, burrows, nests, etc.), and analyzing the potential for special-status species to occur on and near the Action Area. Surveys consisted of a windshield survey along the ROW and pedestrian transects on the water storage tank parcel to provide 100 percent visual coverage of the entire Action Area and surrounding BSA. Vegetative communities present on the Project site were classified using the California Wildlife Habitat Relationships (CWHR) system (Mayer and Laudenslayer, 1988), which categorizes communities according to the dominant species present. Plant species were identified using the nomenclature of the Jepson Manual: Vascular Plants of California of Higher Plants (Baldwin et al., 2012). All spatial data were recorded using Environmental Systems Research Institute Collector for ArcGIS software installed on an iPad. Site conditions were documented with representative photographs and included in Appendix C.

3.4 - Resource Agency Coordination and Professional Contacts

Protected or special-status species lists were generated using the USFWS' IPaC system, CDFW's CNDDB, and the CNPS Inventory of Rare and Endangered Plants of California (CDFW 2025b; CNPS 2025; USFWS 2025a). These lists are found in Appendix B.

SECTION 4 - ENVIRONMENTAL BASELINE

Environmental baseline refers to the condition of the listed species or its designated Critical Habitat in the Action Area without the consequences to the listed species or designated Critical Habitat caused by the Action. The environmental baseline includes the past and present impacts of all federal, State, or private actions and other human activities in the Action Area, the anticipated impacts of all proposed federal projects in the Action Area that have already undergone formal or early Section 7 consultation, and the impact of State or private actions that are contemporaneous with the consultation in process. The consequences to listed species or designated critical habitat from ongoing agency activities or existing agency facilities that are not within the agency's discretion to modify are part of the environmental baseline (50 CFR §402.02).

4.1 - Physical Characteristics

4.1.1 - TOPOGRAPHY

The Action Area is located on the eastern floor of the San Joaquin Valley in Madera County. The Action Area is relatively flat with little variation in topography and an elevation ranging from 263-283 feet above mean sea level.

4.1.2 - CLIMATE

The Action Area has a Mediterranean climate, which consists of hot, dry summers and mild, wet winters. Average high temperatures range from 54.0°F in January to 98.2°F in July, with daily temperatures exceeding 100°F several days in the summer (WRCC 2025). Average low temperatures range from 35.9°F in January to 61.4°F in July. Precipitation occurs primarily as rain, most of which falls from November to April, with an average of 10.99 inches of rainfall per year. Precipitation may also occur as a dense fog during the winter, known as Tule fog. Rain rarely falls during the summer months.

4.1.3 - REGIONAL LAND USE

The Action Area is in a region dominated by urban development on the San Joaquin Valley floor. It is within the City of Madera and bordered in all directions by urban development and undeveloped land. Land use near the Action Area is a combination of residential, commercial development and undeveloped lots. Lands further from the Action Area support similar uses.

4.1.4 - SOILS

There are four soil types present within the BSA: Alamo, Cometa, Hanford, and San Joaquin (NRCS 2025).

The Alamo series consists of moderately deep to hardpan, poorly drained soils that formed in alluvium from mixed sources. Alamo soils occur in nearly level basins and drainageways on alluvial fan remnants and floodplains at elevations of 50 to 500 feet. They formed in fine textured alluvium mixed rock sources. The climate is dry subhumid with hot dry summers and cool moist winters. This soil is poorly drained, is ponded or with very slow runoff, and has very slow permeability. It is used mainly for pasture, but some areas are used for dry-farmed grains, or rice (*Oryza sativa*). Vegetation consists of annual grasses, forbs and weeds (NRCS 2025). The Cometa soil series consists of moderately deep, and moderately to well drained soils. These soils formed in alluvium derived from granitic rock sources. These soils occur on gently sloping, slightly dissected older stream terraces. They have very slow permeability and slow to medium runoff. This soil type is used for growing rice (*Oryza sativa*), vineyards, orchards, and dry-farmed grain. Vegetation consisting of annual grasses, forbs, and weedy species grow in uncultivated areas of this soil type. This soil is considered hydric (NRCS 2025).

The Hanford series consists of very deep, well drained soils that formed in moderately coarse textured alluvium dominantly from granite (NRCS 2025). Hanford soils are on stream bottoms, floodplains and alluvial fans and have slopes of 2 to 9 percent. The mean annual precipitation is about 12 inches and the mean annual air temperature is about 63 °F. The Hanford soils are on stream bottoms, floodplains and alluvial fans at elevations of 150 to 3,500 feet. The soils formed in deep, moderately coarse textured alluvium dominantly from granite and other quartz bearing rocks of similar texture. Hanford soils are used for growing a wide range of fruits, vegetables, and general farm crops. They are also used for urban

development and dairies. Vegetation in uncultivated areas is mainly annual grasses and associated herbaceous plants. This soil is considered nonhydric (NRCS 2025).

The San Joaquin series consists of well and moderately well drained soils that formed in alluvium derived from mixed but dominantly granitic rock sources and is moderately deep to a duripan (NRCS 2025). This soil type occurs on undulating low terraces with slopes of 0 to 9 percent. San Joaquin soils are on hummocky, nearly level to undulating terraces at elevations of about 20 to 500 feet. Some areas have been leveled. They formed in alluvium from mixed but mainly granitic rock sources. The climate is dry with hot dry summers and cool moist and foggy winters. Well and moderately well drained. Some areas are subject to rare or occasional flooding. It is used for cropland and livestock grazing (NRCS 2025).

4.1.5 - Hydrology and Drainage Patterns

The NHD and NWI datasets (USGS, 2025; USFWS 2025c) show one historical water feature that intersects the BSA west of Road 26 (Figure 4-1). The NHD identified the feature as a canal ditch. NWI identified the feature as a riverine feature (R4SBCx and R5UBFx). This canal ditch is operated by the Madera Irrigation District and the United States Bureau of Reclamation (USBR) has an easement along the canal ditch. If the Action does not impact the canal ditch an encroachment permit would be required. If the project disturbs the bed or bank of the canal by open cutting rather than jack and bore, permits will be required. At this time, the Action will not impact any hydrology or drainage patterns.

The Federal Emergency Management Agency (FEMA) dataset shows the Action Area to be in an area of minimal flood hazard (FEMA 2025).

4.2 - Vegetation and Other Land Cover

Vegetation communities found within BSA were characterized during the survey. Vegetation communities were characterized based on the CWHR Habitat Classification Scheme (Mayer and Laudenslayer, 1988). A full list of plant and wildlife species observed during the survey is provided in Appendix D.

4.2.1 - Habitats Within the Action Area

Habitat within the Action Area is classified as Annual Grassland and Urban. The three-acre Action Area consists of a previously tilled, undeveloped parcel surrounded by residential development and undeveloped pastures/non-native grassland. Historical satellite imagery shows that this lot has been regularly disturbed by tilling or disking since as early as 1998 (Google 2025). The BSA was dominated by nonnative grasses and forbs which did not contain native habitat.

Annual Grassland

Mayer and Laudenslayer (1988) describe Annual Grassland as composed primarily of annual plant species many of which occur as understory plants in valley oak woodland and other

habitats. It is dominated by introduced annual grasses that include wild oats, soft chess,

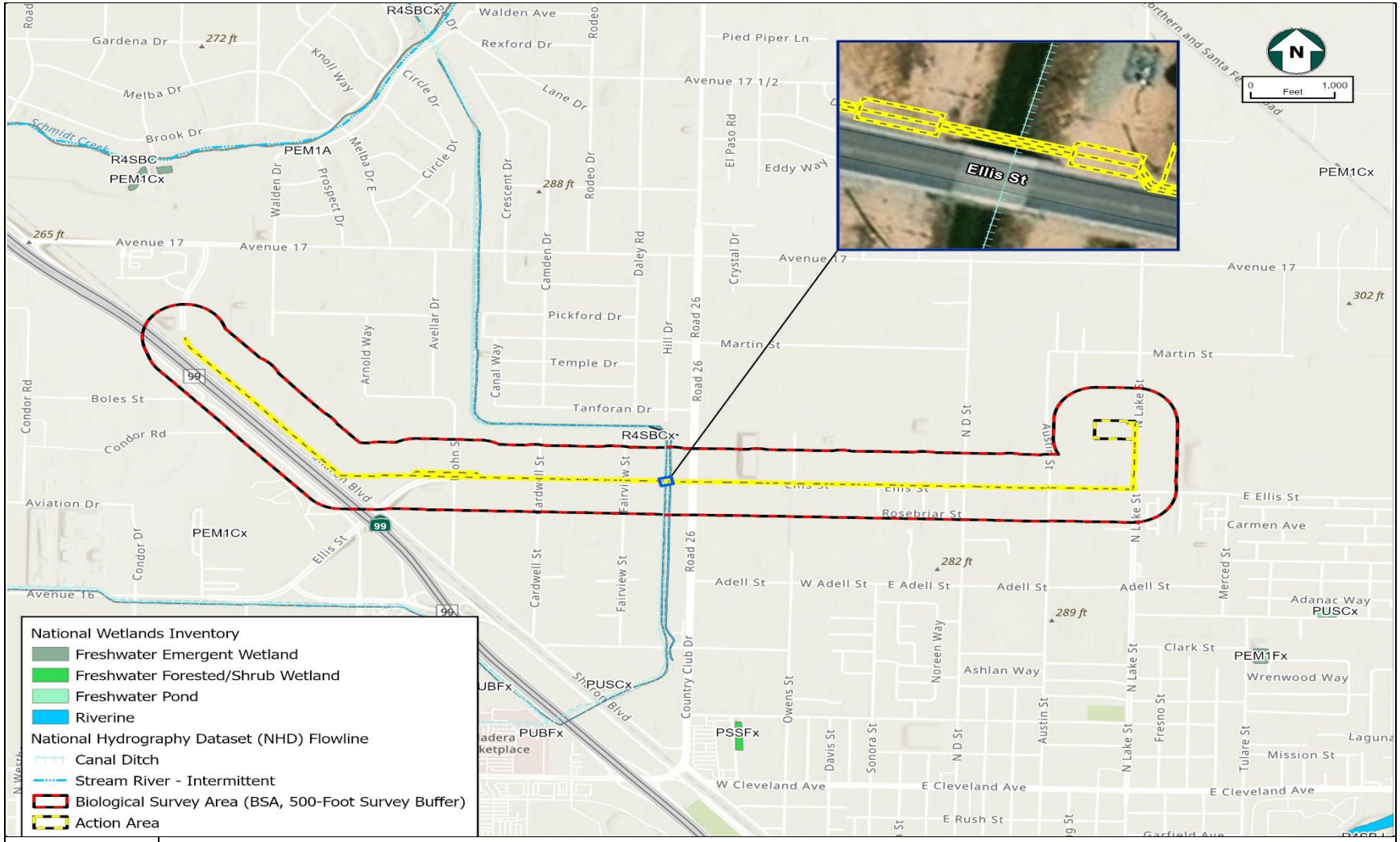


Figure 4-1
NHD and NWI
Madera Water Storage Tank Project
Madera, Madera County California

ripgut brome, red brome, wild barley, and foxtail fescue. Many wildlife species use Annual Grasslands for foraging, but some require special habitat features such as cliffs, caves, ponds, or habitats with woody plants for breeding, resting, and escape cover. Species associated with this community include western fence lizard, common garter snake, western rattlesnake, burrowing owl, short-eared owl, horned lark, and western meadowlark, black-tailed jackrabbit, California ground squirrel, Botta's pocket gopher, western harvest mouse, California vole, badger, coyote, and the San Joaquin kit fox. This habitat also provides important foraging habitat for the turkey vulture, northern harrier, American kestrel, black-shouldered kite, and prairie falcon. Annual Grassland habitat occurs mostly on flat plains to gently rolling foothills. Common soil orders include Entisols and Alfisols. This habitat occurs in various sized patches throughout the state.

Mayer and Laudenslayer (1988) describe Urban as a developed habitat with five types of vegetative structure including tree grove, street strip, shade tree/lawn, lawn, and shrub cover. Common in city parks, green belts, and cemeteries, tree groves vary in height, tree spacing, crown shape, and understory conditions, depending on species planted and landscape design. Street tree strips show variation in spacing of trees, depending upon species and design considerations, and are typically planted in grass. Shade trees/lawns are typical of residential areas and reminiscent of natural savannas. Lawns are structurally the most uniform vegetative units of the Urban habitat and shrub cover, including hedges, is more limited in distribution. Species composition in Urban habitats varies with planting design and climate and monoculture is commonly observed in tree groves and street tree strips. Three urban categories relevant to wildlife are distinguished: downtown, urban residential, and suburbia. Downtown has the lowest diversity comprised of over 90 percent avian density and biomass including rock dove, European starling, and house sparrow. Wildlife that utilize urban residential scrub jay, mockingbird, house finch, raccoon, opossum, striped skunk, and California slender salamander. Wrentits, bushtits, plain titmouse, chestnut-backed chickadee, California quail, black-tailed deer, ringtail, black-tailed jackrabbit, gopher snake and western fence lizard typically occur in suburban areas. Urban habitat is the result of modifying pre-settlement vegetation and introducing new species. They are not limited to any particular physical setting and occur throughout California.

4.2.2 - HABITATS SURROUNDING THE ACTION AREA

The Action Area is surrounded by urban development and non-native annual grassland habitat. The urban habitat includes paved roads, residential homes, businesses, and undeveloped lots. The BSA is comprised of approximately 30% urban and 70% non-native annual grassland habitat.

4.3 - General Plant Observations

The BSA consists predominantly of residences with various urban setting and ruderal plants such as ornamental trees, plants, and grass lawns. These species include non-native grasses such as wild oat (*Avena fatua),* and ripgut brome *(Bromus diandrus)* and forbs such as curly dock (*Rumex crispus),* field bindweed (*Convolvulus arvensis),* red-stem filaree (*Erodium cicutarium),* sorrel (*Rumex acetosa),* short-pod mustard (*Hirschfeldia incana),* and Jimson

weed (*Datura wrightii)*. Within the BSA numerous ornamental trees were present on private residential development.

There were no special-status plants, or habitat capable of supporting special-status plants observed. A list of plants observed during the field survey is provided in Table D-1 of Appendix D.

California Invasive Species Council (Cal-IPC) created a ranking system for plants that threaten California's natural areas. Seven invasive species that are ranked by Cal-IPC were identified within the Action Area: eucalyptus tree (*Eucalyptus globulus*), red-stem filaree, short-pod mustard, curly dock (*Rumex crispus*), wild oat, ripgut brome, and Mediterranean grass (*Schismus barbatus*).

4.4 - General Wildlife Observations

Wildlife species present within the BSA were recorded during the field survey (Appendix C, Table C-2). Species present within the BSA were typical for urban habitat and nonnative grassland included European starling (*Sturnus vulgaris),* mourning dove *(Zenaida macroura),* white crowned sparrow *(Zonotrichia leucophrys),* red-tailed hawk (*Buteo jamaicensis)*, Swainson's hawk (*Buteo swainsoni)*, turkey vulture (*Cathartes aura*), common crow (*Corvus brachyrhynchos*), garter snake (*Thamnophis sirtalis)*, and various domesticated livestock.

The BSA is heavily disturbed by urban development. Several small mammal burrows were found within the BSA likely belonging to California ground squirrel (*Otostermophilus beecheyi*) and Botta's pocket gopher (*Thomomys bottae)*. No raptor, passerine, or ground nests were identified but the BSA contains suitable habitat for nesting bird species.

4.5 - Aquatic Resources and Fish Habitat

A query of the NOAA database indicated that the proposed Action is within a geographic area that is under the jurisdiction of NOAA. The Action is within an EFH for Chinook salmon (*Oncorhynchus tshawytscha*) within the Fresno River – Below Hidden Watershed (NOAA 2025). The Action Area does not contain any aquatic features and therefore could not support any native populations of marine, freshwater, or anadromous fish species.

4.6 - Designated Critical Habitat in the Action Area

4.6.1 - CRITICAL HABITAT

The Action Area is not within any USFWS-designated critical habitat. The nearest Critical Habitat is approximately 5-miles east of the Action Area and supports San Joaquin Valley Orcutt grass, hairy Orcutt grass, and vernal pool fairy shrimp.

4.6.2 - HABITAT CONNECTIVITY/MOVEMENT CORRIDORS

Habitat Connectivity Wildlife movement corridors, also referred to as dispersal corridors or landscape linkages are generally defined as linear features along which animals can travel from one habitat or resource area to another. Wildlife movement corridors can be large tracts of land connecting regionally important habitats that support wildlife, such as stopover habitat that supports migrating birds or large contiguous natural habitats that support animals with very large home ranges. They can also be small-scale movement corridors, such as riparian zones that provide connectivity and cover to support movement at a local scale (CDFW 2025a).

The Action Area is not within any designated wildlife linkage or movement corridors (CDFW, 2025a).

SECTION 5 - SPECIES AND CRITICAL HABITAT CONSIDERED

5.1 - Species within the Region

Federal agencies regulate special-status species and other sensitive biological resources and require an assessment of their presence or potential for presence to be on-site for consultation under the FESA. Assessments for the potential occurrence of special-status species are based upon known ranges, habitat preferences of the species, species occurrence records from the CNDDB and CNPS, species occurrence records from other sites in the vicinity of the survey area, previous reports relevant to the proposed Action Area, and the results of surveys of the proposed Action Area. State listed species with potential to occur on-site were also evaluated in anticipation for consultation under the CESA.

The potential for each of these species to occur in the study area was evaluated according to the following criteria:

- **No**. Habitat on and adjacent to the site is clearly unsuitable to meet the needs of the species (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).

- **Yes**. Conditions on the site may, in some way, support a portion of the species ecology (foraging, reproduction, movement/migration). Surveys were conducted for the species, but negative results do not exclude the potential for a species to occur.

- **Present**. Species was observed on the site or has been recorded (e.g., CNDDB, other reports) on the site recently (within the last 5 years).

More details about the habitat requirements and rationale for the potential for species to occur is presented in Appendix D. Natural history information for these species, a discussion of distribution and threats, and an evaluation of the presence of the species within the action area are provided below.

5.1.1 - FEDERALLY LISTED SPECIES WITHIN THE REGION

Based on available database searches there were thirteen federally listed species evaluated for potential to occur within the Action Area (Table 5-1).

Table 5-1
Federally Listed, Proposed, and Candidate Plant and Wildlife Species Evaluated for Their Potential to Occur within the Action Area

Scientific Name	Status Federal/State CRPR/CDFW	General Location/ Habitat Requirements	Potential to Occur
Plants			
Castilleja campestris succulenta succulent owl's-clover	FT/SE 1B.2/-	vernal pool	No
Orcuttia inaequalis San Joaquin Valley Orcutt grass	FT/SE 1B.1/-	vernal pool	No
Orcuttia Pilosa hairy Orcutt grass	FE/SE 1B.1/-	vernal pool	No
Tuctoria greenei Greene's tuctoria	FE/SR 1B.1/-	small or shallow vernal pools	No
Wildlife			
Danaus Plexippus monarch butterfly-overwintering population	FPT/- -/-	fields, meadows, weedy areas, marshes, and roadsides	No
Desmocerus californicus dimorphus valley elderberry longhorn beetle	FT/- -/-	Riparian areas and within elderberry shrubs	No
Branchinecta lynchi vernal pool fairy shrimp	FT/- -/-	vernal pool	No
Ambystoma californiense California tiger salamander	FT/ST -/WL	Breeding: ephemeral pools or artificial ponds Upland habitat: valley and foothill grassland, oak woodlands, and uncommonly riparian	No
Spea hammondii western spadefoot	FPT/- -/SSC	Breeding: vernal pools Non-breeding habitat: grasslands, coastal scrub, woodlands, chaparral, sandy washes, lowland river floodplains, alkali flats, foothills, and mountains	No
Actinemys marmorata Northwestern pond turtle	FPT/- -/SSC	ponds, lakes, rivers, streams, creeks, marshes, and irrigation ditches	No

Scientific Name	Status Federal/State CRPR/CDFW	General Location/ Habitat Requirements	Potential to Occur
Gambelia sila blunt-nosed leopard lizard	FE/SE -/FP	Open, dry scrub habitats	No
Dipodomys nitratoides exilis Fresno kangaroo rat	FE/SE -/-	open dry scrub and grassland habitats	No
Vulpes macrotis mutica San Joaquin kit fox	FE/ST -/-	Grasslands, shrublands, fallow fields, dry grain fields, urban areas.	No

Federal Status:
FE - Federal Endangered Species
FPT - Federal Proposed Threatened
FT - Federal Threatened Species
California Status
SCE - California Candidate Endangered
SR - California State Listed - Rare
SE - California Endangered Species
ST - California Threatened Species
CDFW Status
SSC - CDFW Species of Special Concern
WL - CDFW Watch List

5.1.2 - ADDITIONAL STATE LISTED SPECIES WITHIN THE REGION

There were five State listed species evaluated for potential to occur within the Action Area (Figure 5-2). Note the eight State listed species that also have a federal listing were omitted from Table 5-2 as they are addressed as part of the federally listed species analyses. These ten species include the succulent's owl clover, San Joaquin Valley Orcutt grass, hairy Orcutt grass, Greene's tuctoria, California tiger salamander, western spadefoot, northwestern pond turtle, blunt-nosed leopard lizard, Fresno kangaroo rat, and San Joaquin kit fox.

Table 5-2
Additional State Listed, Proposed, and Candidate Plant and Wildlife Species Evaluated for Their Potential to Occur within the Action Area

Scientific Name	State Status CRPR/CDFW	General Location/ Habitat Requirements	Potential to Occur
Wildlife			
Phrynosoma blainvillii coast horned lizard	-/- -/SSC	Loose soils in grasslands, forests, woodlands, and open chaparral	No
Agelaius tricolor tricolored blackbird	-/ST -/SSC	Wetland and agricultural habitat	No
Athene cunicularia western burrowing owl	-/SC -/SSC	Grasslands, shrublands, fallow fields, dry grain fields,	No
Buteo swainsoni Swainson's hawk	-/ST -/-	Occurs in open country habitats such as deserts, grasslands, or agriculture areas	Present

Scientific Name	State Status CRPR/CDFW	General Location/ Habitat Requirements	Potential to Occur
		containing scattered large trees or small groves	
Taxidea taxus American badger	-/- -/SSC	Grasslands, forest glades, meadows, marshes, brushy areas, deserts, mountain meadows, prairie and sandy loam soil habitats.	No

California Status
SCE - California Candidate Endangered
SR - California State Listed - Rare
SE - California Endangered Species
ST - California Threatened Species
CDFW Status
SSC - CDFW Species of Special Concern
WL - CDFW Watch List

5.2 - Discussion of Federally Listed Species with the Potential to Occur

No federally listed plant or wildlife species were observed during the site survey or would occur on or near the BSA. No vernal pool habitat exists for the occurrence of succulent's owl clover, San Joaquin Valley Orcutt grass, hairy Orcutt grass, Greene's tuctoria, vernal pool fairy shrimp, California tiger salamander, or western spadefoot. No open dry scrub land habitat exists within the BSA suitable for blunt-nosed leopard lizard or Fresno kangaroo rat. No suitable denning habitat for San Joaquin kit fox is present within the BSA. Habitat within the BSA is poor quality and does not support an adequate prey base for the San Joaquin kit fox. No riparian habitat with valley elderberry shrubs is present within the BSA that could support the valley elderberry longhorn beetle. No riparian habitat is present within the BSA that could provide over wintering habitat for the monarch butterfly. No ponds, lakes, streams, or creeks are present that could provide suitable habitat for the northwestern pond turtle. No direct or indirect effects are expected to occur for any federally listed species.

No nesting migratory birds were present in the BSA. However, there is potential for migratory birds to nest within the BSA in ornamental trees in nearby residential properties and the nonnative grassland in undeveloped lots throughout the BSA. If the Project occurs during nesting bird season (February 1 to September 15), and the conservation measures described in Section 1.3.7 are followed, no direct or indirect effects to nesting migratory birds are expected.

5.3 - Discussion of State Listed Species with the Potential to Occur

Swainson's Hawk

Buteo swainsoni
Status: State Threatened

NATURAL HISTORY

Swainson's hawks occur in grassland, desert, and agricultural landscapes throughout the Central Valley and Antelope Valley (Bechard et al. 2010; Zeiner et al. 1988). Some hawks may be resident, especially in the southern portion of their range, while others may migrate between winter and breeding habitats. They prefer larger isolated trees or small woodlots for nesting, usually with grassland or dryland grain fields nearby for foraging and have been known to nest in large eucalyptus trees (*Eucalyptus* sp.) along heavily traveled freeway corridors. Swainson's hawks forage in grassland, open scrub, pasture, and dryland grain agricultural habitats, primarily for rodents. Swainson's hawks exhibit moderate to high nest site fidelity for successful nest sites.

