

Public Draft

TALLEY RECHARGE PROJECT

Initial Study/Mitigated Negative Declaration

Prepared for
Madera County

March 2026



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Prepared for
Madera County
200 W. 4th Street, Suite 3100
Madera, CA 93637
Contact: Stephanie Anagnoson
(559) 598-0362

March 2026

2600 Capitol Avenue
Suite 200
Sacramento, CA 95816
916.564.4500
esassoc.com



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CHAPTER 1

Introduction

This Initial Study/Mitigated Negative Declaration (IS/MND) has been prepared to evaluate the potential environmental impacts of the proposed Talley Recharge Project (Project) in accordance with the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000 et seq.) and the CEQA Guidelines (Title 14 of the California Code of Regulations Section 15000 et seq.). The Project proposes to provide groundwater recharge on certain properties within the Chowchilla Groundwater Subbasin. The Project is located in western Madera County and requires approval from Madera County, which is the CEQA lead agency for the purposes of CEQA compliance. With incorporation of mitigation measures identified in this IS/MND, the Project would not result in any significant impacts. Thus, CEQA compliance through adoption of a Mitigated Negative Declaration (MND) and implementation of recommended mitigation measures through a mitigation monitoring and reporting program (MMRP) is appropriate CEQA compliance for the Project. This IS/MND will be circulated for a 30-day public review period and the County will consider comments received prior to adopting this IS/MND and making approval decisions for the Project.

Groundwater overdraft and land subsidence have been occurring in the western part of Madera County for many years, and the need for groundwater recharge projects to address the problem has been formally identified at least as far back as 2014. The use of flood water as a source for recharge has also been noted and encouraged by numerous local and state planning documents. The Chowchilla Subbasin Groundwater Sustainability Plan (GSP) (revised 2025) details existing overdraft conditions and identifies areas in the Chowchilla Subbasin of the San Joaquin Valley Groundwater Basin where undesirable results associated with overdraft conditions have affected beneficial users of groundwater in the past. In particular, subsidence and lowering of groundwater levels in the western portion of Madera County have led to the establishment of the Western Management Area, with measurable objectives and minimum thresholds designed to resolve and avoid or reduce undesirable results in the future. Conditions have also led to the development of projects focused on achieving the measurable objectives and minimum thresholds in this area and across the Chowchilla Subbasin as a whole.

The Chowchilla Subbasin GSP is coordinated by four Groundwater Sustainability Agencies (GSAs) that represent the entirety of the Chowchilla Subbasin area and include: 1) Chowchilla Water District (CWD) GSA; 2) County of Madera GSA - Chowchilla Subbasin (also referred to herein as Madera County GSA); 3) County of Merced GSA - Chowchilla Subbasin (also referred to herein as Merced County GSA); and 4) Triangle T Water District (TTWD) GSA. **Figure 1-1** shows the Chowchilla Subbasin area and the boundaries of each GSA and management areas within the Subbasin.

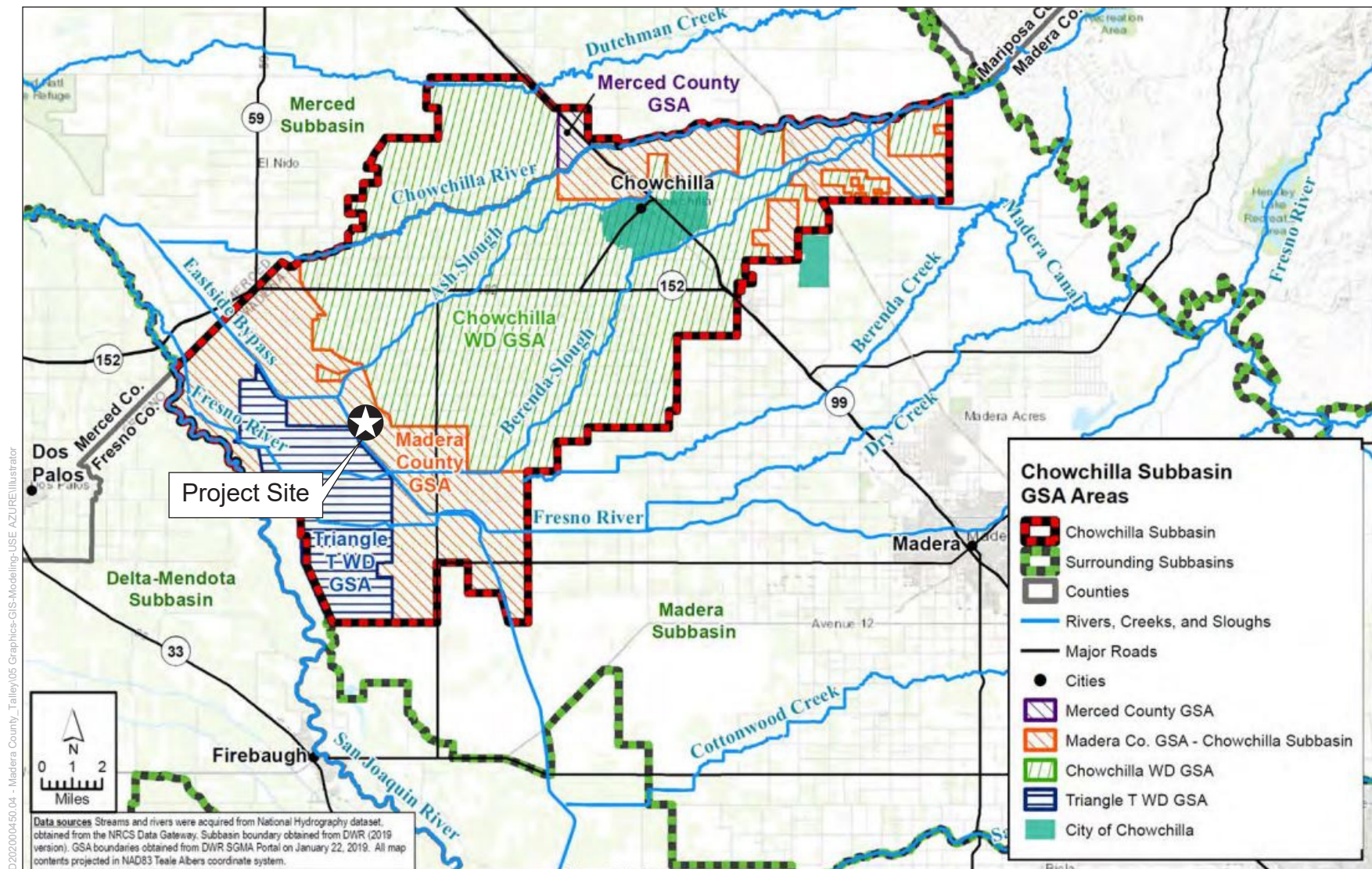


Figure 1-1
GSA Entities and Management Areas of the Chowchilla Subbasin GSP

To contribute to sustainable groundwater management in the Chowchilla Subbasin, the Madera County GSA is beginning to implement a phased flood water recharge program to divert and recharge flood flows from the Eastside Bypass. Flood flows diverted from the Eastside Bypass would be recharged on lands in the Western Management Area of the Chowchilla Subbasin in accordance with the Chowchilla Subbasin GSP. Flood flows from the Eastside Bypass would be diverted into agricultural fields and future recharge basins during wet and above normal years when water is available pursuant to California Water Code section 1242.1 established by Senate Bill 122 of 2023 (SB 122).

The proposed Talley Recharge Project (Project) consists of a group of proposed recharge areas that, taken together, can recharge large amounts of water when it is available. The combination of a recharge basin and flood managed aquifer recharge (Flood-MAR) allows for a larger total recharge capacity while maintaining much of that capacity in productive farmland when water is not being applied for recharge.

The Project would construct one new point of diversion (POD or Talley POD) on the Eastside Bypass and the conveyance required (approximately 3,400 feet of pipeline) to divert flood flows to one dedicated recharge basin (proposed 5-acre Talley recharge basin) for direct recharge, and to approximately 160 acres of existing farmland for recharge through Flood-MAR. The proposed recharge basin and Flood-MAR lands (total 165 acres) are located on the north side of Avenue 18½ in western Madera County on the north side of Avenue 18 ½ between the Chowchilla Canal and the Eastside Bypass. The properties are owned by one property owner and are composed of Assessor's Parcel Numbers (APNs) 021-130-004 and 021-140-019. The land is currently used for irrigated orchards.

1.1 Document Organization

Chapter 1 – Introduction. This chapter provides an introduction to the Project, organization and purpose of this document, and summary of findings.

Chapter 2 – Project Description. This chapter describes the Project, including project location, project objectives, activities to be conducted under the Project, and potential permits and/or approvals that may be required prior to implementation of the Project.

Chapter 3 – Initial Study Environmental Checklist. This chapter presents an environmental effects analysis of implementation of the Project for the resource topics included in the CEQA Environmental Checklist (Appendix G of the CEQA Guidelines). For each resource topic question, the following is provided: (1) environmental setting; (2) discussion of the potential environmental effects of implementing the Project; (3) finding of significance; and (4) any mitigation measures recommended for incorporation into the Project to reduce identified significant impacts to a less-than-significant level. This chapter also lists the references used in preparation of the analyses for each resource topic.

Following completion of the required 30-day public comment period for this IS/MND, and before approving the Project, the County will consider the IS/MND together with any comments provided during the public comment period and will adopt the MND if, based on the whole of the record: (1) there is no substantial evidence that the Project will have a significant effect on the environment; and (2) that the MND represents the County's independent judgment and analysis. The County will also prepare and adopt a Mitigation Monitoring and Reporting Program (MMRP) as part of the approval process as

required under Public Resources Code Section 21081.6(c) for mitigation measures identified in this IS/MND.

1.2 Purpose of the Initial Study

This IS/MND was prepared in accordance with Public Resources Code Section 21000 et seq. (CEQA) and Title 14 of the California Code of Regulations Section 15000 et seq. (CEQA Guidelines). The purpose of this review is to: (1) determine whether Project implementation would result in potentially significant or significant effects to the environment; and (2) identify mitigation measures as necessary to eliminate the Project's potentially significant or significant effects or reduce them to a less-than-significant level.

1.3 Summary of Findings

Based on the analysis included in Chapter 3, implementation of the Project would result in no impact on the following resource topics:

- Land Use and Planning
- Mineral Resources
- Population and Housing
- Recreation
- Wildfire

Less-than-significant impacts on the following resource topics:

- Aesthetics
- Air Quality
- Agriculture and Forestry Resources
- Energy
- Hazards and Hazardous Materials
- Greenhouse Gas Emissions
- Hydrology and Water Quality
- Public Services
- Noise
- Transportation
- Utilities and Service Systems

Less-than-significant impacts with incorporation of mitigation measures on the following resource topics:

- Biological Resources
- Cultural Resources
- Geology and Soils
- Tribal Cultural Resources

CHAPTER 2

Project Description

2.1 Project Information

2.1.1 Project Location and Existing Facilities

The Project would contribute to sustainable groundwater management in the Chowchilla Subbasin by implementing a phased flood water recharge program to divert and recharge flood flows from the Eastside Bypass. In accordance with the Chowchilla GSP, flood flows diverted from the Eastside Bypass would be recharged on specifically identified properties in the Western Management Area of the Chowchilla Subbasin GSP, within the boundaries of the Madera County GSA. **Figure 1-1** provided in *Chapter 1, Introduction* shows the Project site location within the Chowchilla Subbasin and Madera County GSA boundary.

The Project includes a proposed groundwater recharge basin and contiguous farmland recharge area referred to in this document collectively as the Study Area or Project site. The Project site is located in western Madera County, west of State Route 99 and south of State Route 152 (**Figure 2-1**) and is more particularly located on the north side of Avenue 18½ between the Chowchilla Canal and the Eastside Bypass (**Figure 2-2**). The Project would construct one new POD on the Eastside Bypass and a pipeline approximately 3,400 feet in length for the conveyance required to divert flood flows from the Eastside Bypass to a proposed 5-acre recharge basin that would be dedicated for direct recharge and to approximately 160 acres of existing farmland for Flood-MAR (i.e., recharge through application to cropped areas). The basin and Flood-MAR lands compose an area of 165 acres within two contiguous parcels identified as Assessor's Parcel Numbers (APNs) 021-130-004 and 021-140-019 (**Figure 2-2**).

2.1.2 Project Objectives

The objectives of the Project include:

- Provide for the diversion of flood water flows to recharge properties to facilitate groundwater recharge
- Increase groundwater levels
- Increase groundwater storage
- Reduce subsidence potential
- Improve water supply reliability.

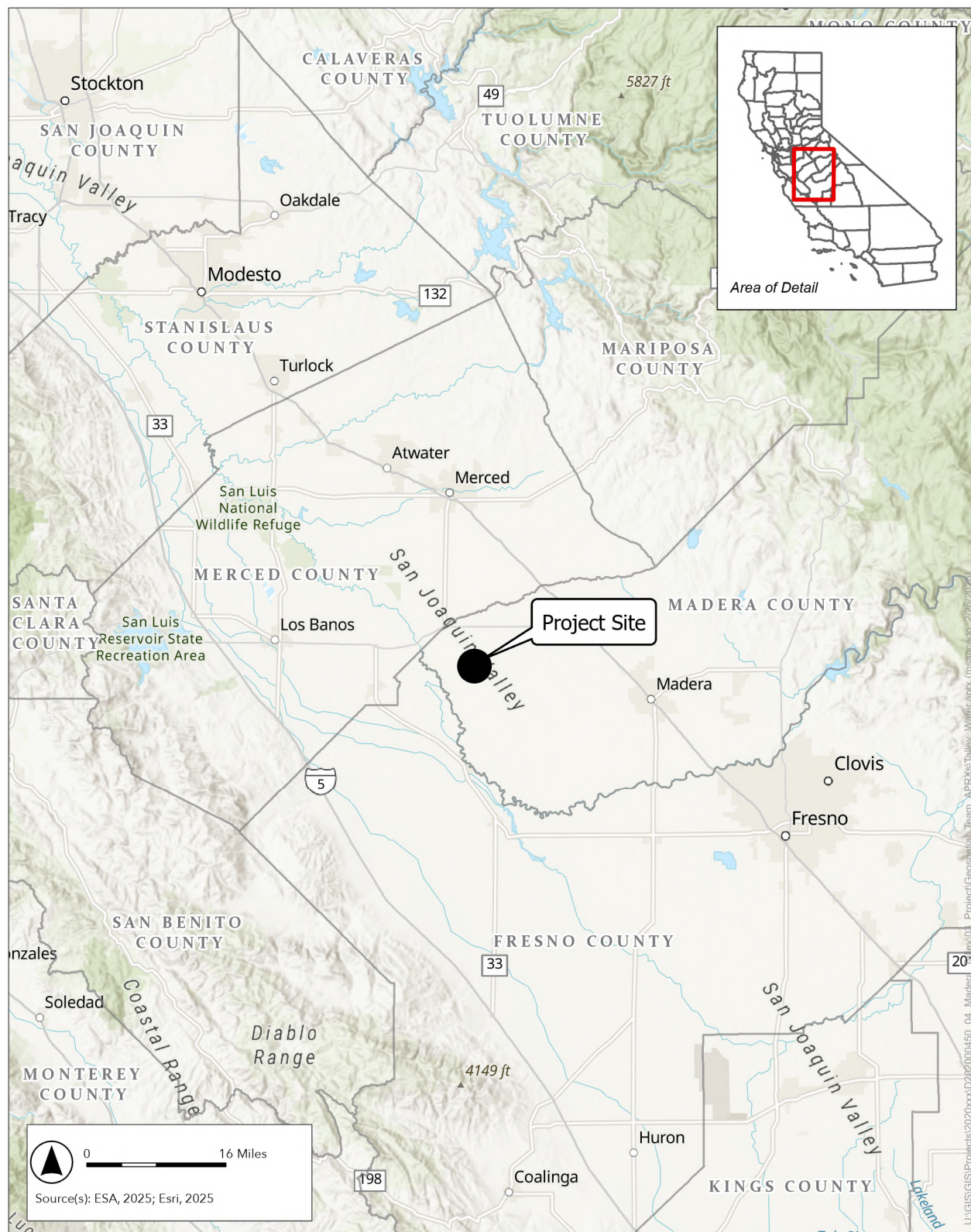


Figure 2-1
Regional Location

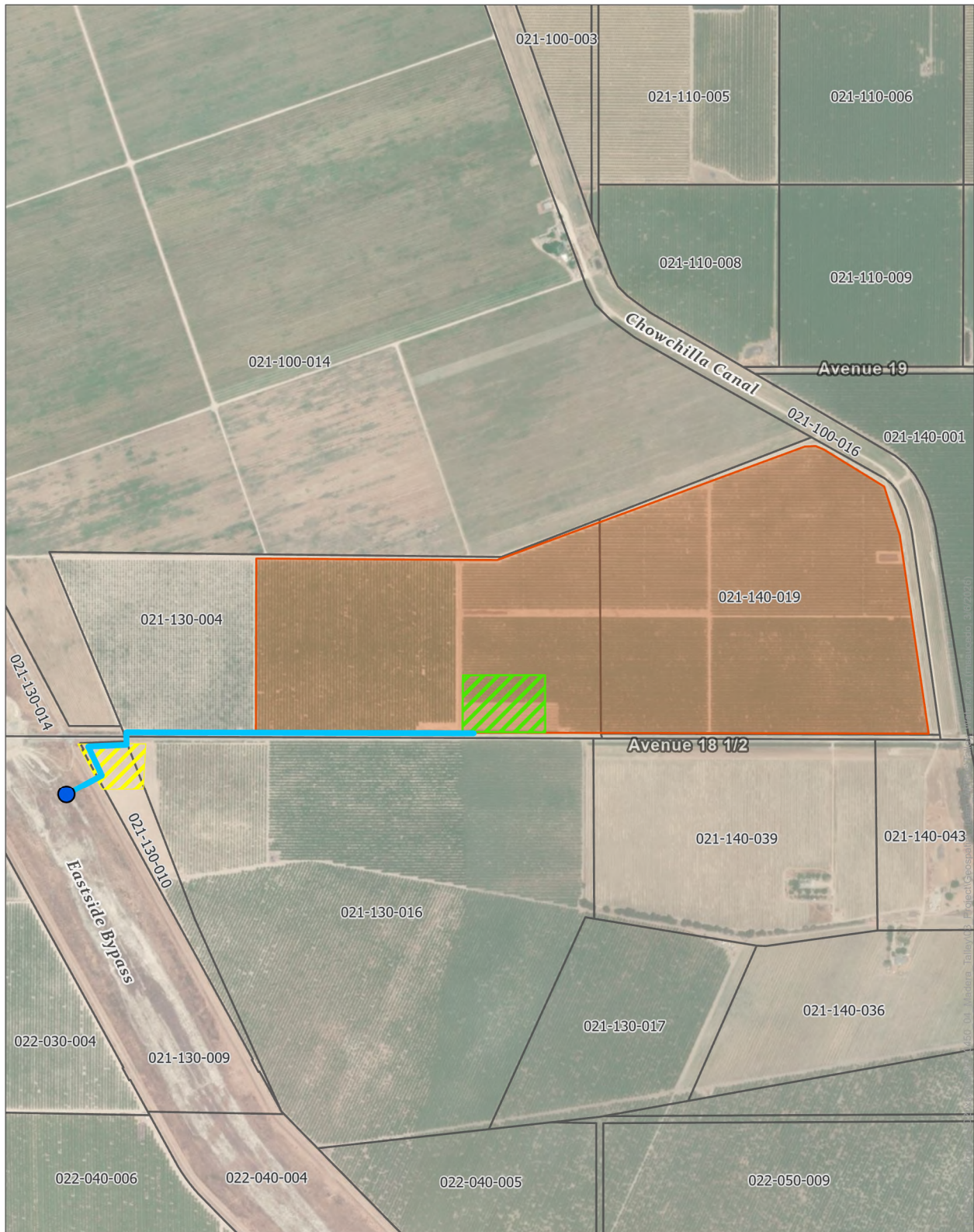


Figure 2-2
Project Study Area

2.2 Construction

2.2.1 Infrastructure Components

The proposed Project point of diversion (Talley POD) on the Eastside Bypass would include an intake/fish screen structure, rubber gasketed reinforced concrete pipe (RGRCP) conveyance piping, control valves, and an electromagnetic flow meter. Water would flow through the fish screen into the buried RCP, under the bypass levee, to the landside of the levee into a reinforced concrete pump box where the water would be pumped through an electromagnetic flow meter before entering the conveyance pipeline that would convey water to the proposed recharge basin for direct recharge and from where water would be distributed for Flood-MAR application on adjacent land. **Table 2-1** summarizes the design of the POD.

At the Talley POD, a trench would be excavated from the low flow channel of the Eastside Bypass to allow gravity flow to the intake/fish screen structure. The trench would have side slopes of 2:1 with a width and length that varies by location. At the intake location, a 168-inch conical fish screen would be installed on a concrete base to allow water to drop directly into the RCP installed below the levee. The POD intake/fish screen would be designed and installed to prevent fish entrainment, in accordance with fish screen criteria established by the California Department of Fish and Wildlife (CDFW) and the National Marine Fisheries Service (NMFS), with an approach velocity of 0.2 feet per second. Mechanical rotating brushes installed on the outside of the screen would be used to clean the surface. All construction work would occur during periods when no water is present within the Bypass.

As the RCP proceeds below the levee, a reinforced concrete control structure would be installed near the levee crest, on the water side of the levee, to allow ventilation and manual water control using a slide gate. On the far side of the levee the RCP would empty into a reinforced concrete pump box structure in which a pump would be lowered and connected to the conveyance piping. The RCP and control structure would be installed by excavating down from the top of the levee. Pumps would be run by diesel engine or electric motors. In the case of diesel engines, the landowner would drive pumps using tractors equipped with power take off units (PTO) or trailer-mounted diesel pumps. If the pump is equipped with an electric motor, a new power service line would be required and would include a new power pole and service line off the existing PG&E powerlines along Avenue 18 ½. The electric service line extension would follow existing road alignments, and would comply with applicable Madera County Codes for powerline installation (e.g., County Code of Ordinances section 18.88.040, Public utilities).

**TABLE 2-1
POD DESIGN**

Project Site	Trench Length	Trench Width (bottom)	Trench Height (Maximum)	Pipeline Length	Culvert Size
Talley POD	160 ft	20 ft	7 ft	200 ft	36 in

The conveyance pipeline between the pump and recharge basin would be a 15-inch diameter PVC PIP 100 pipe installed in an approximately 3-foot-deep trench along the Avenue 18½ right of way. Once installed, the trench would be backfilled, compacted, and resurfaced.

The recharge basin top of excavation measurement would be approximately 668 feet by 185 feet and approximately 5 feet 9 inches deep with earthen perimeter slopes of approximately 4:1 for side slopes and 3:1 for outside slopes. The basin perimeter slopes and base would be unlined to allow for water infiltration. rip-rap would be installed at the conveyance pipeline discharge into the basin.