DISTRIBUTION AND THREATS

Within California, nesting Swainson's Hawks are located primarily in the Central Valley and in the Great Basin of northeastern California from Butte Valley east to Nevada, south-central Modoc County, and eastern Lassen County (Bloom 1980). In addition, Swainson's Hawks also occur in the Shasta and Owens valleys, and the Mojave Desert (Bloom 1980).

The primary threat to Swainson's hawk is loss of native foraging and breeding grounds due to habitat conversion (CDFW 2016). Other threats include climate change, drought, infrastructure placement, wind turbine strikes, nest tree trimming, vehicle collisions, disease, pesticide poisoning, and electrocution (CDFW 2016).

SPECIES OCCURRENCE IN ACTION AREA

There are four CNDDB records within 10 miles of the BSA. The closest CNDDB record (EONDX 103593) is approximately 2.5-miles southwest of the BSA and is presumed extant.

SURVEY RESULTS

One adult Swainson's hawk was observed during the survey, but no nest was located in the vicinity (Figure 5-1). The individual did not display any nest building behaviors, most likely the individual was foraging in the vicinity. Suitable nesting habitat is present within 0.5-miles of the BSA, specifically in areas with large trees. Open non-native grasslands are present within the BSA and could provide foraging opportunities for the species. Several California ground squirrel burrows were identified within the Action Area and could provide an adequate prey base to support the species. One other raptor species, red-tailed hawk (*Buteo jamaicensis*), was observed during the survey.

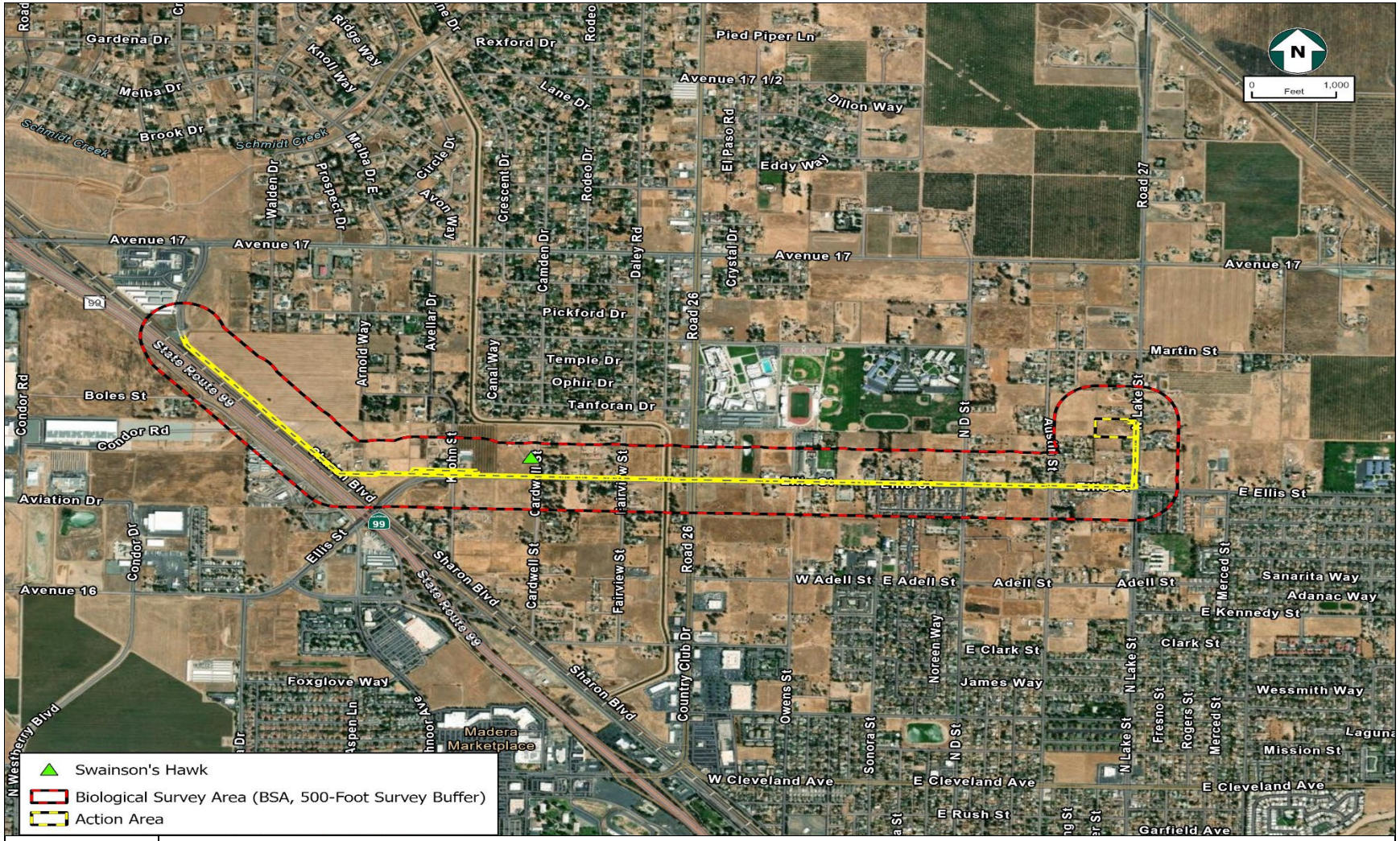


Figure 5-1
Swainson's Hawk Observation
Madera Water Storage Tank Project
Madera, Madera County California

SECTION 6 - EFFECTS ANALYSIS

6.1 - Project Effects on Affected Species

Effects of the Action are all consequences to listed species or critical habitat that are caused by the Project, including consequences of other activities that are caused by the Project. A consequence is caused by the Project if it would not occur but for the Project and it is reasonably certain to occur (50 CFR §402.17). Effects of the Action may occur later in time and may include consequences occurring outside the immediate area involved in the action (50 CFR §402.02). The effect of the Action is the consequence (behavioral, physical, or physiological) of a response to the plant or animal.

The conclusion that activities are reasonably certain to occur must be based on clear and substantial information, using the best scientific and commercial data available. Factors to consider whether an activity caused by the Project is reasonably certain to occur include but are not limited to: past experiences with similar activities that have resulted from actions that are similar in scope, nature, and magnitude to the Project; existing plans for the activities; any remaining economic, administrative, and legal requirements necessary for the activity to go forward.

Considerations for determining a consequence to the species or critical habitat is not caused by the Project include, but are not limited to: the consequence is so remote in time from the Project that it is not reasonably certain to occur, or the consequence is so geographically remote from the immediate area involved in the Project that it is not reasonably certain to occur, or the consequence is only reached through a lengthy causal chain that involves so many steps as to make the consequence not reasonably certain to occur (50 CFR §402.17).

6.1.1 - EFFECTS ON FEDERALLY AND STATE LISTED PLANT SPECIES

No direct or indirect effects to federally or State listed plant species are anticipated due to no suitable habitat present within the Action Area for those species to occur.

6.1.2 - EFFECTS ON FEDERALLY AND STATE LISTED WILDLIFE SPECIES

No direct or indirect effects to federally or State listed wildlife species are anticipated due to no suitable habitat present within the Action Area for those species to occur.

6.1.3 - EFFECTS ON ADDITIONAL STATE LISTED WILDLIFE SPECIES

SWAINSON'S HAWK

Direct Impacts

Direct mortality or injury to Swainson's hawk individuals and/or populations may result from:

- Increased noise, vibration, dust, and human activity
- Application of pesticides toxic to the species and/or its prey

Direct impacts to individuals could occur within the Action Area during construction activities that create noise, vibration, human activity, and dust. These impacts could result in behavior modification, or direct mortality from vehicle strikes. The exposure from these stressors during construction will only be slightly greater than existing stressor levels within the Action Area. The Action Area is located along established roadways and is surrounded by land used for urban purposes, so traffic volumes and disturbances similar to construction activity already occur. These impacts may also have direct impacts on individuals if construction activities occur near an active nest or in foraging habitat during nesting season (February 1 to September 15) by altering the normal behaviors of nesting adults, resulting in harm or death to eggs or nestlings. Increased noise and vibration from construction could also cause avoidance of the Action Area. Tree removal is not anticipated, and so no long-term loss of nesting habitat will occur.

The intensity of the exposure to these specific impacts within the Action Area is anticipated to be low because nesting Swainson's hawk has not been observed on or near the Action Area and there is a low likelihood of a Swainson's hawk inhabiting the site or even visiting the site for prolonged periods during construction activities.

Indirect Effects

Because the action is occurring on heavily disturbed land and no impact to previously undisturbed areas will occur, no indirect effects are anticipated.

6.1.4 - Nest Project Effects on Species

Swainson's Hawk

The Project may affect but not likely to adversely affect Swainson's hawk. Swainson's hawk are not commonly associated with heavily disturbed lands or urban habitats, and nearly all of the habitat surrounding the Action Area is used for urban purposes. One adult Swainson's hawk was observed foraging over the BSA during the survey, but no nest was observed in the vicinity. The BSA contains limited suitable nesting and foraging habitat.

Given the low likelihood of the species' presence, and the implementation of the conservation measures CM-BIO-1 through CM-BIO-5 by the proposed Action, it is anticipated that net effects on Swainson's hawk to be negligible.

6.2 - Effects from Interrelated Actions

The proposed Action is not related to or dependent on any other current or proposed action. There would be no effects from interrelated actions.

6.3 - Cumulative Effects

There are no known future State, tribal, local, or private actions that are reasonably certain to occur in the action area. No cumulative effects are anticipated.

SECTION 7 - CONCLUSIONS AND DETERMINATIONS

7.1 - Conclusions

The Project/Action includes the construction of water supply and distribution facilities to meet the increasing and future water demands. Provisions for future facility expansion to meet Year 2044 and Year 2058 will be incorporated into the design documents.

No federally listed plant species or federally listed wildlife species were present within the Action Area. The Action Area does not provide suitable habitat for any of the federally listed plant or wildlife species. Therefore, no plant or wildlife species were analyzed because they were not found to be present and are not expected to occur in the Action Area.

In anticipation of consultation under the CESA, additional species with a State or CDFW listings were also identified as historically occurring within the nine quadrangles surrounding the Action Area. This included five additional State listed wildlife species. The BSA was determined to be potentially suitable for one of these species, the Swainson's hawk. This species was analyzed to determine effects from the proposed Project. The remaining species were not analyzed because they were not found to be present and are not expected to occur in the Action Area.

Conservation measures are incorporated into the Project to address the potential presence of Swainson's hawk and other migratory nesting birds.

7.2 - Determination

No Affect

A ***No Affect*** determination was made for succulent owl's clover, San Joaquin Valley Orcutt grass, hairy Orcutt grass, Greene's tuctoria, monarch butterfly, valley elderberry longhorn beetle, vernal pool fairy shrimp, California tiger salamander, western spadefoot, northwestern pond turtle, blunt-nosed leopard lizard, Fresno kangaroo rat, and San Joaquin kit fox. No consultation is required for these species or for critical habitat. A ***No Affect*** determination was also made for the State or CDFW listed coast horned lizard, tricolored blackbird, western burrowing owl, and American badger.

No USFWS Designated Critical Habitat was identified to occur within the Action Area or BSA for any of these species and the Project actions will have ***No Affect*** to Critical Habitat of federally listed species.

If Project activities occur outside of the nesting season for migratory birds (February 1 through September 15), a ***No Affect*** determination was made for migratory birds. If Project activities occur within the nesting bird season, a ***No Affect*** determination will be made for migratory bird nests if the CM-BIO-1 and CM-BIO-2 measures are implemented.

The Action would have ***No Effect*** on Essential Fish Habitat as the Action will not be impacting any NOAA jurisdictional areas.

May Affect Not Likely to Adversely Affect

Implementation of the conservation measures, CM-BIO-1 through CM-BIO-5, incorporated into the Action coupled with the low likelihood that State listed Swainson's hawk, would occur on site results in a determination that the Project may affect but ***is not likely to adversely affect*** this species.

SECTION 8 - REFERENCES

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APPENDIX A

IPAC, CNDDB, AND CNPS SPECIES LISTS

MADERA WATER STORAGE TANK PROJECT,

MADERA, MADERA COUNTY, CALIFORNIA

APPENDIX B

SPECIAL-STATUS SPECIES EVALUATION TABLE

MADERA WATER STORAGE TANK PROJECT

MADERA, MADERA COUNTY, CALIFORNIA

Scientific Name Common Name	Federal/ State CRPR/CDFW	Habitat Requirements	Potential to Occur	Determination
Plants				
Castilleja campestris succulenta succulent owl's-clover	FT/SE 1B.2/-	This is an annual hemi parasitic herb that blooms sometimes as early as March, but typically blooms from April to May. It occurs vernal pools, swales and some seasonal wetlands, often on acidic soils. It occurs at elevations from approximately 165 to 2,460 feet and is documented primarily on the eastern Central Valley floor and foothills from Fresno County north. It is threatened by urban and agricultural development, flood control, grazing, and trampling.	No	**No Effect.** There are four CNDDB records within 10 miles of the BSA. The closest CNDDB record (EONDX 54536) is approximately 8.0-miles southwest of the BSA and is presumed extant. The survey was conducted outside the optimal bloom period, June to August, but no suitable habitat is present within the BSA.
Orcuttia inaequalis San Joaquin Valley Orcutt grass	FT/SE 1B.1/-	This is an annual herb endemic to California that blooms from April to September. It occurs in vernal pools at elevations from approximately 32 to 2,500 feet. It is documented primarily on the eastern Central Valley floor and foothills from Visalia north and is seriously threatened by agricultural, development, overgrazing, channelization, and non-native plants.	No	**No Effect.** There are three CNDDB records within 10 miles of the BSA. The closest CNDDB record (EONDX 22381) is approximately 3.0-miles northeast of the BSA and is extirpated. The survey was conducted during the optimal bloom period, April to September, but no suitable habitat is present within the BSA.
Orcuttia Pilosa hairy Orcutt grass	FE/SE 1B.1/-	This is an annual herb endemic to California that blooms from May to September. It often occurs in acidic and saline-alkaline soils in vernal pools at elevations from approximately 150 to 655 feet. It is only known from a few locations on the Central Valley floor and lower foothills in Madera, Merced, and Stanislaus counties, and the very northern portion of the valley in Butte, Glenn, and Tehama counties. It is seriously threatened by agriculture, urbanization, overgrazing, non-native plants, and trampling.	No	**No Effect.** There are eight CNDDB records within 10 miles of the BSA. The closest CNDDB record (EONDX 22325) is approximately 2.6-miles east of the BSA and is extirpated. The survey was conducted during the optimal bloom period, May to September, but no suitable habitat is present within the BSA.
Tuctoria greenei Greene's tuctoria	FE/SR 1B.1/-	This is an annual herb endemic to California that blooms from May to July and sometimes as late as September. It occurs in small or shallow vernal pools, primarily on Anita clay and Tuscan loam soils. It occurs at elevations from approximately 100 to 3,510 feet and is documented on the Central Valley floor and surrounding foothills, but many occurrences are presumed extirpated. It is threatened by agriculture, urbanization, overgrazing, and habitat fragmentation and loss.	No	**No Effect.** There is one CNDDB record within 10 miles of the BSA. The CNDDB record (EONDX 22357) is approximately 4.0-miles northeast of the BSA and is possibly extirpated. The survey was conducted during the optimal bloom period, May to July, but no suitable habitat is present within the BSA.
Invertebrates				

Scientific Name Common Name	Federal/ State CRPR/CDFW	Habitat Requirements	Potential to Occur	Determination
Danaus plexippus monarch butterfly-overwintering population	FPT/- -/-	This butterfly species occurs in various open habitats including fields, meadows, weedy areas, marshes, and roadsides. Adults make massive migrations from August to October, flying thousands of miles south to hibernate along the California coast and in central Mexico. Eggs are laid and larvae feed on plants in the milkweed family, primarily *Asclepias* sp., but also other genera including *Calotropis, Cynanchum, Gonolobus,* and *Sarcostemma.* Adult butterflies typically live from two to six weeks, but overwintering individuals may live as long as nine months. Overwintering migratory adults will roost in large colonies in forested sites in California and Mexico, which must provide protection from the elements and assist with thermoregulation.	No	**No Effect.** There are no CNDDB records within 10 miles of the BSA. Suitable habitat that could support overwintering populations was not present during the survey. No milkweed plants were present that could support larvae individuals.
Desmocerus californicus dimorphus valley elderberry longhorn beetle	FT/- -/-	This beetle species is closely associated with elderberry shrubs (*Sambucus* sp.) for food and reproduction. This species usually occur along rivers and streams and eggs are laid on the bark of elderberry shrubs and larvae hatch and burrow into the stems. Adults eat elderberry leaves and flowers. Stem diameter must be a minimum of one inch and exit holes in stems are the most common methods for identification. This species ranges from southern Shasta County to Fresno County.	No	**No Effect.** There are no CNDDB records within 10 miles of the BSA. No suitable habitat, elderberry shrubs, that are closely associated with this species were identified during the survey.
Branchinecta lynchi vernal pool fairy shrimp	FT/- -/-	This species occurs in a variety of vernal pool habitats that range from small, clear sandstone rock pools to large, turbid, alkaline, grassland valley floor pools. It occurs more commonly in pools less than 0.05 acre, typically as part of larger vernal pool complexes. Adults are active from early December to early May. Pools must hold water for at least 18 days, the minimum to complete the life cycle if temperatures are optimal. Eggs are laid in spring and persist through dry season as cysts. The current California distribution includes the Central Valley and coast ranges. This species is threatened by habitat loss, degradation, fragmentation, and interference with vernal pool hydrology.	No	**No Effect.** There are 22 CNDDB records within 10 miles of the BSA. The closest CNDDB record (EONDX 108404) is approximately 0.5-miles northeast of the BSA and is presumed extant. This record is from 2017 when two adults were observed in two pools. No suitable habitat, vernal pools, were identified during the survey that could support the species.
Amphibians				

Scientific Name Common Name	Federal/ State CRPR/CDFW	Habitat Requirements	Potential to Occur	Determination
Ambystoma californiense California tiger salamander central California DPS	FT/ST -/WL	This stocky salamander spends the majority of its life aestivating in upland habitat in abandoned small mammal burrows, such as those of ground squirrels. After a sufficient winter rain event, adults emerge to breed in ephemeral pools or artificial ponds, which must remain inundated for at least 12 weeks for reproductive success. Young hatch as larvae with external gills and feed on benthic invertebrates and smaller tadpoles; adults feed on a variety of terrestrial invertebrates, small fish, and small mammals. Upland habitat typically consists of valley and foothill grasslands but can also include oak woodlands and uncommonly riparian habitats. The species is found in the Central Valley and Central Coast at elevations up to 3,200 feet. Threatened by habitat loss, predation by larger amphibians and fish, and hybridization with other tiger salamander species.	No	**No Effect.** There are 32 CNDDB records within 10 miles of the BSA. The closest CNDDB record (EONDX 120426) is approximately 0.7-miles northeast of the BSA and is presumed extant. This record is from 2018 when an adult was found under debris during demolition activities. No suitable habitat, vernal pools, were identified during the survey that could support the species.
Spea hammondii western spadefoot	FPT/- -/SSC	This species relies on vernal pools for breeding where predators cannot become established. It occurs in open areas with sand or gravelly soils in a variety of habitats: grasslands, coastal scrub, woodlands, chaparral, sandy washes, lowland river floodplains, alkali flats, foothills, and mountains. This species is endemic to California and northern Baja California with a distribution from Redding south throughout Central Valley and foothills, throughout the South Coast mountain range into coastal southern California to Transverse mountains and Peninsular mountains. This species occurs at elevations ranging from sea level to 4,500 feet.	No	**No Effect.** There are 34 CNDDB records within 10 miles of the BSA. The closest CNDDB record (EONDX 120426) is approximately 0.5-miles northeast of the BSA and is presumed extant. This record is from 2019 when 24 larvae were captured and released in March 2019. No suitable habitat, vernal pools, were identified during the survey that could support the species.
Reptiles				
Actinemys marmorata northwestern pond turtle	FPT/- -/SSC	This species is highly aquatic and diurnally active. It is found in ponds, lakes, rivers, streams, creeks, marshes, and irrigation ditches with vegetation and rocky or muddy bottoms in a wide variety of habitats. It needs basking areas near water (logs, rocks, vegetation mats, banks). This species may enter brackish water and even seawater and it digs a nest on land near water. It ranges from north of the San Francisco Bay area south, including the Central Valley.	No	**No Effect.** There are no CNDDB records within 10 miles of the BSA. No suitable habitat, ponds, lakes, rivers, streams, creeks, or marshes were identified during the survey. The unnamed ditch that crosses the Action Area west of Road 26, consists of fast flowing currents and no basking habitat that could support the species.

Scientific Name Common Name	Federal/ State CRPR/CDFW	Habitat Requirements	Potential to Occur	Determination
Gambelia sila blunt-nosed leopard lizard	FE/SE -/FP	This large lizard occurs in semiarid habitats within the southern Central Valley, Cuyama Valley, and Panoche Valley, at elevations between 100 and 2,400 feet. Preferred habitats are typically flat, sparsely vegetated grasslands with large open areas with scattered shrubs for cover, and sandy washes. The species spends most of the year underground in abandoned small mammal burrows, with adults surfacing in the spring and early summer to breed and feed. Young hatch in July and August, and both adults and young recede to refugia between August and November. Individuals feed primarily on grasshoppers and smaller lizards. The species is threatened mainly by habitat loss and fragmentation.	No	**No Effect.** There are 7 CNDDB records within 10 miles of the BSA. The closest CNDDB record (EONDX 27810) is approximately 5.0-miles southwest of the BSA and is possibly extirpated. No suitable habitat, sparsely vegetated grassland with large open areas and scatted shrubs, were identified during the survey that could support the species.
Phrynosoma blainvillii coast horned lizard	-/- -/SSC	This cryptic lizard prefers sandy, loose soils in grasslands, forests, woodlands, and open chaparral. Individuals are often found along sandy washes and dirt roads with scattered shrubs for cover. This species feeds almost exclusively on ants. It is found in coastal California from Baja California north to the Bay Area, southeastern desert regions, southern Central Valley flats and foothills and the surrounding mountains on drier, warmer slopes, at elevations up to 8,000 feet. The species is threatened by habitat loss and fragmentation and the spread of invasive ant species displacing native prey.	No	**No Effect.** There are no CNDDB records within 10 miles of the BSA. No suitable habitat, sandy, loose soils within grasslands, forests, woodlands, or chaparral, were identified during the survey.
Birds				
Agelaius tricolor tricolored blackbird	-/ST -/SSC	This species is a year-round resident that is a colonial breeder. It occurs in freshwater, emergent wetlands with tall, dense cattails or tule, but also thickets of willow, blackberry, wild rose, and tall herbs. Breeding colonies consist of a minimum of approximately 50 pairs. This species forages for mostly insects and spiders and less often seeds and cultivated grains in pastures, grain fields, cropland, and similar habitats near breeding areas.	No	**No Effect.** There is one CNDDB record within 10 miles of the BSA. The CNDDB record (EONDX 103497) is approximately 7.0-miles northeast of the BSA and is presumed extant. No suitable habitat, freshwater emergent wetlands, were identified during the survey that could support the species.

Scientific Name Common Name	Federal/ State CRPR/CDFW	Habitat Requirements	Potential to Occur	Determination
Athene cunicularia ssp. hypugaea western burrowing owl	-/SC -/SSC	This species occupies a variety of open, semi-arid to arid habitats throughout Central and Southern California, including desert regions. It prefers open habitats with few shrubs or trees and low-growing vegetation. It is most active around sunrise and sunset and utilizes burrows constructed by mammals year-round for shelter and nesting. This species is well documented in urban areas where patches of undeveloped areas are present (e.g., canals, airports, drainage basins), and in areas of dense agricultural development, particularly where canals provide burrow habitat. It forages primarily for rodents and insects within several miles of its burrow, usually in open grassy habitats if available. It has been observed hunting bats and insects around parking lot lights. Threats to this species include development resulting in habitat loss/fragmentation.	No	**No Effect.** There are 2 CNDDB records within 10 miles of the BSA. The closest CNDDB record (EONDX 62876) is approximately 0.5-miles west of the BSA and is possibly extirpated. No suitable habitat, open habitat with minimal shrubs and trees, are present within the BSA. The BSA is highly disturbed with residential and commercial development.
Buteo swainsoni Swainson's hawk	-/ST -/-	This species occurs in grassland, desert and agricultural landscapes in the Central Valley and Antelope Valley. These hawks may be resident or migrant, and nest and breed in stands with few trees in juniper-sage flats, riparian areas, and oak savannah habitats. This species has also been observed nesting and breeding in large eucalyptus trees along freeways and in trees over rural residences surrounded by agriculture. Nests are a platform of sticks, bark, and fresh leaves at or near the top of trees. This species breeds from late March to late August. It forages in grassland, open scrub, and grain fields, primarily for rodents.	Nesting -Yes Foraging - Yes	**May Affect Not Likely to Adversely Affect.** There are four CNDDB records within 10 miles of the BSA. The closest CNDDB record (EONDX 103593) is approximately 2.5-miles southwest of the BSA and is presumed extant. One adult Swainson's hawk was observed during the survey, but no nest was in vicinity. The individual did not display any nest building behaviors, so it most likely was foraging in the vicinity. Suitable nesting habitat is present within 0.5-miles of the BSA, specifically in areas with large trees. Open non-native grasslands are present within the BSA and could provide foraging opportunities for the species.
Mammals				

Scientific Name Common Name	Federal/ State CRPR/CDFW	Habitat Requirements	Potential to Occur	Determination
Dipodomys nitratoides exilis Fresno kangaroo rat	FE/SE -/-	This is a subspecies of the San Joaquin kangaroo rat (*Dipodomys nitratoides*) that occurs on bare alkaline clay-based soils typically within alkali desert scrub and open grassland. Historically, this species occurred on the valley floor in Kings, Fresno, Madera, and Merced counties, but may be extirpated within most of the historical range. This species is nocturnal that excavates burrows for temperature regulation, litter-rearing, shelter, and escape from predators typically with tunnels approximately 12 to 15 inches below ground. It eats seeds of annual forbs and grasses. It is threatened by predation and disease.	No	**No Effect.** There is one CNDDB record within 10 miles of the BSA. The CNDDB record (EONDX 65483) is approximately 7.0-miles southwest of the BSA and is presumed extant. No suitable habitat, bare alkaline clay-based soils within alkali desert scrub and open grassland, were identified during the survey that could support the species.
Taxidea taxus American badger	-/- -/SSC	This species occurs mostly in open, drier stages of shrub, forest, and herbaceous habitats, with friable soils. It feeds mostly on fossorial rodents. It digs burrows for cover and reproduction and can dig a new den each night. Litters are typically born in March and April. This species can be somewhat tolerant of human activities but generally avoids cultivated agricultural habitats.	No	**No Effect.** There are two CNDDB record within 10 miles of the BSA. The CNDDB record (EONDX 56660) is approximately 7.5-miles northeast of the BSA and is presumed extant. No suitable habitat, open, drier stages of shrub, forest, and herbaceous habitats, with friable soils, were identified during the survey that could support the species.
Vulpes macrotis mutica San Joaquin kit fox	FE/ST -/-	This fox species is endemic to the Central Valley and primarily occurs in arid to semi-arid grasslands, open shrublands, savannahs, and grazed lands with loose-textured soils within the San Joaquin Valley, Carrizo Plain, Salinas Valley, Cuyama Valley, and other small valleys in western foothills. Intensively-maintained agricultural areas are typically avoided. It is highly adaptable and documented in urban developed areas. It uses burrows year-round for shelter, escape from predators, and rearing young and it will use man-made structures, such as pipes, for denning. Kit fox feed primarily on small mammals, but will also consume birds, reptiles, insects, and scavenge for human food. It is threatened by habitat loss and fragmentation, vehicle strikes, and disease such as the current mange outbreak in urban population in Bakersfield and in nearby natural areas.	No	**No Effect.** There are no CNDDB records within 10 miles of the BSA. No suitable habitat, arid to semi-arid grasslands, open shrublands, savannahs, and grazed lands with loose-textured soils were identified during the survey.

Sources:

Unites States Fish and Wildlife Service (USFWS). 2025. Federal Endangered and Threatened Species List.

California Natural Diversity Database (CNDDB). May 2025. State and Federally Listed Endangered and Threatened Animals of California. California Department of Fish and Wildlife. Sacramento. CA

Scientific Name Common Name	Federal/ State CRPR/CDFW	Habitat Requirements	Potential to Occur	Determination

Abbreviations:
Federal Status:
FE - Federal Endangered Species
FPT - Federal Proposed Threatened
FT - Federal Threatened Species
California Status
SCE - California Candidate Endangered
SR - California State Listed - Rare
SE - California Endangered Species
ST - California Threatened Species
CDFW Status
SSC - CDFW Species of Special Concern
WL - CDFW Watch List

APPENDIX C

REPRESENTATIVE SITE PHOTOGRAPHS

MADERA WATER STORAGE TANK PROJECT

MADERA, MADERA COUNTY, CALIFORNIA



Photograph 1: Existing well site at APN 013-280-001. The pipeline will connect to this facility.
GPS Coordinates: 36.992732, -120.095043, facing west.
Photograph taken by Karissa Denney on May 25, 2025.



Photograph 2: Pipeline will be placed south of the existing facility through the non-native grassland.
GPS Coordinates: 36.992360, -120.095096, facing south.
Photograph taken by Karissa Denney on May 25, 2025.



Photograph 3: Representative view of the pipeline placement within the City of Madera ROW.
GPS Coordinates: 36.987189, -120.088888, facing north.
Photograph taken by Karissa Denney on May 25, 2025.



Photograph 4: Representative view of the pipeline placement within the City of Madera ROW.
GPS Coordinates: 36.986997, -120.081358, facing east.
Photograph taken by Karissa Denney on May 25, 2025.



Photograph 5: Representative view of the pipeline placement within the City of Madera ROW.
GPS Coordinates: 36.987007, -120.059725, facing east.
Photograph taken by Karissa Denney on May 25, 2025.



Photograph 6: View of the canal ditch that the Action Area will be crossing.
GPS Coordinates: 36.986951, -120.075433, facing east.
Photograph taken by Karissa Denney on May 25, 2025.



Photograph 7: Representative view of the tank location at APN 038-030-031.
GPS Coordinates: 36.989103, -120.056354, facing northwest.
Photograph taken by Karissa Denney on May 25, 2025.



Photograph 8: Representative view of the tank location at APN 038-030-031.
GPS Coordinates: 36.989725, -120.057048, facing south.
Photograph taken by Karissa Denney on May 25, 2025.



Photograph 9: Representative view of the tank location at APN 038-030-031.
GPS Coordinates: 36.989047, -120.056881, facing northeast.
Photograph taken by Karissa Denney on May 25, 2025.



Photograph 10: Representative view of the tank location at APN 038-030-031.
GPS Coordinates: 36.989047, -120.056881, facing west.
Photograph taken by Karissa Denney on May 25, 2025.

APPENDIX D

PLANT AND WILDLIFE SPECIES OBSERVED ON SITE

MADERA WATER STORAGE TANK PROJECT

MADERA, MADERA COUNTY, CALIFORNIA

Table D-1
Plant Species Observed within the Biological Survey Area.
Madera Water Storage Tank Project, Madera, Madera County, California

Scientific Name	Common Name	Status
Trees		
	ornamental trees	
Eucalyptus globulus	Eucalyptus tree	Cal-IPC: Limited
Prunus amygdalus	almond tree	Non-Native
Washingtonia robusta	Mexican fan palm tree	Native
Herbs		
	ornamental plants	
Amsinckia menziesii var. intermedia	common fiddleneck	Native
Convolvulus arvensis	field bindweed	Non-Native
Datura stramonium	Jimson weed	Non-Native
Erodium cicutarium	red-stem filaree	Cal-IPC: Limited
Hirschfeldia incana	short-pod mustard	Cal-IPC: Moderate
Rumex acetosa	sorrel	Non-Native
Rumex crispus	curly dock	Cal-IPC: Limited
Rumex pulcher	fiddle dock	Non-Native
Grasses		
Avena fatua	wild oat	Cal-IPC: Moderate
Bromus diandrus	ripgut brome	Cal-IPC: Moderate
Schismus barbatus	Mediterranean grass	Cal-IPC: Limited

*Cal-IPC = California Invasive Plant Council.
Rating system: **High** = several ecological impacts; **Moderate** = substantial but not severe ecological impacts; **Limited** = minor ecological impacts or not enough information to justify higher score.

Table D-2
Wildlife Species Observed within the Biological Survey Area.
Madera Water Storage Tank Project, Madera, Madera County, California

Scientific Name	Common Name	Native or Introduced
Reptiles		
Thamnophis sirtalis	garter snake	Native
Birds		
Aimophila ruficeps	Rufus crowned sparrow	Native
Aphelocoma californica	western scrub jay	Native
Branta canadensis	Canadian goose	Native
Bubulcus ibis	Cattle egret	Native
Buteo jamaicensis	red-tailed hawk	Native
Buteo swainsoni	Swainson's hawk	Native
Cathartes aura	turkey vulture	Native
Columba livia domestica	homing pigeon	Native
Corvus brachyrhynchos	American crow	Native
Euphagus cyanocephalus	Brewer's blackbird	Native
Gallus gallus domesticus	domestic chicken	Native
Haemorhous mexicanus	house finch	Native
Mimus polyglottos	northern mockingbird	Native
Passer domesticus	house sparrow	Native
Petrochelidon pyrrhonota	cliff swallow	Native
Sturnus vulgaris	European starling	Non-Native
Tyrannus verticalis	western kingbird	Native
Zenaida macroura	mourning dove	Native
Zonotrichia leucophrys	white crowned sparrow	Native
Mammals		
Bos taurus	domestic cow	Native
Canis lupus familiaris	domestic dog	Native
Equus ferus caballus	domestic horse	Native
Felis catus	domestic cat	Native
*Otospermophilus beecheyi**	California ground squirrel	Native
Ovis aries	domestic sheep	Native
*Thomomys bottae**	Botta's pocket gopher	Native

Appendix D: Cultural Resources Assessment Report

cogstone
PALEONTOLOGY - ARCHAEOLOGY - HISTORY



CULTURAL RESOURCES ASSESSMENT REPORT FOR THE CITY OF MADERA WATER STORAGE TANK, PUMP STATION AND TRANSMISSION MAIN PROJECT, CITY OF MADERA, MADERA COUNTY, CALIFORNIA

Prepared for:
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Shannon Lopez, M.A.

Principal Investigator:
Alison Bryson-Deveraux, M.A.

Date
June 2025

Cogstone Project Number: 6219
Type of Study: Cultural Resources Assessment
Sites: P-20-002308/CA-MAD-2649H; M.I.D. Canal Bridge (41C0132)
USGS Quadrangle: Madera 7.5' (1982)
Area: 50.28
Key Words: Positive Results; Madera Canal; Yokut Territory; Madera County

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Federal Certifications WOSB, EDWOSB, SDB
State Certifications DBE, WBE, UDBE

TABLE OF CONTENTS

SUMMARY OF FINDINGS ..... **V**

INTRODUCTION **1**

PURPOSE OF STUDY **1**
PROJECT LOCATION AND DESCRIPTION **1**
AREA OF POTENTIAL EFFECTS *1*
PROJECT PERSONNEL **5**

REGULATORY ENVIRONMENT **6**

FEDERAL LAWS AND REGULATIONS **6**
NATIONAL HISTORIC PRESERVATION ACT *6*
NATIONAL REGISTER OF HISTORIC PLACES *6*
NATIVE AMERICAN GRAVES PROTECTION AND REPATRIATION ACT *6*
NATIONAL ENVIRONMENTAL POLICY ACT *7*
ANTIQUITIES ACT *7*
STATE LAWS AND REGULATIONS **7**
CALIFORNIA ENVIRONMENTAL QUALITY ACT *7*
TRIBAL CULTURAL RESOURCES *8*
PUBLIC RESOURCES CODE *8*
CALIFORNIA REGISTER OF HISTORICAL RESOURCES *9*
NATIVE AMERICAN HUMAN REMAINS *10*
CALIFORNIA ADMINISTRATIVE CODE, TITLE 14, SECTION 4307 ..... *10*

BACKGROUND **11**

ENVIRONMENTAL SETTING **11**
PREHISTORIC SETTING **11**
PALEOINDIAN AND LOWER ARCHAIC PERIODS (13,500 CAL BP – 7,500 CAL BP) *11*
MIDDLE ARCHAIC PERIOD (7,500 CAL BP– 2,500 CAL BP) *12*
UPPER ARCHAIC PERIOD (2,500 CAL BP – 850 CAL BP) *13*
EMERGENT/LATE PREHISTORIC PERIOD (850 CAL BP – HISTORIC CONTACT) *13*
ETHNOGRAPHY **14**
TRIBAL TERRITORY *14*
LINGUISTICS *14*
VILLAGE STRUCTURE AND HABITATION *15*
FOOD AND RESOURCE USEAGE *15*
HISTORIC SETTING **16**
SPANISH PERIOD (1769-1822) *16*
MEXICAN PERIOD (1822-1847) *17*
AMERICAN PERIOD (1848-PRESENT) *17*
MADERA COUNTY *18*
CITY OF MADERA *19*
PROJECT AREA HISTORY *19*

SOURCES CONSULTED **20**

CALIFORNIA HISTORIC RESOURCES INFORMATION SYSTEM **20**
MADERA CANAL; MADERA IRRIGATION DISTRICT (M.I.D.); (P-20-002308/CA-MAD-2649H) *20*
OTHER SOURCES **24**
ADDITIONAL STUDIES **25**
NATIVE AMERICAN CONSULTATION **25**

SURVEY **26**

METHODS **26**

RESULTS **26**
P-20-002308/CA-MAD-2649H, SEGMENT OF MADERA CANAL, LATERAL 24.2 ..... *29*
M.I.D. CANAL BRIDGE (41C0132) *29*
BUILT ENVIRONMENT EVALUATION **31**
P-20-002308/CA-MAD-2649H (SEGMENT OF MID CANAL, LATERAL 24.2) *31*
M.I.D. CANAL BRIDGE (41C0132) *32*
STUDY FINDINGS AND CONCLUSIONS **34**
RECOMMENDATIONS **34**
REFERENCES CITED **35**
APPENDIX A. QUALIFICATIONS **41**
APPENDIX B. RECORDS SEARCH RESULTS **46**
APPENDIX C. NATIVE AMERICAN CONSULTATION **50**
APPENDIX D. DPR 523 FORMS **52**

LIST OF FIGURES

FIGURE 1. PROJECT VICINITY MAP 2
FIGURE 2. PROJECT LOCATION 3
FIGURE 3. APE MAP 4
FIGURE 4. TRIBAL BOUNDARY MAP 16
FIGURE 5. SHARON BOULEVARD AT PAVED ROAD TERMINUS, FACING NORTHWEST. 27
FIGURE 6. SOUTHSIDE EASEMENT OF ELLIS STREET BETWEEN OWENS STREET AND SONORA STREET, FACING SOUTHEAST. 28
FIGURE 7. SOUTHEAST CORNER OF WELL FIELD ALONG NORTH LAKE STREET, FACING SOUTHWEST. 28
FIGURE 8. NORTHERN TERMINUS OF SHARON BOULEVARD, FACING SOUTHWEST. 29
FIGURE 9. SOUTHERN SIDE OF CANAL FROM ACCESS ROAD, FACING NORTHWEST. 30
FIGURE 10. VIEW OF NORTHERN SIDE OF M.I.D CANAL BRIDGE (41C0132). FACING SOUTHWEST. 30

LIST OF TABLES

TABLE 1. ADDITIONAL SOURCES CONSULTED 24
TABLE 2. BLM SEARCH RESULTS 24
TABLE B1. PREVIOUS STUDIES WITHIN A ONE-MILE RADIUS OF THE APE 47
TABLE B2. PREVIOUSLY RECORDED CULTURAL RESOURCES WITHIN A ONE-MILE RADIUS OF THE APE 49

SUMMARY OF FINDINGS

This cultural resources assessment report was conducted to determine the potential impacts to cultural resources within the Water Storage Tank, Pump Station and Transmission Main Project (Project), City of Madera (City), Madera County, California. The City is the lead agency under the California Environmental Quality Act (CEQA). A portion of the Project crosses Bureau of Reclamation (BOR) land and thus the BOR is the lead agency for compliance with Section 106 of the National Historic Preservation Act (NHPA).

The Project Area of Potential Effects (APE) is located within the City of Madera from the north terminus of Sharon Boulevard to the crossing at Ellis Street, east along Ellis Street to North Lake Street, and along North Lake Street to a tank location site along the western side of North Lake Street. Additional work is planned along the existing Madera Canal which transects Ellis Street west of Road 26. Specifically, the Project is located within Sections 10, 11 and 12 of Range 17 East, Township 11 South and Section 7, Range 18 East, Township 11 South of the 1982 Madera 7.5' USGS Topographic Map.

The Project proposes construction of water supply and distribution facilities to meet the demand conditions identified by hydraulic model demands and projections. Provisions for future facility expansion to meet Year 2044 and Year 2058 will be incorporated into the design documents. The initial phase of the Project (Phase 1) includes a 2.5 MG prestressed concrete water storage tank, a 3,500 gallon per minute (gpm) firm capacity booster pump station, a 13,200 linear foot (LF) 24-inch transmission main from City-owned Well 38 to the tank site, and tank site improvements. Based on current projections, the initial phase of this Project should be sufficient to meet drinking water demands and fire protection requirements through 2043.

Cogstone requested a search of the California Historical Resources Information System (CHRIS) from the Southern San Joaquin Valley Information Center (SSJVIC) located at California State University, Bakersfield which included the entire proposed APE as well as a one-mile radius. Results of the record search were received on May 12, 2025 and indicated that 11 previous studies have been completed within the APE while an additional 21 studies have been completed previously within a one-mile radius of the APE.

One cultural resource, Madera Canal (P-20-002308/CA-MAD-2649H) has been previously recorded within the APE. An additional resource, Madera Irrigation District (M.I.D.) Canal Bridge (41C0132), was identified in the California Historic Bridge Inventory. Outside of the APE a total of seven cultural resources have been previously documented within the one-mile search radius from the APE.

A Sacred Lands File (SLF) search was requested from the Native American Heritage Commission (NAHC) on April 29, 2025. On April 30, 2025, the NAHC responded that the SLF search was completed with negative results, and provided contact information for 13 Native American tribal organizations and individuals that may have more information about the Project area.

On May 14, 2025, Cogstone archaeologist Alison Bryson-Deveraux completed an intensive pedestrian survey of the APE. The APE consists of approximately 50 acres of a mostly hardscaped urban area with open segments of undeveloped land, mainly within easements and directly adjacent to existing roadways. No archaeological resources were noted during survey.

A segment of the historic in age Madera Canal (P-20-002308/CA-MAD-2649H) and M.I.D. Canal Bridge (41C0132) are located within the APE. California Department of Parks and Recreation 523 (DPR 523) forms were updated for these resources and they were evaluated for historic significance. Due to a lack of historic significance, these resources are recommended not eligible for listing at the national, state, or local level.

INTRODUCTION

PURPOSE OF STUDY

This cultural resources assessment report was conducted to determine the potential impacts to cultural resources within the Water Storage Tank, Pump Station and Transmission Main Project (Project), City of Madera (City), Madera County, California (Figure 1). The City is the lead agency under the California Environmental Quality Act (CEQA). A portion of the Project crosses Bureau of Reclamation (BOR) land and thus the BOR is the lead agency for compliance with Section 106 of the National Historic Preservation Act (NHPA).

PROJECT LOCATION AND DESCRIPTION

The Project Area of Potential Effect (APE) is located within the City of Madera from the north terminus of Sharon Boulevard to the crossing at Ellis Street, east along Ellis Street to North Lake Street, and along North Lake Street to a tank location site along the western side of North Lake Street. Additional work is planned along the existing Madera Canal which transects Ellis Street west of Road 26.

Specifically, the Project is located within Sections 10, 11 and 12 of Range 17 East, Township 11 South and Section 7, Range 18 East, Township 11 South of the 1982 Madera 7.5' USGS Topographic Map (Figure 2).

The Project proposes construction of water supply and distribution facilities to meet the demand conditions identified by hydraulic model demands and projections. Provisions for future facility expansion to meet Year 2044 and Year 2058 will be incorporated into the design documents. The initial phase of the Project (Phase 1) includes a 2.5 MG prestressed concrete water storage tank, a 3,500 gallon per minute (gpm) firm capacity booster pump station, a 13,200 linear foot (LF) 24-inch transmission main from City-owned Well 38 to the tank site, and tank site improvements. Based on current projections, the initial phase of this Project should be sufficient to meet drinking water demands and fire protection requirements through 2043.

AREA OF POTENTIAL EFFECTS

The APE was established as 50.28 acres and includes all potential direct and indirect effects to cultural resources that may result from the proposed Project (Figure 3). The width of the APE ranges from a minimum of 66 feet (20 meters) to a maximum of 1,549 feet (472 meters). The length of the APE is 13,458 feet (4,102 meters). The vertical APE is the maximum depth of any Project related ground disturbing work. The depth of ground disturbance is anticipated not to exceed 20 feet (6.09 meters) for boring work under the canal.