Flood-MAR components would be supplied through the diversion and conveyance infrastructure discussed above and would connect directly to the existing irrigation pipeline systems or water conveyance infrastructure to deliver surface water to lands for direct application and continuous recharge for defined periods of time. Recharge rates are anticipated to average 0.3 acre-feet per acre per day and range from 0.2-0.5 acre-feet per acre per day based on preliminary and historic data.

An approximately three acre temporary staging area as shown on **Figure 2-2** would be used for equipment and materials staging during construction of the POD, pumps, and conveyance pipeline. Earthwork would involve construction of the diversion and conveyance works. Excavated soils would be reused for the recharge basin embankments and pipeline backfill, and earthwork would be balanced. Any excess soil would be spread out on the landowner's property. Some soil from the trench and culvert excavation would be spread within the Eastside Bypass on the adjacent channel floor outside of the pilot channel as approved by the regulatory agencies. All disturbed areas (except roadways) would be reseeded with a seed mix approved by the property owner or jurisdictional agency.

Temporary road closure of Avenue 18 ½ would be required during construction for installation of the Project conveyance pipeline which would cross underneath the roadway to access the Eastside Bypass (see **Figure 2-2**). To install the proposed conveyance pipeline an open cut would be made through Avenue 18 ½, the pipeline would be installed, and the roadway would be restored to pre-construction conditions; this closure would be temporary and installation activities would generally be short-term. A traffic control plan would be submitted to the County for review and approval to reduce disruption to circulation.

2.2.2 Construction Equipment and Schedule

Construction of the Project is expected to take approximately five months, and is anticipated to occur within three years following approval. Work would typically be performed on non-holiday weekdays and between the hours of 7AM to 7PM. A peak construction crew would consist of a maximum of 20 workers, following the approximate assignments: 6 earthwork/pipeline crew, 5 concrete crew, and 5 inspection crew. Construction of the Project is expected to use the following equipment:

- Excavators
- Earthwork scrapers
- Road grader/blade
- Backhoes
- Sheepsfoot compactors
- Smooth drum rollers
- Water trucks
- Loaders
- Skip loaders
- Bulldozers

2.3 Project Operations and Maintenance

Once operational, the POD would have a capacity of 20 cubic feet per second (cfs) or approximately 40 acre-feet (AF) per day. When sufficient water is available in the Eastside Bypass to operate the POD at its maximum capacity for 50 to 150 days, the maximum diversion volume would range between approximately 2,000 and 6,000 AF in years with available flood flows. This represents between 2.5 and 7.6 percent of the total estimated recharge of 79,000 AF that could be obtained in years with bypass flows as outlined in the Chowchilla Subbasin GSP.

The Lower San Joaquin Levee District, which operates the Eastside Bypass, would determine when flood flows are available for diversion per SB 122 and would post the information for the local landowners who would control the diversion. The local landowner would be required to notify the levee district prior to any diversions. The flow meter downstream of the pump station would monitor flows. The flow meter would be electromagnetic (mag meters) and would require minimal maintenance. Diversions would also be reported to Madera County and to the state pursuant to SB 122.

Madera County would coordinate operations and maintenance of the pump station by working with the landowner through a landowner agreement. The Project recharge basin (Talley Basin) would be maintained by the landowner and would require periodic discing and sediment removal to maintain infiltration rates. Sediment removal would be done as needed, potentially every 5 - 10 years, with removals of potentially 1,000 cubic yards; however these are rough estimates and would be determined based on recharge basin performance over time.

2.3.1 Responsible Agencies, Permits, and Approvals

Table 2-2 summarizes the permits and/or approvals that may be required before construction of the Project.

**TABLE 2-2
REGULATORY REQUIREMENTS, PERMITS, AND AUTHORIZATIONS FOR PROJECT FACILITIES**

Agencies	Regulatory Requirements, Permits, and Authorizations
State Agencies	
California Department of Fish and Wildlife	Section 1600 Streambed Alteration Agreement
State Water Resources Control Board	NPDES General Permit for Stormwater Discharges Associated with Construction
Central Valley Flood Protection Board	Encroachment Permit
Cal/OSHA	Construction or Excavation Permit
Local Agencies	
Madera County	Approval of clearing and grubbing plans; encroachment permit
Madera County Groundwater Sustainability Agency	Landowner Agreements

2.3.2 Associated Water Rights and Diversions

Up to approximately 6,000 AF per year of flood flows from the Eastside Bypass would be diverted into agricultural fields during wet and above normal years when water is available pursuant to SB 122. In addition to SB 122, water is expected to be diverted from the Eastside Bypass using a future water right permit held by TTWD. The TTWD water right is a backup based on a water right application that is currently being negotiated by TTWD on behalf of all GSAs within Chowchilla Subbasin. It would allow for diversion of water when SB122 does not allow. Diversions under SB122 are limited to designated flood flows; the TTWD would allow for diversion when flows are not considered “flood”.

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CHAPTER 3

Initial Study and Environmental Checklist

1. **Project Title:** Talley Recharge Project
2. **Lead Agency Name and Address:** Madera County
200 W. 4th Street, Suite 3100
Madera, CA 93637
3. **Contact Person and Phone Number:** Stephanie Anagnoson
559-598-0362
4. **Project Location:** Unincorporated Madera County
5. **Project Sponsor's Name and Address:** Madera County Water and Natural Resources
200 W. 4th Street, Suite 3100
Madera, CA 93637
6. **General Plan Designation(s):** AE (Agriculture Exclusive)
7. **Zoning:** ARE-40 (Agricultural, Rural, Exclusive (40-acre District))

8. Description of Project:

The Project would address groundwater overdraft and land subsidence in western Madera County by diverting and recharging flood flows from the Eastside Bypass. The Project consists of one dedicated 5-acre groundwater recharge basin for direct recharge and approximately 160 acres of existing farmland for Flood-MAR (160 acres total). Flood waters from the Eastside Bypass would be diverted through a Point of Diversion (POD) and conveyed to a new pump station and a pipeline for conveyance to the recharge basin and distribution to farmland for Flood-MAR.

9. Surrounding Land Uses and Setting.

The surrounding area is largely rural and undeveloped except for agricultural production uses.

10. Other public agencies whose approval is required

Permits and approvals will be required from the California Department of Fish and Wildlife, State Water Resources Control Board, Central Valley Flood Protection Board, Cal/OSHA, Madera County, Madera County Groundwater Sustainability Agency.

11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?

In accordance with Public Resources Code Section 21080.3.1, notification letters were sent to tribal representatives of California Native American tribes that have requested to be notified of projects within the Project area of Madera County. Tribal representatives were advised of the Project and invited to request formal consultation with Madera County regarding the Project within 30 days of receiving the notification letters. Notification letters were sent to representatives of the following tribes on February 18, 2026:

- *Table Mountain Rancheria*
- *Picayune Rancheria of the Chukchansi Indians*
- *Dumna Wo Wah Tribal Government*
- *Chowchilla Yokuts Tribe*

As of the preparation of this Initial Study, no tribal representatives have requested consultation. For further discussion, see Section 3.2, *Environmental Checklist - Tribal Cultural Resources*.

3.1 Environmental Factors Potentially Affected

The environmental factors checked below include impacts that are “Less Than Significant with Mitigation Incorporated.” There are no environmental factors that have an impact that is identified as a “Potentially Significant Impact” as all potential significant impacts can be reduced to less than significant with the incorporation of mitigation measures.

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

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial study:

- ☐ I find that the Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- ☒ I find that although the 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 Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- ☐ I find that the Project MAY have a “potentially significant impact” or “potentially significant unless mitigated” impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- ☐ I find that although the 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 Project, nothing further is required.

Name

Title

Signature

Date

3.2 Environmental Checklist

3.2.1 Aesthetics

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
I. 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 areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area?	☐	☐	☒	☐

Environmental Setting

The geographic scope for the analysis of impacts on aesthetics and visual resources reflects public views of the Project components. Generally, the study area for aesthetics and scenic resources encompasses public locations from which the public typically would view a component of the Project.

The Project area is rural and predominated by agricultural land uses. The nearest public through roads are Avenue 18 ½ which runs east-west and is adjacent to the Project site on the south; Lincoln Road which runs north-south and is located approximately 2.5 miles west of the Project site; and Hemlock Road (County Road 9) which runs north-south and is located approximately 1.5 miles east of the Project site. Other public roads within the Project vicinity are local farm roads with very low traffic volumes. No residences or other public use areas are identified within areas from which Project activities or component would be readily visible.

U.S. Census Bureau Urban Area maps were reviewed to determine which of the Project components would be located in urbanized areas, as defined in CEQA Guidelines Section 15387 (U.S. Census Bureau, 2023). The results of this review indicate that the Project components are within an non-urbanized area. Therefore, consistent with the CEQA Guidelines Appendix G Checklist and Criterion c, the impacts to visual quality and character are based on the Project's effects to the visual characteristics of line, form, color, and texture of the landscape.

Discussion

- a) **No Impact.** A substantial adverse effect on a scenic vista would typically occur if the Project would result in permanent changes to the visual landscape as viewed from a scenic vista. No

scenic vistas have been identified within the Project vicinity or in areas from which the Project site and Project components would be visible. Additionally, there are no designated scenic resources identified in the Madera County General Plan (Madera County, 1995a) nor recreational trails or parks that offer unique scenic value from which the Project site is visible. Therefore, the Project would have no impact on scenic vistas.

- b) **No Impact.** There are no officially Designated State Scenic Highways within Madera County (Caltrans 2018). The nearest Designated State Scenic Highways are Interstate 5 and State Route 152, which are located more than 30 miles west of the Project site. The Project would not be visible from these or any other eligible or officially designated state scenic highway. Therefore, the Project would not have an adverse impact associated with views from an eligible or officially designated scenic highway.
- c) **Less Than Significant Impact.** Scenic resources generally include scenic landscapes, scenic highways, or scenic areas, as well as historic structures, trees, or other resources that contribute to the scenic values of an area. There are no designated scenic resources identified in the Madera County General Plan, and recreational trails and parks that offer scenic value are located over 5 miles away from Project components (Madera County 1995).

Construction equipment and activity would temporarily introduce mechanized equipment and ground disturbance to the visual landscape. Temporary visibility would occur during the presence of construction equipment, materials, and work crews at the Project site. While these activities may be noticeable to nearby motorists, the visibility would be temporary and short-term as these viewers continue to move past construction activities. Upon completion of construction, any remaining equipment would be removed and staging areas would be restored to their original condition. Therefore, impacts on scenic quality due to Project construction would be less than significant.

Once constructed, the Project's components would be located below grade including the POD within the Bypass channel and the pipeline buried below ground. These features would not be visible to motorists traveling along Avenue 18 ½ or other area roadways.

Because the Project is located in a non-urbanized area, this assessment considers whether permanent Project features would be visible and have the potential to substantially degrade the existing visual character or quality of public views of the site and its surroundings. Following construction, the Project's above-ground features would include the intake/fish screen in the Eastside Bypass, surface components of the pump station and power supply, and the 5-acre groundwater recharge basin. These components would not be predominantly visible or inconsistent with the general visual character of the surround area, nor would they be viewed by a substantial number of individuals. Therefore, the Project would not substantially degrade the existing visual character or quality of public views in a non-urbanized area. The impact would be less than significant.

- d) **Less Than Significant Impact.** The Project is located in a predominantly agricultural area with minimal development. Existing sources of light or glare are primarily limited to vehicle headlights along Avenue 18 ½.

The Project would not involve nighttime construction and would not result in the installation of any temporary or permanent lighting. Some of the permanent Project above-ground elements may have minimally reflective surfaces such as steel or metal, however, these features would have minimal visibility and would not have the potential to result in substantial glare. Therefore, potential impacts related to light and glare would be less than significant.

References

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3.2.2 Agriculture and Forestry Resources

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
II. 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 Dept. 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?	☐	☐	☒	☐

Environmental Setting

The Project site contains land classified as Prime, Unique, and Farmland of Statewide Importance, according to the Farmland Mapping and Monitoring Program (California Department of Conservation [CDC], 2022a). According to the CDC's Williamson Act Enrollment Finder (CDC, 2022b), the Project area includes land enrolled in a Williamson Act contract. The Project site is not zoned as forest land or timberland, as defined by Public Resources Code §12220(g)¹, §4526², or Government Code §51104(g)³. The Project site, including the 5-acre Talley recharge basin and 160 acres of farmland for Flood MAR (total 165 acres) are in agriculture use and contain irrigated orchards.

¹ "Forest land" is 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.

² "Timberland" means land, other than land owned by the federal government and land designated by the board as experimental forest land, which is available for, and capable of, growing a crop of trees of a commercial species used to produce lumber and other forest products, including Christmas trees. Commercial species shall be determined by the board on a district basis.

³ "Timberland production zone" or "TPZ" means an area which has been zoned pursuant to [Section 51112](#) or [51113](#) and is devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses, as defined in subdivision (h). With respect to the general plans of cities and counties, "timberland preserve zone" means "timberland production zone."

Discussion

- a) **Less Than Significant Impact.** The Project involves constructing a POD system on the Eastside Bypass and installing approximately 3,400 feet of pipeline to convey flood flows. These flows would be directed to one dedicated recharge basin (5-acre Talley recharge basin) for direct recharge, and to approximately 160 acres of existing farmland for recharge through application to cropped areas (160 acres total). Portions of the Project site are classified as Prime Farmland, Unique Farmland, and Farmland of Statewide Importance. As of 2020, Madera County contained 84,975 acres of Farmland of Statewide Importance and 98,294 acres of Prime Farmland (DOC 2020). Implementation of the Project would include the 5-acre recharge basin which would result in a reduction of approximately 4 acres of Farmland of Statewide Importance and 1 acre of Prime Farmland, or 0.0047 percent of the County's Farmland of Statewide Importance and 0.0010 percent of its Prime Farmland. The recharge basin is considered a compatible agricultural use as it would facilitate groundwater recharge, increase groundwater levels and storage, reduce subsidence potential and improve water supply reliability, thereby directly benefiting agricultural users who rely on local groundwater resources. Therefore, impacts related to conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance would be less than significant.
- b) **Less Than Significant Impact.** As noted under criterion (a), the Project includes one recharge area – Talley (consisting of lands within the Madera Irrigation District totaling 160 acres which includes the 5-acre Talley recharge basin and 160 acres for Flood-MAR). Implementation of the Project and construction of the 5-acre recharge basin would represent a reduction of 0.00012 percent of the 4,095,553 acres in Williamson Act contract in the San Joaquin Valley region in 2021 (CDC 2022). Although the Project site is enrolled in a Williamson Act contract, the proposed construction of a POD system and associated conveyance pipeline for Flood-MAR would not conflict with the existing agricultural zoning or the terms of the Williamson Act contract(s). The Project is consistent with allowable uses under the AE General Plan land use designation and ARE-40 zoning classification, and the Project would support long-term agricultural viability by enhancing groundwater availability for agricultural irrigation. Therefore, impacts would be less than significant.
- c, d) **No Impact.** The Project site is not zoned as forest land or timberland. Therefore, there would be no loss of forest land or conversion of forest land to non-forest use and no impact would occur.
- e) **Less Than Significant Impact.** As discussed above, although the Project site and surrounding area are designated and zoned as farmland, the Project would result in a minimal amount of reduction of Farmland of Statewide Importance, Prime Farmland and land in a Williamson Act contract from the construction of the 5-acre recharge basin. In addition, a recharge basin would be considered a compatible agricultural use as it would facilitate groundwater recharge, increase groundwater levels and storage, reduce subsidence potential and improve water supply reliability, thereby directly benefiting agricultural users who rely on local groundwater resources. Therefore, impacts would be less than significant.

References

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3.2.3 Air Quality

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
III. AIR QUALITY —				
Where available, the significance criteria established by the applicable air quality management district 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 odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

Environmental Setting

Climate and meteorological conditions such as wind speed, wind direction, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants. The Project is located within the San Joaquin Valley Air Basin (SJVAB) which is comprised of Fresno, Kings, Madera, Merced, San Joaquin, Stanislaus, and Tulare counties and the western and central portions of Kern County. The SJVAB is bordered by the Sierra Nevada Mountains in the east, the Coast Ranges in the west, and the Tehachapi mountains in the south. The bowl-shaped topography of the basin inhibits movement of pollutants out of the Valley.

Criteria Air Pollutants

Criteria air pollutants are a group of six common air pollutants for which the United States Environmental Protection Agency (U.S. EPA) has set ambient air quality standards. Criteria air pollutants include ground level ozone, carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), particulate matter (PM), and lead. PM is classified by particle size. PM₁₀ consists of particulate matter that is 10 microns⁴ or less in diameter, while PM_{2.5} refers to the subset of PM₁₀ that is 2.5 microns or less in diameter. Most of the criteria air pollutants are directly emitted; however, ozone is a secondary pollutant that is formed in the atmosphere by chemical reactions between oxides of nitrogen (NO_x) and reactive organic gases (ROG) in the presence of sunlight as discussed below.

Ozone

Ozone (O₃) is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and that can cause substantial damage to vegetation and other materials. Ozone is not emitted directly into the atmosphere but is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving ROG and NO_x, including NO₂ in the presence of sunlight. ROG and

⁴ A micron is one-millionth of a meter.

NO_x are known as precursor compounds for ozone. Significant ozone production generally requires ozone precursors to be present in a stable atmosphere with strong sunlight for approximately three hours.

Ozone is a regional air pollutant because it is not emitted directly by sources but is formed downwind of sources of ROG and NO_x under the influence of wind and sunlight. Ozone concentrations tend to be higher in the late spring, summer, and fall, when long sunny days combined with regional subsidence inversions to create conditions conducive to the formation and accumulation of secondary photochemical compounds, like ozone.

Particulate Matter

Respirable particulate matter (PM₁₀) and fine particulate matter (PM_{2.5}) represent fractions of particulate matter that can be inhaled into air passages and the lungs and cause adverse health effects. Particulate matter in the atmosphere results from many kinds of dust- and fume-producing industrial and agricultural operations, fuel combustion, and atmospheric photochemical reactions. Some sources of particulate matter, such as demolition and construction activities, are more local in nature, while others, such as vehicular traffic, have a more regional effect. Very small particles of certain substances (e.g., sulfates and nitrates) can cause lung damage directly, or can contain absorbed gases (e.g., chlorides or ammonium) that may be injurious to health. Particulates can also damage materials and reduce visibility.

Toxic Air Contaminants

Toxic air contaminants (TACs) are a diverse group of air pollutants that can cause chronic and acute adverse effects on human health, including birth defects, neurological damage, cancer, and death. There are over 200 TACs with varying degrees of toxicity identified by the state of California (CARB, 2025). Individual TACs vary greatly in the health risk they present; at a given level of exposure, one TAC may pose a hazard that is many times greater than another.

The primary TAC of concern is diesel particulate matter (DPM) which is emitted as diesel exhaust. The exhaust from diesel engines includes hundreds of different gaseous and particulate components, many of which are toxic. The California Air Resources Board (CARB) classified DPM as a TAC in 1998, citing its potential to cause cancer and other health problems (CARB, 1998). The U.S. EPA concluded that long-term exposure to diesel engine exhaust is likely to pose a lung cancer risk to humans and can also contribute to other acute and chronic health effects (U.S. EPA, 2022). Mobile sources such as trucks and buses are among the primary sources of diesel emissions, and concentrations of DPM are higher near heavily traveled highways.

Sensitive Receptors

Air quality does not affect every individual in the population in the same way, and some groups are more sensitive to adverse health effects than others. More sensitive population groups include the elderly and the young; those with respiratory disease, such as asthma and chronic obstructive pulmonary disease; and those with other environmental or occupational health exposures (e.g., indoor air quality) that affect cardiovascular or respiratory diseases. The San Joaquin Valley Air Pollution Control District (SJVAPCD) defines sensitive land uses as schools, parks and playgrounds, day care centers, nursing homes, hospitals, and residential dwelling units (SJVAPCD, 2015). Workers are not considered sensitive receptors because they have other legal protections; specifically, employers must follow regulations set forth by the

Occupation Safety and Health Administration (OSHA) to ensure the health and well-being of their employees (OSHA, 2011).

The Project is located in an area with land uses consisting of rural, agricultural, and grazing areas. There are no sensitive receptors within 1,000 feet of Project work areas. The residential receptor nearest to work areas is located approximately 2,600 feet southeast of the Project's pipeline construction area.

Valley Fever

Valley Fever (formally known as Coccidioidomycosis) is an infectious disease caused by the fungus *Coccidioides immitis*. Valley Fever is also known as San Joaquin Valley Fever, Desert Fever, or Cocci. Infection is caused by inhalation of *Coccidioides immitis* and *Coccidioides posadasii* spores that have become airborne when dry, dusty soil or dirt is disturbed by natural processes such as wind or earthquakes, or by human induced ground disturbing activities such as construction and farming. High winds can carry dust that contains the spores over long distances.

Most people infected with Valley Fever have no symptoms; however, if symptoms develop, they usually develop in the lung and initially resemble the flu or pneumonia (e.g., fatigue, cough, shortness of breath, chest pain, fever, rash, headache, and joint aches). Valley Fever is not contagious, and secondary infections are rare. On average, there were approximately 200 Valley Fever-associated deaths each year (deaths in which Valley Fever was listed as a primary or contributing cause on a death certificate) in the United States between 1999 and 2023. Those most at risk of developing severe symptoms include Hispanics, African Americans, Filipinos, pregnant women, adults of older age groups, and people with weakened immune systems (CDC, 2024).

Coccidioidomycosis is highly endemic (consistently present and has a high prevalence) in the San Joaquin Valley and remains an important public health problem in California. As a population with more than 20 cases per year of San Joaquin Valley Fever per 100,000 people are considered high endemic. The Centers for Disease Control and Prevention (CDC) and Madera County report that farm workers, construction workers, others who engage in soil-disturbing activities, and anyone spending time outdoors are at risk for Valley Fever.

Regulatory Framework

Air quality within the SJVAB is addressed through the efforts of various federal, state, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, regulations, planning, policymaking, education, and a variety of programs. The air pollutants of concern and agencies primarily responsible for improving the air quality within the SJVAB and the pertinent regulations are discussed below. The SJVAPCD is the jurisdictional entity in the SJVAB.

Federal

Clean Air Act and National Ambient Air Quality Standards

The federal Clean Air Act (CAA) requires the U.S. EPA to establish National Ambient Air Quality Standards (NAAQS) to protect public health and the environment. The U.S. EPA has set NAAQS for criteria air pollutants: ozone, NO₂, SO₂, CO, PM (PM₁₀ and PM_{2.5}), and lead. The U.S. EPA classifies geographic areas as either attainment or non-attainment for each criteria air pollutant, based on whether the NAAQS have been achieved. Air districts in areas that are designated non-attainment must prepare

regional air quality plans, discussed in further detail below, to be included in the overall State Implementation Plan. Areas that have a “maintenance” designation have been non-attainment for a certain criteria pollutant but have been re-designated as attainment. The SJVAB is currently classified as nonattainment for the federal 8-hour ozone and the federal PM_{2.5} standards.