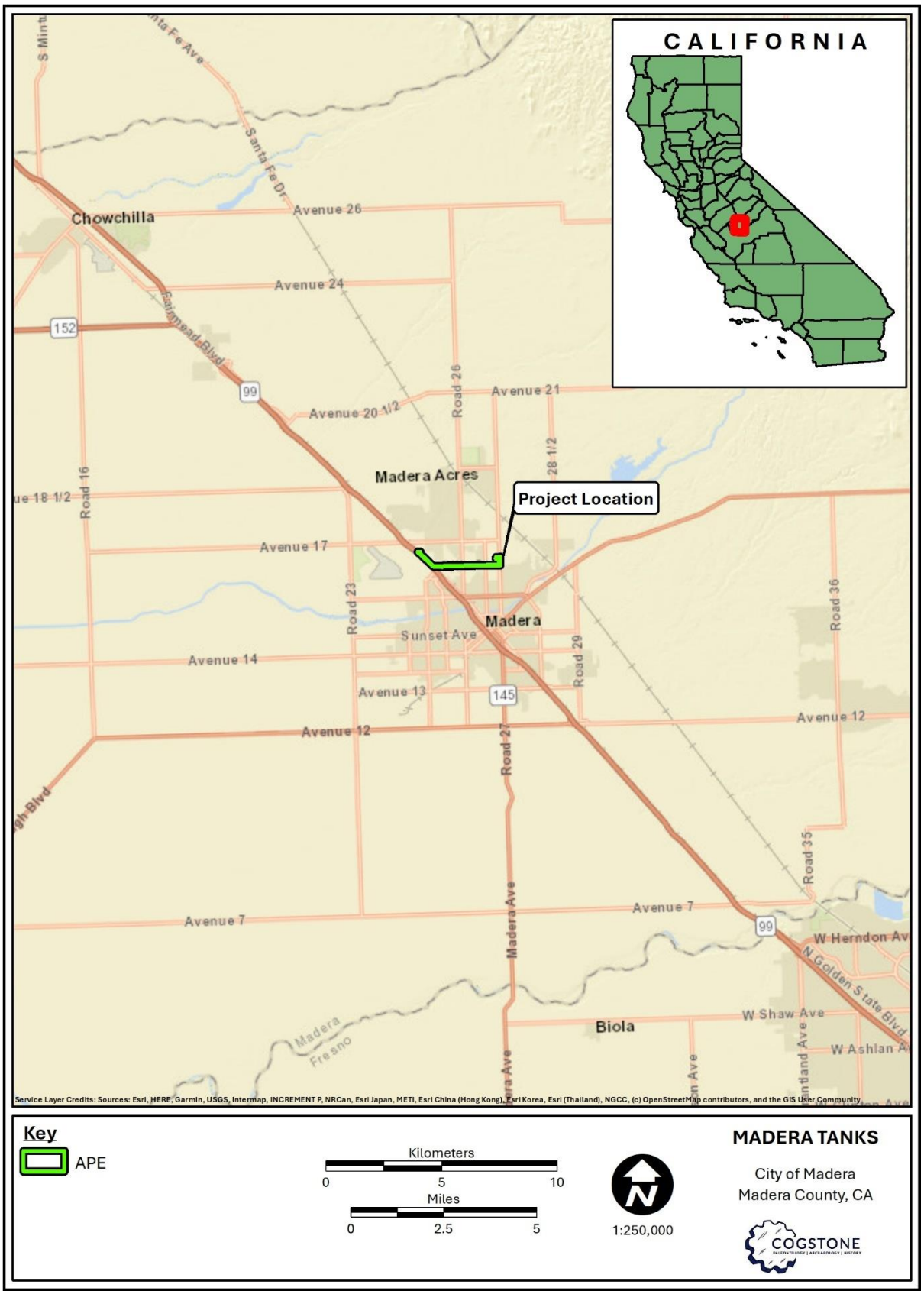


Figure 1. Project vicinity map

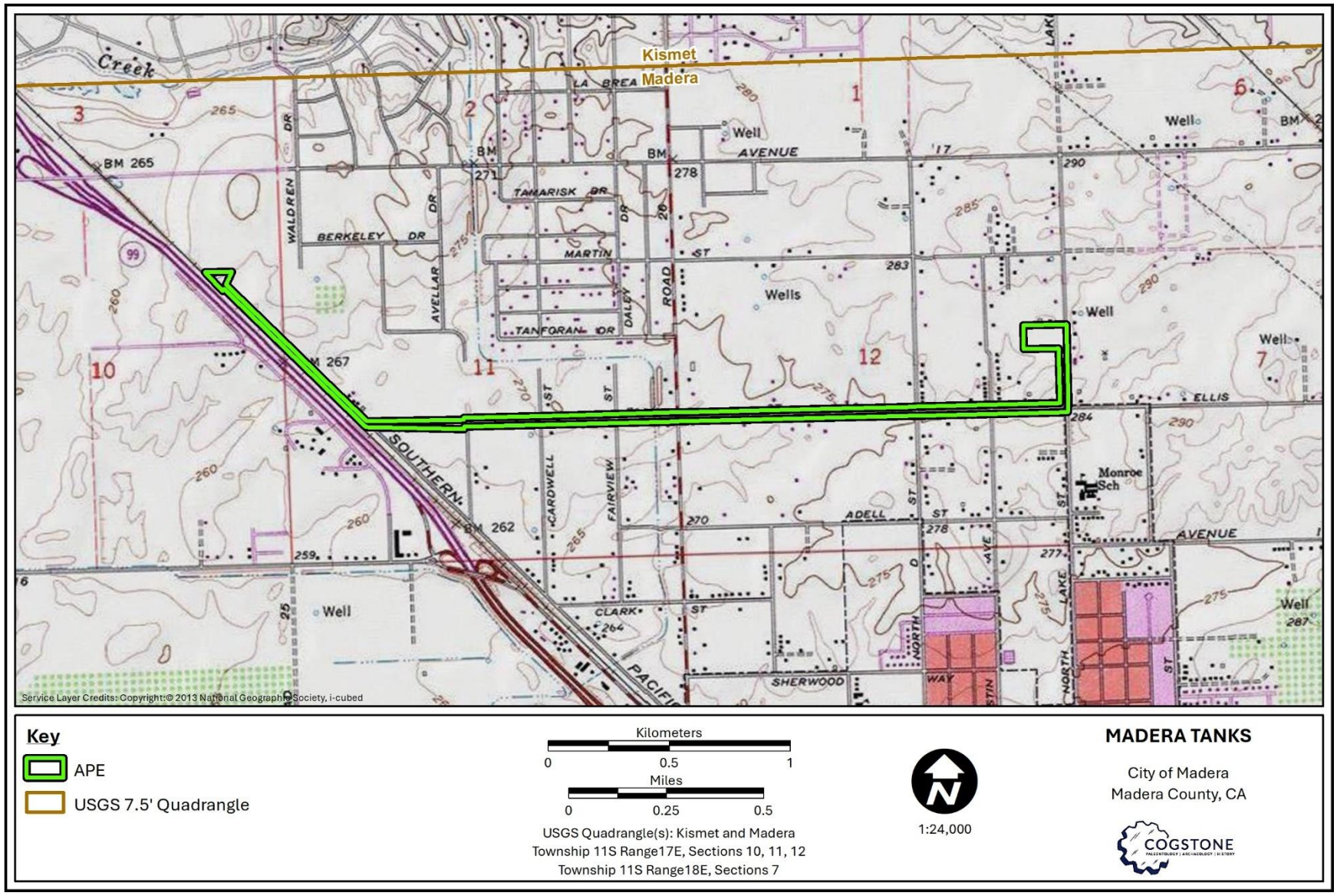


Figure 2. Project location

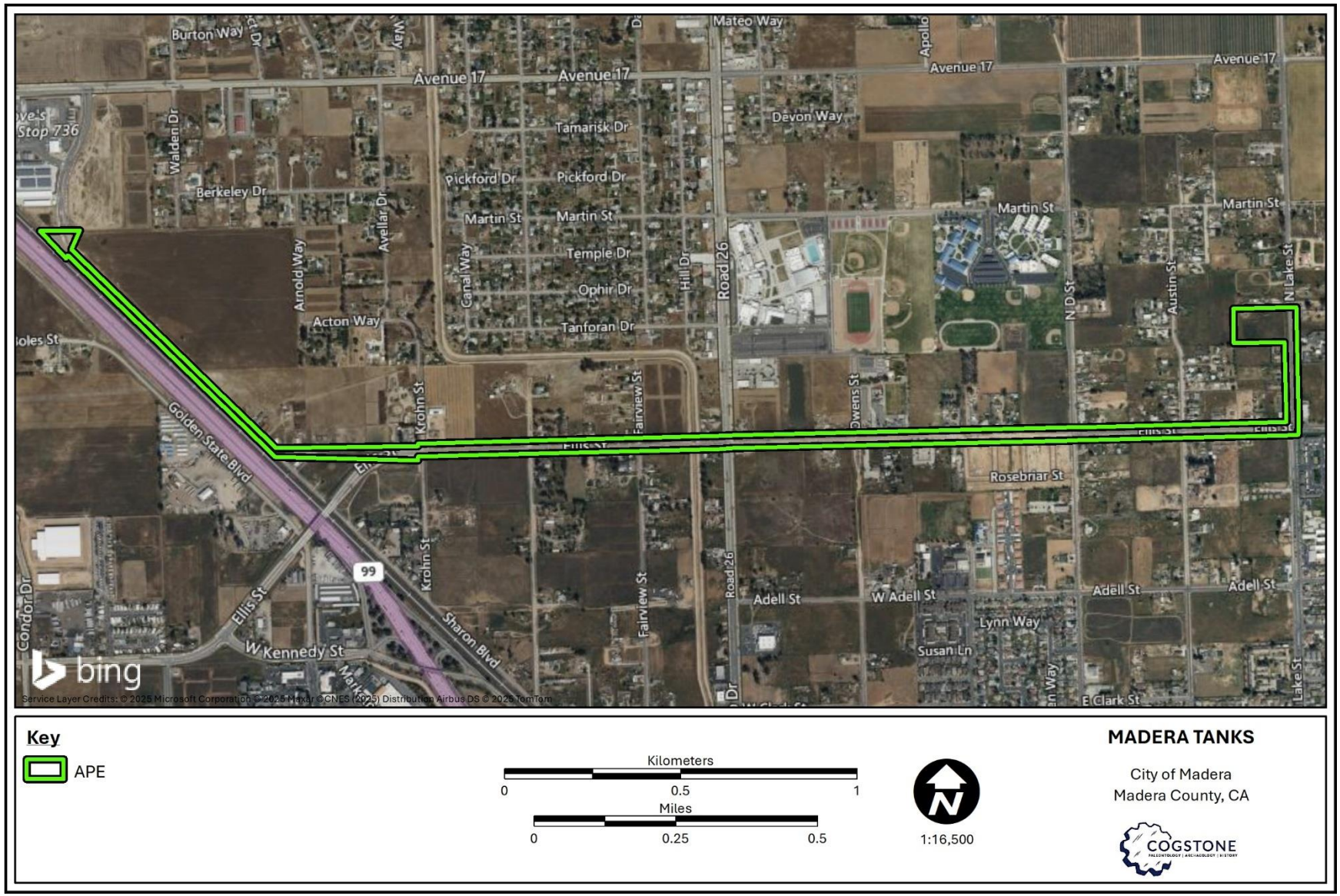


Figure 3. APE map

PROJECT PERSONNEL

Cogstone Resource Management (Cogstone) conducted the cultural resources survey and authored this report. Resumes of key personnel are provided in Appendix A.

- Molly Valasik served as Principal Archaeologist and provided overall QA/QC for the Project. Ms. Valasik has an M.A. in Anthropology from Kent State University in Ohio and 16 years of experience in California archaeology.

- Alison Bryson-Deveraux served as the Principal Investigator for Archaeology and co-authored this report. Ms. Bryson-Deveraux holds an M.A. in Historic Preservation from Prescott College and a B.A. in Anthropology (concentration in Archaeology) from the University of California (UC), Santa Barbara. She has 21 years of experience in California archaeology.

- Shannon Lopez co-authored this report and conducted the historic evaluation. Ms. Lopez holds an M.A. in History (with an emphasis in architectural history) from California State University (CSU), Fullerton. She has more than seven years of experience in the field of history and architectural history.

- Logan Freeberg made the Geographic Information System (GIS) maps in this report. Mr. Freeberg holds a B.A. in Anthropology from UC Santa Barbara and a GIS certification from CSU Fullerton. He has over 20 years of experience in California archaeology.

REGULATORY ENVIRONMENT

FEDERAL LAWS AND REGULATIONS

NATIONAL HISTORIC PRESERVATION ACT

The National Historic Preservation Act (NHPA) is the primary federal law governing the preservation of cultural resources in the United States. The law establishes a national preservation program and a system of procedural protections which encourage the identification and protection of cultural resources of national, state, Tribal, and local significance. A primary component of this act, the Section 106 Review Process requires that federal agencies take into consideration actions that could adversely affect historic properties that are listed or eligible for listing in the National Register of Historic Places (NRHP).

NATIONAL REGISTER OF HISTORIC PLACES

The NRHP is the nation's official list of buildings, structures, objects, sites, and districts worthy of preservation because of their significance in American history, architecture, archaeology, engineering, and culture. The National Register recognizes resources of local, state, and national significance that have been documented and evaluated according to uniform standards and criteria.

Authorized under the NHPA, the National Register is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect historic and archeological resources. The National Register is administered by the National Park Service (NPS), which is part of the United States Department of the Interior.
To be eligible for listing in the National Register, a resource must meet at least one of the following criteria:

A. Is associated with events that have made a significant contribution to the broad patterns of our history;
B. Is associated with the lives of persons significant in our past;
C. Embodies the distinctive characteristics of a type, period or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinction;
D. Has yielded, or may be likely to yield, information important in history or prehistory.

NATIVE AMERICAN GRAVES PROTECTION AND REPATRIATION ACT

The Native American Graves Protection and Repatriation Act (NAGPRA) intends to ensure the protection and rightful disposition of Native American ancestral remains and cultural items located on federal or Native American lands and in the federal government’s possession or control. The implementing regulations provide detailed definitions of what is regulated under Section 2 and 43 CFR Part 10 of the act. When there is activity affecting or likely to affect

Native American ancestral remains or cultural items on federal or tribal lands, a NAGPRA Plan of Action (POA) must be developed to describe the procedures for the treatment and disposition of ancestral remains, funerary objects, objects of cultural patrimony, and/or sacred objects that may be inadvertently identified during planned excavations.

NATIONAL ENVIRONMENTAL POLICY ACT

The National Environmental Policy Act (NEPA) directs federal agencies to use all practicable means to "preserve important historic, cultural, and natural aspects of our national heritage…" (42 U.S.C. §4321.102.6.4). If the presence of a significant environmental resource is identified during the scoping process, federal agencies and the agents must take the resource into consideration when evaluating the effects of the project. Consideration of paleontological resources may be required under NEPA when a project is proposed for development on federal land, or land under federal jurisdiction. The level of consideration depends upon the federal agency involved.

ANTIQUITIES ACT

The Antiquities Act states, in part: That "any person who shall appropriate, excavate, injure or destroy any historic or prehistoric ruin or monument, or any object of antiquity, situated on lands owned or controlled by the Government of the United States, without the permission of the Secretary of the Department of the Government having jurisdiction over the lands on which said antiquities are situated, shall upon conviction, be fined in a sum of not more than five hundred dollars or be imprisoned for a period of not more than ninety days, or shall suffer both fine and imprisonment, in the discretion of the court" (16 U.S.C. §433.1).

Although there is no specific mention of natural or paleontological resources in the act itself, or in the act's uniform rules and regulations [Title 43 Part 3, Code of Federal Regulations (CFR)], "objects of antiquity" has been interpreted to include fossils by NPS, the Bureau of Land Management (BLM), the United States Forest Service (USFS), and other federal agencies.

STATE LAWS AND REGULATIONS

CALIFORNIA ENVIRONMENTAL QUALITY ACT

CEQA states that it is the state's policy "that public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects, and that the procedures required by this division are intended to assist public agencies in systematically identifying both the significant effects of proposed project and the feasible alternatives or feasible mitigation measures which will avoid or substantially lessen such significant effects."

CEQA declares that it is state policy to: "take all action necessary to provide the people of this state with...historic environmental qualities." It further states that public or private projects

financed or approved by the state are subject to environmental review by the state. All such projects, unless entitled to an exemption, may proceed only after this requirement has been satisfied. CEQA requires detailed studies that analyze the environmental effects of a proposed project. In the event that a project is determined to have a potential significant environmental effect, the act requires that alternative plans and mitigation measures be considered.

TRIBAL CULTURAL RESOURCES

A tribal cultural resource is 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:

a) Listed or eligible for listing in the California Register of Historical Resources (CRHR), or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or
b) 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.

As of 2015, CEQA established that "[a] project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment" (Public Resources Code, § 21084.2).

To help determine whether a project may have such an effect, the lead agency must consult with any California Native American tribe that requests consultation and is traditionally and culturally affiliated with the geographic area of a proposed project. If a lead agency determines that a project may cause a substantial adverse change to tribal cultural resources, the lead agency must consider measures to mitigate that impact. Public Resources Code §20184.3 (b)(2) provides examples of mitigation measures that lead agencies may consider to avoid or minimize impacts to tribal cultural resources.

PUBLIC RESOURCES CODE

Section 5097.5: No person shall knowingly and willfully excavate upon, or remove, destroy, injure or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands (lands under state, county, city, district or public authority jurisdiction, or the jurisdiction of a public corporation), except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor. As used in this section, "public lands"

means lands owned by, or under the jurisdiction of, the state, or any city, county, district, authority, or public corporation, or any agency thereof.

CALIFORNIA REGISTER OF HISTORICAL RESOURCES

The CRHR is a listing of all properties considered to be significant historical resources in the state. The California Register includes all properties listed or determined eligible for listing in the National Register, including properties evaluated under Section 106 as well as State Historical Landmarks numbered 770 and above. The California Register statute specifically provides that historical resources must be considered under CEQA if they are listed, determined eligible for listing in the California Register by the State Historical Resources Commission, or are resources that meet the California Register criteria. Other resources, such as resources listed in local registers of historic resources or in local surveys, may be listed if they are determined by the State Historic Resources Commission to be significant in accordance with the criteria and procedures to be adopted by the Commission and are nominated; their listing in the California Register is not automatic.

Resources eligible for listing include buildings, sites, structures, objects, or historic districts that retain historical integrity and are historically significant at the local, state, or national level under one or more of the following four criteria:

1) It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States;
2) It is associated with the lives of persons important to local, California, or national history;
3) It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values; or
4) It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

In addition to having significance, resources must have integrity for the period of significance which is the date or span of time within which significant events transpired or significant individuals made their important contributions. Integrity is the authenticity of a historical resource's physical identity as evidenced by the survival of characteristics or historic fabric that existed during the resource's period of significance.

Alterations to a resource or changes in its use over time may have historical, cultural, or architectural significance. Simply, resources must retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance. A resource that has lost its historic character or appearance may still have sufficient integrity for the California Register, if, under Criterion 4, it maintains the potential to yield significant scientific or historical information or specific data.

NATIVE AMERICAN HUMAN REMAINS

Sites that may contain human remains important to Native Americans must be identified and treated in a sensitive manner, consistent with state law (i.e., Health and Safety Code §7050.5 and Public Resources Code §5097.98), as reviewed below:

In the event that human remains are encountered during project development and in accordance with the Health and Safety Code Section 7050.5, the County Coroner must be notified if potentially human bone is discovered. The Coroner will then determine within two working days of being notified if the remains are subject to his or her authority. If the Coroner recognizes the remains to be Native American, he or she shall contact the Native American Heritage Commission (NAHC) by phone within 24 hours, in accordance with Public Resources Code Section 5097.98. The NAHC will then designate a Most Likely Descendant (MLD) with respect to the human remains. The MLD then has the opportunity to recommend to the property owner or the person responsible for the excavation work means for treating or disposing, with appropriate dignity, the human remains and associated grave goods.

CALIFORNIA ADMINISTRATIVE CODE, TITLE 14, SECTION 4307

This section states that "No person shall remove, injure, deface or destroy any object of paleontological, archeological or historical interest or value."

BACKGROUND

ENVIRONMENTAL SETTING

The APE lies along the eastern side of the Central Valley near the western slope of the Sierra Nevada mountain range, approximately 17 miles northwest of Fresno and 30 miles southeast of Merced. The climate is Mediterranean, which is characterized by hot, dry summers often in the 90s, and mild, wet winters. Fog is also common in the winter due to a natural low-pressure system over the valley. Average annual precipitation for the area 12.23 inches (Felton 1965; USCD 2025).

Native flora near and within the APE includes California buckeye (*Aesculus californica*), Rainbow iris (*Iris hartwegii*), Orcutt's Brome (*Bromus orcuttianus*), Common tule (*Scirpus acutus),* Spikerush (*Eleocharis spp*.), Silver lupine (*Lupinus albifrons*), California poppy (*Eschscholzia californica*) and Sacred datura (*Datura wright*). Native fauna includes mule deer (*Odocoileus hemionus*), Pacific chorus frog (*Pseudacris regilla*), pond slider (*Trachemys scripta*) Northern Pacific rattlesnake (*Crotalus oreganus ssp. oreganus*), acorn woodpecker (*Melanerpes formicivorus*), Western tanager (*Piranga ludoviciana*), Cooper's hawk (*Accipiter cooperii*), Mule deer (*Odocoileus hemionus*), Gambel's deer mouse (*Peromyscus gambelii),* and coyote (*Canis latrans*; iNaturalist 2025).

PREHISTORIC SETTING

PALEOINDIAN AND LOWER ARCHAIC PERIODS (13,500 CAL BP – 7,500 CAL BP)

Few archaeological sites that predate 5,000 years ago have been discovered in the Central California/Central Valley region. Near the end of the Pleistocene (approximately 11,000 cal BP) and during the early Middle Holocene (approximately 7,500 cal BP), there were periods of climate change and associated alluvial deposition throughout the central California lowlands (Rosenthal et al. 2007). Geo-archaeological studies (e.g., Meyer and Rosenthal 2008; Rosenthal and Meyer 2004a, 2004b; White 2003) have verified that large segments of the Late Pleistocene landscape were removed or buried by periodic episodes of deposition or erosion during the Middle Holocene. These studies confirm estimates advanced by Moratto (1984) that Paleoindian and Lower Archaic sites were buried during the last 5,000 to 6,000 years by deposits of Holocene alluvium up to 10 meters thick along the lower stretches of the Sacramento River and San Joaquin River drainage systems.

Archaeological evidence for the Paleoindian Period is scant and is comprised primarily of fluted projectile points, which are morphologically similar to the well-dated Clovis points found elsewhere in North America (Rosenthal et al. 2007; Dillon 2002). In the Central Valley, fluted points have been identified at only three archaeological localities, and in each case, the points

were recovered from remnant features of the Pleistocene landscape. The three localities are the Woolfsen Mound (CA-MER-215) in Merced County, Tracey Lake in San Joaquin County, and the Tulare Lake basin in Kings County.

The Lower Archaic Period is also mainly represented by isolated finds, such as at the Tulare Lake basin in the southern San Joaquin Valley (Rosenthal et al. 2007). As a consequence of the natural alluvial deposition processes, only one site on the valley floor has produced cultural material dating to this period. Located in Kern County on the ancient shoreline of Buena Vista Lake, stratified cultural deposits at CA-KER-116 yielded stone tools (stemmed projectile point and crescents) and the remains of birds, fish and shellfish but no plant remains or milling tools. At two Lower Archaic Period sites in the foothills of Calaveras County (Skyrocket CA-CAL-629/630; LaJeunesse and Pryor 1996) and eastern Contra Costa County (CA-CCO-637; Meyer and Rosenthal 1998), abundant handstones and milling slabs have been recovered.

MIDDLE ARCHAIC PERIOD (7,500 CAL BP– 2,500 CAL BP)

Middle Archaic Period archaeological sites are more common in the foothills, particularly in buried contexts between circa 6,000 and 4,000 cal BP, and are relatively scarce on the valley floor due to burial by natural processes (Rosenthal et al. 2007). The change in climate and rising sea levels at the start of the Middle Holocene led to the development of the extensive marshland known as the Sacramento–San Joaquin Delta (Atwater and Belknap 1980; Goman and Wells 2000). The archaeological record indicates groups followed a seasonal foraging strategy and exploited a wide range of natural resources, including a variety of large and small mammals, fish, waterfowl, and plant resources (Fredrickson 1973; Heizer 1949; Moratto 1984; Ragir 1972). It is also likely that groups occupied higher elevations in the summer and shifted to lower elevations during the winters (Moratto1984), and that residential stability along river corridors within the Central Valley increased during this period (Rosenthal et al. 2007).

Faunal remains recovered from Middle Archaic sites include tule elk, deer, pronghorn, and rabbits, while fish remains include salmon, sturgeon, and smaller freshwater fishes. Seeds or acorns formed an important part of the diet during this period (Moratto 1984; Rosenthal et al. 2007). The remains of acorns and pine nuts have been recovered from foothill sites in Calaveras (CA-CAL-629/630 and CA-CAL-789) and Fresno (CAL-FRE-61) counties, and milling implements found at sites include grinding slabs (metates) and handstones (manos), as well as mortars and pestles.

Projectile points common in Middle Archaic sites are classified within the Sierra Contracting Stem and Houx Contracting Stem series (Justice 2002). Spears, angling hooks, composite bone hooks, and baked clay artifacts that may have been used as net or line sinkers represent the variety of fishing implements found at sites dating to this period. Other baked clay items include pipes and discoids, as well as cooking stones. Impressions of twined basketry, bone tools, shell

beads, and ground and polished charmstones have also been recovered. A variety of grave goods accompanied burials in cemetery areas, which were separate from habitation areas.

The presence during the Middle Archaic of an established trade network is indicated by a variety of exotic cultural materials, including obsidian tools, quartz crystals, and *Olivella* shell beads. Obsidian sources during this period included quarries in the eastern Sierra, Cascades, and North Coast Ranges (Rosenthal et al. 2007).

UPPER ARCHAIC PERIOD (2,500 CAL BP – 850 CAL BP)

The Upper Archaic Period is better understood than any of the preceding periods (Rosenthal et al. 2007). Technology is more specialized during this period, with innovations and new types of bone tools, *Olivella* shell beads, *Haliotis* ornaments, charmstones, and ceremonial blades. An abundance of grinding tools (mortars and pestles) and plant remains, accompanied by a decrease in slab milling stones and handstones, indicates a shift to a greater reliance on acorns as a dietary staple during the Upper Archaic Period (Fredrickson 1974; Moratto 1984; Wohlgemuth 2004; Rosenthal et al. 2007). Archaeologists generally agree that milling slabs and handstones may have been used primarily for grinding wild grass grains and seeds, while mortars and pestles are better suited to crushing and grinding acorns (Moratto 1984).

A wide variety of natural resources were exploited during this period. Subsistence strategies varied regionally, focusing on seasonally available resources suited for harvesting in bulk, such as salmon, shellfish, deer, rabbits, and acorns (Rosenthal et al. 2007). Numerous large shell mounds dating to this period are located near fresh or salt water and indicate exploitation of a variety of aquatic resources was relatively intensive. The accumulations of cultural debris and habitation features, such as rock-lined ovens, house floors, burials, hearths and fire-cracked rock, reflect long-term residential occupation (Bouey 1995).

In the western margins of the San Joaquin Valley, discrete cemeteries date to the Upper Archaic Period at sites in Contra Costa and Merced counties (CA-CCO-696, CA-MER-3, CA-MER 94) (Meyer and Rosenthal 1998; Olsen and Payen 1969; Pritchard 1970). In the southern San Joaquin Valley, sedentary villages on the shores of Buena Vista Lake were occupied year-round (Rosenthal et al. 2007). Trade in marine shell beads and obsidian, among other items, continued to be important. Established obsidian trade routes brought this valuable tool stone from the North Coast Ranges and the east side of the Sierra Nevada Range to the Central Valley.