State

California Clean Air Act and California Ambient Air Quality Standards

At the state level, the CARB oversees California air quality policies and regulations. California has adopted its own air quality standards, known as the California Ambient Air Quality Standards (CAAQS), which are at least as protective as the NAAQS and are often more stringent, although for some pollutants—such as the annual PM_{2.5} standard—the current federal standard is more stringent. The California CAA calls for the designation of areas as attainment or non-attainment based on state ambient air quality standards (i.e., the CAAQS), rather than the federal standards. The California CAA requires each air district in which CAAQS are exceeded to prepare a plan that documents reasonable progress toward attainment. If an air basin (or portion thereof) exceeds the CAAQS for a particular criteria air pollutant, it is considered to be in non-attainment for that criteria air pollutant until the area can demonstrate compliance. The SJVAPCD is designated nonattainment for the state 1-hour ozone, 8-hour ozone, PM₁₀, and PM_{2.5} standards.

Regional

SJVAPCD Air Quality Plans

As discussed above, the SJVAB is designated as a non-attainment area for the federal 8-hour ozone, federal PM_{2.5}, state 1-hour ozone, state 8-hour ozone, state PM₁₀, and state PM_{2.5} standards. As a result, the SJVAPCD is required to prepare air quality plans under the federal and California CAA to meet the federal and state air quality standards for these pollutants. Maintenance plans are required for attainment areas that had previously been designated non-attainment to ensure continued attainment of the standards.

Current air quality plans for the SJVAB include:

- 2024 Plan for the Annual PM_{2.5} Standard (SJVAPCD, 2024);
- 2007 PM₁₀ Maintenance Plan and Request for Redesignation (SJVAPCD, 2007);
- 2020 Reasonably Available Control Technology Demonstration for the 8-Hour Ozone State Implementation Plan (SJVAPCD, 2020); and
- 2022 Plan for the 2015 8-Hour Ozone Standard (SJVAPCD, 2022).

The air quality plans include emissions inventories that identify sources of air pollutants, evaluations for feasibility of implementing potential opportunities to reduce emissions, sophisticated computer modeling to estimate future levels of pollution, and a strategy for how air pollution will be further reduced.

SJVAPCD CEQA Thresholds of Significance

The SJVAPCD published its *Guidance for Assessing and Mitigating Air Quality Impacts (GAMAQI)* in March 2015 (SJVAPCD, 2015). The GAMAQI is an advisory document that provides lead agencies, consultants, and project proponents with procedures for assessing air quality impacts and preparing environmental review documents. The document describes the criteria that the SJVAPCD uses when

reviewing and commenting on the adequacy of environmental documents. It recommends thresholds for use in determining whether projects would have significant adverse environmental impacts, identifies methods for predicting project emissions and impacts, and identifies measures that can be used to avoid or reduce air quality impacts (SJVAPCD, 2015).

SJVAPCD Rules and Regulations

Emissions sources associated with the Project would be subject to the regulatory requirements in the SJVAPCD rules and regulations. The SJVAPCD rules that would be applicable to construction activities associated with the Project include those under Regulation VIII, *Fugitive PM₁₀ Prohibitions*. Specifically, SJVAPCD Rule 8021 (Construction, Demolition, Excavation, Extraction, and other Earthmoving Activities) would require implementation of measures during Project construction to prevent, reduce, or mitigate anthropogenic fugitive dust emissions.

Regulation VIII (Fugitive PM₁₀ Prohibitions)

Regulation VIII contains rules developed pursuant to U.S. EPA guidance for serious PM₁₀ non-attainment areas. Rule 8021 limits fugitive dust PM₁₀ emissions from the following sources: construction, demolition, excavation, extraction, and other earth-moving activities, bulk materials handling, carryout and track-out, open areas, paved and unpaved roads, unpaved vehicle/equipment traffic areas, and agricultural sources. **Table AIR-1, SJVAPCD Rule 8021 Non-Administrative Measures and Notification Requirements Applicable to the Project**, contains the Rule 8021 requirements that would apply during construction of the Project's infrastructure components. Control measures that must be implemented during Project construction activities pursuant to Rule 8021 include use of water, barriers, or chemical stabilizers sufficient to limit visible dust emissions to 20 percent opacity.

**TABLE AIR-1
SJVAPCD RULE 8021 NON-ADMINISTRATIVE MEASURES
AND NOTIFICATION REQUIREMENTS POTENTIALLY APPLICABLE TO THE PROJECT**

No.	Measure
5.2	A person shall control the fugitive dust emissions to meet the requirements in [SJVAPCD] Table 8021-1
5.3.1	An owner/operator shall limit the speed of vehicles traveling on uncontrolled unpaved access/haul roads within construction sites to a maximum of 15 miles per hour.
5.3.2	An owner/operator shall post speed limit signs that meet state and federal Department of Transportation standards at each construction site's uncontrolled unpaved access/haul road entrance. At a minimum, speed limit signs shall also be posted at least every 500 feet and shall be readable in both directions of travel along uncontrolled unpaved access/haul roads.
5.4.1	Cease outdoor construction, excavation, extraction, and other earthmoving activities that disturb the soil whenever visible dust emissions exceeds 20 percent opacity. Indoor activities such as electrical, plumbing, dry wall installation, painting, and any other activity that does not cause any disturbances to the soil are not subject to this requirement.
5.4.2	Continue operation of water trucks/devices when outdoor construction excavation, extraction, and other earthmoving activities cease, unless unsafe to do so.
6.3.1	An owner/operator shall submit a Dust Control Plan to the Air Pollution Control Officer (APCO) prior to the start of any construction activity on any site that will include ten acres or more of disturbed surface area for residential developments, or five acres or more of disturbed surface area for non-residential development, or will include moving, depositing, or relocating more than 2,500 cubic yards per day of bulk materials on at least three days. Construction activities shall not commence until the APCO has approved or conditionally approved the Dust Control Plan. An owner/operator shall provide written notification to the APCO within 10 days prior to the commencement of earthmoving activities via fax or mail. The requirement to submit a dust control plan shall apply to all such activities conducted for residential and non-residential (e.g., commercial, industrial, or institutional) purposes or conducted by any governmental entity.
6.3.3	The Dust Control Plan shall describe all fugitive dust control measures to be implemented before, during, and after any dust-generating activity.

No.	Measure
6.3.4	A Dust Control Plan shall contain all the [administrative] information described in Section 6.3.6 of this rule. The APCO shall approve, disapprove, or conditionally approve the Dust Control Plan within 30 days of plan submittal. A Dust Control Plan is deemed automatically approved if, after 30 days following receipt by the District, the District does not provide any comments to the owner/operator regarding the Dust Control Plan.

SOURCE: SJVAPCD, 2004

Local

Madera County Air Quality General Plan Element

The Madera County General Plan (General Plan) is a long-term comprehensive plan for the development of Madera County. The General Plan Air Quality Element contains goals, policies, standards, and programs directly related to the Project, which are listed below (Madera County, 2010).

AQ Goal C1: Use Air Quality Assessment and Mitigation programs and resources of the SJVAPCD and other agencies to minimize air pollution, related public health effects, and potential climate change impacts within the County.

AQ Policy C1.1.1: Assess and mitigate project air quality impacts using analysis methods and significance thresholds recommended by the SJVAPCD and require that projects do not exceed established SJVAPCD thresholds.

AQ Policy C1.1.3: Ensure that air quality and climate change impacts identified during CEQA review are minimized and consistently and fairly mitigated at a minimum, to levels as required by CEQA.

AQ Policy C1.1.5: Assess and reduce the air quality and potential climate change impacts of new development projects that may be insignificant by themselves but taken together, may be cumulatively significant for the County as a whole.

AQ Policy C1.1.6: Encourage and support the development of innovative and effective mitigation measures and programs to reduce air quality and climate change impacts through proactive coordination with the SJVAPCD, project applicants, and other knowledgeable and interested parties.

Discussion

- a) **Less Than Significant Impact.** As discussed previously, the SJVAB is currently designated as a non-attainment area for federal and state standards with regard to PM_{2.5} and ozone. It is also designated as a non-attainment area for state PM₁₀ standards. The SJVAPCD is responsible for implementing programs and regulations required by the federal CAA and the California CAA within the SJVAB. In this capacity, the SJVAPCD has prepared plans to attain federal and state ambient air quality standards for which it has been designated as non-attainment including the 2024 Plan for the 2012 Annual PM_{2.5} standards; 2007 PM₁₀ Maintenance Plan and Request for Redesignation; 2020 Reasonably Available Control Technology Demonstration for the 8-Hour Ozone State Implementation Plan; and 2022 Plan for the 2015 8-Hour Ozone Standard.

The SJVAPCD's GAMAQI provides recommended procedures for evaluating potential air quality impacts during the environmental review process consistent with CEQA requirements and also includes assessment methodologies for air toxics, odors, and GHG emissions. Based on the GAMAQI, the Project's air quality impacts during construction or operations would be considered significant if emissions generated exceed the thresholds of significance presented in the GAMAQI. These thresholds of significance are based on the SJVAPCD's New Source Review (NSR) offset requirements for stationary sources and are applicable to both stationary and non-stationary emissions sources, including project-level sources of criteria air pollutants (SJVAPCD, 2015). As discussed in the GAMAQI, "the District's [SJVAPCD's] attainment plans demonstrate that project-specific emissions below the District's [SJVAPCD's] offset thresholds would have a less than significant impact on air quality. Thus, the [SJVAPCD's] concludes that use of NSR Offset thresholds as thresholds of significance for criteria air pollutants under CCR Section 15064.7 is an appropriate and effective means of promoting consistency in significance determinations within the environmental review process" (SJVAPCD, 2015). Therefore, projects with emissions below the thresholds of significance for criteria pollutants would be determined to not conflict with or obstruct implementation of the SJVAPCD's air quality plans. As discussed under criterion (b) below, the Project would not generate emissions from either construction or operation that would exceed the SJVAPCD thresholds of significance; therefore, the Project would not conflict with or obstruct the implementation of the SJVAPCD's air quality plans and the impact would be less than significant.

- b) **Less Than Significant Impact.** By its very nature, air pollution is largely a cumulative impact. CEQA defines *cumulative impacts* as two or more individual impacts which, when considered together, are either significant or "cumulatively considerable," meaning they add considerably to a significant environmental impact. An adequate cumulative impact analysis considers a project over time and in conjunction with other past, present, and reasonably foreseeable future projects whose impacts might compound those of the project being assessed. No single project would likely be sufficient in size, by itself, to result in non-attainment of the regional air quality standards. Instead, a project's emissions may be individually limited, but cumulatively considerable when taken in combination with past, present, and future development within the SJVAB. The non-attainment status of the SJVAB with respect to regional pollutants is a result of past and present development. Future attainment of state and federal ambient air quality standards is a function of successful implementation of SJVAPCD's attainment plans. Consequently, the SJVAPCD's application of thresholds of significance for criteria pollutants is a relevant way to determine whether a project's individual emissions would have a cumulatively significant impact on air quality.

Air pollutant emissions that would be related to the construction and operations of the Project were calculated using the California Emissions Estimator Model (CalEEMod) (version 2022.1.1). CalEEMod contains default data specific to each California air basin and quantifies direct emissions from construction and operation (including off-road equipment and on-road vehicle use). CalEEMod uses EMFAC2021 and OFFROAD emission factors to estimate emissions from on-road vehicles and off-road equipment, respectively.

Construction Emissions

Construction activities associated with the Project would require the use of trucks/vehicles and heavy construction equipment (e.g., excavators, loaders, rollers, etc.) Construction of the Project was modeled over an approximately 5-month period and assumed a start date in the second quarter of 2026, although the actual start date is not known at this time. Construction was assumed to occur five days per week.

Results of the construction emissions modeling are summarized in **Table AIR-2, Project Construction Emissions Summary**. As shown, the total emissions that would be generated from construction of the Project would not exceed the applicable SJVAPCD thresholds of significance. Therefore, the Project would have a less than significant impact with respect to construction emissions of criteria air pollutants. Refer to **Appendix A** for CalEEMod input assumptions and emissions estimates.

TABLE AIR-2
PROJECT CONSTRUCTION EMISSIONS SUMMARY

Construction Year/ Significance Criteria	Construction Emissions (tons per year)					
	CO	NOx	ROG	SOx	PM ₁₀	PM _{2.5}
2026	1.36	1.21	0.14	<0.01	0.25	0.12
Total Project Emissions	1.36	1.21	0.14	<0.01	0.25	0.12
SJVAPCD Threshold	100	10	10	27	15	15
Significant?	No	No	No	No	No	No

SOURCE: ESA, 2025. Appendix A.

Fugitive PM₁₀ emissions come from the following sources: construction, excavation, extraction and other earth moving activities, bulk materials handling, carryout, and track-out, open areas, paved and unpaved roads, unpaved vehicle/equipment traffic areas, and agricultural sources.

Table AIR-1 lists the control measures that the Project would be required to implement during construction, operations and maintenance activities that involve ground disturbance pursuant to Rule 8021, Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities. The Project would be subject to this regulation and construction activities would be required to comply with measures listed in **Table AIR-1** to reduce fugitive dust emissions.

Operational Emissions

Once operational, the Project would generate minimal direct emissions from occasional vehicle trips to the site for maintenance activities as well as operation of the pump station associated with the flood water diversion and conveyance to Project properties for recharge. It is anticipated that vehicle trips would be made by light-duty vehicles. The operational water pumps associated with the proposed Project would be powered by either diesel engines or electric motors. If using diesel power, the pumps would be driven using power take off units or trailer mounted pumps that are powered by a diesel engine. These operational activities would occur infrequently and the vehicles that would power the pumps would be pre-existing equipment already in operation by the landowners. The expected daily pollutant emissions from these operational activities would be

nominal and would not generate emissions that would exceed the applicable SJVAPCD thresholds of significance.

Conclusion

As discussed above, construction and operation of the Project would generate emissions of criteria air pollutants that would be less than the SJVAPCD recommended thresholds of significance. Therefore, the Project would not result in a cumulatively considerable net increase of any criteria air pollutant for which the Project region is designated as a non-attainment area under an applicable federal or state ambient air quality standard, and this impact would be less than significant.

- c) **Less Than Significant Impact.** Sensitive land uses are those where sensitive population groups are located and include residences, schools, hospitals, convalescent homes, and other facilities where people spend significant amounts of time. Air pollutant impacts related to increased community health risk can occur by introducing new sources of criteria air pollutants or TACs with the potential to adversely affect existing sensitive receptors in the Project vicinity.

Diesel Particulate Matter

When evaluating health risk impacts, a 1,000-foot zone of influence is generally recommended, outside of which health risks to sensitive receptors would be considered less than significant. For example, studies show that DPM concentrations at 1,000 feet from the source are reduced by more than 80 percent compared to concentrations directly at the source (CARB, 2005). The surrounding land use consists of agricultural lands and animal grazing. There are no sensitive receptors within 1,000 feet of the Project work areas; the nearest receptor is 2,600 feet away.

Project construction activities would generate TACs in the form of DPM from the use of heavy-duty, diesel-fueled construction equipment and diesel-fueled haul trucks. The majority of construction activities would be linear along the excavation path for the proposed pipelines and conveyance channel. Given the short construction duration of 5 months in comparison to the 30-year exposure assumed in health risk assessments (OEHHA, 2015), the linear nature of majority of the construction activity, and the absence of nearby sensitive receptors within 1,000 feet of work areas, DPM emissions during construction would not result in substantial pollutant concentrations at the nearest sensitive receptor location. Furthermore, the Project would be consistent with the applicable SJVAPVD requirements and control strategies intended to reduce emissions from construction equipment and activities. The Project would comply with the CARB Air Toxics Control Measure that limits diesel-powered equipment and vehicle idling to no more than 5 minutes at a location, and the CARB In-Use Off-Road Diesel Vehicle Regulation; compliance with these regulations would minimize emissions of TACs during construction.

Operational emissions of TACs would be nominal, as operational activities would be limited to occasional vehicle trips to the site for maintenance activities as well as operation of the pump station associated with the flood water recharge of existing farmlands. It is likely that vehicle trips would be made by light-duty vehicles that are unlikely to be diesel-fueled. The pumps associated with the proposed Project would be powered by either diesel engines or electric motors. If using diesel power, the pumps would be driven using power take off units or trailer mounted pumps

that are powered by a vehicle engine. These operational activities would occur infrequently and the vehicles that would power the pumps would be pre-existing equipment already in operation by the landowners. Due to the limited operational activities that could result in DPM emissions and the absence of nearby sensitive receptors, DPM emissions generated from operation of the Project would not result in a health impact to sensitive receptors.

Health Effects of Criteria Air Pollutants

The health effects that are associated with emissions of criteria pollutants are described above under the *Criteria Air Pollutants* discussion.

As discussed under criterion (b), above, construction and operation of the Project would not result in emissions that exceed the SJVAPCD's annual emissions thresholds for any of the criteria pollutants. Therefore, criteria pollutant emissions from Project-related activities would not be reasonably anticipated to cause or contribute to the exposure of sensitive receptors to ground-level ozone concentrations in excess of health-protective levels nor would the Project criteria pollutant emissions be anticipated to cause other adverse health effects.

Valley Fever

As discussed above, the Central Valley is the region of California considered to be of highest risk for the development of Valley Fever (CDPH, 2020); therefore, Valley Fever is a health risk of concern in relation to the Project. While Valley Fever is a risk for anyone living or working in the Project vicinity, dust that may be generated during ground disturbance activities associated with the Project would not be expected to increase this risk to areas residents as the closest residence is approximately 2,600 feet from Project work areas.

Project construction activities generating dust could pose an increased risk of exposure to the *Coccidioides immitis* fungus spores for Project construction workers involved in or otherwise present during excavation such as grading and trenching and transport of soils. According to the California Department of Public Health (CDPH) and the CDC, avoiding working in soils and dusty conditions is the best preventative measure. Since some construction workers cannot avoid participating in soil disturbance activities, minimizing fugitive dust as well as other engineering controls are the primary preventative measures. In addition, the CDPH Occupational Health Branch and the CDC make recommendations for the protection of workers. The primary protection measures relate to the following: worker training, dust suppression, and personal protective equipment (PPE). With respect to dust suppression, SJVAPCD Rule 8021 would require the Project to reduce visible dust emissions to less than 20 percent opacity (SJVAPCD, 2019). Use of PPE and compliance with Rule 8021 would ensure the Project's compliance with these regulatory requirements and would ensure that the potential impacts from Valley Fever would be less than significant.

- d) **Less Than Significant Impact.** The Project may create temporary construction odors from combustion of diesel fuel in equipment engines; however, majority of construction of the Project would be linear, not occurring in one location for an extended period of time, and would cease at the conclusion of construction. Any odorous emissions generated from construction of the Project would dissipate rapidly and would not be expected to be noticeable at the nearest residential

receptor which is approximately 2,600 feet from the nearest Project work area. Once operational, there would be no sources of odor associated with the Project; therefore, no impact would occur. Therefore, the Project would not generate other emissions, including odors, which would result in a significant impact.

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3.2.4 Biological Resources

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
IV. 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 Game 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 Game 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?	☐	☐	☐	☒

Environmental Setting

The biological resource study area (BRSA) for this Initial Study is the proposed Project construction footprint along with a 250-foot buffer, as well as the 160 acres of existing farmland where the groundwater recharge basin would be constructed and flood water application for groundwater recharge would occur. The full project study area is shown in **Figure 3-1**. Biological communities within the BRSA, both upland and aquatic, were assessed to determine if they could provide potential habitat for special-status species. Upland biological communities within the BRSA include *Avena spp.* – *Bromus spp.* Semi-Natural Alliance, along with orchard, fallow, developed and disturbed land covers. Plant communities and habitats associated with aquatic settings within the BRSA include agricultural ditches and a portion of a constructed watercourse (ESA, 2026a). These communities and habitats are described below and discussed in more detail in the “Talley Recharge Project, Biological Constraints Report” (ESA, 2026a) and the “Talley Recharge Project, Aquatic Resources Delineation Report” (ESA, 2026b) included, respectively as **Appendix B** and **Appendix C** of this Initial Study. A formal delineation of aquatic resources was conducted by ESA at the same time as the biological reconnaissance survey and determined that there are potential Waters of the United States and Waters of the State occurring within the study area (ESA, 2026b). Study area habitat types, including aquatic resources, are further discussed below.

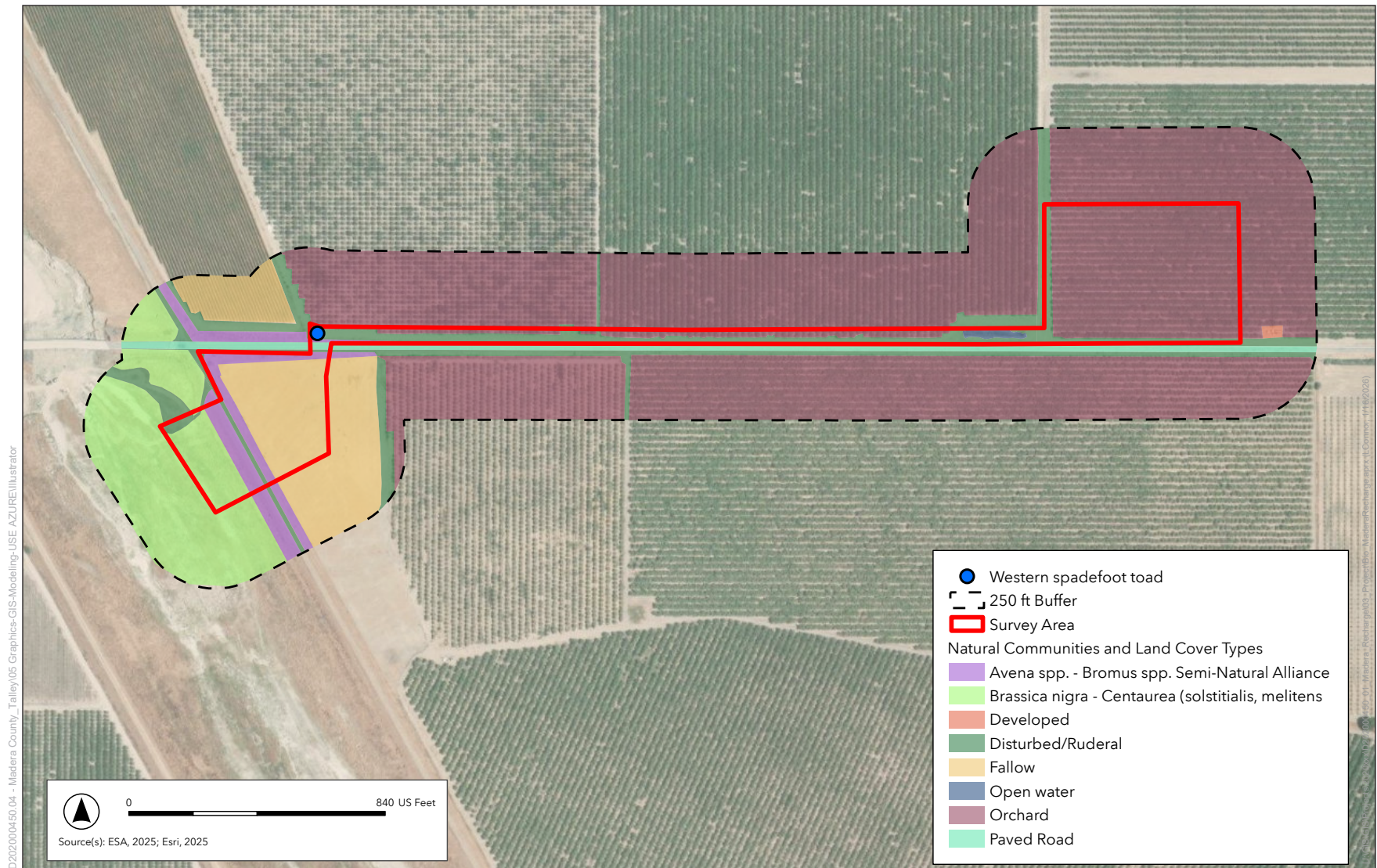


Figure 3-1
Natural Communities and Land Cover Types

Grassland

The dominant species within this habitat type were observed to a mixture of invasive, non-native grasses and native grasses, with prominent species such as wild oat (*Avena* spp.) and emerging *Bromus* spp. Annual native herbs and invasive, non-native shrub species were also present intermittently throughout this habitat type, including desert saltgrass (*Distichlis spicata*), prickly Russian thistle (*Salsola tragus*), and milk thistle (*Silybum marianum*). *Avena* spp. – *Bromus* spp. grassland habitat is distributed along the edges of the bypass levee road and Avenue 18 ½, within the western portion of the BRSA. This semi-natural alliance is not considered a sensitive natural community and has no applicable global/state ranking.

Orchard

Irrigated crops within the orchards around the BRSA include almonds and figs and are present along the eastern half of the BRSA. These orchards undergo frequent, generally seasonal cycles of crop growth and harvesting, along with applications of pesticides and fertilizers wherever necessary. These areas are regularly maintained, with very few weeds along the field margins, well-maintained access roads and functioning drainage and irrigation systems.

Orchards and other irrigated cropland support relatively low plant and animal diversity, but the value of these lands for special-status and common plant and wildlife species can vary depending on the crop type and intensity of agricultural practices. Agricultural areas close to natural land covers can provide functions that can increase and support the habitat value of that natural land cover.

Fallow

Two fallow fields border the eastern side of the conveyance bypass in the study area. Agricultural practices use fallow fields to encourage soil recovery between growing cycles, with this recovery period ranging from a single season to multiple years.

Developed/Disturbed

An agricultural irrigation pump and filtration system is stationed approximately 80 feet east of the BRSA within the 250-foot buffer. This area consists only of the system and bare ground. Disturbed areas include dirt, gravel, and paved roads that traverse throughout the BRSA, along with roadsides and levee slopes. These areas are either unvegetated with heavily compacted substrate or are sparsely to densely vegetated with weeds.

Agricultural Ditches

Two agricultural ditches were observed on the northern parcel at the intersection of Ave 18 ½ and Road 7. These ditches function to convey irrigation water to the surrounding agricultural areas and drain excess water during periods of heavy overland flow. Both ditches are isolated and do not have drainages beyond the boundaries of the BRSA. The largest of the two ditches was unvegetated, while the smaller has a bed dominated by native annual herbs such as rough cocklebur (*Xanthium strumarium*).

Constructed Watercourse

This habitat type is featured on the western edge of the BRSA and is comprised of the Eastside Bypass, an artificially constructed watercourse used to control excess flood flows of the lower San Joaquin River.

The Bypass is a highly controlled system with flows that do not follow a natural hydrologic regime. Vegetation distributed along this portion of constructed watercourse includes *Brassica nigra* – *Centaurea* spp. *Semi-Natural Alliance* habitat. This habitat is dominated by annual invasive, non-native species such as black mustard (*Brassica nigra*) and yellow start-thistle (*Centaurea solstitialis*). An understory of annual herbs is also scattered intermittently through this habitat, with species such as telegraphweed (*Heterotheca grandiflora*), common sunflower (*Helianthus annuus*) and jimsonweed (*Datura wrightii*) being present. This semi-natural alliance is not considered a sensitive natural community and has no applicable global/state ranking.

Discussion

- a) **Less Than Significant impact with Mitigation Incorporated.** A list of special-status species with the potential to occur on or within the vicinity of the BRSA was compiled from a nine-quad search of the California Natural Diversity Database (CNDDB) (CDFW, 2025), a nine-quad search on the California Native Plant Society’s Rare Plant Inventory (CNPS, 2025), a BRSA search of the U.S. Fish and Wildlife Service (USFWS) endangered species database (USFWS, 2025), and biological literature on the region for the surrounding 7.5-minute USGS topographic quadrangles. The quadrangles for the BRSA were Bliss Ranch, Chowchilla, El Nido, Firebaugh NE, Oxalis, Plainsburg, Poso Farms, Sandy Mush, and Santa Rita Bridge. No special-status plant species were observed within the BRSA during the November 18, 2025, reconnaissance surveys (ESA, 2026a). One wildlife species that is proposed for listing under the Federal Endangered Species Act (FESA), western spadefoot (*Spea hammondi*), was observed during these reconnaissance surveys (ESA, 2026a).

From the full list of species, each species was individually assessed based on habitat requirements and distribution relative to vegetation communities and habitat features that occur in and around the BRSA (ESA, 2026a). Based on the habitat types and conditions within the BRSA, along with review of background information and database searches, all special-status plant species were assessed as having low to no potential to occur within or near the BRSA and potential to be impacted by Project activities. The following special-status wildlife species were determined to have at least a moderate to high potential to occur within or near the BRSA and potential to be affected by proposed Project activities: western spadefoot and Swainson’s hawk (*Buteo swainsonii*). Western spadefoot is proposed for listing as threatened under FESA and is a California species of special concern. Swainson’s hawk is listed as threatened under the California Endangered Species Act.

Despite the potential for these special-status species to occur with the BRSA, there is minimal potential of adverse effects to special-status species during Project construction, either directly or through habitat modifications, because Project construction disturbance would largely be limited to the Eastside Bypass area, existing disturbed areas along the existing paved and agricultural access roads. There are no known Swainson’s hawk nests and few suitable nesting trees within one-half mile of the Project area. There is the potential for indirect impacts during construction to special status species that may occur on the adjacent annual grassland or agricultural habitat due to noise and visual disturbance. Through implementation of the mitigation measures MM BIO-01 through MM BIO-03, below, potential impacts associated with Project construction would be avoided or reduced to a less-than-significant level.

Following construction, the Project operation would involve periodic water pumping from the Eastside Bypass to be pumped into the Project recharge basin and applied to farmland, primarily during flood events when there is water present in the Eastside Bypass. Fish may be present during high flow events; however, this portion of the Eastside Bypass is not considered suitable habitat for listed fish including the Central Valley DPS of steelhead (*Oncorhynchus mykiss irideus*) due to a lack of consistent flows and upstream and downstream fish barriers. Construction of the fish screen to CDFW and NMFS approved criteria would prevent entrainment of any fish present during Project operations. Therefore, Project operation would not have the potential to adversely affect special-status species.

Biological Resources Mitigation for Construction Activities

MM BIO-01: Special-Status Plant Species Avoidance and Relocation: Prior to any ground disturbance, a qualified biologist shall conduct pre-construction surveys for special-status plant species within the Eastside Bypass floodplain terrace in suitable habitat areas subject to ground disturbing activities or within 50 feet of ground disturbing activities. The surveys shall be conducted during bloom season, typically during the months of March and June, and prior to ground-disturbing activities. The biologist shall work with the construction contractor to mark and avoid disturbance of locations of special-status plant species where feasible or prepare a relocation plan if avoidance is infeasible. The relocation plan shall include, but not be limited to, seed and soils collection, plant salvage, suitable relocation sites, monitoring requirements, and success criteria.

MM BIO-02: Western Spadefoot Protection Measures:

Implementing the following conservation mitigation measures would reduce the potential for impacts to western spadefoot should it occur in the Project impact area.

- Prior to the start of construction, a qualified biologist will locate appropriate relocation areas for any adult or juvenile western spadefoot that may need to be moved during construction. Appropriate relocation areas will be within 1.3 miles of where they were found, contain suitable burrows and nearby aquatic habitat, and will be located outside the area of impact. Western spadefoot eggs and tadpoles will not be relocated without approval from CDFW.
- A Worker Environmental Awareness Training will be conducted for all contractors, work crews, and any onsite personnel prior to the start of construction. The training will cover identification of western spadefoot, their status, avoidance measures, and possible penalties for non-compliance. The crew members should sign a sign-in sheet documenting that they have received the training.
- If at any time during preconstruction surveys or project implementation individual western spadefoot (including adults, juveniles, larvae, or eggs) are found in the work area, any work that could potentially harm western spadefoot will be halted. If the western spadefoot cannot or will not move offsite on its own, it will be relocated by a

qualified biologist to the pre-determined relocation areas. Western spadefoot will be transported in clean plastic containers with air holes and a moist unused sponge and will be handled using clean disposable gloves. Western spadefoot will not be held in containers for longer than 30 minutes and will be kept in a shaded area. Western spadefoot will be released at a burrow entrance and monitored for 5 minutes. If the western spadefoot does not enter or remain inside the burrow, an alternative relocation burrow will be found, and the western spadefoot relocated again. If after five relocation attempts, the western spadefoot does not enter a burrow, it will be left near the entrance to a burrow that has no apparent blockages near the ground surface. Western spadefoot may also be relocated to suitable aquatic habitat. The qualified biologist will follow all disinfectant practices developed by the Declining Amphibian Population Task Force. Construction may resume after the western spadefoot has been relocated.

- A qualified biologist will conduct preconstruction surveys of the work area immediately prior to ground-disturbing activities (including equipment staging, vegetation removal, and grading). If western spadefoot are found in the work area, they will be relocated as described above.
- A qualified biologist will be onsite during initial earthmoving activities to survey for western spadefoot. If western spadefoot are found in the work area, they will be relocated as described above.
- No ground-disturbing work will occur during wet weather unless the site has been cleared of western spadefoot by a qualified biologist and an exclusion fence set up around the work area to prevent migration of western spadefoot into the work area. Wet weather is defined as when there has been 0.25 inch of rain in a 24-hour period. Ground disturbing activities halted due to wet weather may resume when precipitation ceases and the National Weather Service 72-hour weather forecast indicates a 30% or less chance of precipitation. No ground-disturbing work will occur during a dry-out period of 48 hours after the above reference wet weather.
- During the western spadefoot migration/active season from November 1 to June 15, all project ground-disturbing activities will terminate 30 minutes before sunset and will not resume until 30 minutes after sunrise.
- No monofilament plastic will be used for erosion control. Some non-monofilament substitutes include coconut coir matting and tackified hydroseeding compounds.
- Vehicles will not exceed a speed limit of 15 mph on unpaved roads within natural landcover types, or during offroad travel.
- Trenches or holes more than 6 inches deep will be provided with one or more escape ramps constructed of earth fill or wooden planks and will be inspected by trained construction personnel or a qualified biologist prior to being filled. Any such features that are left open overnight will be searched each day by trained construction

personnel or the qualified biologist prior to construction activities to ensure no western spadefoot are trapped. If western spadefoot are found in the work area, they will be relocated as described above.

- Trained construction personnel or a qualified biologist will inspect under construction equipment and material left onsite prior to moving the equipment or material to look for western spadefoot that may have become trapped or are seeking refuge. If western spadefoot are found in the work area, they will be relocated as described above.

MM BIO-03: Swainson's Hawk Protection Measures: The following measures shall be implemented to ensure that active Swainson's hawk nests and other special-status nesting birds are not disturbed during construction. If feasible, construction activities (e.g., grading, mobilization, infrastructure installation) shall be initiated between February 1 and August 31 to avoid initiation during the avian nesting season (September 1 through January 31).

If construction occurs during the avian nesting season (February 1 through August 31), the following measures shall be implemented to avoid impacts on nesting raptors and other protected birds:

- Within 30 days prior to construction, a qualified wildlife biologist shall conduct a preconstruction survey of all potential nesting habitat within a 1/2 mile of the proposed Project site where access is available.
- If the preconstruction survey indicates that nests are inactive or potential habitat is unoccupied during the construction period, no further action is required. Trees and shrubs within the construction footprint determined to be unoccupied by nesting birds, or that are outside the no-disturbance buffer for active nests, could be removed.
- If active nests are found during the preconstruction survey, a no-disturbance buffer shall be established by the qualified biologist deemed sufficient to avoid disturbance of active raptor nests and nests of other special-status birds during the breeding season and construction activities shall be prohibited within the no disturbance area until a qualified biologist determines that all young have fledged. Typical buffers include 1/2 mile for Swainson's hawk, 500 feet for raptors, and 250 feet for other nesting birds (e.g., passerine birds). The size of these buffer zones and types of construction activities restricted in these areas may be further modified during construction in coordination with CDFW and shall be based on the existing level of noise and human disturbance associated with the proposed Project.

- b) **No Impact.** The Project site does not contain any riparian areas or sensitive natural communities, and none have been identified within the vicinity of the BRSA. Therefore, the Project would have no adverse effects to any riparian areas or sensitive natural communities identified in local or regional plans, policies or regulations or those identified by state and federal regulatory agencies.

- c) **No Impact.** The Project site does not contain any federal or state wetlands (ESA, 2026b). The Eastside Bypass is a constructed watercourse situated in the western portion of the BRSA and is classified as both a Waters of the United States (WOTUS) and Waters of the State (WOTS). Other aquatic features within the BRSA are limited to two agricultural ditches situated on the eastern portion of the Project site that would not be considered as federal or state wetlands (ESA, 2026b). The Eastside Bypass and agricultural ditches may be classified as “other” WOTUS and WOTS (also referred to as “non-wetland waters”). The POD structure and fish screen would result in temporary disturbance and permanent fill within the Eastside Bypass and the conveyance pipeline would temporarily disturb the agricultural ditches. Appropriate regulatory approvals for these potential impacts to “other” WOTUS and WOTS would be obtained from federal and state agencies prior to construction. At this time, it is expected that a CDFW Streambed Alteration Agreement would be needed for impacts to WOTS; impacts to WOTUS would be exempt under a Clean Water Act Section 404 (f)(1)(c) Agricultural Exemption.

An Aquatic Resources Delineation Report (“Talley Recharge Project, Aquatic Resources Delineation Report” (ESA, 2026b)) (**Appendix B**) has been prepared for review and verification by the USACE. The Project would not impact jurisdictional wetlands, and therefore, there would be no impact under this criterion.

- d) **No Impact.** The BRSA is currently used for a variety of agricultural purposes. Wildlife that can pass through or over perimeter fencing may move through the BRSA from surrounding grasslands/agriculture. The Eastside Bypass provides a corridor for movement north/south throughout the region, though there is no woody plant cover and little forage available. The Project, including the intake/fish screen that would be installed in the Eastside Bypass, would not alter these wildlife movement patterns. While fish may be present in the Eastside Bypass during high-flow events, the bypass is not typically used for fish movement due to downstream and upstream barriers. Implementation of the fish screen to CDFW and NMFS approved criteria would prevent entrainment of any fish present during Project operations. Therefore, the Project would not substantially interfere with wildlife movement.
- e) **No Impact.** The Project would not conflict with any local plans or policies for the protection of biological resources. The Project would not substantially alter any biological resources that may be protected by local plans and policies. The BRSA does not support any trees protected by local tree ordinances. Only nonprotected orchard trees would be removed, trimmed or damaged during Project related work.
- f) **No Impact.** There is no adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plans that overlap with the proposed Project area. There would be no impact under this criterion.

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3.2.5 Cultural Resources

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
V. CULTURAL RESOURCES — Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☒	☐	☐

Environmental Setting

ESA completed a cultural resources study to inform the baseline conditions and identify cultural resources within the Project site (ESA, 2026). To identify cultural resources that could be impacted by the Project, the following tasks were completed (1) a records search at the Southern San Joaquin Valley Information Center (SSJVIC) of the California Historical Resources Information System; (2) a review of historical maps aerial photographs to assess the potential for buried pre-European contact and historic-period archaeological deposits; and (3) a field survey of the Project site.

SSJVIC Records Search Results

On November 6, 2025, ESA requested a records search of the Project site and a 0.5-mile radius at the SSJVIC (SSJVIC File # 25-474) and results were received on November 17, 2025. The SSJVIC, an affiliate of the State of California Office of Historic Preservation, is the official state repository of cultural resources records and reports for Madera County. ESA also reviewed the following State of California inventories for the Project site:

- Five Views: An Ethnic Historic Site Survey for California
- California Historical Landmarks
- California Points of Historical Interest
- Archaeological Determinations of Eligibility

The SSJVIC records search did not identify any previously recorded cultural resources in or within 0.5-miles of the Project site. One previous archaeological study was conducted within the Project site. This study did not identify any cultural resources within the current Project site, and no additional study was recommended.

Map Review Results

ESA reviewed historical maps and aerial photographs to determine the presence of historic-period buildings and/or structures within the Project site and assess the potential for historic-period archaeological deposits. Archival maps and aerial photographs indicate that the Project site has been undeveloped land utilized for agricultural purposes, indicating low potential for intact historic-period deposits below the surface (e.g., artifact-filled features such as wells or privies).

A review of geologic maps to assess the Project site's potential for containing as-yet undocumented buried pre-European contact archaeological resources depict the Project site underlain by late Pleistocene to early Holocene quaternary alluvium and alluvial basin deposits indicating a moderate sensitivity for buried pre-European contact archaeological resources.

Field Survey

On December 9, 2025, ESA archaeologists conducted a field survey of the areas of the Project site subject to ground disturbance which consist of the recharge basin, pipeline corridor, and staging area. All exposed soils were inspected for pre-European contact archaeological materials (e.g., stone tools and lithic debitage, groundstone) historic-period artifacts (e.g., metal, glass, ceramics) and soils discoloration that might indicate the presence of archaeological deposits. No cultural resources were identified within the Project site.

Discussion

- a) **No Impact.** CEQA Guidelines Section 15064.5 requires the lead agency to consider the effects of a Project on historical resources. A historical resource is defined as any building, structure, site, or object listed in or determined to be eligible for listing in the California Register of Historical Resources (California Register) or determined by a lead agency to be significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, or cultural annals of California. The following discussion focuses on built environment (architectural and structural) resources. Archaeological resources, including those that are potentially historical resources according to CEQA Guidelines Section 15064.5, are addressed below under issue b).

The Project site contains no structures, nor is adjacent to any built environment resource that qualifies as a historical resource for the purposes of CEQA (i.e., eligible for listing in the California Register of Historical Resources). Therefore, the Project would not have the potential to cause a substantial adverse change to the significance of any built environment historical resource, as defined in Section 15064.5 of the CEQA Guidelines. The Project would not demolish a significant built environment historical resource or alter its physical characteristics, nor would it change elements within the historic setting of such a resource. Therefore, the Project would have no impact on built environment historical resources.

- b) **Less Than Significant Impact with Mitigation Incorporated.** Archaeological resources can be considered historical resources, according to CEQA Guidelines Section 15064.5, as well as unique archaeological resources, as defined in Public Resources Code (PRC) Section 21083.2(g).

No surface indications of archaeological resources were identified during the pedestrian survey. The results of the SSJVIC records search indicate that no previously recorded archaeological resources have been identified in or within 0.5-miles of the Project site. Archival maps and aerial photographs depict the Project site as undeveloped agricultural land and it is unlikely that any historic-period archaeological deposits (e.g., artifact-filled features such as wells or privies) are located within the Project site. However, a review of the relevant geologic maps indicated moderate sensitivity for buried pre-European contact archaeological deposits. Therefore, excavations related to the Project could encounter archaeological deposits and result in an adverse

change to a buried archaeological deposit that could qualify as a historical resource and/or an archaeological resource. Thus, potentially significant impacts related to buried archaeological deposits could result from Project construction.

Implementation of **Mitigation Measures CUL-1: Cultural Resources Awareness Training and Mitigation Measure CUL-2: Inadvertent Discovery of Cultural Resources**, would ensure that impacts related to archaeological deposits that qualify as historical resources and archaeological resources would be reduced to less than significant with mitigation through implementation of worker awareness training by an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards (SOI PQS) for Archeology⁵, and requirements to stop work if archaeological deposits are encountered during ground-disturbing activities.

MM CUL-1: Cultural Resources Awareness Training: Before any ground-disturbing and/or construction activities, an archaeologist meeting or under the supervision of an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards (SOI PQS) for Archeology shall conduct a training program for all construction and field personnel involved in Project-related ground disturbance prior to such personnel conducting any on-site activities. The training shall outline the general archaeological sensitivity of the area and the procedures to follow if an archaeological resource and/or human remains are inadvertently discovered during Project-related activities. This training shall be provided once to each worker involved in ground-disturbing activities before they begin work and shall be documented in training records submitted to the County.

MM CUL-2: Inadvertent Discovery of Cultural Resources: If pre-European contact or historic-period archaeological resources are encountered during Project implementation, all construction activities within 100 feet shall halt, and a qualified archaeologist, defined as an archaeologist meeting the SOI PQS, shall inspect the find and notify the County of their initial assessment. Pre-European contact archaeological materials might include obsidian and chert flaked-stone tools (e.g., projectile points, knives, scrapers) or toolmaking debris; culturally darkened soil ("midden") containing heat-affected rocks, artifacts, or shellfish remains; stone milling equipment (e.g., mortars, pestles, handstones, or milling slabs); and battered stone tools, such as hammerstones and pitted stones. Historic-era materials might include building or structure footings and walls, and deposits of metal, glass, and/or ceramic refuse.

If the County determines, based on coordination with the SOI PQS archaeologist and a Native American representative (if the resource is pre-European contact and a tribe has requested consultation), that the resource may qualify as a historical resource or unique archaeological resource (as defined in CEQA Guidelines Section 15064.5) or a tribal cultural resource (as defined in PRC Section 21080.3), the resource shall be avoided, if feasible. Consistent with Section 15126.4(b)(3), this may be accomplished through planning construction to avoid the resource; incorporating the resource within open

⁵ U.S. Department of the Interior. 1983. *Archaeology and Historic Preservation; Secretary of the Interior's Standards and Guidelines*. Available: <https://www.nps.gov/subjects/historicpreservation/upload/standards-guidelines-archeology-historic-preservation.pdf>

space; capping and covering the resource; or deeding the site into a permanent conservation easement.

If avoidance is not feasible, the County shall consult with appropriate Native American tribes (if the resource is pre- European contact and a tribe has requested consultation), to determine treatment measures to avoid, minimize, or mitigate any potential impacts to the resource pursuant to PRC Section 21083.2, and CEQA Guidelines Section 15126.4. This shall include documentation of the resource and may include data recovery (according to PRC Section 21083.2), if deemed appropriate, or other actions such as treating the resource with culturally appropriate dignity and protecting the cultural character and integrity of the resource (according to PRC Section 21084.3).