EMERGENT/LATE PREHISTORIC PERIOD (850 CAL BP – HISTORIC CONTACT)

The archaeological record in the Central Valley for the Emergent or Late Prehistoric Period documents an increase in the diversity and number of artifacts and in the number of archaeological sites (Rosenthal et al. 2007). Along with an increase in sedentism and population that led to the development of social stratification, with an elaborate ceremonial and social organization, a number of cultural innovations shaped the Emergent Period. These include the

introduction of the bow and arrow and more diverse fishing equipment (bone fish hooks, harpoons, and gorge hooks). Diagnostic projectile points include the Gunther barbed series in the early part of the period, the unique Stockton serrated developed in the Delta region, Desert-side notched later in the period, and Cottonwood series in the Tulare and Buena Vista basins. Fishing, hunting, and gathering plant foods continue as the foci of subsistence practices, including intensive harvesting of acorns and an increased emphasis on fishing (Rosenthal et al. 2007). Hopper mortars and shaped mortars and pestles, as well as bone awls used for producing coiled baskets, are also common components of the artifact assemblages. Locally made Cosumnes Brownware has been recovered from some sites in the lower Sacramento Valley, while pottery in the Tulare basin was obtained through trade. Baked clay balls, which were probably used for cooking in the absence of stone, remain common.

Cultural items associated with ceremonials and rituals include flanged tubular pipes and baked clay effigies representing humans and animals, among others. Clamshell disk beads were used as a form of currency and accompanied the development of extensive exchange networks. Mortuary practices included flexed burials, the cremation of high-status individuals, and pre-interment burning of offerings in grave pits (Fredrickson 1973; Moratto 1984). House floors or other structural remains have been discovered at sites in the valley and foothills, including sites in Calaveras, Kern, Merced, and Sacramento counties (e.g., CA-CAL-1180/H, CA-KER-39, CA-MER-3, CA-MER-113, CA-SAC-29, CA-SAC-267; Rosenthal et al. 2007). Overall, the cultural patterns known from historic period Native American groups inhabiting the Central Valley are reflected in the subsistence and land use patterns practiced during the Emergent Period (Rosenthal et al. 2007).

ETHNOGRAPHY

TRIBAL TERRITORY

Historically, the Yokuts people collectively inhabited the San Joaquin Valley as well as the foothills of the Sierra Nevada, from the Calaveras River southward to the Kern River (Figure 4; Kroeber 1925). Ethnographers and linguists have traditionally divided Yokuts into three geographic groups, based on linguistic similarities and differences: Northern Valley, Southern Valley, and Foothill. The Northern Valley Yokuts tribes' territory extended southward from the Calaveras River to the upper San Joaquin River and from the crest of the Coast (Diablo) Range east to the Sierra Nevada foothills (Kroeber 1925).

LINGUISTICS

The traditional region of Yokut languages spread across the southern half of the Central Valley and into the Sierra foothills. Kroeber (1925) lists up to 40 separate regional Yokut languages with an approximate total of 18,000 speakers prior to European contact, while Wallace (1978) estimates the population density for Northern Valley Yokuts alone at 25,000 to 31,000 pre-contact. In 1852, representatives of only three of the remaining Northern Valley Yokuts tribes

(including the Heuchi) were present to sign statewide treaties (Wallace 1978). Currently, there are fewer than a dozen speakers of Wikchamni Yokuts, half a dozen Chaynimni Yokuts speakers, less than two dozen speakers of Yawelmani Yokuts and only a few speakers of Chukchansi Yokuts (Berkeley 2025).

VILLAGE STRUCTURE AND HABITATION

The Northern Valley Yokuts grouping consisted of 11 or more tribes, each containing 300 or so people (Wallace 1978). Most members lived within a single settlement that often had the same name as the political unit. These were generally established on low rises along the major watercourses. The eastern side of the San Joaquin River was more heavily populated than the land to the west of the river, due to greater water availability. Yokut villages generally contained at least three types of structures – oval single-family dwellings made of tule, ceremonial chambers, and sweathouses (Wallace 1978).

FOOD AND RESOURCE USEAGE

The fundamental economy of the Yokuts was subsistence fishing, hunting, and collecting plant foods. Acorns, collected in the fall and then stored in granaries, were a staple food (Wallace 1978). During the fall and spring runs, salmon was a dietary mainstay. Wildfowl, such as geese and ducks, were also an important staple. Additional dietary plant parts included seeds, berries and tule roots. Large game included deer, elk, antelope, and black bears.

A wide variety of tools, implements, and enclosures were used by the Northern Valley Yokuts to gather, collect, and process food resources (Kroeber 1925; Latta 1977; Wallace 1978). These included bow and arrows, nets, traps, slings, and blinds for hunting land mammals and birds; and harpoons, hooks, and nets, as well as tule rafts. Sharpened digging sticks and woven tools (seed beaters, burden baskets, and carrying nets) would have been used to collect plant resources and a variety of implements (stone mortars and pestles, bedrock and portable mortars, stone knives, and bone tools) used for processing resources. The Northern Valley Yokuts traded with neighboring groups for bows and arrows, baskets, shell ornaments and beads, obsidian, and mussels and abalone (Wallace 1978).

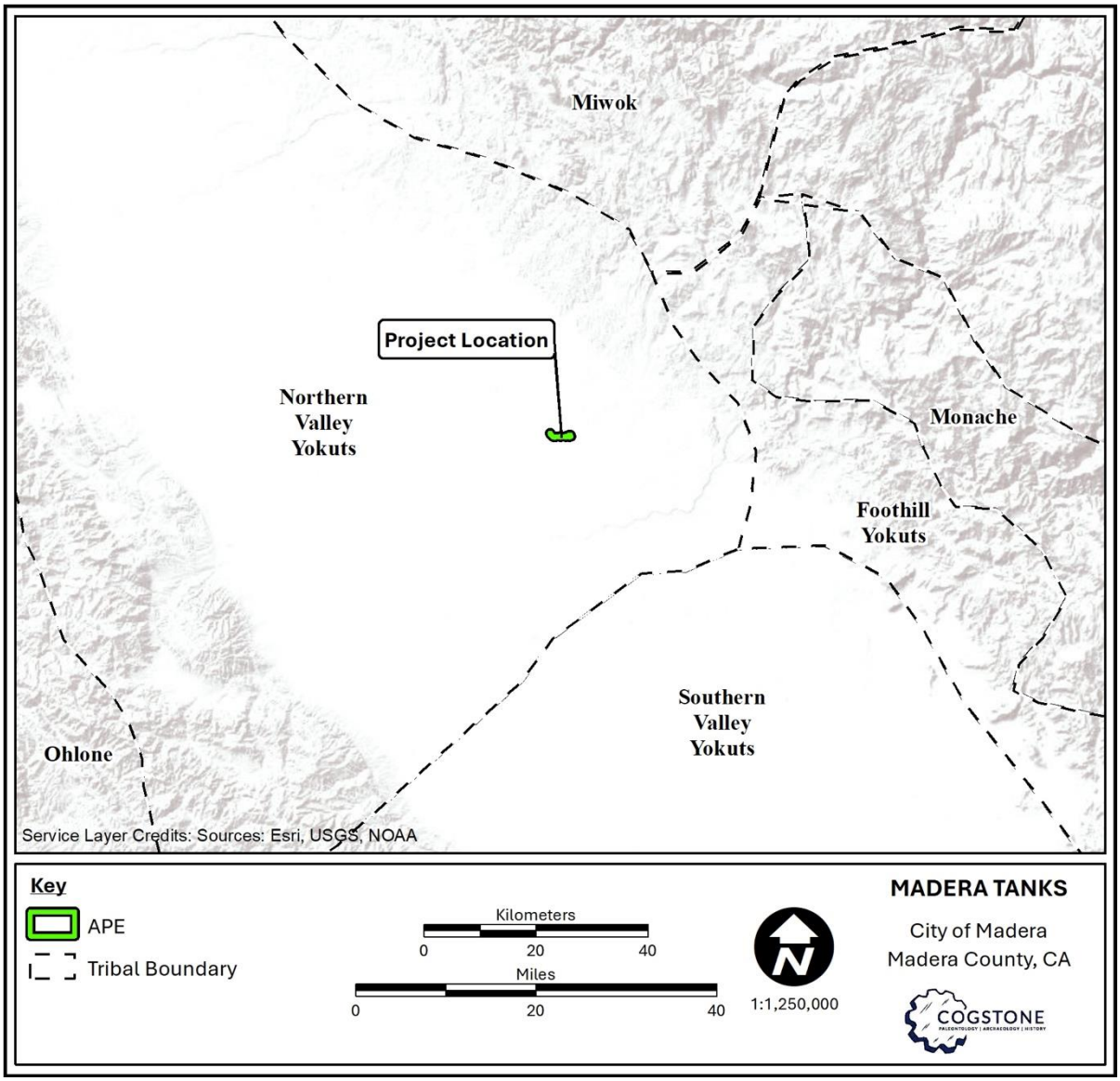


Figure 4. Tribal boundary map

HISTORIC SETTING

SPANISH PERIOD (1769-1822)

The earliest European explorations of California occurred in 1542, when Juan Rodríguez Cabrillo and his party landed near Point Loma near San Diego. Cabrillo had been tasked by the Spanish monarch with exploration of the western United States interior. Interaction with the native population was initiated, but intensive exploration and colonization of California by Spain did not occur until the 1700s.

In 1769, the Spanish developed plans to build three towns and four presidios (forts) along the California coastline stretching from San Diego northward to Monterey. The town sites,

established between 1777 and 1797, included present-day Los Angeles, San Jose, and a small town near Santa Cruz named Branciforte. The presidios were established at San Diego, Santa Barbara, Monterey, and San Francisco. Under Spain, the borderlands were colonized as defenses against the intrusion of the English, French, Dutch, and Russians, with the Manila trade an important item for protection in California. They were held by two typical institutions: the mission and the presidio (Bolton 1913, 1921, 1930 as cited in Aviña 1976).

Mission San Diego Alcalá was founded in 1769, the first of 21 Franciscan missions built along the coast on the El Camino Real between San Diego and Sonoma. The goals of the missions were tri-fold: they established a Spanish presence on the west coast, provided a way to Christianize native peoples, and served to exploit native population as laborers. The mission system severely disrupted socio-political structure of the native population, especially those living in close proximity (Loumala 1978:595).

Arrival of the Franciscan missionaries during the Spanish period resulted in far-reaching alterations in Native American lifeways. These shifts included high mortality rates and social changes due to the introduction of European diseases and customs (e.g., European farming methods; Dobyns 1983; Walker and Hudson 1989). Due to the high mortality rates, many Native American villages were abandoned, with inhabitants fleeing to the missions because "As the Native Americans watched the Europeans remain healthy during the epidemics, they began to view disease as a form of divine punishment for human transgressions" (Dobyns 1983) and "Believing that the Christian God held a power greater than their own, the Natives willingly joined the Spanish missions" (Rushing 1995:15).

The native population decreased because of a series of epidemics, and their traditional lifestyle was severely altered as neophytes were converted to Christianity and forced to work for the mission.

MEXICAN PERIOD (1822-1847)

After Mexico gained independence from Spain in 1821, the Mission lands were secularized under the Secularization Act of 1833, but much of the land was transferred to political appointees. A series of large land grants that transferred Mission properties to private ownership were awarded by the Governors of California—Juan B. Alvarado, Manuel Micheltorena and Pío Pico—between 1840 and 1846 (Cowan 1977; Ohles 1997). Ranches and farms were established throughout the San Diego region during this period.

AMERICAN PERIOD (1848-PRESENT)

The Mexican-American war followed on the heels of the Bear Flag Revolt of June 1846 (Ohles 1997). General Andrés Pico and John C. Frémont signed the Articles of Capitulation in December 1847, and with the signing of the Treaty of Guadalupe Hidalgo in February 1848, hostilities ended and Mexico relinquished California to the United States. Under the treaty,

Mexico ceded the lands of present-day California, New Mexico, Arizona, and Texas to the United States for $15 million (Fogelson 1993:10). Within two years following the treaty, California applied for admission as a state.

MADERA COUNTY

Madera County was organized from a part of Fresno County in 1853 and lies in the geographical center of the state. It was named after the Spanish word for "wood" or "timber." Beginning with the 1850s Gold Rush, timber has been an important economic resource for the County and for today's City of Madera. The County's first sawmill was constructed in the foothill mining district near present-day Oakhurst. Placer mining camps developed along the upper Fresno and San Joaquin rivers and on Coarsegold Creek at Coarsegold (also known as Texas Flat). Other camps in this district were named Fresno Flats (today's Oakhurst), Grub Gulch, Fine Gold, and Temperance Flat. Fresno Flats also housed one of several trading posts operated by Major James D. Savage in the southern Mother Lode during the Gold Rush era. By the late 1870s, a stage road that passed through Fresno Flats and Coarsegold had been constructed from Madera to Yosemite Valley (Hoover et al. 2002).

After the Southern Pacific line of the Central Pacific Railroad was completed through the County in 1872, the ability to transport lumber long distances further fueled the regional economy. To meet the demand for lumber by the states east of the Sierra Nevada, and to facilitate the transportation of cut trees to the railroad, a 63-mile flume was constructed at a cost of a half million dollars. Completed in 1874, the town of Madera was settled and grew around the lower end of the flume near the railroad stop and the Fresno River (Hoover et al. 2002). The town was incorporated in 1907 and has been the county seat since it was officially laid out by the California Lumber Company in 1876.

The first agricultural settlement in the County was founded approximately nine miles from Chowchilla at Borden (originally Alabama Settlement) in 1858/1859 by settlers from Alabama (Hoover et al. 2002). Many of the miners that migrated south from the Columbia-Sonora goldfields in the 1850s and 1860s also settled on the valley floor and farmed or raised livestock. Established in the 1870s, the agricultural settlements of Berenda and Fairmead were also located along the railroad line. Named after "berrendo," the Spanish word for antelope, the settlement of Berendo changed its name to Berenda in 1919 (Durham 1998). Agriculture continues to play a significant role in the regional economy, although agricultural and grazing land in the Madera area is being converted to other uses.

In 1893, the Madera County official broke away from Fresno County. Between 1984 and 2006, over 1,300 acres of agricultural and grazing land per year was converted in Madera County to mainly rural residential and commercial uses (City of Madera 2009).

CITY OF MADERA

The City of Medera originated as a lumber mill town, the site laid out by the California Lumber Company. Founded in 1876, its name originated from the Spanish word for "wood." The town grew quickly with 25 buildings (including a saloon and multiple residences) constructed by 1877, with the home of a Mr. Jason also used as a hotel. That same year, the first schoolhouse was constructed by residents on two acres of land (Coate 2005).

By 1878, the California Lumber Company declared bankruptcy and the Madera Logging operation was transferred to the San Jose Bank. Ownership then moved to Return Roberts who incorporated a new lumber company called Madera Flume and Trading Company. In 1881, a fire destroyed Madera's lumberyard. Further disaster struck when the nationwide economic depression of 1890 nearly ruined the Madera Flume and Trading Company. In 1899, the Madera Sugar Pine Lumber Company assumed control of the Madera Flume and Trading Company's assets (Coate 2005).

Madera's economy boomed resulting in a substantial population growth of 1,500 by 1891. In 1893, voters banded together to pass a resolution to divide Fresno County and create Madera County. The town of Madera was designated as the county seat. In 1907, Madera residents voted for incorporation which passed and was approved on March 27, 1907. Great change came to the city with the onset of the Great Depression in the 1930s which destroyed the lumber market and the backbone of Madera's economy. To fill the gap, residents pivoted to a diversified agrarian economy.

Wine grape production flourished and by 1985 Madera was designated an American Viticulture Area. By 2005 the city's population was 45,000. As seen throughout the rest of the county, between 1984 and 2006 grazing and agricultural land in Madera was gradually replaced with residential and commercial development (City of Madera and PMC 2009).

PROJECT AREA HISTORY

The earliest known USGS topographic map of the APE shows what is now Road 26 and North D Street present by 1922 (*Madera*, 1:31,680, 1922). By 1946, an unimproved portion of Ellis Street is present which runs between what is now Krohn Street to the west and Merced Street to the east (*Madera*, 1:62,500, 1946). A 1957 USDA aerial photograph shows the M.I.D. canal, Lateral 24.2 (also known as 24.2 Canal) in its current location and configuration. A bridge is visible on Ellis Street which intersects with the canal (NETROnline 1957). By this time, only a handful of residences are visible which face the APE.

SOURCES CONSULTED

CALIFORNIA HISTORIC RESOURCES INFORMATION SYSTEM

Cogstone requested a search of the California Historical Resources Information System (CHRIS) from the Southern San Joaquin Valley Information Center (SSJVIC) located at California State University, Bakersfield which included the entire proposed APE as well as a one-mile radius. Results of the record search were received on May 12, 2025 and indicated that 11 previous studies have been completed within the APE while an additional 21 studies have been completed previously within a one-mile radius of the APE (Table B1; Appendix B).

One cultural resource, Madera Canal (P-20-002308/CA-MAD-2649H) has been previously recorded within the APE (Table B2; Appendix B). An additional resource, Madera Irrigation District (M.I.D.) Outside of the APE a total of seven cultural resources have been previously documented within the one-mile search radius from the APE (Table B2; Appendix B). These consist of two cultural resources within a quarter-mile of the APE, two cultural resources within a quarter- to half-mile of the APE, and three cultural resources with a half-mile to one mile of the APE. A summary of the Madera Canal (P-20-002308/CA-MAD-2649H) is provided below.

MADERA CANAL; MADERA IRRIGATION DISTRICT (M.I.D.); (P-20-002308/CA-MAD-2649H)

Numerous segments of Madera Canal (P-20-002308/CA-MAD-2649H) have been recorded and evaluated for potential historic significance since 2000. A 500-foot-long segment of Lateral 24.2 (24.2 Canal) was documented in 2016 by Garcia and Associates but was not evaluated for historic significance (Garcia and Associates 2016).

2000 Hattersley-Drayton

The earliest known documentation of the canal was in 2000 by Karana Hattersley-Drayton of Caltrans. A segment of the Madera Canal (#8, Lateral 32.2) was described as approximately 15 miles long. This segment of the canal is called Lateral 32.2 as it begins at a turnout on the Madera Canal which is approximately 32.2 miles from the Friant Dam. It is one of four turn-outs along the Madera Canal. Constructed in ca. 1953 as an open ditch, Lateral 32.2 crosses under State Route 99 near the town of Fairmead. In 1972 a portion pipe was installed which the expansion of the highway [assumed to be Highway 99). The width of the segment is between 10-12 feet at water level and 20 feet at the top of the low berms. Surrounding areas were described and rural farmland with orchards.

The Fairmead Colonies were established in 1912 and were comprised of numerous family farms. However, due to a lack of a developed water conveyance system and a severe drop in the region’s water table by the 1940s, the Fairmead Colonies struggled. In 1950, the Madera Irrigation District contracted with the Bureau of Reclamation to dig laterals in the Fairmead area

which connected with the Madera Canal. The construction of Lateral 32.2 saved the struggling farmers of the Fairmead Colonies. Lateral 32.2 was recommended as qualifying as a historical resource under CEQA (Hattersley-Drayton 2000).

2000 Hattersley-Drayton

In 2000, Karana Hattersley-Drayton of Caltrans documented Lateral 32.2-9.9 which diverts water from Lateral 32.2 via the 9.9 Headworks located south of Fairmead and east of Road 20. Lateral 32.2-9.9 is six feet wide, unlined, and seven miles long. It was built in stages between 1953-1954 by Bureau of Reclamation. Lateral 32.2-9.9 was recommended eligible for listing in the NRHP and the CRHR under Criteria A/1 (Hattersley-Drayton 2000).

2005 Applied EarthWorks, Inc.

In 2005, Applied EarthWorks, Inc. documented a segment of Madera Canal and Lateral 6.2. These segments of the canal were not evaluated for historic significance. (Applied Earthworks 2005)

2005 Roark, Jones & Stokes

In 2005, Gabriel Roark of Jones & Stokes documented "Main No. 1 Canal". This canal was originally built in 1870 and was used for local irrigation purposes, transporting water from the Fresno River to Cottonwood Creek. In 1949, M.I.D. purchased the canal as an addition to the Madera Canal. While Main No. 1 Canal is historically significant for its association with early irrigation and agricultural development, decades of regular maintenance and redesign by MID and the Madera Canal & Irrigation Company (MC&IC) has resulted in the resource's loss of integrity. Therefore Main No. 1 Canal is recommended not eligible for listing in the NRHP.

2009 JRP Historical Consulting, LLC.

In 2009, Joseph Freeman and Rebecca Flores of JRP Historical Consulting, LLC, documented three segments of the Madera Canal located within agricultural and ranch areas. This segment is located north of the City of Fresno near State Route 41. The site form prepared by Freeman and Flores states the segment recorded was originally documented in 1995 by "Hatoff" (this site form cannot be located at present). The segment of canal revisited by Freeman and Flores is described with steep earthen berms which rise above concrete sidewalls. The berms are level with the surrounding terrain. According to Freeman and Flores, the Madera Canal extends 37 miles north from Friant Dam. These three segments were not evaluated for potential historic significance as part of the 2009 site form. (JRP Historical Consulting, LLC 2009)

2013 Culturescape

In 2013, five irrigation gate valves located along the Fresno River Big Main Canal were documented by Mark Kile of Culturescape. They are described as non-unique and ubiquitous

throughout the canal system located at distribution points of the canal. These features were not evaluated for historic significance (Kile 2013a).

2013 Culturescape

In 2013, Mark Kile of Culturescape documented the locations of 20 irrigation gate valves distributed along the Madera Canal system. These features were not evaluated for historic significance (Kile 2013b).

2014 ESA

In 2014, R. Scott Baxter from ESA documented a 60-foot segment of the MID Big Main Canal near the northeast semi-rural area of the town of Madera. This segment, built ca. 1922, is described as an earthen, V-shaped canal with a flat bottom. Baxter recommended the MID Big Main Canal as historically significant for the canal's association with early corporate irrigation efforts and agricultural development in Madera County. However, following decades of alterations and maintenance, this segment of the MID Big Main Canal no longer possesses sufficient integrity to convey its historic significance. Therefore, this segment of the canal is recommended not eligible for listing in the NRHP. (ESA 2014)

2016 Garcia and Associates

In 2016, Brandon Patterson of Garcia and Associates documented a 500-foot-long segment of the Madera Canal, Lateral 24.2, near Avenue 16 and Road 22 in Madera County. The canal segment is described as V-shaped, mechanically excavated to six feet deep, with the base loosely bedded by cobble and gravel. Additional components include a pre-cast, concrete box culvert and outlet, likely constructed after the 1950s. The setting of this segment of the canal is rural agricultural lands. This segment of the canal was not evaluated for historic significance (Garcia and Associates 2016).

2016 Applied EarthWorks Inc.

In 2016, Kaite Asselin of Applied EarthWorks, Inc., documented multiple segments of laterals that are extensions of MID Lateral 6.2. These laterals were built between 1947 and 1963. Lateral 6.2 is an earthen canal with earthen berms raised three feet above surface level. These segments of the canals were not evaluated for historic significance (Applied EarthWorks Inc. 2016).

2016 HDR EOC, Inc.

In 2016, a 100-foot section of the Madera Canal was documented by HDR EOC, Inc. The canal is described as earthen-lined, 20 feet wide and nine feet deep. This segment of canal was completed in 1947 and is largely unaltered with the exception of canal maintenance. This resource was recommended eligible for listing in the NRHP and CRHR under Criterion A/1 for its relation to the Central Valley Project (CVP) which was a major federal undertaking resulting in the expansion of agriculture in the Central Valley. This resource was also recommended

eligible for listing under Criterion C/3 for its engineering significance as part of a unique irrigation system (HDR EOC, Inc. 2016).

2016 Culturescape
In 2016, M. C. Kile of Culturescape documented a 6,500-foot segment of the MID's Lateral 24.2-17.0. This irrigation canal is part of the MID expansion completed ca. 1950 and underwent major modifications up until 1965. At the time of its documentation in 2016, it was described as 15 feet wide and six feet deep. This segment of Lateral 24.2-17.0 was given the status code: 6Z (Found ineligible for NR, CR or Local designation through survey evaluation; Kile 2016a).

2016 Culturescape
In 2016, Mark Kile of Culturescape documented a total of 14 control points for the MID constructed sometime between 1935 and 1963. This site form has conflicting recommendations of eligibility. It has a status code of 6Z (Found ineligible for NR, CR or Local designation through survey evaluation), however the Dry Creek Diversion Dam (Abbeys Hole) is recommended eligible for listing under Criterion A and Criterion B (Kile 2016b).

2016 ESA
In 2016, Katherine Anderson of ESA documented three segments of the MID Lateral 6.2 Canal: MID Lateral 6.2 (1,500-foot segment), distributary canal MID Lateral 6.2-9.2 (1,500-foot segment), and distributary canal MID Lateral 6.2-13.4 (2,500-foot segment). The MID Lateral 6.2 and its distributary canals is one of many canals constructed in support of the Madera Canal and were built well after the Madera Canal's initial construction. (Anderson 2016)

MID Lateral 6.2 is an earthen trapezoidal canal, 40 feet wide at its top, 20 feet deep, and 20 feet wide at the base. MID Lateral 6.2-9.2 is an earthen distributary canal organized with an asymmetrical trapezoidal/U-shape. It is 20 feet wide at its top, eight feet deep, and 10 feet wide at its base. The unlined walls have steep sloping sides. MID Lateral 6.2-13.4 is also an earthen distributary canal with a trapezoidal shape. It is 20 feet wide at its top, three feet deep, and four feet wide at its base.

Anderson states the segments of the MID Lateral 6.2 are not considered unique in its association with the Madera Canal, nor are they associated with the lives of important individuals, nor are they considered significant in their design or form.

2018 Applied EarthWorks
In 2018, Ward Stanley documented a 61-foot-long segment of MID Lateral 6.2. Construction of this canal was completed by 1955 as part of the Central Valley Project. No associated resources were observed. This segment of canal was not re-evaluated for historic significance (Applied EarthWorks 2018).

OTHER SOURCES

In addition to the SSJVIC records search, a variety of sources were consulted in May 2025 to obtain information regarding the cultural context of the Project vicinity (Tables 1 and 2). Sources included the National Register of Historic Places (NRHP), California Register of Historical Resources (CRHR), Built Environment Resource Directory (BERD), California Historical Landmarks (CHL), and California Points of Historical Interest (CPHI). Specific information about the APE, obtained from historic-era maps and aerial photographs, is presented in the APE History section.

Table 1. Additional Sources Consulted

Source	Results
National Register of Historic Places (NRHP)	Negative
Historic USGS Topographic Maps	See APE History section
Historic US Department of Agriculture Aerial Photographs	See APE History section
California Register of Historical Resources (CRHR)	Negative
Built Environment Resource Directory (BERD)	Positive; OTIS ID-521423: "24.2 CANAL" (Status Code: 6Y).
California Historical Landmarks (CHL)	Negative
California Points of Historical Interest (CPHI)	Negative
Caltrans Historic Bridge Inventory (2016)	Positive; M.I.D. Canal (Object ID: 32545, Bridge No. 41C0132). Built in 1975. Historic Significance Code: 4. Historical Significance not determined.
Bureau of Land Management (BLM) General Land Office Records	Positive; See Table 2.
Local Registers (Historical Societies/Archives)	Negative

Lateral 24.2 is listed in the Built Environment Resource Directory (BERD) as "24.2 CANAL" under the California Office of Historic Preservation's internal numbering system OTIS ID 521423 (see Table 1). 24.2 CANAL is not associated with a Primary number within the BERD however, the resource is assigned the Status Code 6Y (Determined ineligible for listing in the National Register through a consensus determination of a federal agency and the State Historic Preservation Officer).

Table 2. BLM Search Results

Name	Accession No.	Issue Date	Authority	Twn, Rng, Sec
John O. Earl	AGS-0292-017	5/15/1869	State Grant-Agri College	T: 11S, R:17E, Sec:11
	AGS-0292-018		State Grant-Agri College	T: 11S, R:17E, Sec:11
	AGS-0292-019		State Grant-Agri College	T: 11S, R:17E, Sec:11
	CACAAA 115797		Scrip or Nature of Scrip	T: 11S, R:17E, Sec:11
	CACAAA 115799		Scrip or Nature of Scrip	T: 11S, R:17E, Sec:11
	AGS-0292-020		State Grant-Agri College	T:11S, R:17E, Sec:12
	AGS-0292-022		State Grant-Agri College	T:11S, R:17E, Sec:12
	AGS-0292-023		State Grant-Agri College	T:11S, R:17E, Sec:12

Name	Accession No.	Issue Date	Authority	Twn, Rng, Sec
	CACAAA 115800		Scrip or Nature of Scrip	T:11S, R:17E, Sec:12
	CACAAA 115802		Scrip or Nature of Scrip	T:11S, R:17E, Sec:12
	CACAAA 115803		Scrip or Nature of Scrip	T:11S, R:17E, Sec:12
Isaac Friedlander	AGS-0299-273	7/20/1869	State Grant-Agri College	T:11S, R:18E, Sec: 7
	AGS-0299-275		State Grant-Agri College	T:11S, R:18E, Sec: 7

John O. Earl

Possibly John O. Earl (year of birth unknown) who was one of the original 49ers and one of the original trustees of the Lick Estate (James Lick was the richest man in California when he died in 1876). Mr. Earl died in 1900 at his residence at 1015 Morton Street, Alameda, California (The Daily Encinal 1900).

Isaac Friedlander

Possibly Isaac Friedlander (ca. 1823-1878), known as the "Wheat King of California," however there is a lack of information that can confirm this connection.

ADDITIONAL STUDIES

Madera Irrigation District Water Supply Enhancement Project Final Environmental Impact Statement (2009)

Cogstone reviewed a 2009 Environmental Impact Statement prepared by the U.S. Department of the Interior Bureau of Reclamation. The report was prepared as part of a Water Supply Enhancement Project (WSEP) located on the property known as Madera Ranch, west of the city of Madera. A historic resource evaluation for Lateral 24.2 (referred to in the report as '24.2 Canal') is included in this study which states:

> "P-20-2399, the Main No. 1 Canal, the Main No. 2 Canal, the 24.2 Canal, and the Section 8 Canal, were evaluated previously under the NRHP's significance criteria. None of these resources were found to be eligible under the NRHP's significance criteria… and SHPO concurred with these determinations on August 31, 2009" (U.S. Department of the Interior Bureau of Reclamation 2011).

NATIVE AMERICAN CONSULTATION

A Sacred Lands File (SLF) search was requested from the Native American Heritage Commission (NAHC) on April 29, 2025. On April 30, 2025, the NAHC responded that the SLF search was completed with negative results, and provided contact information for 13 Native American tribal organizations and individuals that may have more information about the Project area. The response from the NAHC can be found in Appendix C.

SURVEY

METHODS

The survey stage is important in a Project's environmental assessment phase to verify the exact location of each identified cultural resource, the condition or integrity of the resource, and the proximity of the resource to areas of cultural resources sensitivity. All undeveloped ground surface areas within the ground disturbance portion of the Project area were examined for artifacts (e.g., flaked stone tools, tool-making debris, stone milling tools or fire-affected rock), soil discoloration that might indicate the presence of a cultural midden, soil depressions and features indicative of the former presence of structures or buildings (e.g., postholes, foundations), or historic-era debris (e.g., metal, glass, ceramics). Existing ground disturbances (e.g., cutbanks, ditches, animal burrows, etc.) were visually inspected. Photographs of the Project area, including ground surface visibility and items of interest, were taken with a digital camera.

The built environment resources survey identified and verified the location of all structures and buildings within the Project area aged 45 years or older. Once identified, historic built environment resources were examined to ascertain if they are recommended eligible for listing as a historical resource at the local, state, or national level and if the original integrity of the resource remains intact. The seven aspects of integrity which are considered as part of a determination of eligibility include: location, design, setting, materials, feeling, workmanship, and association.

RESULTS

On May 14, 2025, Cogstone archaeologist Alison Bryson-Deveraux completed an intensive pedestrian survey of all areas of undeveloped and open space within the APE (approximately 25 percent). The APE consists of 50.28 acres of developed urban land, mainly roadways, sidewalks and easements (Figures 5 through 8). The proposed well field along North Lake Street was not surveyed due to extreme vegetation growth as well as fencing around the perimeter.

Soils within the APE consisted of Cometa sandy loam, a moderately deep, moderately well drained soil formed in alluvium from granitic rock sources. Areas of visibility included graded easements and undeveloped lands adjacent to the roadways, and within areas of bioturbation. Visibility was 100 percent in unvegetated areas or in areas which had been recently mowed or tilled, and 10 to 15 percent in densely vegetated areas. Vegetation noted within the APE included native and non-native species such as field bindweed (*Convolvulus arvensis*), wild oat (*Avena fatua*), and curlycup gumweed (*Grindelia squarrosa*).

A segment of the Madera Canal (P-20-002308/CA-MAD-2649H) and the historic in age bridge along Ellis Street, M.I.D. Canal Bridge (41C0132) were photographed and documented on California Department of Parks and Recreation 523 (DPR 523) forms (Appendix D). While portions of the Madera Canal have been previously documented and evaluated for historic significance, this small section within the APE was documented on a new set of DPR 523 forms as an update for P-20-002308/CA-MAD-2649H.



Figure 5. Sharon Boulevard at paved road terminus, facing northwest.



Figure 6. Southside easement of Ellis Street between Owens Street and Sonora Street, facing southeast.



Figure 7. Southeast corner of well field along North Lake Street, facing southwest.



Figure 8. Northern terminus of Sharon Boulevard, facing southwest.

P-20-002308/CA-MAD-2649H, SEGMENT OF MADERA CANAL, LATERAL 24.2

This segment of the Maderia Canal's Lateral 24.2 is earthen lined and intersects with the M.I.D. Canal Bridge (41C0132) on Ellis Street. Lateral 24.2 transports water from Dry Creek to the north. The flow of Dry Creek into the canal is controlled by Diversion Dam (Figure 9).

M.I.D. CANAL BRIDGE (41C0132)

Built in 1975, this concrete beam bridge is located on Ellis Street and crosses over the Madera Canal. The bridge is simple in its design with concrete wing walls, girder, asphalted deck, and galvanized steel guardrails (Figure 10).



Figure 9. Southern side of canal from access road, facing northwest.



Figure 10. View of northern side of M.I.D Canal Bridge (41C0132). Facing southwest.

BUILT ENVIRONMENT EVALUATION

To be eligible for the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR) a resource must:

A/1. be associated with events that have made a significant contribution to the broad patterns of history;
B/2. be associated with the lives of significant persons of the past;
C/3. embody distinctive characteristics of type, period, or method of construction or represent the work of a master, or possess high artistic value, or represent a significant and distinguishable entity those components may lack individual distinction; or
D/4. yielded or may likely yield information important in history or prehistory.

In addition to having significance using the above criteria, resources must have "integrity of location, design, setting, materials, workmanship, feeling, and association" to the period of significance (OHP 2011). The period of significance is the date or span of time within which significant events transpired, or significant individuals made their important contributions.

Integrity is the authenticity of a historical resource's physical identity as evidenced by the survival of characteristics or historic fabric that existed during the resource's period of significance. Alterations to a resource or changes in its use over time may have historical, cultural, or architectural significance. Simply, resources must retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance.

P-20-002308/CA-MAD-2649H (SEGMENT OF MID CANAL, LATERAL 24.2)

Theme: Irrigation
Property Type: Canal
Period of Significance: Ca. 1954-1957

Criteria A/1

Is this resource associated with events that have made a significant contribution to the broad patterns of history?

Lateral 24.2 was built in the mid-1950s as an agricultural irrigation canal transporting water south from Dry Creek. A review of USDA aerials of the City of Madera and the census designated place Madera Acres shows that in 1957, two years after the construction of Lateral 24.2, multiple large parcels of land are graded. However, these parcels were developed into residential neighborhoods in the late 1960s and 1970s. As an irrigation canal, Lateral 24.2 would

not be associated with providing water to these homes nor support their construction. This section of canal is not associated with any significant contributions to local agricultural or residential development. Therefore, due to a lack of significance, this segment of Lateral 24.2 is recommended not eligible for listing in the NRHP under Criterion A or the CRHR under Criterion 1.

Criteria B/2
Is this resource associated with the lives of significant persons of the past?
This segment of the MID canal, Lateral 24.2, is not known to be associated with the lives of people considered significant to history. Therefore, this segment of the canal is recommended not eligible for listing in the NRHP under Criterion B or the CRHR under Criterion 2.

Criteria C/3
Does this resource embody distinctive characteristics of type, period, or method of construction or represent the work of a master, or possess high artistic value, or represent a significant and distinguishable entity those components may lack individual distinction?
This segment of the M.I.D. canal, Lateral 24.2, is an unremarkable example of an earthen lined canal. It is a small part of a secondary system which supports the main M.I.D. canal. It is not an exemplary representation of a type, method of construction, nor does it represent the work of a master nor possess high artistic value. Therefore, this resource is recommended not eligible for listing in the NRHP under Criterion C and the CRHR under Criterion 3.

Criteria D/4
Has this resource yielded or may likely yield information important in history or prehistory?
Criterion 4 is most often applied to archaeological sites and districts but can also apply to buildings, structures, and/or objects. This resource does not exhibit a local variation of a standard design or construction technique that can yield important information (such as construction expertise or availability of local materials). Therefore, this segment of Lateral 24.2 is recommended not eligible for listing in the NRHP under Criterion D or the CRHR under Criterion 4.

M.I.D. CANAL BRIDGE (41C0132)

Theme: Transportation
Property Type: Bridge
Period of Significance: 1975

Criteria A/1
Is this resource associated with events that have made a significant contribution to the broad patterns of history?

This bridge, built in 1975, is a typical concrete beam bridge which is used for local pedestrian and vehicle transportation access over the man made Madera Canal. A review of a 1957 USDA aerial photograph shows a bridge present in the location of the current M.I.D. Canal Bridge. Therefore, it is assumed that the current bridge is a replacement for the original. This bridge is not associated with any events considered significant to history and therefore, recommended not eligible for listing in the NRHP under Criterion A or the CRHR under Criterion 1.

Criteria B/2

Is this resource associated with the lives of significant persons of the past?

No information can be located which connects this bridge with the lives of individuals considered significant to history. Therefore this resource is recommended not eligible for listing in the NRHP under Criterion B or the CRHR under Criterion 2.

Criteria C/3

Does this resource embody distinctive characteristics of type, period, or method of construction or represent the work of a master, or possess high artistic value, or represent a significant and distinguishable entity those components may lack individual distinction?

This bridge is an unremarkable and common representation of a small concrete beam bridge. It is not an exemplary representation of a style, period, method of construction, nor does it represent the work of a master nor does it possess high artistic value. Therefore, this bridge is recommended not eligible for listing in the NRHP under Criterion C or the CRHR under Criterion 3.

Criteria D/4

Has this resource yielded or may likely yield information important in history or prehistory?

Criterion 4 is most often applied to archaeological sites and districts but can also apply to buildings, structures, and/or objects. This resource does not exhibit a local variation of a standard design or construction technique that can yield important information (such as construction expertise or availability of local materials). Therefore, this bridge is recommended not eligible for listing in the NRHP under Criterion D or the CRHR under Criterion 4.

STUDY FINDINGS AND CONCLUSIONS

The APE is assessed to have a low sensitivity for buried pre-contact and historic-age archaeological resources based on the negative records search results, negative SLF search results, and negative survey results.

A segment of the Madera Canal, Lateral 24.2 (P-20-002308/CA-MAD-2649H) and the M.I.D. Canal Bridge (41C0132) are present within the APE. Both resources were documented on two sets of DPR 523 forms and evaluated for historic significance. Due to a lack of historic significance, these resources are recommended not eligible for listing at the national, state, or local level.

RECOMMENDATIONS

Due to the lack of pre-contact cultural resources, negative SLF search, negative pedestrian survey, and lack of historic significance for the segment of the Madera Canal and associated bridge, no additional work is recommended at this time.

In the event of an unanticipated discovery, all work must be suspended within 50 feet of the find until a qualified archaeologist evaluates it. In the unlikely event that human remains are encountered during project development, all work must cease near the find immediately.

In accordance with California Health and Safety Code Section 7050.5, the County Coroner must be notified if potentially human bone is discovered. The Coroner will then determine within two working days of being notified if the remains are subject to his or her authority. If the Coroner recognizes the remains to be Native American, he or she shall contact the Native American Heritage Commission (NAHC) by phone within 24 hours, in accordance with Public Resources Code Section 5097.98. The NAHC will then designate a Most Likely Descendant (MLD) with respect to the human remains. The MLD then has the opportunity to recommend to the property owner or the person responsible for the excavation work means for treating or disposing, with appropriate dignity, the human remains and associated grave goods. Work may not resume in the vicinity of the find until all requirements of the health and safety code have been met.

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APPENDIX A. QUALIFICATIONS

cogstone
PALEONTOLOGY - ARCHAEOLOGY - HISTORY

MOLLY VALASIK
Principal Archaeologist

EDUCATION

2009 M.A., Anthropology, Kent State University, Kent, Ohio
2006 B.A., Anthropology, Ohio State University, Columbus, Ohio

SUMMARY QUALIFICATIONS

Ms. Valasik serves as Cogstone's CEO and CFO and helps guide the vision and direction of Cogstone. She has been with the company since 2009 and has helped transition Cogstone from sole ownership to multiple owners with an active board of directors. Ms. Valasik is a Registered Professional Archaeologist (RPA #989162) with more than 15 years of experience. She is a skilled professional who is well-versed in the compliance procedures of the California Environmental Quality Act (CEQA), the National Environmental Policy Act (NEPA), and Sections 106 and 110 of the National Historic Preservation Act (NHPA) and regularly prepares cultural resources assessment reports for a variety of federal, state, and local agencies throughout California. Ms. Valasik has managed projects in the water, transportation, energy, development, and federal sectors. She meets the qualifications required by the Secretary of the Interior's *Standards and Guidelines for Archaeology and Historic Preservation*. She is accepted as a Principal Investigator for prehistoric archaeology by the State Historic Preservation Office (SHPO) and is listed as a Principal Investigator on Cogstone's Bureau of Land Management (BLM) Cultural Resource Use Permit.

SELECTED EXPERIENCE

Antioch Housing Element Update, City of Antioch, Contra Costa County, CA. The purpose of this study was to review and summarize available information regarding known archaeological and historical resources within the boundaries of the City of *Antioch* to support an update to the city's General Plan. The project involved the preparation of an Environmental Impact Report (EIR) for the city's 6th Cycle Housing Element Update in compliance with CEQA. Cogstone's services included a cultural resources records search, a Sacred Lands File search from the Native American Heritage Commission (NAHC), and prepared a Cultural and Tribal Cultural Resources Technical Report. The report mapped all prehistoric and historic archaeological sites and historic built environment resources within the city. The City of Antioch was the lead agency under CEQA. Sub to Urban Planning Partners, Inc. Project Manager. 2022

East Arques Avenue Project, City of Sunnyvale, Santa Clara County, CA. Cogstone conducted a cultural resources assessment to determine the potential impacts to cultural resources during the project, which consisted of replacing a 313,485-square foot, six building, industrial complex with 455,500 square feet of warehouse/advanced manufacturing space and 38,000 square feet of office space. Expected maximum depth of ground disturbance was six feet for grading and up to 15 feet for project utilities trenching. Cogstone conducted a cultural resources records search which identified a multi-component archaeological site within the project area. Cogstone's services also included a Sacred Lands File search from the NAHC and an intensive pedestrian survey. Additionally, four of the six buildings within the project area were evaluated on California Department of Parks and Recreation 523 (DPR 523) forms and were recommended as eligible for listing in the California Register of Historical Resources (CRHR). Cogstone prepared a Cultural Resources Assessment Report. The City of Sunnyvale was the lead agency under CEQA. Sub to Urban Planning Partners, Inc. Sub to Urban Planning Partners, Inc. Project Manager. 2022

Portola Housing Element Project, City of Portola Valley, San Mateo County, CA. The project involved the preparation of a programmatic Initial Study (IS) or Mitigated Negative Declaration (MND) for the City of Portola Valley's Housing Element and Safety Element Updates that will be added to the General Plan. Cogstone conducted a cultural and paleontological resources assessment which consisted of cultural and paleontological resources records searches, a Sacred Lands File search from the NAHC, and a review of the 1998 Portola Valley City Historic Resources Inventory. Cogstone recommended that the city conduct a new historic inventory that starts with the potential housings sites and is expanded in scope to include archaeological sites and developed three mitigation measures to guide future development. Sub to Urban Planning Partners, Inc. Project Manager. 2022

cogstone
PALEONTOLOGY - ARCHAEOLOGY - HISTORY

ALISON BRYSON-DEVERAUX
Principal Investigator for Archaeology

EDUCATION

2017 M.A., Historic Preservation, Prescott College
2007 B.A., Anthropology, University of California, Santa Barbara

SUMMARY QUALIFICATIONS

Ms. Bryson-Deveraux is an archaeologist with over 20 years of experience throughout the state of California. Her field expertise includes pedestrian surveys, excavation, site compilation, and mitigation monitoring. Ms. Bryson-Deveraux has led a variety of projects at Cogstone in the water, development, and public works sectors. Prior to her role as Principal Investigator at Cogstone, she served as Lead Archaeologist for seven years on local oil field remediation projects which included repatriation. Ms. Bryson-Deveraux specializes in the prehistory and history of California. She meets the qualifications required by the Secretary of the Interior's *Standards and Guidelines for Archaeology and Historic Preservation* and is listed as a Field Director on Cogstone's Bureau of Land Management (BLM) Cultural Resource Use Permit.

SELECTED EXPERIENCE

Highway 35 Cultural Study, Purisima Creek Redwoods Open Space Preserve, San Mateo County, CA. Cogstone conducted cultural resources and historic built environment assessments to determine the potential impacts to cultural and historic built environment resources from the proposed improvement and expansion on the existing North Ridge parking area to the west, construction of a multi-use trail crossing from the North Ridge Parking lot across Highway 35, and construction of a spur trail connecting the Highway 35 multi-use trail crossing with the proposed Ridge Trail Extension. Cogstone's services included a cultural resources records search, a Sacred Lands File search from the Native American Heritage Commission (NAHC), consultations with local historical societies, and an intensive pedestrian survey. No archaeological resources were identified during the survey. One historic resource, a 1940s era house, was photographed and documented on California Department of Parks and Recreation 523 (DPR 523) forms. A Cultural Resource Assessment Report and a Historic Resource Evaluation Report were prepared. This project was part of Cogstone's on-call contract with Midpeninsula Regional Open Space District. Prime. Task Manager and Principal Investigator for Archaeology. 2022-2023

Calabazas Creek Rehabilitation Project, Santa Clara Valley Water District, City of Cupertino, Santa Clara County, CA. Cogstone is conducting archaeological monitoring to support the repairs and rehabilitation work along Calabazas Creek between Miller Avenue and Bollinger Road in the City of Cupertino. The Santa Clara Valley Water District will repair and stabilize the damaged creek bank sections along portions of Calabazas Creek to their as-build or natural condition to reduce the risk of flooding to homes, businesses, and schools and to improve the environment along the creek. The work involves removing sediment buildup, managing vegetation, clearing trash and debris, and stabilizing banks that have eroded during high water flows. Cogstone will prepare a Cultural Resources Monitoring Compliance Report at the conclusion of ground disturbing activities for the project. Sub to Granite Construction. Principal Investigator for Archaeology. 2022-2023

Pius Estate Winery, San Luis Obispo County, CA. Cogstone conducted a cultural and paleontological resources assessment to determine the potential impacts to cultural and paleontological resources resulting from the project. The 29.5-acre project area was previously developed with an existing winery, tasting room, outbuildings, and a barn. Improvements included construction of a subterranean barrel and tank room with wine storage, and a two-story above-grade structural addition. Cogstone's services included cultural and paleontological resources records searches, background research, a Sacred Lands File search from the NAHC, and an intensive pedestrian survey. Cogstone prepared a Cultural and Paleontological Resources Assessment Report to document the results of the assessment. San Luis Obispo County was the lead agency for this project under CEQA. Sub to Private Developer. Principal Investigator for Archaeology. 2023

cogstone
PALEONTOLOGY - ARCHAEOLOGY - HISTORY

SHANNON LOPEZ
Architectural Historian

EDUCATION

2018 M.A., History (with an emphasis in architecture), California State University, Fullerton
2012 B.A., History, Minor in Asian-Pacific Studies, California State University, Dominguez Hills

SUMMARY OF QUALIFICATIONS

Ms. Lopez is a qualified architectural historian with over seven years of experience who meets or exceeds the Secretary of the Interior's *Standards and Guidelines for Architectural History.* Her experience includes architectural history research and surveys with photo documentation and recording of built environment resources for local and federal projects. She has extensive knowledge with Native American consultation, consultation with local and state historical societies, and in the analysis of primary and secondary sources. Ms. Lopez is acknowledged as an approved Architectural Historian by Caltrans and is listed as a Principal Investigator on Cogstone's Bureau of Land Management (BLM) Permit for Archaeological Investigations. She is accepted as a Principal Investigator for Architectural History and History by the State Historic Preservation Office (SHPO).