- c) **Less Than Significant Impact with Mitigation Incorporated.** Based on the records search and survey results, no human remains are known to exist at the Project site. While unlikely, it is possible that human remains could be encountered during construction. In the event that human remains are identified during Project construction, these remains would be required to be treated in accordance with Section 7050.5 of the California Health and Safety Code and Section 5097.98 of the Public Resources Code, as appropriate. Section 7050.5 of the California Health and Safety Code states that, in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the remains are discovered has determined whether or not the remains are subject to the coroner's authority. If remains are of Native American origin, the coroner must notify the Native American Heritage Commission within 24 hours of this identification. The NAHC will identify a Native American Most Likely Descendent (MLD) to inspect the site and provide recommendations for the proper treatment of the remains and associated grave goods.

Implementation of **Mitigation Measures CUL-1: Cultural Resources Awareness Training** and **Mitigation Measure CUL-2: Inadvertent Discovery of Cultural Resources**, presented above, and compliance with the California Health and Safety Code as prescribed in **Mitigation Measure CUL-3: Inadvertent Discovery of Human Remains** would ensure that impacts to human remains would be less than significant.

MM CUL-3: Inadvertent Discovery of Human Remains: In the event of discovery or recognition of any human remains during construction activities, all such activities within 100 feet of the find shall cease until the County Coroner has been contacted to determine that no investigation of the cause of death is required. Pursuant to Section 7050.5 of the California Health and Safety Code, the NAHC shall be contacted within 24 hours if the Coroner determines that the remains are Native American. The NAHC shall then identify the person or persons it believes to be the most likely descendant from the deceased Native American, who, in turn, would make recommendations for the appropriate means of treating the human remains and any grave goods.

References

ESA, 2026. Cultural Resources Study for the Talley Recharge Project Madera County, California

3.2.6 Energy

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
VI. ENERGY — Would the project:				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☒	☐

Environmental Setting

Pacific Gas and Electric (PG&E) provides electrical service to all developed areas of Madera County. Most electrical service in Madera County is provided by above ground lines and transmission lines enter the county from the north, south, and east, with the major substations being outside the county (County of Madera 1995). In 2024 PG&E's electric power generation mix consisted of 63 percent nuclear, 23 percent unspecified renewables, 12 percent large hydroelectric, and 2 percent natural gas (PG&E, 2025a). According to the California Energy Commission (CEC), in 2024 the County of Madera consumed 1,687 Giga Watt-hours (GWh) of electricity, this is a 22 percent increase from the 1,378 GWh consumed in 2010 and a 0.76 percent decrease from the 1,700 GWh consumed in 2020 (CEC 2025a).

Currently, gasoline is the most commonly used transportation fuel by volume in California, with 97 percent of all gasoline in use by light-duty cars, pickup trucks, and sport utility vehicles (CEC 2025b). According to the CEC, the County of Madera consumed an estimated 63 million gallons of gasoline in 2024, which is a 10 percent increase from the 57 million gallons consumed in 2010 and similar to the 63 million gallons consumed in 2020 (CEC 2025c).

Diesel fuel is the second most commonly used transportation fuel by volume in California, with 17 percent of all fuel sales. According to the CEC, nearly all heavy-duty trucks, delivery vehicles, buses, trains, ships, boats and barges, farm equipment, construction equipment, military vehicles and equipment have diesel engines (CEC 2025d). The County of Madera consumed an estimated 44 million gallons of diesel in 2024; this is a 83 percent increase from the 24 million gallons consumed in 2010 and a 37 percent increase from the 32 million gallons consumed in 2020 (CEC 2025c).

Discussion

- a, b) **Less Than Significant Impact.** Energy standards such as the Energy Policy Act of 2005 (U.S. EPA 2024) and the Renewables Portfolio Standard (RPS) (CEC 2025e), promote strategic planning standards intended to reduce the consumption of fossil fuels, increase the use of renewable resources, and enhance energy efficiency. In general, these regulations and policies specify statewide strategies to reduce fuel consumption and increase fuel efficiency and energy conservation. If the Project were to use energy resources in a wasteful manner, it would also conflict with state energy standards.

Project construction would be conducted in a manner consistent with the goals and strategies of state energy standards. A full list of construction equipment anticipated to be used for the Project is included in Chapter 2, *Project Description, Construction Equipment and Schedule*. There would be a temporary increase in fuel demand (gasoline and diesel) that would result from the use of construction equipment and vehicles, haul trips to and from the site, and vehicle trips generated by a maximum of 20 construction workers commuting to and from the site. Construction activities for the Project are estimated to last approximately five months.

Construction activities would use fuel-efficient equipment consistent with state and federal regulations, such as fuel efficiency regulations in CARB's Pavley Phase II standards (CARB 2025); the anti-idling regulation in California Code of Regulations (CCR) Title 13, Section 2485 (13 CCR Section 2485); and fuel requirements for stationary equipment in 17 CCR Section 93115 (concerning the Airborne Toxic Control Measures). Further, in accordance with 13 CCR Sections 2485 and 2449, idling commercial vehicles heavier than 10,000 pounds and off-road equipment exceeding 25 horsepower would be limited to a maximum of 5 minutes. Although the intent of these regulations is to reduce construction emissions, compliance with the anti-idling and emission reduction regulations would also result in fuel savings as a result of using more efficient equipment and through reductions in idling.

As discussed in Chapter 2, *Project Description*, the proposed flow meters would be electromagnetic flow meters and would require minimal maintenance. The Talley recharge basin would be maintained by the landowner, which would require periodic discing and sediment removal to maintain infiltration rates. As a result, operation and maintenance activities would generally be infrequent and transportation fuel use overall during the operations and maintenance phase would be minimal.

The Project components would be powered by either a diesel generator or electric motor. In the case of diesel, the landowner would drive pumps using an existing tractor equipped with PTO units or trailer-mounted diesel pumps. The tractor would be required to comply with all state and federal fuel efficiency regulations and energy conservation standards to reduce energy use and consumption. Should the Project components be powered using an electric motor, this would not conflict with the long-term RPS goal, as the electricity used on-site would be provided by PG&E distribution systems, which is required to comply with the RPS (CEC 2025e). When considering implementation of the state RPS program, the Project would not prevent the future use of renewable energy. Further, as noted above, PG&E's 2024 power mix consisted of a majority of nuclear, unspecified renewables, and hydroelectric power with only 2 percent coming from energy resources such as natural gas (PG&E 2025).

The total increase in gasoline, diesel, and electricity used during generally infrequent operations and maintenance activities associated with the Project would result in a minor increase in consumption compared to the approximately 63 million gallons of gasoline and 44 million gallons of diesel consumed in Madera County in 2024, and the 1,687 GWh of electricity used in Madera County in 2024, and therefore would not constitute an excessive use of energy resources. Additionally, compliance with applicable fuel standards, energy use reduction goals, and the RPS

Program discussed above would serve to further reduce permanent operations and maintenance energy consumption associated with the Project.

The Project would be consistent with all applicable goals and policies adopted that support increased energy efficiency, and would not result in the wasteful, inefficient, or unnecessary consumption of energy. Therefore, impacts would be less than significant.

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3.2.7 Geology and Soils

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
VII. 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 on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐

Environmental Setting

Madera County is divided into two major physiographic and geologic provinces: the Sierra Nevada Range and the Central Valley. The Sierra Nevada physiographic province in the northeastern portion of the County is underlain by metamorphic and igneous rock. It consists mainly of homogenous types of granitic rocks, with several islands of older metamorphic rock. The central and western parts of the County are part of the Central Valley province, underlain by marine and non-marine sedimentary rocks (Madera County, 1995).

No Alquist-Priolo Earthquake Fault Zones or Seismic Hazard Zones are identified within Madera County (CDC, 2025a and b). Geologic mapping by United States Geologic Survey (USGS) (1964) indicates Pleistocene-age alluvial deposits are present at the surface within a majority of the Project area. To evaluate potential impacts on paleontological resources, Environmental Science Associates conducted a search of the online collections database of the University of California Museum of Paleontology for fossil localities from geologic units mapped as occurring on the Project site. Data provided by the museum's online database include taxonomic identification, locality number and name, age, and county,

and sometimes geologic formation. The database does not provide precise data on localities; however, in some cases, the locality name can be used to refine the general vicinity of the locality within the County (UCMP 2026).

Discussion

- a) **No Impact.** As stated previously, no Alquist-Priolo Earthquake Fault Zones or Seismic Hazard Zones are identified within Madera County (CDC 2025b). The Project site is within an area that could experience severe shaking with a 2 percent probability of being exceeded in 50 years. The shaking intensity is represented using the Modified Mercalli Intensity (MMI) scale, which describes the perceived earthquake shaking and correlates strongly with earthquake-induced damage. For the Project site, MMI 8.0 ground shaking has a 2 percent probability of being exceeded in 50 years, which corresponds to an average recurrence interval of approximately 2,475 years. The San Joaquin River corridor, which also serves as the boundary between Madera and Fresno counties, presents the greatest likelihood of loose sediment and saturated soils within Madera County. However, there is no risk of large landslides in the valley portion of the County, as the terrain is essentially flat and topographically featureless (Madera County 1995). The Project site is not located in an area with high landslide susceptibility. The Project would be constructed to industry standards to protect against potential adverse geological impacts of seismic activity and other site-specific soils and geology constraints, including compliance with the California Building Code and American Society of Civil Engineers standards. In addition, the Project would not include habitable structures and would consist of non-occupied facilities. Given the nature of the Project, it would not expose people or structures to substantial adverse effects related to seismic rupture, strong seismic shaking, seismic-related ground failure or liquefaction, landslides, or other soil-related hazards.
- b) **Less Than Significant Impact.** The construction activities associated with the Project would involve ground-disturbing earthwork, including earthmoving, excavation, and grading. Excavated soil would be reused by the Project as pipeline backfill and earthwork would be balanced. Any excess soil from trench excavation would be placed along the existing earthen ditch to reinforce its banks and/or would be spread out on the landowner's property. These activities could increase the susceptibility of soils on the Project site to erosion by wind or water and subsequently result in impacts related to loss of topsoil. As the Project would create over 1.0 acre of ground disturbance, a Stormwater Pollution Prevention Plan (SWPPP) would be developed and implemented as part of Project construction in accordance with the *National Pollutant Discharge Elimination System (NPDES) General Permit for Discharges of Storm Water Runoff Associated with Construction and Land Disturbance Activities* (Order 2009-0009-DWQ, NPDES No. CAS000002; as amended by Orders 2010-0014-DWQ and 2012-006-DWQ) (Construction General Permit). The SWPPP would identify Best Management Practices (BMPs) designed to control run-on and run-off and prevent soil erosion and sedimentation associated with construction-related disturbance construction. The BMPs would include various erosion and sedimentation control measures (e.g., silt fences, sand and gravel bags, straw wattles), watering for dust control, and covering of exposed stockpiles, as needed. Implementation of these soil and erosion control measures and compliance with the Construction General Permit would reduce the

Project's potential impacts associated with soil erosion and loss of topsoil during construction to less than significant.

- c) **Less Than Significant Impact.** As discussed above, the Project site is not within a Fault, Liquefaction, or a Landslide Zone (CDC, 2025b). Land subsidence occurs when a large portion of land is displaced vertically, usually due to the withdrawal of groundwater, or oil and gas. Some areas of the San Joaquin Valley have experienced substantial amounts of subsidence, in excess of 20 feet over the past 50 years. Because there is no high-water table in Madera County, the risk of subsidence is considered to be very low (Madera County, 1995). The Project would not include dewatering or other construction-phase activities that could exacerbate land subsidence. In fact, by implementing a phased floodwater recharge program within the Chowchilla Subbasin, the Project is designed to enhance sustainable groundwater levels, which may help reduce long-term subsidence risks in the area.

As discussed above, the Project would be subject to the regulations and standards included in the California Building Code (CBC), which would require the preparation of a site-specific geotechnical report by a licensed geotechnical engineer, certified by the State of California. The report would be used to inform the specific design elements of the Project components to ensure the structures associated with the Project are suitable to withstand any potential damage due to unstable soils. Additionally, while the Project is not expected to result in significant impacts related to landslides and subsidence, the site-specific geotechnical investigation would include the analysis of the potential for landslides and subsidence. Compliance with the CBC would ensure impacts related to landslides and other unstable soils would be less than significant.

- d) **Less Than Significant Impact.** Expansive soils are soils that possess a “shrink-swell” characteristic, also referred to as linear extensibility. Shrink-swell is the cyclic change in volume (expansion and contraction) that occurs in fine-grained clay sediments from the process of wetting and drying; the volume change is reported as a percent change for the whole soil. This property is measured using the coefficient of linear extensibility (COLE) (NRCS 2026). The Natural Resources Conservation Service (NRCS) relies on linear extensibility measurements to determine the shrink-swell potential of soils. If the linear extensibility percent is more than 3 percent (COLE=0.03), shrinking and swelling may cause damage to buildings, roads, and other structures (NRCS 2026). Changes in soil moisture can result from rainfall, landscape irrigation, utility leakage, roof drainage, and/or perched groundwater. Expansive soils are typically very fine-grained and have a high to very high percentage of clay. Structural damage may occur incrementally over a long period of time, usually as a result of inadequate soil and foundation engineering or the placement of structures directly on expansive soils.

NRCS Web Soil Survey data indicates that the soils underlying the Project site have between a 0.0 and 1.5 percent linear extensibility rating, which is considered low linear extensibility rating (NRCS 2026). Nonetheless, geotechnical investigations are required to address expansion potential. If site conditions differ from the Web Soil Survey data, measures would be included in the geotechnical report that would provide recommendations to address any risk associated with soil expansion. The impacts of the Project would be less than significant.

- e) **No Impact.** The Project does not include any components that would require soils adequate for the use of septic tanks or other alternative wastewater disposal system. None of the Project components include the use of septic tanks or an alternative wastewater disposal system, therefore there would be no impact under this criterion.
- f) **Less Than Significant Impact with Mitigation Incorporated.** Paleontological resources are the fossilized remains of plants and animals, including vertebrates (animals with backbones; mammals, birds, fish, etc.), invertebrates (animals without backbones; starfish, clams, coral, etc.), and microscopic plants and animals (microfossils), and can include mineralized body parts, body impressions, or footprints and burrows. They are valuable, non-renewable, scientific resources used to document the existence of extinct life forms and to reconstruct the environments in which they lived. A significant impact would occur if a project would destroy a unique paleontological resource or site, or a unique geologic feature.

In its “Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources,” the Society of Vertebrate Paleontology (SVP) defines four categories of paleontological potential for rock units: high, low, undetermined, and no potential: **High Potential**, rock units from which vertebrate or significant invertebrate, plant, or trace fossils have been recovered are considered to have a high potential for containing additional significant paleontological resources; **Low Potential**, rock units that are poorly represented by fossil specimens in institutional collections, or based on general scientific consensus only preserve fossils in rare circumstances and the presence of fossils is the exception not the rule; **Undetermined Potential**, rock units for which little information is available concerning their paleontological content, geologic age, and depositional environment; and **No Potential**, rock units like high-grade metamorphic rocks (such as gneisses and schists) and plutonic igneous rocks (such as granites and diorites) that will not preserve fossil resources (SVP 2010).

As stated previously, Pleistocene-age deposits within the Project area considered to have a high paleontological sensitivity due to the Pleistocene-age vertebrate fossil discoveries throughout California (UCMP 2020). However, based on mapped soil units, depositional environment, and regional geologic context, the Project site is underlain by reworked Quaternary alluvial deposits with low potential to preserve paleontological resources. Although Pleistocene fossil localities are known regionally, they are associated with deeper, localized deposits not expected to be encountered during Project excavation. Therefore, paleontological sensitivity at the site is considered low. In the event of an unanticipated discovery, work would cease and a qualified paleontologist would be consulted. The risks of encountering and/or destroying paleontological resources increase with the amount of ground disturbance associated with a project; ground disturbing activities that would not require mass excavation of soil (i.e., post driven into the ground) would have a minimal impact on paleontological resources, as there would be little to no material to observe. Ground disturbance that includes mass open excavation or situations where excavation spoils may be examined, has a greater impact and an increased likelihood of encountering significant paleontological resources. If ground disturbance and/or excavation associated with the Project encounters and inadvertently damages or destroys significant paleontological resources, this would be a potentially significant impact.

Excavation for the Project would include trenching for the POD to the intake/fish screen and 3,400 feet of conveyance pipelines, as well as excavation for the 5-acre groundwater recharge basin. At the POD, an approximate maximum of 23-foot deep trench would be excavated from the low flow channel of the Bypass to allow gravity flow to the intake/fish screen structure. Trenching for the pipeline would be approximately 3-feet deeper than the maximum pipeline diameter (36-inches) resulting in an approximate depth of 6 to 7 feet below ground.

Given that the mapped soil units, depositional environment, and regional geologic context, the Project site is underlain by reworked Quaternary alluvial deposits with low potential to preserve paleontological resources, the potential to encounter significant paleontological resources is low.

While no unique paleontological resources are known to be present at the Project site, excavations needed for installing Project components discussed above in alluvium underlying the site would have the potential to unearth previously unknown unique paleontological resources.

Mitigation Measure GEO-1: Paleontological Resources Protection, requires that any unanticipated fossil or other potential paleontological resource discoveries during Project construction be managed through a procedure designed to assess and treat the find as quickly as possible, and would reduce potential adverse impacts to less than significant.

MM GEO-1: Paleontological Resources Protection: If subsurface deposits having the potential to be a paleontological resource are discovered during construction, all work must halt within a 100-foot radius of the discovery. A qualified professional archaeologist/paleontologist shall be retained to evaluate the significance of the find and shall have the authority to modify the no-work radius as appropriate, using professional judgment. The following actions/notifications shall apply depending on the nature of the find:

- a. If the professional archaeologist/paleontologist determines that the find does not represent a unique paleontological resource, work may resume, and no agency notifications are required.
- b. If the professional archaeologist/paleontologist determines that the find does represent a unique paleontological resource, the archaeologist/paleontologist shall immediately notify the County of Madera. The County shall consult on a finding of eligibility and implement appropriate treatment measures for the find. Work may not resume within the no-work radius until the County determines that appropriate treatment measures have been completed sufficient to avoid the loss of a unique paleontological resource.

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3.2.8 Greenhouse Gas Emissions

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
VIII. 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 an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Environmental Setting

Greenhouse gases (GHGs) trap heat in the atmosphere by preventing some of the solar radiation that hits the earth from being reflected back into space. Some GHGs occur naturally and are needed to keep the earth's surface habitable. However, over the past 100 years, human activities have substantially increased the concentration of GHGs in our atmosphere. This has intensified the natural greenhouse effect, increasing average global temperatures.

Carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), sulfur hexafluoride (SF₆), perfluorocarbons (PFCs), and hydrofluorocarbons (HFCs) are the principal GHGs. When concentrations of these gases exceed historical concentrations in the atmosphere, the greenhouse effect is intensified. CO₂, CH₄, and N₂O occur naturally and are also generated through human activity. Emissions of CO₂ are largely by-products of fossil fuel combustion, whereas CH₄ results from off-gassing, natural gas leaks from pipelines and industrial processes, and incomplete combustion associated with agricultural practices, landfills, energy providers, and other industrial facilities. N₂O emissions are also largely attributable to agricultural practices and soil management. Other human-generated GHGs include fluorinated gases such as HFCs, PFCs, and SF₆, which have much higher heat-absorption potential than CO₂ and are byproducts of certain industrial processes.

GHG emissions worldwide cumulatively contribute to the global climate change. No single project could generate sufficient GHG emissions on its own to noticeably change the global average temperature. The combination of GHG emissions from past, present, and future projects in the San Joaquin Valley; the entire State of California; across the nation; and around the world contribute cumulatively to the phenomenon of global climate change and its associated environmental effects.

Discussion

a.b) **Less Than Significant.** The San Joaquin Valley Air Pollution Control District's (SVJAPCD's) greenhouse gas (GHG) guidance (SVJAPCD, 2009) is intended to streamline CEQA review by pre-quantifying emissions reductions that would be achieved through the implementation of Best Performance Standards. A project is considered to have a less-than-significant cumulative impact associated with GHG emissions and climate change if it meets any of the following conditions:

1. Comply with an approved GHG reduction plan.

2. Reduce operational GHG emissions by at least 29 percent using any combination of approved operational Best Performance Standards.
3. Reduce operational GHG emissions by at least 29 percent over business-as-usual (BAU) conditions (demonstrated quantitatively).

Because Madera County currently has not adopted GHG reduction plan, Option 1 (listed above) is inapplicable. Options 2 and 3 both require projects to achieve GHG reductions consistent with the goals of Assembly Bill (AB) 32, the Global Warming Solutions Act of 2006, to reduce statewide GHG emissions to 1990 levels by 2020 (equivalent to a 29 percent reduction over business-as-usual [BAU] conditions).

However, since publication of SVJAPCD's GHG guidance in 2009, the California Supreme Court has considered the CEQA issue of determining the significance of GHG emissions, in its decision in *Center for Biological Diversity v. CDFW and Newhall Land and Farming* (*Center for Biological Diversity v. Department of Fish & Wildlife* (2015) 62 Cal.4th 204). In the Newhall decision, the court questioned a common CEQA approach to GHG analyses for development projects that compared project emissions to the reductions from BAU that would be needed statewide to reduce emissions to 1990 levels by 2020, as required by AB 32. The court upheld the BAU method as valid in theory but concluded that the method was applied improperly in the case of the Newhall project, finding that the project's target was incorrectly deemed consistent with the statewide emission target of 29 percent below BAU for the year 2020. In other words, the court ruled that the percent-below-BAU target developed by the AB 32 Scoping Plan is intended as a measure of the GHG reduction effort required by the state as a whole, and it cannot necessarily be applied to the impacts of a specific project in a specific location.

The California Supreme Court provided some guidance for evaluating the cumulative significance of a proposed land use project's GHG emissions but noted that none of the approaches could be guaranteed to satisfy CEQA for a particular project. The court's suggested "pathways to compliance" can include one or more of the following:

- Use a geographically specific GHG emissions reduction plan (e.g., climate action plan) that outlines how the jurisdiction will reduce emissions consistent with state reduction targets, to provide the basis for streamlining project-level CEQA analysis, as described in State CEQA Guidelines Section 15183.5.
- Use the Scoping Plan's BAU reduction goal but provide substantial evidence to bridge the gap between the statewide goal and the project's emissions reductions.
- Assess consistency with AB 32's goal in whole or part by looking to comply with regulatory programs designed to reduce GHG emissions from particular activities. As an example, the court points out that projects consistent with a Senate Bill 375 sustainable communities strategy may need to reevaluate GHG emissions from cars and light trucks.
- Rely on existing numerical thresholds of significance for GHG emissions, such as those developed by an air district.

Given the construction period of five months and the types and numbers of construction equipment needed, total GHG emissions from Project construction amortized over a 30-year period would be approximately 8.59 metric tons of carbon dioxide equivalent per year (**Appendix A**). Construction of the Project would not result in a cumulatively considerable increase in GHG emissions, and this impact would be less than significant.

As discussed previously, operational GHG emissions for the Project would primarily be generated by on-road vehicular traffic during maintenance trips, as well as from the proposed pump station through use of a diesel engine or an electric motor. However, employee trips required for periodic maintenance, such as servicing flow meters, would generally be infrequent and minor in activity resulting in negligible GHG emissions over the life of the Project. If using diesel power, the pumps would be driven using power take off units or trailer mounted pumps that are powered by a vehicle engine. These operational activities would occur infrequently and the vehicles that would power the pumps would be pre-existing equipment already in operation by the landowners. Overall, the proposed pump would emit negligible amounts of GHGs over the lifetime of the Project and would not result in a cumulatively considerable increase in GHG emissions. Further, electric service would be provided by PG&E which has its own GHG reduction goals including net zero emissions by 2040 (PG&E 2026). Therefore, operation of the Project would have a less than significant impact related to GHG emissions.

References

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3.2.9 Hazards and Hazardous Materials

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
IX. 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 handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	☐	☐	☒	☐

Environmental Setting

In California, Government Code Section 65962.5 requires the State Water Resources Control Board (State Water Board) and the Department of Toxic Substance Control (DTSC) to maintain regulatory databases listing hazardous materials sites; the list is also referred to as the Cortese List. The Cortese List identifies sites with suspected and confirmed releases of hazardous materials to the subsurface soil and/or groundwater. The listed sites can be accessed through the State Water Board's GeoTracker database and the DTSC EnviroStor database. The reporting and statuses of these sites change as identification, monitoring, and clean-up of hazardous materials sites progress.

A database search of both the EnviroStor and GeoTracker databases identified no hazardous clean-up sites within the Project site (DTSC 2025; SWRCB 2025). The closest hazardous clean-up site to the Project site is the SCHUH (T0603900070) LUST clean-up site at 7180 Avenue 21, Chowchilla, which is located approximately 2.2 miles north of the Project site; however, clean-up of the site has been completed, and the case has been closed since August 1989.

There are two public airports within Madera County; these include the Madera Municipal Airport located approximately 17 miles to the southeast, and the Chowchilla Municipal Airport located approximately 11 miles to the northeast. The Project site is located within the Chowchilla Union High School District (County of Madera 1995) and the closest school is Alview Elementary School which is located approximately 3 miles to the northwest.

Within California, fire hazard severity zones are designated by the California Department of Forestry and Fire Protection (CAL FIRE). CAL FIRE uses a five-tiered ranking system to assess the threat to people based on fuel hazard, wildland fire potential, and housing density. The Project site is not located within a state responsibility area (SRA) managed by CAL FIRE; however, the Project site is located within a local responsibility area (LRA). The Project site is un-zoned, equating to an overall low fire hazard severity (CAL FIRE, 2025). In the event of a wildfire, the Madera County Fire Department would be the first responders to the Project site. The closest County fire station is Station 2, Chowchilla, which is located approximately 11 miles northeast of the Project site. The Station is staffed by paid call firefighters and has one fire engine and one water tender (Madera County Fire Department 2025).

Discussion

- a,b) **Less Than Significant Impact.** Construction activities associated with the Project would require the use of small quantities of hazardous materials such as diesel fuel, gasoline, oils, grease, equipment fluids, cleaning solutions and solvents, lubricant oils, and adhesives. The Project would also include earthmoving activities including grading and trenching.

During construction, contractors handling, storing, or transporting hazardous materials or wastes would comply with, federal, State and local hazardous materials regulations for the proper handling, storage and transportation of hazardous materials. This would include compliance with the Project's SWPPP and implementation of BMPs in compliance with the California Construction General Permit for storm water discharges which would reduce the risk of accidental release or spill of hazardous materials, and provide protocols and notification requirements should an accidental release occur.

Any spills of these substances would be cleaned on-site according to the SWPPP and Construction General Permit. The SWPPP would list the hazardous materials (including petroleum products) proposed for use during construction; describe spill prevention measures, equipment inspections, equipment, and fueling procedures; describe protocols for responding immediately to spills; and describe BMPs for controlling site run-on and runoff. The transportation of hazardous materials would be regulated by the U.S. Department of Transportation, the California Department of Transportation, and the California Highway Patrol. Together, federal and state agencies determine driver-training requirements, load-labeling procedures, and container specifications designed to minimize the risk of accidental release.

As discussed in Chapter 2, *Project Description*, Madera County would coordinate operations and maintenance by working with Madera Irrigation District and the landowner. Flow meters would be electromagnetic (mag meters) and would require minimal maintenance. The Talley recharge basin would be maintained by the landowner, which would require periodic discing and sediment removal to maintain infiltration rates. No hazardous materials would be stored on site. Operations

and maintenance activities would be infrequent, and work would be conducted in accordance with relevant federal, State, and local laws regarding hazardous material use. Operation and maintenance of the Project would not result in a significant hazard to the public or to the environment through the routine transport, use, or disposal of hazardous materials and 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. Therefore, the impacts would be less than significant.

- c) **No Impact.** There are no schools located within one-quarter mile of the Project site. Furthermore, fuels, oils, and lubricants used during construction would be handled in accordance with material safety storage and handling protocols, and implementation of BMPs discussed above would contain and prevent spills from occurring on the Project site. Therefore, no impact would occur.
- d) **No Impact.** There are no identified hazardous material sites located within the Project site (DTSC 2025; SWRCB 2025). The Project would not be located on a hazardous materials site, and no impact would occur.
- e) **No Impact.** The nearest public airport to the Project site is the Chowchilla Municipal Airport approximately located approximately 11 miles to the northeast. The Project is not located within an airport land-use plan or within 2 miles of a public airport or public use airport. No impact would occur.
- f) **Less Than Significant Impact.** During construction, there would a maximum of 20 workers traveling to the Project site on a temporary basis resulting in minimal impacts to local and regional traffic flow. Temporary (2 week maximum) road closure of Avenue 18 ½ would be required to install the proposed conveyance pipelines which would cross underneath the roadway to access the Eastside Bypass (see **Figure 2-2**). To install the proposed conveyance pipelines an open cut would be made through the Avenue 18 ½, pipelines would be installed, and the roadway would be restored to pre-construction conditions.; this closure would be temporary and installation activities would generally be short-term. A traffic control plan would be submitted to the County for review and approval that would address any potential emergency access issues that could occur during temporary road or lane closure of Avenue 18 ½ during construction.

During the operations and maintenance phase, Madera County would coordinate operations and maintenance of the pump station by working with the Madera Irrigation District and the landowner. Flow meters would be electromagnetic requiring minimal maintenance and the Talley recharge basin would be maintained by the landowner which would require periodic discing and sediment removal to maintain infiltration rates. No lane closures would be required that could impair emergency access in the Project area, nor impair an emergency response or evacuation plan. Additionally, there would not be a permanent substantial increase in the number of people working or residing at or near the Project site resulting in impairment of an emergency response or evacuation plan. Impacts would be less than significant.

With approval of the traffic control plan and implementation of any conditions required by the County to reduce disruption, the Project would not significantly impair implementation of or physically interfere with any adopted emergency response plan or emergency evacuation plan.

Closure of Avenue 18 ½ would be short-term and due to the agricultural nature of the area, there are many roadways and access roads in the area that can serve as alternative routes should an emergency occur during closure. Less-than-significant impacts would occur.

- g) **Less Than Significant Impact.** As mentioned above, the Project is not located in an SRA; however, the Project site is located within an LRA and is un-zoned equating to a low fire hazard severity (CAL FIRE, 2025). The Project would construct one new POD and approximately 3,400 feet of pipeline, to divert flood flows from the Eastside Bypass for recharge in the Talley recharge basin and adjacent agricultural lands parcels and promote groundwater sustainability.

The POD would include an intake/fish screen, RCP, conveyance pipes, control valves, pumps and electromagnetic flow meters. The Project would also install a reinforced concrete control structure on the eastern side of the Eastside Bypass levee on the waterside of the embankment and a reinforced concrete pump box structure on the landside which would be powered by a diesel generator or electric motor. In the case of diesel engines, landowners would drive pumps using existing tractors equipped with PTO units. In the event an electric motor is used a PG&E connection would be made to existing on-site transmission lines to power the Project, the proposed electric service line(s) would follow existing road alignments and would comply with applicable County Codes for powerline installation (see County Code of Ordinances 18.88.040-Public Utilities). Construction activities would take place on existing agricultural lands and along existing access roads; operation and maintenance would be coordinated by the County with the Madera Irrigation District and the local landowner, and would generally be infrequent; other ongoing on-site activities (i.e. agricultural activities) would not change with the Project.

In the event of a fire, work would cease, and the Madera County Fire Department would be contacted. The closest County fire station is Station 2, Chowchilla, which is located approximately 11 miles northeast of the Project site. The Station is staffed by paid call firefighters and has one fire engine and one water tender (Madera County Fire Department 2025).

The Project site is located in a rural area; however, it is in close proximity to the City of Chowchilla, and rural roadways such as Avenue 18 ½ provide access throughout the area. As rural roads are generally less congested than urban roads, emergency responders would be able to quickly respond in the event of an emergency. Additionally, the agricultural lands which constitute the Project area have a network of unimproved agricultural roads which would provide access to emergency service providers in the event of a fire; additionally, these lands are generally at low risk of wildfire themselves. Therefore, the Project would not significantly increase the exposure of people or structures to wildland fires, and the impact would be less than significant.

References

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3.2.10 Hydrology and Water Quality

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
X. HYDROLOGY AND WATER QUALITY — Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☒	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☐	☒
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i) result in substantial erosion or siltation on- or off-site;	☐	☐	☒	☐
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or 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?	☐	☐	☒	☐

Environmental Setting

The Project is located in the western portion of Madera County in the Central San Joaquin Valley, part of the Great Valley of California. The Valley is bordered by the Sierra Nevada Mountain Range to the east, the Coast Range to the west, the Klamath Mountains and Cascade Range to the north, and the Transverse Range and Mojave Desert to the south. In general, Valley floor hydrology originates from stormwater and snowmelt run-off via the watersheds of surrounding mountain ranges.

The San Joaquin Valley experiences a Mediterranean climate with warm, dry summers and cool, moist winters. Summer temperatures often reach above 90 degrees Fahrenheit, and the humidity is generally low. Winter temperatures are often below 60 degrees Fahrenheit during the day and rarely exceed 70 degrees. On average, the Central Valley receives 12 inches of rainfall annually, which primarily occurs between the months of October and March.

The Project is located within the San Joaquin River Hydrologic Region. The San Joaquin River hydrologic region covers about 15,200 square miles in the northern part of the San Joaquin Valley, the southern part of the Sacramento-San Joaquin Delta, and parts of the Sierra Nevada and Diablo Mountain

ranges. The San Joaquin River is the primary waterway in the Project area. It runs parallel to the Chowchilla Bypass but on the western side of the Project site and is located approximately 4 miles to the west. The Chowchilla Bypass begins at the Chowchilla Bifurcation Structure in the San Joaquin River and runs northwest, parallel to the San Joaquin River, to the confluence of the Fresno River, where the Chowchilla Bypass ends and essentially becomes the Eastside Bypass. The Chowchilla Bifurcation Structure is a gated structure that controls the proportion of flood flows between the Chowchilla Bypass and the San Joaquin River.

Surface water quality in the region is generally considered good. Water bodies in the Project vicinity include Berenda Slough listed as Section 303(d) impaired for toxicity, chlorpyrifos, copper and dissolved oxygen; and San Joaquin River (Mendota Pool to Bear Creek) listed as Section 303(d) impaired for Dichlorodiphenyltrichloroethane (DDT), Group A Pesticides, Toxicity, and pH. Other water bodies in the Project vicinity such as the Fresno River and Ash Slough are not listed (EPA 2024).

The Project site is within the Chowchilla Subbasin of the San Joaquin Valley Groundwater Basin. The Chowchilla Subbasin (shown in **Figure 1-1**) consists of lands overlying the alluvium in the northwest portion of Madera County. The southern boundary of the Subbasin from the west to its connection with the northern boundary runs along the southern boundary of Township 11 South, Ranges 14 East and 15 East, northerly along the eastern boundaries of sections 9, 20, 27, and 33 of Township 11S, Range 15 East, and northeasterly along the southern and eastern boundaries of Chowchilla Water District, then northeasterly following Berenda Slough and Ash Slough to the Chowchilla River. (DWR 2004). Groundwater levels in the Project area are approximately 120 feet below ground surface (bgs) (DWR 2025).

Discussion

- a) **Less Than Significant Impact.** Construction of the Project would involve ground-disturbing earthwork, including earthmoving, trenching and other excavation, and grading. Construction disturbance has the potential to increase erosion and turbidity in downstream receiving waters. In addition, the use of heavy machinery during construction would have the potential to result in an accidental release of fuels, oils, solvents, hydraulic fluid, and other construction-related fluids to the environment, thereby degrading water quality.

As described in the *Geology and Soils Section*, the construction contractors would be required to obtain a NPDES Construction General Permit for Discharges of Stormwater Associated with Construction Activities (Construction General Permit) before initiating ground-disturbing activities. Among the permit's conditions would be preparation and implementation of a SWPPP that would identify and require implementation of BMPs to prevent sediment and other construction-related compounds (e.g., fuel, oil) from entering stormwater runoff. Compliance with the NPDES Construction General Permit, including the implementation of BMPs described in the SWPPP, would ensure that the Project would avoid and/or minimize the potential water quality impacts of construction-related compounds and soil erosion discharging into receiving waters during construction. Therefore, the potential water quality impact associated with construction would be less than significant.

Once construction is completed, Project operations would not involve activities having the potential to result in significant increases in sediment or other potential pollutants discharged into receiving waters. As a result, impacts on water quality from the Project's operation and maintenance activities would be less than significant.

- b) **No Impact.** The Project would contribute to sustainable groundwater management in the Chowchilla Subbasin by implementing a phased flood water recharge program to divert and recharge flood flows from the Eastside Bypass. The Project would not involve extraction of recharged groundwater by overlying well owners for consumptive use. Therefore, no change in irrigation or domestic pumping would occur under the Project. The Project would benefit the groundwater system by promoting groundwater recharge. Therefore, the Project would not decrease groundwater supplies or interfere with groundwater recharge such that it would impede sustainable groundwater management in the basin.
- c.i-iv) **Less Than Significant Impact.** The Project would divert water from the Eastside Bypass using an engineered intake and pipeline system, and would not alter existing drainage patterns in a manner that would have the potential to result in erosion, flooding, or other adverse effects associated with flood flows. Therefore, this impact would be less than significant.
- d) **Less Than Significant Impact.** The Project is not located within a tsunami or seiche zone. The Project is located within Flood Zone A Special Flood Hazard Area which has a 1-percent chance of occurring in any given year (100-year flood). The Project would construct a new pump station and pipeline to distribute flood water to the application areas for either direct recharge or Flood-MAR. Once constructed, routine operation and maintenance of the POD would be coordinated by Madera County with the local landowner through a landowner agreement. Flow meters would be electromagnetic and would require minimal maintenance. The Talley recharge basin would be maintained by the landowner which would require periodic discing and sediment removal to maintain infiltration rates. No supplies would be stored on site. Therefore, impacts related to the risk release of pollutants due to Project inundation would be less than significant.
- e) **Less Than Significant Impact.** As described previously under checklist items a) and b), the Project would comply with the NPDES Construction General Permit, including the implementation of BMPs described in the SWPPP to prevent water quality pollutants such as silt, sediment, hazardous materials, and construction-related fluids from entering receiving waters. Implementing the Project would result in the addition of minor impervious surfaces from construction of the POD; however, the Project would divert flood water from the Eastside Bypass for groundwater recharge through direct recharge and Flood-MAR. No water consumption would occur as a result of the Project and new impervious surfaces would be relatively minimal in relation to the surrounding area. Therefore, this impact would be less than significant.

References

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3.2.11 Land Use and Planning

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
XI. 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?	☐	☐	☐	☒

Environmental Setting

The Project site has a Madera County General Plan land use designation of AE (Agriculture Exclusive) (Madera County, 1995b) and Madera County zoning classification of ARE-40 (Agricultural, Rural, Exclusive (40-acre) District) (Madera County, 2025).

Discussion

- a) **No Impact.** There are no established communities within the Project area. The Project involves constructing a new POD with a fish screen on the Eastside Bypass and installing 3,400 feet of pipeline in an agricultural area for groundwater recharge. The Project would not include any components that would result in a division of existing residential communities; therefore, there would be no impact under this criterion.
- b) **No Impact.** The Project site is designated as AE and is zoned as ARE-40 (Madera County, 2025). The AE land use designation allows for agricultural uses and limited agricultural support services (e.g., barns, feed facilities, silos), agriculturally oriented services (e.g., wineries, cotton gins), timber production, mineral extraction, airstrips, refuse disposal sites, recreational uses, and other similar or compatible uses.

The proposed construction of a POD on the Eastside Bypass and underground pipelines to distribute floodwaters for direct recharge and Flood-MAR on approximately 160 acres of existing farmland is consistent with this zoning and land use designation. Additionally, the Project would develop a 5-acre groundwater recharge basin on lands currently in orchard production. The groundwater basin is considered consistent with the agricultural zoning of the properties. The Project supports long-term agricultural viability through enhanced groundwater recharge without altering or removing the land from active agricultural use. Therefore, the Project would not interfere with existing land uses and would be fully consistent with applicable Madera County land use and zoning policies. No impact would occur under this criterion.

References

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3.2.12 Mineral Resources

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
XII. 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?	☐	☐	☐	☒

Environmental Setting

Mineral resources are essential for California’s housing, infrastructure, and energy transition. Under the guidance of the State Geologist, mineral land classification studies are conducted as specified under the Surface Mining and Reclamation Act (SMARA) (CDC 2015). To promote mineral resource conservation, SMARA established the classification and designation of Mineral Resource Zones (MRZs) to guide land use planning and to protect mineral resources from being lost to development or incompatible uses. The Project site is not located within an area classified as a significant mineral resource by the State Geologist, and no active mines are present within the site (CDC 2016; USGS 2025a; CDC 2015).

Critical minerals, as defined by the Energy Act of 2020, are minerals that are important to the economy and national security of the United States, have supply chains that are threatened if disruption were to occur, and are an essential component in the manufacturing of a product that can inflict negative impacts in the event of its absence (USGS 2025b). The list of critical minerals, as well as the methodology are developed at minimum once every three years under the guidance of the USGS. No known critical minerals are located within the Project site (USGS 2025b).

Discussion

- a, b) **No Impact.** The Project site does not include any active or formerly active mines (CDC 2016) or any known minerals, critical or non-critical (USGS 2025a; CDC 2015). The Project site is not located in an area recognized by the State Geologist as a MRZ. Thus, the Project would have no impact on the availability of a known, or locally-important, mineral resource.

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3.2.13 Noise

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
XIII. 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 the 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?	☐	☐	☐	☒

Environmental Setting

Noise Terminology

Sound is mechanical energy transmitted by pressure waves through a medium such as air, while noise is defined as unwanted sound. Sound pressure level is measured in decibels (dB), with 0 dB corresponding roughly to the threshold of human hearing and 120–140 dB corresponding to the threshold of pain.

Sound pressure fluctuations can be measured in units of hertz (Hz), which correspond to the frequency of a particular sound. Typically, sound does not consist of a single frequency, but rather a broad band of frequencies varying in levels of magnitude (sound power). The sound pressure level, therefore, constitutes the additive force exerted by a sound corresponding to the frequency/sound power level spectrum.

The typical human ear is not equally sensitive to all frequencies of the audible sound spectrum. As a consequence, when assessing potential noise impacts, sound is measured using an electronic filter that de-emphasizes the frequencies below 1,000 Hz and above 5,000 Hz in a manner corresponding to the human ear's decreased sensitivity to low and extremely high frequencies instead of the frequency mid-range. This method of frequency weighting is referred to as A-weighting and is expressed in units of A-weighted decibels (dBA). Frequency A-weighting follows an international standard methodology of frequency de-emphasis and is typically applied to community noise measurements.

When a new noise is introduced to an environment, the human reaction can be predicted by comparing the new noise to the ambient noise level, which is the existing noise level comprised of noise from all sources in a given location. In general, the more a new noise exceeds the ambient noise level, the less acceptable the new noise will be judged by those hearing it. With regard to increases in A-weighted noise level, the following relationships occur (Caltrans, 2013).

- Except in carefully controlled laboratory experiments, a change of 1-dB cannot be perceived.
- Outside of the laboratory, a 3-dB change is considered a just-perceivable difference.

- A change in level of at least 5-dB is required before any noticeable change in human response would be expected.
- A 10-dB change is subjectively heard as approximately a doubling in loudness and can cause an adverse response.

The perceived increases in noise levels described above are applicable to both mobile and stationary noise sources. These relationships occur in part because of the logarithmic nature of sound and the decibel system. The human ear perceives sound in a non-linear fashion; hence, the decibel scale was developed. Because the decibel scale is based on logarithms, two noise sources do not combine in a simple additive fashion, rather logarithmically. For example, if two identical noise sources produce noise levels of 50 dBA, the combined sound level would be 53 dBA, not 100 dBA.

Noise exposure is a measure of noise over a period of time. Noise level is a measure of noise at a given instant in time. Community noise varies continuously over a period of time with respect to the contributing sound sources of the community noise environment. Community noise is primarily the product of many distant noise sources, which constitute a relatively stable background noise exposure, with the individual contributors unidentifiable. The background noise level changes throughout a typical day, but does so gradually, corresponding with the addition and subtraction of distant noise sources such as traffic and atmospheric conditions. What makes community noise constantly variable throughout a day, besides the slowly changing background noise, is the addition of short duration single-event noise sources (e.g., aircraft flyovers, motor vehicles, sirens), which are readily identifiable to the individual receptor. These successive additions of sound to the community noise environment vary the community noise level from instant to instant, requiring the measurement of noise exposure over a period of time to legitimately characterize a community noise environment and evaluate cumulative noise impacts.

This time-varying characteristic of environmental noise is described using statistical noise descriptors. The most frequently used noise descriptors are summarized below:

L_{dn}: A 24-hour day and night A-weighted noise exposure level, which accounts for the greater sensitivity of most people to nighttime noise by weighting noise levels at night (“penalizing” nighttime noises). Noise between 10:00 p.m. and 7:00 a.m. is weighted (penalized) by adding 10 dB to take into account the greater annoyance of nighttime noises.

CNEL: The Community Noise Equivalent Level (CNEL); similar to L_{dn}, the CNEL adds a 5-dB “penalty” for the evening hours between 7:00 p.m. and 10:00 p.m. in addition to a 10-dB penalty between the hours of 10:00 p.m. and 7:00 a.m.

L_{eq}: The energy-equivalent sound level is used to describe noise over a specified period of time, typically one hour, in terms of a single numerical value. The L_{eq} is the constant sound level, which would contain the same acoustic energy as the varying sound level, during the same time period (i.e., the average noise exposure level for the given time period).

L_{max}: The instantaneous maximum noise level for a specified period of time.