SELECTED EXPERIENCE

Fire Station 81 Project, City of Antioch, Contra Costa County, CA. Cogstone conducted a historical resources assessment to determine the potential impacts to historic resources resulting from the proposed remodeling of the former historic in age police station building for fire station expansion. The property is connected to the fire station via a common hallway. Cogstone's services included a cultural resources records search, background research, and consultation with local historical societies. Cogstone's Architectural Historian reviewed photographs of the interior and exterior of the two buildings, records provided by the City of Antioch about the building site and history, recorded the police station building on California Department of Parks and Recreation 523 (DPR 523) forms, and evaluated it for National Register of Historic Places (NRHP) and California Register of Historical Resources (CRHR) eligibility. A Historic Built Environment Assessment report was prepared that documented the findings and recommended mitigation measures for the project. Contra Costa County was the lead agency under the California Environmental Quality Act (CEQA). Sub to ICF Jones & Stokes, Inc. Architectural Historian. 2024-2025

East County Service Center Project, City of Brentwood, Contra Costa County, CA. Cogstone conducted a cultural resources assessment to determine the potential impacts to cultural resources during construction of 56,000 to 71,000 square feet of new office space. The project also included outdoor public spaces, 224-284 surface parking spaces for employees and visitors, and sufficient electric vehicle (EV) Charging Stations to accommodate visitors and all county fleet vehicles stationed at the facility. Cogstone's services included a cultural resources records search, a Sacred Lands File search from the Native American Heritage Commission (NAHC), background research, and preparation of a Cultural Resources Memo report. The City of Brentwood was the lead agency under CEQA. Sub to ICF Jones & Stokes, Inc. Architectural Historian. 2024

Eight Mile Dam Replacement Project, Stockton East Water District, San Joaquin County, CA. Cogstone conducted a historic built environment assessment to determine the potential impacts to historic resources resulting from the project. The Stockton East Water District (SEWD) in cooperation with the Bureau of Reclamation (BOR) proposed to replace the existing structurally deficient dam with a new dam structure which has automated flow control to ensure safe operation of the dam and minimize water waste. The project involved removal of the existing dam structure and included installation of a new concrete foundation within the Calaveras River to be designed to hold the automated gate and walkway for the new dam. Cogstone conducted a built environment survey, recorded the historic dam on DPR 523 forms, and evaluated the resource for NRHP and CRHR eligibility. A Historic Built Environment Assessment Report was prepared to document the findings of the study. SEWD was the lead agency under CEQA and BOR acted as the lead agency under the National Environmental Policy Act (NEPA). Sub to Dokken Engineering. Architectural Historian. 2024

cogstone
PALEONTOLOGY - ARCHAEOLOGY - HISTORY

LOGAN FREEBERG
GIS Manager

EDUCATION

2018 Geographic Information Systems (GIS) Certificate, California State University, Fullerton
2003 B.A., Anthropology, University of California, Santa Barbara

SUMMARY QUALIFICATIONS

Mr. Freeberg has over 20 years of experience in cultural resource management and has extensive experience in field surveying, data recovery, monitoring, and excavation of archaeological and paleontological resources associated with land development projects in the private and public sectors. He has conducted all phases of archaeological work, including fieldwork, laboratory analysis, research, and reporting. Mr. Freeberg also has a strong grounding in conventional field and laboratory methods and is skilled in the use of ArcGIS and prepares maps for Cogstone's deliverables. He has experience with Native American consultation in compliance with Section 106 of the National Historic Preservation Act (NHPA), Assembly Bill (AB) 52, and Senate Bill (SB) 18.

SELECTED EXPERIENCE

Antioch Housing Element Update, City of Antioch, Contra Costa County, CA. The purpose of this study was to review and summarize available information regarding known archaeological and historical resources within the boundaries of the City of Antioch to support an update to the city's General Plan. The project involved the preparation of an Environmental Impact Report (EIR) for the city's 6th Cycle Housing Element Update in compliance with the California Environmental Quality Act (CEQA). Cogstone's services included a cultural resources records search, a Sacred Lands File search from the Native American Heritage Commission (NAHC), and prepared a Cultural and Tribal Cultural Resources Technical Report. The report mapped all prehistoric and historic archaeological sites and historic built environment resources within the city. The City of Antioch was the lead agency under CEQA. Sub to Urban Planning Partners, Inc. 2022

East Arques Avenue Project, City of Sunnyvale, Santa Clara County, CA. Cogstone conducted a cultural resources assessment to determine the potential impacts to cultural resources during the project, which consisted of replacing a 313,485-square foot, six building, industrial complex with 455,500 square feet of warehouse/advanced manufacturing space and 38,000 square feet of office space. Expected maximum depth of ground disturbance was six feet for grading and up to 15 feet for project utilities trenching. Cogstone conducted a cultural resources records search which identified a multi-component archaeological site within the project area. Cogstone's services also included a Sacred Lands File search from the Native American Heritage Commission (NAHC) and an intensive pedestrian survey. Additionally, four of the six buildings within the project area were evaluated on California Department of Parks and Recreation 523 (DPR 523) forms and were recommended as eligible for listing in the California Register of Historical Resources (CRHR). Cogstone prepared a Cultural Resources Assessment Report. The City of Sunnyvale was the lead agency under CEQA. Sub to Urban Planning Partners, Inc. Sub to Urban Planning Partners, Inc. 2022

Portola Housing Element Project, City of Portola Valley, San Mateo County, CA. The project involved the preparation of a programmatic Initial Study (IS) or Mitigated Negative Declaration (MND) for the City of Portola Valley's Housing Element and Safety Element Updates that will be added to the General Plan. Cogstone conducted a cultural and paleontological resources assessment which consisted of cultural and paleontological resources records searches, a Sacred Lands File search from the NAHC, and a review of the 1998 Portola Valley City Historic Resources Inventory. Cogstone recommended that the city conduct a new historic inventory that starts with the potential housings sites and is expanded in scope to include archaeological sites and developed three mitigation measures to guide future development. Sub to Urban Planning Partners, Inc. 2022

APPENDIX B. RECORDS SEARCH RESULTS

Table B1. Previous Studies within a one-mile radius of the APE

Report No. (MA-)	Author(s)	Title	Year	Distance (miles) from APE
00018	Wadell, Robert P. and Voight, William G.	Draft Environmental Assessment Expanded Initial Study, Madera Municipal Airport Runway Extension	1996	0-0.25
00018	Becker, Eric S.	Removal Action Workplan, Madera Municipal Airport, Madera, California	1995	0.5-1
00018	Voight, William G.	Madera Municipal Airport Runway Extension Project, Biological Assessment	1996	0.5-1
00019	Jensen, Peter M.	Negative Archaeological Survey Report for Proposed Fresno-Tracy Fiberoptics Data Transmission Line. CALTRANS' Rights-of-Way at Six State Highway Crossings	1996	0.5-1
00035	Jensen, Sean M.	Archaeological Inventory Survey for the Tracy to Fresno Longhaul Fiberoptics Data Transmission Line, Portions of Fresno, Madera, Merced, Stanislaus, and San Joaquin Counties, California	1996	Within
00083	Hatoff, Brian, Voss, Barb, Waechter, Sharon, Wee, Stephen, and Benté, Vance	Cultural Resources Inventory Report for the Proposed Mojave Northward Expansion Project	1995	Within
00142	Binning, Jeanne Day	Negative Archaeological Survey Report Installation of Traffic Surveillance Stations along Interstate 5, State Route 41, and State Route 99 in Madera and Fresno Counties	1999	0.5-1
00215	Crist, Michael K.	Cultural Resource Reconnaissance for the Ogo Apartment Site Madera County	1981	0.25-0.5
00309	Napton, L. Kyle	Cultural Resources Investigations of the Ellis Street/Avenue 16 Project, Madera County, California	1994	Within
00344	Ptomey, Kathy	An Archaeological Assessment of the Madera Irrigation District Storm Drain Project, Madera County, California	1990	0.5-1
00739	Nelson, Wendy J.	Cultural Resources Survey for the Level (3) Communications Long Haul Fiber Optics Project: Segment WS04: Sacramento to Bakersfield	2000	0.5-1
00929	Pastron, Allen G. and Brown, R. Keith	Historical and Cultural Resource Assessment Proposed Telecommunications Facility Hwy 99/Cleveland, Site No. CV-751-01: 15786 North Gateway Drive, Madera County, California	2001	0.25-0.5
00932	Derr, Eleanor H. and Brown, R. Keith	Historical and Cultural Resource Assessment Proposed Telecommunications Facility Hwy 99/Cleveland, Site No. CV-751-04: 25327 Avenue 16, Madera County, California	2001	0.25-0.5
01001	Windmiller, Ric	Madera Town Center: Archaeological Resources Inventory, Madera, Madera County, California	2005	0.25-0.5
01002	Windmiller, Ric	CAT 17 Archaeological Resources Inventory, Madera, Madera County, California	2006	Within
01026	Arrington, Cindy, Bass, Bryon, Brown, Joan, Corey, Chris, and Hunt, Kevin	Cultural Resources Final Report of Monitoring and Findings for the Qwest Network Construction Project, State of California	2006	Within

Report No. (MA-)	Author(s)	Title	Year	Distance (miles) from APE
01026	SWCA Environmental Consultants	Qwest Fiber Optic Project Cultural Resources Protocols	2000	Within
01029	Gordon, Beth A.	New Tower Submission Packet, FCC Form 620, for East Madera, FAT-075B	2005	0.5-1
01030	Metzler, Valerie A. and Gordon, Beth A.	New Tower Submission Packet, FCC Form 620, for Road 26 and Ellis, FRSNCAMD058	2005	0-0.25
01033	Hatoff, Brian W.	Cellular Communications Tower Site - Clark Street, Country Club Drive, Madera County, Madera, California. URS Project No. 36301056.01056	2005	0.5-1
01048	Wills, Carrie D.	Phase I Cultural Resources Assessment Commons at Madera Fair Project, Madera, Madera County, California	2006	0.5-1
01101	Roper, C. Kristina	A Cultural Resources Survey for the Kennedy-Schnoor Canal Undergrounding and Linear Park, City of Madera, California	2007	0.25-0.5
01129	Goetter, Karin	Historic Property Survey Report for the Lake Street Reconstruction Project, Madera, Madera County, California (Expenditure Authorization 06-965100)	2008	Within
01129	Goetter, Karin	Archaeological survey Report for the Lake Street Reconstruction Project	2008	Within
01129	Goetter, Karin	Historical Resources Evaluation Report for the Lake Street Reconstruction Project	2008	Within
01201	Meyer, Jack, Young, D. Craig, and Rosenthal, Jeffrey	Volume I: A Geoarchaeological Overview and Assessment of Caltrans Districts 6 and 9 - Cultural Resources Inventory of Caltrans District 6/9 Rural Conventional Highways - EA 06-0A7408 TEA Grant	2010	Within
01201	Meyer, Jack, Young, D. Craig, and Rosenthal, Jeffrey S.	Volume II: Appendices A Geoarchaeological Overview and Assessment of Caltrans District 6 and 9 - Cultural Resources Inventory of Caltrans District 6/9 Rural Conventional Highways - EA 06-0A7408 TEA Grant	2010	Within
01203	Kile, Mark C.	Cultural Resource Inventory for Madera ID Water Conservation 13-MPRO-11 MID Job #27-13-2, Madera County, California	2014	0.5-1
01217	Miller, Michelle	Archaeological Survey Report for the Madera 99 Widening Project 06-MAD-99 Madera County, California	2014	0-0.25
01221	Strother, Eric, Schultz, Erica, Fies, Robin, Steinkamp, Matthew, and Kruger, Frank	Cultural Resources Assessment for the Pacific Gas and Electric Company's Gas Line 118A Corrosion Inspection Dig Project, City of Madera, Madera County, California	2014	0.5-1
01286	Unknown	Merced to Fresno Project Section Addendum Historic Architectural Survey Report (HASR) and Finding of No Adverse Effect for the Construction Package 1 North Extension Re-Exam	2017	0.5-1
01290	Sikes, Nancy E., Stapleton, Dylan, and Arrington, Cindy J.	Cultural Resources Inventory and Effects Assessment for the Madera Municipal Airport Stormwater Drain Improvements Projects, City of Madera, Madera County, California	2018	0.5-1

Table B2. Previously Recorded Cultural Resources within a one-mile radius of the APE

Primary No. (P-20-)	Trinomial No. (CA-MAD-)	Resource Type	Resource Description	Year Recorded	Distance (miles) From APE	NRHP/CRHR Status
002308	002649H	Historic Built Environment	Water conveyance system; Dams; Canal/aqueduct	1992; 2005; 2009; 2013; 2014; 2016; 2018	Within	
002662		Historic Built Environment	Roads/trails/railroad grades; Other	2009; 2016	0.5-1	
002802		Historic Built Environment	Single family property	2008	0-0.25	
002803		Historic Built Environment	Single family property	2008	0.5-1	
002804		Historic Built Environment	Educational building	2008	0-0.25	
002805		Historic Built Environment	Single family property	2008	0.25-0.5	
003068		Prehistoric Archaeological Site	Lithic scatter	2014	0.5-1	
003240	002896H	Historic Built Environment	Engineering structure	2020	0.25-0.5	

APPENDIX C. NATIVE AMERICAN CONSULTATION

STATE OF CALIFORNIA — Gavin Newsom, Governor

NATIVE AMERICAN HERITAGE COMMISSION

CHAIRPERSON
Reginald Pagaling
Chumash

VICE-CHAIRPERSON
Buffy McQuillen
Yokaya Pomo, Yuki, Nomlaki

SECRETARY
Sara Dutschke
Miwok

PARLIAMENTARIAN
Wayne Nelson
Luiseño

COMMISSIONER
Isaac Bojorquez
Ohlone-Costanoan

COMMISSIONER
Stanley Rodriguez
Kumeyaay

COMMISSIONER
Reid Milanovich
Cahuilla

COMMISSIONER
Bennae Calac
Pauma-Yuima Band of Luiseño Indians

COMMISSIONER
Vacant

ACTING EXECUTIVE SECRETARY
STEVEN QUINN

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

April 30, 2025

Cogstone Resource Management

Via Email to: coqstoneconsult@coqstone.com

Re: Madera Tanks Project, Madera County

To Whom It May Concern:

As requested, a record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed based on information submitted for the above referenced project. The results were negative. Please note that tribes do not always record their sacred sites in the SLF, nor are they required to do so. As such, a SLF search is not a substitute for consultation with all tribes that are traditionally and culturally affiliated with a project's geographic area.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. Please contact all of those listed; if they cannot supply information, they may recommend others with specific knowledge. If within two weeks of notification, a response has not been received, the Commission requests that you follow-up with a telephone call or email to ensure that the project information was received.

If you receive notification of a change of address or phone number from a tribe, please notify the NAHC so that we can assure that our lists contain current information.

In addition to engaging in tribal consultation, you should consult the appropriate regional California Historical Research Information System (CHRIS) archaeological Information Center to determine whether it has information regarding the presence of recorded archaeological sites within the project area.

If you have any questions or need additional information, please contact me at my email address: Pricilla.Torres-Fuentes@nahc.ca.gov.

Sincerely,

Pricilla Torres-Fuentes

Pricilla Torres-Fuentes
Cultural Resources Analyst

Attachment

Page 1 of 1

APPENDIX D. DPR 523 FORMS

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary # P-20-002308 UPDATE
HRI #
Trinomial CA-MAD-2649H
NRHP Status Code

Other Listings
Review Code | Reviewer | Date

 ***Resource Name or #:** MID Lateral 24.2 (segment)

P1. Other Identifier: Madera Irrigation District (MID) Canal Lateral 24.2
P2. Location: ☒ **Not for Publication** ☐ **Unrestricted**
a. County: Madera
b. USGS 7.5' Quad: Madera **Date:** 1981 **T** 11s; R 17E ; ¼ **of** ¼ **of Sec** **; S.B.B.M.**
c. Address: **City:** Madera **Zip:** 93638
d. UTM: Zone: ; **mE/** **mN**
e. Other Locational Data: **Elevation:**

P3a. Description:
This short segment (121.70 feet) of the Madera Irrigation Districts' (MID) Lateral 24.2 is earthen lined canal which intersects with the MID Canal Bridge (41C0132) on Ellis Street. Lateral 24.2 is a gravity fed irrigation canal which transports water south from Dry Creek to the north. The flow of Dry Creek into the canal is controlled by Diversion Dam.

P3b. Resource Attributes: AH6. Water Conveyance, HP20. Canal
P4. Resources Present: ☐Building ☐Structure ☐Object ☐Site ☐District ☒Element of District ☐Other



P5b. Description of Photo: Southern side of canal from access road, facing northwest.

P6. Date Constructed/Age and Sources: ☒Historic ☐Prehistoric ☐Both
1955 (Built Environmental Resource Directory, BRED)

P7. Owner and Address:
Bureau of Reclamation

P8. Recorded by:
Alison Bryson-Deveraux
Cogstone Resource Management; 1518 W. Taft Ave., Orange, CA 92865

P9. Date Recorded:
May 14, 2025

P10. Survey Type:
Pedestrian Survey

P11. Report Citation:
Cultural Resources Assessment Report For The City Of Madera Water Storage Tank, Pump Station, And Transmission Main Project, City Of Madera, Madera County, California.
Prepared by: Alison Bryson-Deveraux, M.A. and Shannon Lopez, M.A. June 2025.

Attachments: ☐NONE ☒Location Map ☐Sketch Map ☒Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☒Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other

L1. Historic and/or Common Name: Madera Irrigation Canal Lateral 24.2

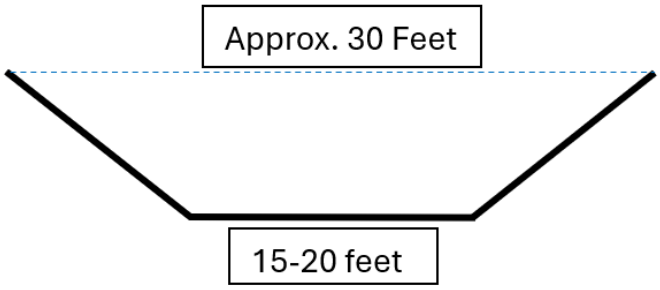
L2a. Portion Described: ☐ Entire Resource ☒ Segment ☐ Point Observation **Designation:**
b. Location of point or segment: Intersection of MID Canal Bridge (41C0132) and Ellis Street.

L3. Description: *See P3a. Description.*

L4. Dimensions: *(In feet for historic features and meters for prehistoric features)*
- **a. Top Width**: Approx. 30 feet
- **b. Bottom Width:** Approx. 15-20 feet
- **c. Height or Depth:** Approx 10-15 feet
- **d. Length of Segment**: 121.70 feet

L5. Associated Resources:

L4e. Sketch of Cross-Section:



L6. Setting: The nearby surrounding setting of the bridge consists of vacant adjacent lots and some residential development. However, to the north of the intersection of Ellis Street and Road 26 is the Torres High School and a dense residential neighborhood.

L7. Integrity Considerations: Based on a review of 1957 and 2022 USDA aerial photographs, there appears to be no notable alterations to the alignment or design of the canal (NETROnline 1957 and 2022).

L8a. Photograph, Map or Drawing



L8b. Description of Photo, Map, or Drawing
View of northern side of canal bridge.

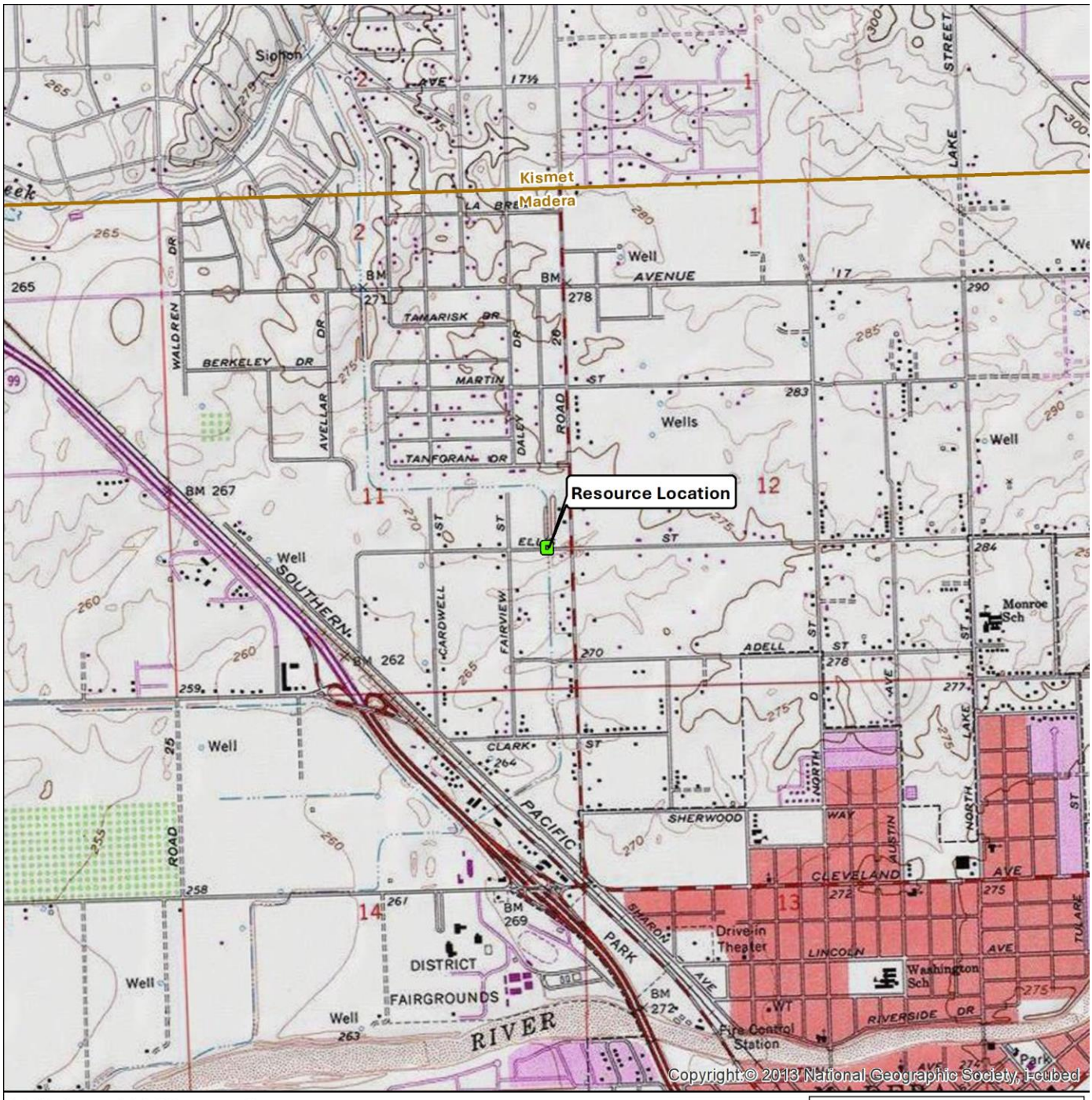
L9. Remarks:

L10. Form Prepared by:
Shannon Lopez
Alison Bryson-Deveraux
Cogstone Resource Management; 1518 W. Taft Ave., Orange, CA 92865

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LOCATION MAP

Primary # P-20-002308 UPDATE
HRI#
Trinomial CA-MAD-2649H

Page 3 **of** 8 ***Resource Name or #:** MID, Lateral 24.2 (segment)
Map Name: ***Scale:** 1:24,000 ***Date of Map:**



M.I.D. Lateral 24.2 (segment)
Madera County, CA

M.I.D. Lateral 24.2 (segment)
USGS 7.5' Quadrangle

USGS 7.5' Quadrangle(s):
Kismet
Madera

0 0.25 0.5 Miles
N
0 0.25 0.5 Kilometers
1:24,000 1 in = 2,000 ft

Background Information

The Madera Canal and MID distribution system is a 35.9 mile long aqueduct. It was originally designed to transport water to the lower lying agricultural properties within Madera County from the Friant Reservoir and the Chowchilla River. The system's original design consisted of 14 lateral canals. Following later development and expansion, numerous branching canals currently spread for hundreds of miles across the county. The construction of these canals was part of the California Valley Project which resulted in the expansion and flourishing of agricultural land during the 1950s (Hattersley-Drayton 2000).