Noise Attenuation

Stationary point sources of noise, including stationary mobile sources such as idling vehicles, attenuate (lessen) at a rate of 6 to 7.5 dBA per doubling of distance from the source, depending on the topography of the area and environmental conditions (e.g., atmospheric conditions and noise barriers, vegetative or manufactured). Widely distributed noise, such as a large industrial facility spread over many acres or a street with moving vehicles (known as a *line source*), would typically attenuate at a lower rate, approximately 3 to 4.5 dBA each time the distance doubles from the source, which also depends on environmental conditions (Caltrans, 2013). Noise from large construction sites exhibits characteristics of both point and line sources; therefore, attenuation will generally range between 4.5 and 7.5 dBA each time the distance doubles.

Vibration Terminology

As described in the Federal Transit Administration's (FTA) Transit Noise and Vibration Impact Manual, ground-borne vibration can be a serious concern for nearby neighbors, causing buildings to shake and rumbling sounds to be heard (FTA, 2018).

Several different methods are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal, which is measured in inches per second. The PPV is most frequently used to describe vibration impacts on buildings. The root mean square (RMS) amplitude is most frequently used to describe the effect of vibration on the human body. The RMS amplitude is defined as the average of the squared amplitude of the signal. Decibel notation (VdB) is commonly used to express RMS. The decibel notation acts to compress the range of numbers required to describe vibration. Typically, ground-borne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Sensitive receptors for vibration assessment include structures (especially older masonry structures), people who spend a lot of time indoors (especially residents, students, the elderly and sick), and vibration-sensitive equipment such as hospital analytical equipment and equipment used in computer chip manufacturing.

The effects of ground-borne vibration include the movement of the building floors, rattling of windows, shaking of items on shelves or hanging on walls, and rumbling sounds. In extreme cases, the vibration can cause damage to buildings. Building damage is not a factor for most projects, with the occasional exception of blasting and pile-driving during construction, which would not occur under the Project. Annoyance from vibration often occurs when the vibration exceeds the threshold of perception by only a small margin.

Existing Conditions

The noise environment in the area surrounding the Project site is characterized by rural roadways and agricultural and grazing lands. It includes low-volume traffic noise from passenger vehicles and large trucks, as well as agricultural equipment. The U.S. Environmental Protection Agency estimates that residents of rural or other non-urban areas are exposed to outdoor ambient noise levels ranging from 35 to 50 dBA L_{dn} (EPA, 1974). Since the area surrounding the Project site can be categorized as a rural or other non-urban area, it is assumed that ambient noise levels would range between 35 and 50 dBA L_{dn} .

Sensitive Receptors

Human response to noise varies considerably from one individual to another. Effects of noise at various levels can include interference with sleep, concentration, and communication, and can cause physiological and psychological stress and hearing loss. Given these effects, some land uses are considered more sensitive to ambient noise levels than others. The Madera County General Plan defines noise-sensitive receptors as residences, schools, hospitals, and convalescent homes (Madera County, 1995). Places such as churches, libraries, and cemeteries (where people tend to pray, study, and/or contemplate) are also sensitive to noise. Commercial and industrial uses are considered the least noise sensitive.

The surrounding land uses consists of rural, agricultural, and grazing areas. The nearest residential receptor to Project construction areas is located approximately 2,600 feet southeast of the Project pipeline alignment.

Regulatory Framework

Federal, state, and local agencies regulate different aspects of environmental noise. Federal and state agencies generally set noise standards for mobile sources such as aircraft and motor vehicles, while regulation of stationary sources is left to local agencies. Local regulation of noise involves implementation of general plan policies and noise ordinance standards. Local general plans tend to identify general principles intended to guide and influence development plans; local ordinances establish standards and procedures for addressing specific noise sources and activities.

Federal

Federal Transit Administration Guidelines for Construction

The impact assessment procedures and criteria in the Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual* (FTA, 2018) are intended for federally funded mass transit projects, but they are routinely used by projects reviewed by local jurisdictions that have not adopted their own vibration impact standards. FTA has issued guidance on how to assess noise, and vibration impacts from construction-related activities in its manual (FTA, 2018). FTA's guidance is designed to be used by project sponsors seeking to evaluate noise and vibration impacts during the environmental review process. The document focuses primarily on operation of transportation projects, but it also provides guidance on the use of heavy machinery and associated sound and vibration levels during construction, including the types of equipment that would be deployed by the Project. FTA's guidance also describes a range of measures for controlling excessive noise and vibration.

Construction Noise

The FTA guidelines identify reasonable criteria for assessing construction noise impacts. According to the manual's Table 7-2, *General Assessment Construction Noise Criteria*, the noise levels at which adverse community reaction could occur for residential land uses in terms of hourly averages are 90 dBA L_{eq} for daytime hours and an 80 L_{eq} dBA for nighttime hours (FTA, 2018). FTA recommends that the distances used to estimate construction noise levels at the closest sensitive receptors be based on the middle of the construction site. These noise levels are where adverse community reaction could occur at residential land uses (FTA, 2018).

Vibration

FTA and the Federal Railroad Administration have published guidelines for assessing groundborne vibration impacts associated with rail projects, which have been applied by other jurisdictions to other types of projects. FTA's threshold of architectural damage for structures of conventional construction from groundborne vibration is 0.2 in/sec PPV or 94 VdB (dB units of 1 microinch per second). FTA's threshold for human annoyance at residential uses is 72 VdB for "Frequent Events," or more than 70 vibration events of the same kind per day.

The FTA-adopted vibration standards are used to evaluate potential building damage impacts related to construction activities. The vibration damage criteria adopted by FTA, shown in **Table NOI-1, Construction Vibration Damage Criteria**, identify 0.2 in/sec PPV as the level at which potential damage could result to buildings of conventional construction and 0.12 in/sec PPV for buildings extremely susceptible to vibration damage.

**TABLE NOI-1
CONSTRUCTION VIBRATION DAMAGE CRITERIA**

Building Category	PPV (in/sec)
I. Reinforced-concrete, steel, or timber (no plaster)	0.5
II. Engineered concrete and masonry (no plaster)	0.3
III. Non-engineered timber and masonry buildings	0.2
IV. Buildings extremely susceptible to vibration damage	0.12
SOURCE: FTA, 2018	

State

Vehicle Operations

The State of California establishes noise limits for vehicles licensed to operate on public roads. The pass-by standard for heavy trucks is consistent with the federal limit of 80 dBA. The pass-by standard for light trucks and passenger cars (less than 4.5 tons, gross vehicle rating) is also 80 dBA at 15 meters from the centerline. These standards are implemented through controls on vehicle manufacturers and by legal sanctions on vehicle operators by State and local law enforcement officials.

Vibration

The California Department of Transportation (Caltrans) has developed guidance on addressing vibration issues associated with construction, operation, and maintenance of transportation projects (Caltrans, 2020). **Table NOI-2, Human Response to Transient Vibration**, shows the Caltrans criteria for human response to transient vibration.

**TABLE NOI-2
HUMAN RESPONSE TO TRANSIENT VIBRATION**

Human Response	PPV (inches/second)
Severe	2.0
Strongly Perceptible	0.9
Distinctly Perceptible	0.24
Barely Perceptible	0.035
SOURCE: Caltrans, 2020.	

Local

Madera County General Plan Noise Element and Standards

The Madera County General Plan (General Plan) is a long-term comprehensive plan for the development of Madera County. The General Plan Noise Element contains goals, policies, standards, and programs directly related to the Project, which are listed below (Madera County, 1995)

Noise Goal 7.A: To protect County residents from the harmful and annoying effects of exposure to excessive noise.

Noise Policy 7.A.4: Development of new noise-sensitive land uses shall not be permitted where the noise level from existing non-transportation noise sources exceeds the noise level standards of Table 7.A.4 (below).

**TABLE 7.A.4
MAXIMUM ALLOWABLE NOISE EXPOSURE FOR NON-TRANSPORTATION NOISE SOURCES**

	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
Hourly Leq, db	50	45
Maximum Level, db	70	65

NOTE: Each of the noise levels specified above shall be lowered by 5 dB for pure tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises. These noise level standards do not apply to residential units established in conjunction with industrial or commercial uses (e.g., caretaker dwellings).

As determined at the property line of the receiving land use. When determining the effectiveness of noise mitigation measures, the standards may be applied on the receptor side of noise barriers at the property line.

SOURCE: Madera County General Plan Noise Element; Table 7.A.4

Madera County Noise Ordinance

Section 9.58.020 of the Madera County Code contains general noise regulations for noise sources located within Madera County. Madera County restricts construction activities to the hours of 7 a.m. and 7 p.m. Monday through Friday and 9 a.m. and 5 p.m. on Saturdays. Construction activities are prohibited on Sundays. Although this section contains general regulations geared towards residences, schools, generation of motor vehicles, horns, etc., it does not specify quantitative noise level limits for construction activities or provide numeric criteria for evaluating the compatibility of new projects with surrounding land uses (Madera County, 2025).

Since the Project's construction and operational activities would not result in the development of a new noise-sensitive land use as defined by the Madera County General Plan, the FTA's recommended daytime construction noise threshold of 90 dBA L_{eq} and the CEQA guidelines are used to assess Project noise impacts.

Discussion

a) Less Than Significant Impact

Construction

Project construction would result in temporary increases in ambient noise levels. Construction would occur over a period of approximately five months. On-site construction activities would require the use of heavy construction equipment (e.g., excavators, loaders, rollers, etc.) that would generate varying noise levels. The operation of each piece of equipment would not be constant throughout the day, as equipment would be turned off when not in use. Over a typical workday, the equipment would be operated at different locations, and all the equipment would not operate concurrently at the same location on the Project site.

Construction noise levels have been estimated using typical equipment source noise levels suggested in the Federal Highway Administration's (FHWA) Roadway Construction Noise Model (RCNM) and based on the type of construction equipment that are proposed to be used. To quantify construction-related noise exposure that would occur at the nearest sensitive receptor, it was assumed that the two loudest pieces of construction equipment would operate concurrently at the closest location of the Project sites to the nearest sensitive receptor location.

The estimated L_{max} and L_{eq} for each of the two loudest pieces of equipment that would be used for Project construction, and the combined L_{eq} noise level for the two loudest pieces of construction equipment at the closest sensitive receptor locations (2,600 feet) are presented in **Table NOI-3, Project Construction Noise Levels**. Using FTA methodology for noise evaluation, at this distance, simultaneous operation of the two noisiest pieces of equipment likely to be used for construction would result in noise level of 49.1 dBA L_{eq} , much less than the FTA's recommended daytime construction noise threshold of 90 dBA L_{eq} .

The Madera County Municipal Code Section 9.58.020 regulates construction noise by allowing construction work that generates noise to occur between the hours 7 a.m. and 7 p.m. Monday through Friday and 9 a.m. and 5 p.m. on Saturdays, with activities prohibited on Sundays. The Project's construction activities would adhere to the County's construction work hours as construction would occur Monday through Friday from 7 a.m. to 7 p.m., with no work proposed on the weekends. Therefore, the construction of the infrastructure components and conveyance pipeline would not generate substantial temporary increases in noise levels in excess of applicable standards.

In addition to on-site construction equipment, the Project would also result in short-term increases in local daytime traffic volumes. The Project would add a maximum of 40 one-way construction-related vehicle trips per day and a minimal number of construction materials delivery trips to area roadways over the construction period. The increase of 40 one-way passenger vehicle trips and

minimal truck trips would not substantially increase noise levels at rural residences that are setback 1,000 feet from the primary roads that would be used to access the Project site. For this reason, construction-related traffic would not result in a substantial temporary increase in noise levels.

**TABLE NOI-3
PROJECT CONSTRUCTION NOISE LEVELS**

Type of Equipment	Distance to Closest Sensitive Receptor	Equipment L_{max} at 50 feet (dBA)/ Usage (%)	Equipment L_{eq} at Receptor (dBA)	Combined L_{eq} at Sensitive Receptor (dBA)
Grader	2,600 feet (Residence)	85.0/40	46.7	49.1
Scraper		83.6/20	45.3	

NOTES: L_{max} = maximum instantaneous noise level; L_{eq} = the equivalent sound level; dBA = A-weighted decibels

SOURCE: Table compiled by ESA in 2026 based on Federal Highway Administration, 2008. FHWA Roadway Construction Noise Model, Version 1.1, December 2008.

Operation

The primary source of noise during Project operation would be the on-site pump station to pump flood waters from the Eastside Bypass to approximately 160 acres of existing farmland and a 5-acre recharge basin via the conveyance pipeline. The new pump station includes a reinforced concrete box and would utilize pumps powered by either diesel engines or electric motors. As a reference, noise monitoring of two large capacity (200 hp) submersible pumps while operational without the attenuation of an enclosure, and considered representative of the proposed Project pumps noise levels, indicates a combined steady-state operational noise level of 62 dBA at a distance of 5 feet. (ESA, 2019). This noise generation corresponds to a noise level of 48 dBA at 25 feet. The additional attenuation with distance that would occur at the nearest sensitive receptor location (2,600 feet away), would be within ambient rural noise levels (EPA, 1974). Therefore, the Project's operational noise impact would be less than significant.

- b) **Less Than Significant Impact.** Vibration can be interpreted as energy transmitted as waves through the ground. These energy waves generally dissipate with distance from the vibration source. Since energy is lost during the transfer of energy from one particle to another, vibration attenuates rapidly with distance. Construction of the Project would not involve the use of vibration-generating equipment, such as pile drivers or vibratory rollers, and there are no existing structures in the immediate vicinity of the infrastructure components or pipeline alignments that could be affected by groundborne vibrations. Additionally, operations and maintenance of the Project would not include any sources of vibration. Therefore, the impact with regard to ground-borne vibration during construction or operations would be less than significant.
- c) **No Impact.** The closest airport to the Project site is Firebaugh airport, located 11 miles southwest of the pipeline construction. The Project would not involve the development of noise-sensitive land uses that would be exposed to excessive aircraft noise. Workers that would construct the Project may be exposed to periodic short-term aircraft overflight noise associated with this airport; however, no Project components are located within the 60 dBA L_{dn} noise contours for the Firebaugh Airport (Fresno Council of Governments, 2013). Thus, the Project would not expose

people working in the Project area to excessive aircraft-related noise levels. Therefore, there would be no impact.

References

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3.2.14 Population and Housing

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
XIV. 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?	☐	☐	☐	☒

Environmental Setting

The Project site is located in Madera County, west of State Route 99 and south of State Route 152. The Project site is approximately 11 miles northeast of Dos Palos and 11 miles north of Firebaugh.

Discussion

- a) **No Impact.** The Project would not construct any new residential development or other infrastructure that would either directly or indirectly induce substantial unplanned population growth in the Project area. The Project includes the construction of a POD off the Eastside Bypass and installing 3,400 feet of pipeline within existing farmland. The Project would contribute to sustainable groundwater management in the Madera Subbasin by implementing a flood water recharge program to divert and recharge flood flows from the Eastside Bypass. The Project would not remove any existing barriers to growth that have not been accounted for in the Madera County General Plan or other regional planning and forecasting documents. Therefore, the Project would not induce population growth and there would be no impact under this criterion.
- b) **No Impact.** The Project does not involve demolition of existing housing or require the construction of housing elsewhere. Furthermore, the Project site is not an area that is currently developed that would cause physical displacement of existing population and housing. The Project would not cause a significant environmental impact due to unplanned or induced population growth and/or displaced population and housing. Therefore, the Project would not necessitate construction of replacement housing elsewhere and there would be no impact.

3.2.15 Public Services

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
XV. PUBLIC SERVICES —				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services:				
i) Fire protection?	☐	☐	☒	☐
ii) Police protection?	☐	☐	☒	☐
iii) Schools?	☐	☐	☐	☒
iv) Parks?	☐	☐	☐	☒
v) Other public facilities?	☐	☐	☐	☒

Environmental Setting

The Project site is within the service area of the Madera County Fire Department (Department); the Department is a full-service fire department providing emergency services to all 2,153 sq. mi. of the unincorporated areas of Madera County. Madera County has seven paid fire station staffed 24 hours per day with a minimum of 12 career firefighters on duty, as well as six unstaffed fire stations supported by paid call firefighters. The closest County fire station is Station 2, Chowchilla, which is located approximately 11 miles northeast of the Project site. The Station is staffed by paid call firefighters and has one fire engine and one water tender (Madera County Fire Department 2025a).

The Project site is within the service area of the Madera County Sheriff's Office. The Sheriff serves as Chief Law Enforcement Officer overseeing the four divisions of the Sheriff's Office: Patrol, Investigations, Special Operations, and Professional Standards. The Sheriff also acts as the County's chief coroner and director of emergency services. The Madera County Sheriff's Office headquarters is located near the City of Madera and is approximately 17 miles southeast of the Project site (Madera County 2025b).

Madera County includes all or portions of 11 school districts. Nine of the districts have schools in Madera County while the remaining two overlap portions of the County but are administered by Fresno County. The County has a total of 37 schools with a total student population of approximately 21,571 (County of Madera 1995). The Project site is located within the Chowchilla Union High School District (County of Madera 1995) and the closest school is Alview Elementary School which is located approximately 3 miles northwest of the Project site.

There are no parks, libraries, hospitals or other public services on or in close proximity to the Project site. The closest park is Maldonado Park in the City of Firebaugh located approximately 11 miles to the southwest, the closest library is the Firebaugh Branch Library located approximately 11 miles southwest,

and the closest hospital is the Firebaugh Community Health Center located approximately 11 miles to the southwest.

Discussion

a.i, a.ii) **Less Than Significant Impact.** The Project would construct one new POD system and approximately 3,400 feet of pipeline to divert flood flows from the Eastside Bypass for direct recharge of the Talley recharge basin (5 acres) and Flood-MAR to adjacent 160 acres. Construction activities would take place on existing agricultural lands and along existing access roads. Operation and maintenance would be coordinated by the County with the Madera Irrigation District and the landowner, and would generally be infrequent; other on-site activities (i.e. agricultural activities) would not change with the Project. The Project would not introduce new housing which could directly induce population growth or infrastructure which could indirectly induce growth. As a result, relative to existing conditions, the Project would not introduce new facilities that would require additional emergency response services.

In the event of a fire or emergency within the Project site, it is anticipated that existing fire and police protection services in Madera County would be able to sufficiently respond to emergencies with existing equipment and staffing capacities. Therefore, implementation of the Project would not require new fire or police facilities to maintain response ratios, service ratios, or other measures of performance. Impacts would be less than significant.

a.iii) **No Impact.** The Project would not result in an increase in population. As a result, the Project would not lead to the construction of new housing, which could generate a need for additional school services. Therefore, the Project would have no impact related to school services.

a.iv) **No Impact.** The Project would not result in an increase in population and would not generate the need for new parks. Therefore, the Project would have no impact related to parks.

a.v) **No Impact.** The Project would not include new housing or bring new businesses to the area that would require any additional services or public facilities, including libraries. Therefore, the Project would have no impact related to other public facilities.

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3.2.16 Recreation

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
XVI. RECREATION —				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

Environmental Setting

The Project site is located in Madera County, west of State Route 99 and south of State Route 152. The Project site is approximately 11 miles northeast of Dos Palos and 11 miles north of Firebaugh. As noted in the Land Use discussion, the Project site is designated Agriculture and zoned Agricultural, Rural, Exclusive. Surrounding properties are also designated as agricultural lands, and there are no recreational facilities in the vicinity of the Project site.

Discussion

- a) **No Impact.** As stated in the *Population and Housing Section*, the Project would include the construction of a new POD off the Eastside Bypass and installation of 3,400 feet of pipeline for recharge of flood flows in agricultural areas to promote groundwater sustainability. The Project would not induce population or remove any existing barriers to growth. As noted in Chapter 2, *Project Construction Section*, construction would require a maximum of 20 temporary construction workers for a period of approximately 5 months. Workers would likely come from within Madera County or adjacent counties and would not result in a substantial increase in population that could require increased use of existing parks or other recreational facilities. Construction and long-term operation of the Project would not result in substantial population growth and would not increase the use of any existing neighborhoods or regional parks or cause the need for expansion of recreational facilities. Therefore, no impact would occur.
- b) **No Impact.** The Project would not include the construction of new or expansion of existing recreational facilities. Because the Project would not require the construction or expansion of additional recreational facilities, under this criterion there would be no impact.

3.2.17 Transportation

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
XVII. 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) Would the project 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?	☐	☐	☒	☐

Environmental Setting

Circulation constraints in Madera County vary between the valley region and the foothill/mountain region. In the flat valley of the western county, the major circulation elements are the north-south oriented State Route (SR) 99 and railroad tracks that also run north-south roughly parallel. SR 99 and railroad tracks facilitate north-south travel and hinder east-west travel. Access to the north, west, and south of the County is limited by the Chowchilla and San Joaquin Rivers. The Fresno River, which runs generally in an east-west direction, also poses a constraint to north-south travel. Numerous creeks and canals also pose minor constraints to travel in the County. SR 41 is the primary access to the foothills and mountains of Madera County, linking these areas to the Fresno metropolitan area (County of Madera 1995).

The Project site is located in the western portion of Madera County, 9.9 miles northeast of SR 33, 4.3 miles south of SR 152, 12.3 miles southwest of SR 99, and directly adjacent on the north to Avenue 18 ½ (**Figure 2-1**). It is bounded to the north, east, and west by agricultural lands and unimproved agricultural access roads. SR 33, SR 152, SR 99 are all designated in the Madera County General Plan as roads of regional significance; however, Avenue 18 ½ has no designation of significance (County of Madera 1995).

Project specific roadways include Avenue 18 ½, which provides direct access to the Project site. Avenue 18 ½ is a two-lane road with unimproved dirt shoulders; there are several turnouts which provide access to various agricultural access roads and there are no posted speed limits in the surrounding area. Avenue 18 ½ can be accessed directly via an exit on State Route 99 to the east near Chowchilla and from the north via County Road 8 which provides access to State Route 152.

Madera County's rural, dispersed development pattern does not facilitate the use of public transit. Existing and currently planned public transportation is limited to the cities and to recreation-oriented transit (County of Madera 1995). As the Project site is not located in an incorporated area, is relatively remote, and is not densely populated, there are no nearby public transit facilities such as buses, trains, or light rail. Furthermore, Avenue 18 ½ does not provide any bicycle or pedestrian facilities in the Project area.

Discussion

- a) **Less Than Significant Impact.** The Project would result in the temporary addition of construction -related vehicles to local roadways over the five-month construction period. All equipment and materials would be transported to the site on public highways, local roads, and private driveways, using standard transport vehicles.

The Project would require up to 20 construction workers for approximately five months of proposed construction activities which are discussed in Chapter 2, *Project Description, Project Construction*. Construction workers could generate a nominal number of round vehicle trips per day; however, if workers carpool or carpooling is required, this number would be reduced. Importantly, these trips would be temporary and would cease with the completion of construction. The addition of temporary construction vehicle trips on local roads would not substantially affect circulation capacity, and therefore, the trips would not substantially affect the capacity of the local roadways. Additionally, all construction worker parking would be accommodated at the Project site; however, carpooling may be required, which would reduce the size of the area needed for temporary parking on the Project site.