PREVIOUS DOCUMENTATION AND EVALUATIONS
Numerous segments of P-20-002308 have been recorded and evaluated for potential historic significance since 2000.

2000 Hattersley-Drayton
The earliest known documentation of the canal was in 2000 by Karana Hattersley-Drayton of Caltrans. A segment of the Madera Canal (#8, Lateral 32.2) was described as approximately 15 miles long. This segment of the canal is called Lateral 32.2 as it begins at a turnout on the Madera Canal which is approximately 32.2 miles from the Friant Dam. It is one of four turn-outs along the Madera Canal. Constructed in ca. 1953 as an open ditch, Lateral 32.2 crosses under State Route 99 near the town of Fairmead. In 1972 a portion pipe was installed as a result of the expansion of the highway [assumed to be Highway 99]. The width of the segment is between 10-12 feet at water level and 20 feet at the top of the low berms. Surrounding areas were described and rural farmland with orchards.

The Fairmead Colonies were established in 1912 and were comprised of numerous family farms. However, due to a lack of a developed water conveyance system and a severe drop in the region's water table by the 1940s, the Fairmead Colonies struggled. In 1950, the Madera Irrigation District contracted with the Bureau of Reclamation to dig laterals in the Fairmead area which connected with the Madera Canal. The construction of Lateral 32.2 saved the struggling farmers of the Fairmead Colonies. Lateral 32.2 was recommended as qualifying as a historical resource under CEQA (Hattersley-Drayton 2000).

2000 Hattersley-Drayton
In 2000, Karana Hattersley-Drayton of Caltrans documented Lateral 32.2-9.9 which diverts water from Lateral 32.2 via the 9.9 Headworks located south of Fairmead and east of Road 20. Lateral 32.2-9.9 is six feet wide, unlined, and seven miles long. It was built in stages between 1953-1954 by Bureau of Reclamation. Lateral 32.2-9.9 was recommended eligible for listing in the NRHP and the CRHR under Criteria A/1. (Hattersley-Drayton 2000)

2005 Applied EarthWorks, Inc.
In 2005, Applied EarthWorks Inc. documented a segment of Madera Canal and Lateral 6.2. These segments of the canal were not evaluated for historic significance.

2005 Roark, Jones & Stokes
In 2005, Gabriel Roark of Jones & Stokes documented Main No. 1 Canal. Main This canal was originally built in 1870 and was used for local irrigation purposes, transporting water from the Fresno River to Cottonwood Creek. In 1949, the Madera Irrigation District (MID) purchased the canal as addition to the Madera Canal. While Main No. 1 Canal is historically significant for its association with early irrigation and agricultural development, decades of regular maintenance and redesign by MID and the Madera Canal & Irrigation Company (MC&IC) has resulted in the resource's loss of integrity. Therefore Main No. 1 Canal is recommended not eligible for listing in the NRHP.

2009 JRP Historical Consulting, LLC.
In 2009, Joseph Freeman and Rebecca Flores of JRP Historical Consulting, LLC, documented three segments of the Madera Canal located within agricultural and ranch areas. This segment is located north of the City of Fresno near State Route 41. The site form prepared by Freeman and Flores states the segment recorded was originally documented in 1995 by "Hatoff" (this site form cannot be located at present). The segment of canal revisited by Freeman and Flores is described with steep earthen berms which rise above concrete sidewalls. The berms are level with the surrounding terrain. According to Freeman and Flores, the Madera Canal extends 37 miles north from Friant Dam. These three segments were not evaluated for potential historic significance as part of the 2009 site form.

2013 Culturescape
In 2013, five irrigation gate valves located along the Fresno River Big Main Canal were documented by Mark Kile of Culturescape. They are described as non-unique and ubiquitous throughout the canal system located at distribution points of the canal. These features were not evaluated for historic significance. (Culturescape 2013a)

2013 Culturescape
In 2013, Mark Kile of Culturescape documented the locations of 20 irrigation gate valves distributed along the Madera Canal system. These features were not evaluated for historic significance. (Culturescape 2013b)

2014 ESA
In 2014, R. Scott Baxter from ESA documented a 60-foot segment of the MID Big Main Canal near the northeast semi-rural area of the town of Madera. This segment, built ca. 1922, is described as an earthen, V-shaped canal with a flat bottom. Baxter recommended the MID Big Mains Canal as historically significant for the canal's association with early corporate irrigation efforts and agricultural development in Madera County. However, following decades of alterations and maintenance, this segment of the MID Big Main Canal no longer possesses sufficient integrity to convey its historic significance. Therefore, this segment of the canal is recommended not eligible for listing in the NRHP.

2016 Garcia and Associates
In 2016, Brandon Patterson of Garcia and Associates documented a 500-foot-long segment of the Madera Canal, Lateral 24.2, near Avenue 16 and Road 22 in Madera County. The canal segment is described as V-shaped, mechanically excavated six feet deep, the base is loosely bedded by cobble and gravel. Additional components include a pre-cast, concrete box culvert and outlet, likely constructed after the 1950s. The setting of this segment of the canal is rural agricultural lands. This segment of the canal was not evaluated for historic significance. (Garcia and Associates 2016)

2016 Applied EarthWorks Inc.
In 2016, Kaite Asselin of Applied EarthWorks, Inc., documented multiple segments of laterals that are extensions of MID Lateral 6.2. These laterals were built between 1947 and 1963. Lateral 6.2 is an earthen canal with earthen berms raised three feet above surface level. These segments of the canals were not evaluated for historic significance. (Applied EarthWorks Inc. 2016)

2016 HDR EOC, Inc.
In 2016, a 100-foot section of the Madera Canal was documented by HDR EOC, Inc. The canal is described as earthen-lined, 20 feet wide and nine feet deep. This segment of canal was completed in 1947 and is largely unaltered with the exception of canal maintenance. This resource was recommended eligible for listing in the NRHP and CRHR under Criterion A/1 for its relation to the Central Valley Project (CVP) which was a major federal undertaking resulting in the expansion of agriculture in the Central Valley. This resource was also recommended eligible for listing under Criterion C/3 for its engineering significance as part of a unique irrigation system. (HDR EOC, Inc. 2016)

2016 Culturescape
In 2016, M. C. Kile of Culturescape documented a 6,500-foot segment of the MID Lateral 24.2-17.0. This irrigation canal is part of the MID expansion completed ca. 1950 and underwent major modifications up until 1965. At the time of its documentation in 2016, it was described as 15 feet wide and six feet deep. This segment of Lateral 24.2-17.0 was given the status code: 6Z (Found ineligible for NR, CR or Local designation through survey evaluation). (Kile 2016a)

2016 Culturescape
In 2016, Mark Kile of Culturescape, documented a total 14 control points for the MID constructed sometime between 1935 and 1963. This site form has conflicting recommendations of eligibility. It has a status code of 6Z (Found ineligible for NR, CR or Local designation through survey evaluation) however the Dry Creek Diversion Dam (Abbeys Hole) is recommended eligible for listing under Criterion A and Criterion B. (Kile 2016b).

2016 ESA
In 2016, Katherine Anderson of ESA documented three segments of the MID Lateral 6.2 Canal: MID Lateral 6.2 (1,500-fot segment), distributary canal MID Lateral 6.2-9.2 (1,500-foot segment), and distributary canal MID Lateral 6.2-13.4 (2,500-foot segment). The MID Lateral 6.2 and its distributary canals is one of many canals constructed in support of the Madera Canal and were built well after the Madera Canal's initial construction.

MID Lateral 6.2 is an earthen trapezoidal canal, 40 feet wide at its top, 20 feet deep, and 20 feet wide at the base. MID Lateral 6.2-9.2 is an earthen distributary canal organized with an asymmetrical trapezoidal/U-shape. Its is 20 feet wide at its top, eight feet deep, and 10 feet wide at its base. The unlined walls have steep sloping sides. MID Lateral 6.2-13.4 is also an earthen distributary canal with a trapezoidal shape. It is 20 feet wide at its top, three feet deep, and four feet wide at its base.

Anderson recommended the segments of the MID Lateral 6.2 are not considered unique in its association with the Madera Canal, nor are they associated with the lives of important individuals, nor are they considered significant in their design or form. (Anderson 2016)

2018 Applied EarthWorks
In 2018, Ward Stanley documented a 61-foot-long segment of MID Lateral 6.2. Construction of this canal was completed by 1955 as part of the Central Valley Project. No associated resources were observed. This segment of canal was not re-evaluated for historic significance. (Applied EarthWorks 2018)

HISTORIC BUILT ENVIRONMENT REVALUATION
Criteria A/1
Is this resource associated with events that have made a significant contribution to the broad patterns of history?
Lateral 24.2 was built in 1955 as an agricultural irrigation canal transporting water south from Dry Creek. A review of USDA aerials of the City of Madera and the census designated place Madera Acres shows that in 1957, two years after the construction of Lateral 24.2, multiple large parcels of land are graded. However, these parcels were developed into residential neighborhoods in the late 1960s and 1970s. As an irrigation canal, Lateral 24.2 would not be associated with providing water to these homes nor support their construction. This section of canal is not associated with any significant contributions to local agricultural or residential development. Therefore, due to a lack of significance, this segment of Lateral 24.2 is recommended not eligible for listing in the National Register of Historic Places (NRHP) under Criterion A or the California Register of Historical Resources (CRHR) under Criterion 1.

Criteria B/2
Is this resource associated with the lives of significant persons of the past?
This segment of the MID canal, Lateral 24.2, is not known to be associated with the lives of people considered significant to history. Therefore, this segment of the canal is recommended not eligible for listing in the NRHP under Criterion B or the CRHR under Criterion 2.

Criteria C/3
Does this resource embody distinctive characteristics of type, period, or method of construction or represent the work of a master, or possess high artistic value, or represent a significant and distinguishable entity those components may lack individual distinction?
This segment of the MID canal, Lateral 24.2, is an unremarkable example of an earthen lined canal. It is a small part of a secondary system which supports the main Madera Irrigation District canal. It is not an exemplary representation of a type, method of construction, nor does it represent the work of a master nor possess high artistic value. Therefore, this resource is recommended not eligible for listing in the NRHP under Criterion C and the CRHR under Criterion 3.

Criteria D/4
Has this resource yielded or may likely yield information important in history or prehistory?
Criterion 4 is most often applied to archaeological sites and districts but can also apply to buildings, structures, and/or objects. This resource does not exhibit a local variation of a standard design or construction technique that can yield

important information (such as construction expertise or availability of local materials). Therefore, this segment of Lateral 24.2 is recommended not eligible for listing in the NRHP under Criterion D or the CRHR under Criterion 4.



Center of canal from Ellis Street.

REFERENCES

Anderson, Katherine
2016 "MID Lateral 6.2 Segments". *P-20-002308*. State of California, Department of Parks and Recreation. Prepared by: Katherine Anderson. Copy on file at: Southern San Joaquin Valley.

Applied EarthWorks
2005 "Madera Canal and Lateral 6.2". *P-20-002308*. State of California, Department of Parks and Recreation. Prepared by: Applied EarthWorks. Copy on file at: Southern San Joaquin Valley.
2016 "Madera Irrigation District (MID)". *P-20-002308*. State of California, Department of Parks and Recreation. Prepared by: Katie Asselin. Copy on file at: Southern San Joaquin Valley.
2018 "Madera Irrigation District Lateral 6.2". State of California, Department of Parks and Recreation. Prepared by: Ward Stanley. Copy on file at: Southern San Joaquin Valley.

ESA
2014 "MID Big Main Canal". *P-20-002308*. State of California, Department of Parks and Recreation. Prepared by: R. Scott Baxter. Copy on file at: Southern San Joaquin Valley.

Hattersley-Drayton, Karana
2000 "#8, Lateral 32.2 (Madera Canal)". *P-20-002308*. State of California, Department of Parks and Recreation. Prepared by: Karana Hattersley-Dayton, Caltrans. Copy on file at: Southern San Joaquin Valley.

Garcia and Associates
2016 "Madera Canal, Lateral 24.2 Segment (GANDA-MAD-01)". *P-20-002308*. State of California, Department of Parks and Recreation. Prepared by: Brandon Patterson. Copy on file at: Southern San Joaquin Valley.

HDR EOC, Inc.
2016 "CA-MAD-2649H". *P-20-002308*. State of California, Department of Parks and Recreation. Prepared by: M. Connolly. Copy on file at: Southern San Joaquin Valley.

JRP Historical Consulting, LLC)
2009 "Madera Canal (UPDATE)". P-20-002308. Department of Parks and Recreation. Prepared by: Mark Kile of Culturescape. Copy on file at: Southern San Joaquin Valley

Kile, Mark
2013a "Fresno River Big Main Canal". *P-20-002308*. Department of Parks and Recreation. Prepared by: Mark Kile of Culturescape. Copy on file at: Southern San Joaquin Valley.
2013b "Madera Irrigation District". *P-20-002308*. Department of Parks and Recreation. Prepared by: Mark Kile of Culturescape. Copy on file at: Southern San Joaquin Valley.
2016a "Madera Irrigation District". *P-20-002308*. Department of Parks and Recreation. Prepared by: Mark Kile of Culturescape. Copy on file at: Southern San Joaquin Valley.
2016b "Madera Irrigation District". *P-20-002308*. Department of Parks and Recreation. Prepared by: Mark Kile of Culturescape. Copy on file at: Southern San Joaquin Valley.

Roark, Gabriel and Jones & Stokes
2005 "Main No. 1 Canal". *P-20-002308*. State of California, Department of Parks and Recreation. Prepared by: Gabriel Roark and Jones & Stokes. Copy on file at: Southern San Joaquin Valley.

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code 6Z

Other Listings
Review Code Reviewer Date

 ***Resource Name or #:** M.I.D. Canal Bridge (41C0132)

P1. Other Identifier:
P2. Location: ☒ **Not for Publication** ☐ **Unrestricted**
a. County: Madera
b. USGS 7.5' Quad: Madera **Date:** 1981 **T** ; **R** ; **¼ of** **¼ of Sec** **; S.B.B.M.**
c. Address: Ellis Street **City:** Madera **Zip:** 93638
d. UTM: Zone: ; **mE/** **mN**
e. Other Locational Data: Intersection of Ellis Street and Madera Irrigation District (M.I.D.) Canal
Elevation:

P3a. Description:
Built in 1975, this concrete beam bridge is located on Ellis Street and crosses over the Madera Canal. The bridge is simple in its design with concrete wing walls, girder, asphalted deck, and galvanized steel guardrails.

P3b. Resource Attributes: HP19. Bridge
P4. Resources Present: ☐Building ☒Structure ☐Object ☐Site ☐District ☐Element of District ☐Other



P5b. Description of Photo: View of northern side of canal bridge
P6. Date Constructed/Age and Sources: ☒Historic ☐Prehistoric ☐Both
1975 (Caltrans 2025)

P7. Owner and Address:
Madera Irrigation District (M.I.D.)

P8. Recorded by:
Alison Bryson-Deveraux
Cogstone Resource Management; 1518 W. Taft Ave., Orange, CA 92865

P9. Date Recorded:
May 14, 2025

P10. Survey Type:
Pedestrian Survey

P11. Report Citation:
Cultural Resources Assessment Report For The City Of Madera Water Storage Tank, Pump Station, And Transmission Main Project, City Of Madera, Madera County, California.
Prepared by: Alison Bryson-Deveraux, M.A. and Shannon Lopez, M.A. June 2025.

Attachments: ☐NONE ☒Location Map ☐Sketch Map ☒Continuation Sheet ☒Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other

B1. Historic Name: None
B2. Common Name: M.I.D. Canal Bridge
B3. Original Use: Bridge
B4. Present Use: Bridge
***B5. Architectural Style:** Beam Bridge style
***B6. Construction History:**
The Caltrans Local Agency Bridges list for District 06 lists this bridge as 41C0132 (M.I.D. Canal). This Caltrans list notes this bridge was constructed in 1975 (Caltrans 2025). This bridge crosses over a segment of the Madera Canal and M.I.D. distribution system. This water system was originally built to transport water to the lower lying agricultural properties within Madera County.

***B7. Moved?** ☒**No** ☐**Yes** ☐**Unknown** **Date:** **Original Location:**
***B8. Related Features:**

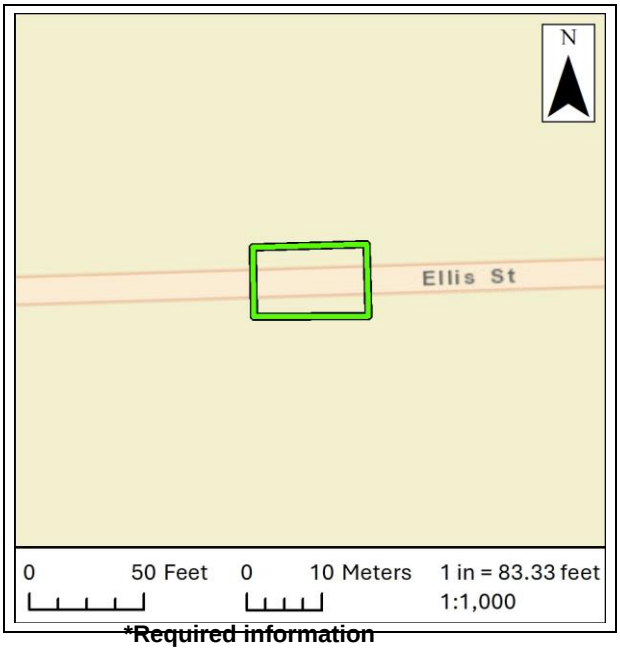
B9a. Architect: Not known **b. Builder:** Not known
***B10. Significance:** None **Theme:** Transportation **Area:** Madera, CA
Period of Significance: 1975 **Property Type:** Bridge **Applicable Criteria:** None

Criteria A/1
Is this resource associated with events that have made a significant contribution to the broad patterns of history?
This bridge (built in 1975) is a typical concrete beam bridge which is used for local pedestrian and vehicle transportation access over the man made Madera Canal. A review of a 1957 USDA aerial photograph shows a bridge present in the location of the current M.I.D. Canal Bridge. Therefore, it is assumed that the current bridge is a replacement for the original. This bridge is not associated with any events considered significant to history and therefore, recommended not eligible for listing in the National Register of Historic Places (NRHP) under Criterion A or the California Register of Historical Resources (CRHR) under Criterion 1.

B11. Additional Resource Attributes:
***B12. References:**
Caltrans
2025 "41C0132". *Historical Significance-Local Agency Bridges. Structure Maintenance & Investigations*. Copy provided by: CSO Jill Hupp with CA.gov.

B13. Remarks:

***B14. Evaluator:** Shannon Lopez
***Date of Evaluation:** May 20, 2025

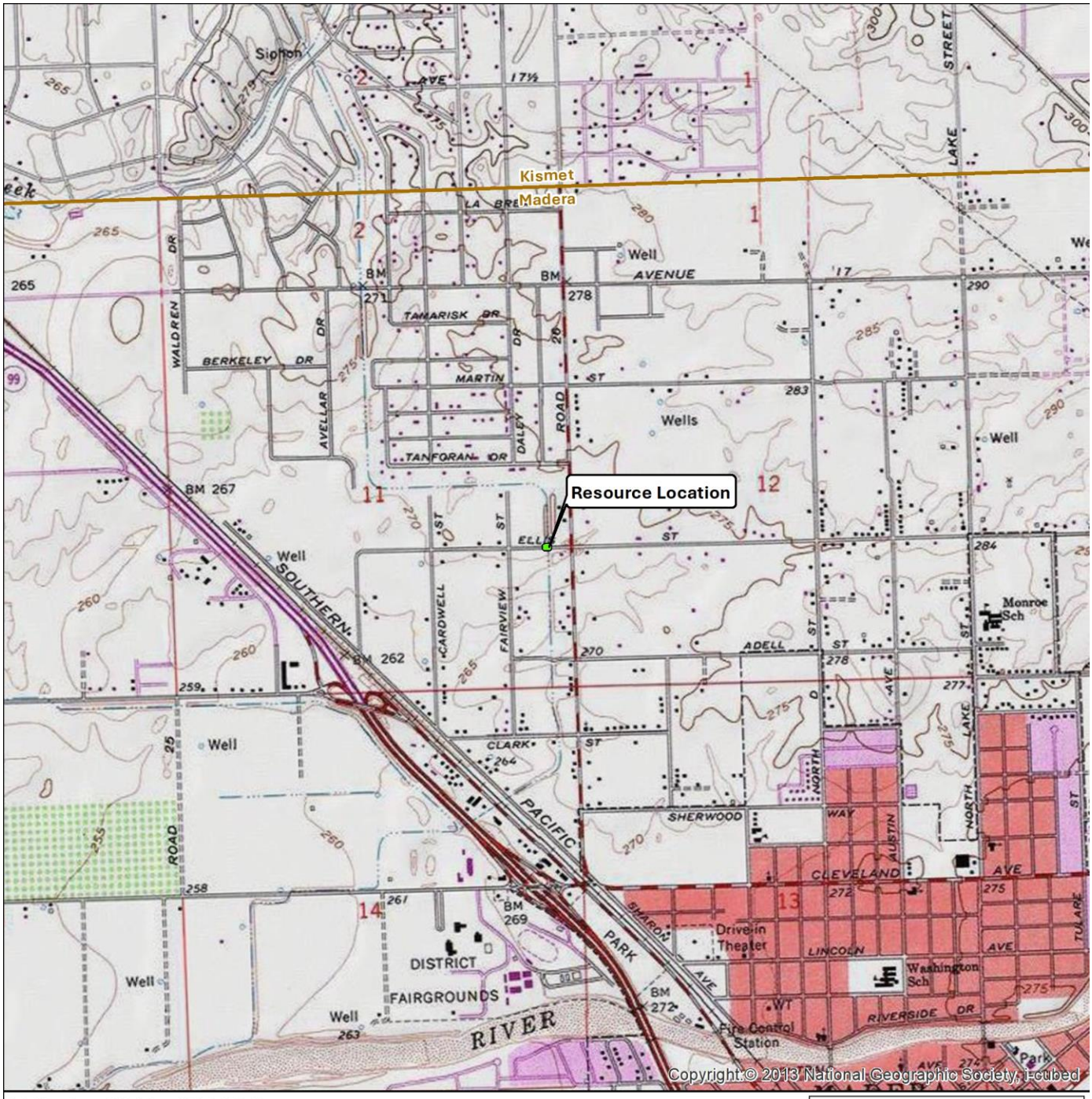


(This space reserved for official comments.)

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LOCATION MAP

Primary #
HRI#
Trinomial

Page 3 **of** 5 ***Resource Name or #:** M.I.D. Canal Bridge (41C0132)
Map Name: Madera ***Scale:** 1:24,000 ***Date of Map:** 1987



M.I.D. Canal Bridge (41C0132)
Madera County, CA

M.I.D. Canal Bridge (41C0132)
USGS 7.5' Quadrangle

USGS 7.5' Quadrangle(s):
Kismet
Madera

0 0.25 0.5 Miles
0 0.25 0.5 Kilometers
N
1:24,000 1 in = 2,000 ft

***B10. HISTORIC BUILT ENVIRONMENT EVALUATION CONT.**

Criteria B/2

Is this resource associated with the lives of significant persons of the past?

No information can be located which connects this bridge with the lives of individuals considered significant to history. Therefore this resource is recommended not eligible for listing in the NRHP under Criterion B or the CRHR under Criterion 2.

Criteria C/3

Does this resource embody distinctive characteristics of type, period, or method of construction or represent the work of a master, or possess high artistic value, or represent a significant and distinguishable entity those components may lack individual distinction?

This bridge is an unremarkable and common representation of a small concrete beam bridge. It is not an exemplary representation of a style, period, method of construction, nor does it represent the work of a master nor does it possess high artistic value. Therefore, this bridge is recommended not eligible for listing in the NRHP under Criterion C or the CRHR under Criterion 3.

Criteria D/4

Has this resource yielded or may likely yield information important in history or prehistory?

Criterion 4 is most often applied to archaeological sites and districts but can also apply to buildings, structures, and/or objects. This resource does not exhibit a local variation of a standard design or construction technique that can yield important information (such as construction expertise or availability of local materials). Therefore, this bridge is recommended not eligible for listing in the NRHP under Criterion D or the CRHR under Criterion 4.

May 2025 Survey photographs of bridge



Close up of southwestern side of canal bridge.