Temporary road closure of Avenue 18 ½ would be required to install the proposed conveyance pipeline which would cross underneath the roadway to access the Eastside Bypass (see **Figure 2-2**). To install the proposed conveyance pipeline, an open cut would be made through the Avenue 18 ½, pipeline would be installed, and the roadway would be restored to pre-construction conditions; this closure would be temporary and installation activities would generally be short-term. A traffic control plan would be submitted to the County for review and approval to reduce disruption to circulation. There are roadways in the area that can serve as alternative routes for traffic during temporary closure. The Project would also include installation of an RCP which would require excavation of the eastern embankment of the Eastside Bypass and an unimproved access road along the crest of the levee embankment; however, this roadway is gated and not accessible to the public and these areas would be restored to pre-Project conditions following completion of construction activities.

As discussed in Chapter 2, *Project Description*, Project-generated traffic from operation and maintenance would be infrequent, and therefore, would not result in any long-term degradation in operating conditions on local roadways used for the Project. Further, the Project would not conflict with adopted policies, plans, or programs related to public transit or alternative modes of transportation as there are no nearby facilities which accommodate alternative modes or travel such as buses, bike lanes, or pedestrian infrastructure. Therefore, the Project would not decrease the performance or safety of these facilities, which are sparse within the largely rural Project area. Project activities would not disrupt services along local public transit, bicycle, or pedestrian routes. Impacts on the local circulation system would be less than significant.

- b) **Less Than Significant Impact.** CEQA Guidelines Section 15064.3, subdivision (b) outlines criteria for analyzing transportation impacts in terms of vehicle miles traveled (VMT) for land use projects and transportation projects. VMT refers to the amount and distance of automobile travel attributable to a project. According to the Office of Planning and Research *Technical Advisory on Evaluating Transportation Impacts in CEQA* (OPR 2018), the term “automobile” refers to on-

road passenger vehicles, specifically cars and light-duty trucks. For the Project, worker trips would be conducted in cars and light-duty trucks. Construction-related vehicle trips would not create the potential for conflicting with CEQA Guidelines section 15064.3 pertaining to vehicle miles traveled. Although excluded from VMT analysis, potential environmental impacts associated with the use of medium- and heavy-duty truck trips are addressed in the Air Quality, Energy, and Greenhouse Gas sections of this document.

According to OPR *Technical Advisory on Evaluating Transportation Impacts in CEQA*, projects that generate fewer than 110 trips per day may be assumed to cause a less-than-significant transportation impact (OPR 2018). Project operation would require minimal vehicle travel and components would be operated primarily by the property owner generating only a few trips per day and no trips on most days and generally infrequent operations and maintenance activities would be far below the 110-trip threshold for VMT impacts. Because the Project's trips would be below the 110-trip threshold, the Project would not conflict with nor be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b) regarding VMT. Impacts due to a conflict or inconsistencies with CEQA guidelines would be less than significant.

- c) **Less Than Significant Impact.** The Project does not include the construction or design of any new roadway infrastructure that would cause a safety risk to vehicle operations. The Project would not adversely alter the physical configuration of the existing roadway network serving the area and would not introduce unsafe design features associated with large equipment transport. In addition, the Project would not permanently introduce uses (types of vehicles) that are incompatible with existing uses already served by the area's road system.

The Project would result in temporary closure of a portion of Avenue 18 ½ and excavation of a private levee access road; however, these roadways would be restored to pre-Project conditions following installation of the proposed conveyance infrastructure and no alterations would be made to their alignments. As mentioned above, a traffic control plan would be submitted to the County for review and approval for temporary closure of Avenue 18 ½ for pipeline installation, and the Project would comply with any conditions therein intended avoid or reduce potential hazards associated with the temporary closure. Therefore, impacts due to roadway hazards would be less than significant.

- d) **Less Than Significant Impact.** The Project would temporarily add vehicles to the local roadway and circulation system such as construction vehicles and construction worker personal vehicles; however, construction would be short-term lasting approximately five months. Additionally, as mentioned above, the Project would result in temporary closure of a portion of Avenue 18 ½ and excavation of a private levee access road. Avenue 18 ½ and the levee access road would be restored to pre-Project conditions following installation of the proposed conveyance infrastructure. The Project would not make any permanent changes to these roadways or introduce new structures which would interfere with emergency response access

A traffic control plan would be submitted to the County for review and approval for temporary closure of Avenue 18 ½ during Project pipeline installation, and the Project would comply with any conditions included to avoid or reduce potential impacts from temporary closure. Further, due

to the agricultural nature of the area, there are many alternative roadways and access roads which could provide access to emergency responders. Operations and maintenance activities would generally be infrequent with minimal potential for any effect on emergency response. Impacts associated with inadequate emergency access would be less than significant.

References

California Governor's Office of Planning and Research (OPR). 2018. Technical Advisory on Evaluating Transportation Impacts in CEQA. Accessed January 27, 2026 at https://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf. Madera County, 1995.

Madera County General Plan Background Report. Adopted October 1995. Accessed on November 5, 2025. Available online: https://www.maderacounty.com/government/community-economic-development-department/divisions/planning-division/planning-forms-and-documents/-folder-269#docfold_14_623_363_269.

3.2.18 Tribal Cultural Resources

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
XVIII. TRIBAL CULTURAL RESOURCES —				
a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i) Listed or eligible for listing in the California Register of Historical Resources, or in 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 Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☒	☐	☐

Discussion

PRC Section 21080.3.1 requires that during the CEQA process the lead agency must initiate consultation with tribes that are traditionally and culturally affiliated with the geographic area of a proposed project if (1) the tribe requested of the agency, in writing, to be informed through formal notification of proposed projects in the geographic area that is traditionally and culturally affiliated with the tribe; and (2) the tribe responds, in writing, within 30 days of receipt of the formal notification of a proposed project and requests consultation with the agency (PRC Section 21080.3.1[b]).

In accordance with Public Resources Code Section 21080.3.1, notification letters were sent to tribal representatives of California Native American tribes that have requested to be notified of projects within the Project area of Madera County. Tribal representatives were advised of the Project and invited to request formal consultation with the County regarding the Project within 30 days of receiving the notification letters. Notification letters were sent to representatives of the following tribes on February 18, 2026:

- Table Mountain Rancheria
- Picayune Rancheria of the Chukchansi Indians
- Dumna Wo Wah Tribal Government
- Chowchilla Yokuts Tribe

As of the preparation of this Initial Study, no responses have been received.

Native American Heritage Commission

The Native American Heritage Commission (NAHC) is a state agency that maintains the Sacred Lands File (SLF), an official list of sites that have cultural and religious importance to California Native American tribes. A review of the SLF was requested and a response was received on November 10, 2025, stating that a search was completed and the results were negative.

- a(i-ii) The results of the SSJVIC records search as described in Section 3.7 *Cultural Resources*, indicate that no previously recorded archaeological resources or tribal cultural resources listed or eligible for listing in the CRHR or a local register of historical resources are known to exist within the Project site or a 0.5-mile radius. Additionally, as discussed above, of the four California Native American tribes notified of the Project and an opportunity to consult with the County, no tribes responded with a request for consultation. Thus, no tribal cultural resources have been identified as having the potential to be impacted by the Project.

As discussed in Section 3.7, *Cultural Resources*, archaeological deposits that may qualify as tribal cultural resources could be encountered during Project excavation. Such resources may be eligible for listing in the CRHR or a local register of historical resources, or the lead agency, in its discretion and supported by substantial evidence, could determine the resources to be significant pursuant to the criteria set forth in subdivision (c) of PRC Section 5024.1. Should deposits representing tribal cultural resources be encountered during Project excavation, disturbance to such deposits could result in an adverse change to a tribal cultural resource. Thus, potentially significant impacts related to tribal cultural resources could result from construction of the Project.

Should Native American human remains be encountered during Project excavation, the County Coroner would be required to notify the NAHC as provided in CUL-3, and all applicable state and federal regulations governing the treatment of human remains will be followed.

Implementation of **Mitigation Measures CUL-1: Cultural Resources Awareness Training** and **Mitigation Measure CUL-2: Inadvertent Discovery of Cultural Resources**, as described in Section 3.7 *Cultural Resources*, and compliance with the California Health and Safety Code as prescribed in **Mitigation Measure CUL-3: Inadvertent Discovery of Human Remains** would ensure that impacts related to any tribal cultural resources that may be encountered during Project excavation would be less than significant.

3.2.19 Utilities and Service Systems

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

Environmental Setting

Water supply for agriculture in the Madera County GSA primarily comes from groundwater, with limited surface water from riparian rights along the San Joaquin and Fresno Rivers and a small U.S. Bureau of Reclamation contract. The Project site lacks riparian water rights and relies on groundwater wells and Chowchilla Bypass diversions (City of Madera et. al. 2025).

Wastewater in the Project area is managed through private septic systems. Stormwater runoff drains into ditches and canals or infiltrates the ground.

PG&E provides electricity via above-ground lines to all of Madera County (County of Madera 1995). Telephone service is provided by Pacific Bell, Sierra Telephone, and Ponderosa Telephone; cable TV by Continental Cablevision and Northland Cable, although remote areas do lack coverage. Internet providers include AT&T, T-Mobile, and Verizon (FCC 2025).

Solid waste sources include residential, commercial, and industrial sectors, totaling about 42,102 tons annually. Two franchise haulers—EMADCO and Madera Disposal—collect waste for disposal at Fairmead Landfill (City of Madera 1995), which has 5.55 million cubic yards of remaining capacity and is permitted until December 2028 (Cal Recycle 2025a).

Discussion

- a) **Less Than Significant Impact.** The Project would not involve the construction of new housing or other land development that could generate an increased need for water, wastewater treatment or storm water drainage, natural gas, or telecommunications facilities. Additionally, no new or

expanded water or wastewater treatment systems would be needed, and the Project does not require new natural gas or telecommunications infrastructure. Existing utilities and infrastructure would remain in place without relocation. New or expanded stormwater drainage facilities would be needed, as the Project would not significantly alter the site's drainage patterns, and does not include large structures or solid surfaces that could change surface runoff rates or volumes.

If the proposed pump for the Project uses diesel engines, the pump would be powered via tractors containing power take off (PTO) units. However, in the event where the pump is equipped with electric motors, an electrical line would be required. A PG&E connection would be made to the nearest existing on-site transmission line to power the Project, the electric service line extension would follow existing road alignments, and would comply with applicable County Codes for powerline installation (e.g., County Code of Ordinances section 18.88.040-Public utilities). The existing PG&E transmission line is approximately 400 feet away from proposed pump, which would be the length of the service line extension needed for the connection. This service line would be within the footprint of previously disturbed areas within existing agricultural lands and would be placed along and follow existing ditches and access roads. Therefore, impacts associated with the relocation or construction of electrical utilities would be less than significant.

- b) **Less Than Significant Impact.** Temporary use of water would be required during Project construction for dust suppression, and would be provided via water trucks. Water demand for dust suppression would be temporary, and no new or expanded entitlements would be required. During operations and maintenance of the Project, flood flows from the Bypass would be diverted into agricultural fields during wet and above normal years when water is available pursuant to SB 122 and under a future water right permit held by TTWD when flood flows are not available per SB 122. The Project would not include the construction of any new residential land uses or other facilities that would require a new or continuous water supply. Project impacts related to water supply availability would be less than significant.
- c) **No Impact.** The Project does not include construction of new housing requiring new or expanded wastewater facilities. The Project may result in the generation of wastewater associated with temporary use of portable toilets. During Project implementation, the contractor would provide portable toilet facilities for use by construction workers. Given the relatively small construction workforce of a maximum of 20 workers on-site daily for the approximately five month construction period, this amount of wastewater would be minimal, and it would be properly handled and disposed of in accordance with all applicable laws and regulations. Once construction activities are concluded, any portable facilities would be removed. There would be no changes to wastewater facilities or usage during long term operations and maintenance; therefore, the Project would not require a wastewater treatment provider to serve the Project site. No impact would occur.
- d) **Less Than Significant Impact.** Implementation of the Project would result in nominal solid waste limited to trash and other construction-related materials. Most solid waste would be generated during the construction phase and would be associated with packaging and discarded materials from construction activities. Cut and fill is expected to be balanced on-site. Ongoing operation and maintenance activities would be infrequent, and any solid waste produced would be

removed and disposed in compliance with all laws and regulations related to the disposal and recycling of waste.

The Fairmead Landfill, which is located within 13 miles of the Project site, has remaining capacity, should it need to be used (Cal Recycle 2024). The Project would result in less-than-significant impact related to local solid waste infrastructure capacity and would not impair attainment of solid waste reduction goals. Impacts would be less than significant.

- e) **No Impact.** As stated above, implementation of the Project would result in nominal solid waste. Statewide policies regarding solid waste have become progressively more stringent, reflecting Assembly Bill 939, which required local governments to create waste reduction and recycling policies to ensure waste reduction goals are being met (Cal Recycle 2025b). For the minor amount of solid waste anticipated to be produced by the Project, the landowner would comply with all laws and regulations related to the disposal and recycling of waste, and therefore there would be no impact

References

California Department of Resources Recycling and Recovery (Cal Recycle), 2025a. SWIS Facility/Site Summary. Fairmead Solid Waste Disposal Site (20-AA-0002). Available online: <https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/3028?siteID=1701>. Accessed on November 17, 2025.

California Department of Resources Recycling and Recovery (Cal Recycle), 2025b. Enforcement. Available online: <https://calrecycle.ca.gov/LGCentral/Enforcement/>. Accessed on November 18, 2025.

California Energy Commission, 2025. California Transmission lines. Available online at: <https://www.energy.ca.gov/programs-and-topics/topics/land-use-and-infrastructure-planning/transmission-infrastructure>. Accessed November 17, 2025.

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Federal Communications Commission (FCC, 2025). FCC National Broadband Map. Available online: https://broadbandmap.fcc.gov/location-summary/mobile?version=dec2024&lon=-120.389422&lat=36.888377&addr_full=36.888377%2C+-120.389422&zoom=15.00&env=0&tech=tech4g. Accessed on November 17, 2025.

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3.2.20 Wildfire

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
XX. 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 concentrations 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?	☐	☐	☒	☐

Environmental Setting

The Project site is not located within a State Responsibility Area (SRA) managed by CAL FIRE (CAL Fire 2025); however, the Project site is located within a Local Responsibility Area (LRA), as such, emergency service would be provided by the Madera County Fire Department. The Project site is generally un-zoned equating to an overall low fire hazard severity (CAL FIRE 2025), and is not classified as a very high fire hazard severity zone. In the event of a wildfire, the Madera County Fire Department would be the first responders to the Project site. The closest County fire station is Station 2, Chowchilla, which is located approximately 11 miles northeast of the Project site. The Station is staffed by paid call firefighters and has one fire engine and one water tender (Madera County Fire Department 2025).

Discussion

- a) **No Impact.** Implementation of the Project is not anticipated to substantially impair an adopted emergency response plan or evacuation plan or interfere with emergency response access to the Project vicinity because there would be negligible numbers of construction workers traveling to the Project site on a temporary basis for the approximately 5-month construction period. The Project does not include the construction of housing or permanent structures. Further, as discussed in Chapter 2, *Project Description, Operations and Maintenance*, staff would be on-site temporarily, and operations and maintenance activities would generally be infrequent. The temporary road closure associated with the Project would be managed with a traffic control plan, and the Project would not increase the amount of people residing at or near the Project site. No impact would occur.
- b) **No Impact.** The Project site is relatively flat and does not include steep slopes or the introduction of impervious surfaces that would be susceptible to downslope or downstream flooding or

landslides, as a result of runoff, post-fire slope instability, or drainage changes. Further, as the Project site is relatively flat and not near any mountain ranges, and would introduce no large structures which could affect wind conditions, there would be little effect due to prevailing winds which could exacerbate fire risk. Additionally, the surrounding vegetation and land use types have a low potential for fires due to regular irrigation. No impact would occur.

- c-d) **Less than Significant.** As discussed above, the Project is not located in an SRA (Cal FIRE 2025); however, the Project site is located within an LRA. Project construction would utilize vehicles and equipment that would involve combustion engines and heated exhaust that would create a marginal increase in fire ignition risk during construction. In the event an electric motor is used a PG&E connection would be made to existing on-site transmission lines to power the Project, the proposed electric service line would follow existing road alignments and would comply with applicable County Codes for powerline installation (e.g., County Code of Ordinances section 18.88.040-Public utilities). However, the Project does not require the installation of roads, fuel breaks, or emergency water sources, nor does it include the construction of housing or permanent structures for staff. The Project is also located in a rural area and as such population density is low and there are generally few homes in the surround area which could be exposed to toxic pollutants from a wildfire.

The Project would allow for flood managed aquifer recharge (Flood-MAR) on the Project site, and it can be assumed that seasonal presence of surface waters which would flood the Project site would limit potential for fire during certain times of year. The Project site is located in a rural area and public roadways provide access throughout the area. Therefore, the Project is not expected to substantially increase exposure of Project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire, exacerbate fire risk or result in temporary or ongoing impacts to the environment, or expose people or structures to significant risks. As a result, the impact would be less than significant.

References

- California Department of Forestry and Fire Protection (CAL FIRE), 2025. Find your Fire Hazard Severity Zone (FHSZ). Accessed on November 5, 2025. Available online: <https://experience.arcgis.com/experience/5065c998b4b0462f9ec3c6c226c610a9>.
- Madera County, 2025. Madera County Fire Department [Home Page]. Accessed on November 5, 2025. Available online: <https://www.maderacounty.com/government/fire-department>.
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3.2.21 Mandatory Findings of Significance

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

Discussion

- a) **Less Than Significant with Mitigation Incorporated.** As discussed in the preceding impact analyses, the potential of the Project to substantially impact or degrade the quality of environment would be less than significant with incorporated mitigation measures. As described in this initial study, the Project has the potential for impacts related to biological resources, cultural resources, geology and soils (paleontological resources), and tribal cultural resources. However, these impacts would be avoided or reduced to a less-than-significant level with the incorporation of mitigation measures discussed in each section.
- b) **Less Than Significant with Mitigation Incorporated.** This section provides a description of other actions in the area and a discussion of the cumulative impacts of those projects, in combination with the previously identified effects of the Project. State CEQA Guidelines Section 15355 states that "cumulative impacts refer to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts":
- The individual effects may be changes resulting from a single project or a number of separate projects.
 - The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

The Project is designed to enhance groundwater sustainability of the Chowchilla Subbasin, and is consistent with the GSP for the Chowchilla Subbasin, along with other flood water recharge

projects in Madera County. As discussed in the following cumulative analyses, there are no other past, present or future related projects in the vicinity of the Project that together with the Project would result in cumulatively considerable impacts.

Aesthetics. The Project would include minimal aesthetic differences with the installation of the POD and approximately 3,400 feet of pipeline, as well as utilizing a recharge basin on existing farmland and would be consistent with the surrounding agricultural and flood-control landscape. Therefore, the Project would not contribute to cumulatively considerable aesthetics impacts.

Agriculture and Forestry Resources. Implementation of the Project would include the 5-acre recharge basin. As a result, the Project would reduce the County's Farmland of Statewide Importance by 0.0047 percent and reduce its Prime Farmland by 0.0010 percent. The Project would also result in a reduction of 0.00012 percent of the acreage in Williamson Act contract in the San Joaquin Valley region as of 2021. However, a recharge basin would be considered a compatible agricultural use as it would help capture flood flows to facilitate groundwater recharge, increase groundwater levels and storage, reduce subsidence potential and improve water supply reliability, thereby directly benefiting agricultural users who rely on local groundwater resources. Therefore, impacts related to agriculture would be less than significant. As such, cumulative impacts to agricultural resources would be less than significant. The Project would have no impact on forestry resources and thus would not contribute to cumulative impacts.

Air Quality and Greenhouse Gas Emissions. A number of individual projects in the vicinity of the Project may be under construction simultaneously with the Project. Depending on construction schedules and actual implementation of projects in and around Madera County, generation of fugitive dust and pollutant emissions during construction may result in short-term air pollutants, which would contribute to short-term cumulative impacts on air quality. However, each individual project would be subject to SJVAPCD rules, regulations, and other mitigation requirements during construction. For cumulative impacts on air quality and greenhouse gas emissions, see Section *Air Quality*, and Section *Greenhouse Gas Emissions*. The thresholds used consider the contributions of other projects in the air basin. Additionally, greenhouse gas emissions are considered cumulative in nature because it is unlikely that a single project would contribute significantly to climate change.

Biological Resources, Cultural Resources, Tribal Cultural Resources, Geology and Soils, and Hazards and Hazardous Materials. The Project's impacts for these environmental issues would be limited to the Project site, and any significant impacts would be reduced to a less-than-significant level by implementing proposed mitigation measures. Thus, the Project would not contribute to cumulatively considerable impacts for these topics.

Energy. Construction of the Project would result in fuel consumption from the use of construction tools and equipment, truck trips to haul materials, and vehicle trips by construction workers commuting to and from the Project site. This impact would be temporary and localized. Operational energy impacts are not anticipated. Construction-related fuel consumption by the Project would not result in inefficient, wasteful, or unnecessary energy use compared with other

construction sites in the region. Thus, the Project would not contribute to cumulatively considered impacts from energy consumption.

Hydrology and Water Quality. Implementation of the Project could result in erosion and sedimentation, and other construction site pollutants (e.g., fuels, solvents) entering storm water runoff during construction. However, with implementation of the Project SWPPP and BMPs during construction as required by the NPDES Construction General Permit, impacts to water quality would be less than significant. Therefore, the Project together with other projects would not result in cumulatively considerable impacts.

Land Use and Land Use Planning. The Project would have no impact on land use and land use planning; therefore, it would not contribute to cumulatively considerable land use impacts.

Mineral Resources. The Project would have no impact on mineral resources, and thus would not contribute to cumulatively considerable impacts.

Noise. The Project's noise impacts are anticipated to be minor, and the Project would comply with the noise standards in the Noise Element of the Madera County General Plan and Madera County Code of Ordinances. Operation of the Project would not result in a substantial permanent increase in ambient noise levels in the Project vicinity above levels existing without the Project. Thus, the Project would not contribute to cumulatively considerable noise impacts.

Population and Housing. The Project would have no impact on population and housing resources and thus would not contribute to cumulative considerable impacts.

Public Services. The Project's impacts on public services are anticipated to be minor, and existing fire and police protection services in Madera County would be able to sufficiently respond to emergencies with existing equipment and staffing capacities. Thus, the Project would not contribute to cumulatively considerable impacts on public services.

Recreation. The Project would have no impact on recreation and thus would not contribute to cumulatively considerable impacts associated with recreation.

Transportation. The Project would not result in any significant Project-specific transportation-related impacts and would not have the potential to contribute to cumulatively considered impacts associated with transportation.

Utilities and Service Systems. The Project would require a PG&E connection to the nearest existing on-site transmission line to power the Project, the electric service line extension would follow existing road alignments, and would comply with applicable County Codes for powerline installation (e.g., County Code of Ordinances section 18.88.040-Public utilities). The service line is approximately 400 feet away from the proposed pump and within the footprint of previously disturbed areas within agricultural lands and would be placed along and follow existing ditched and access roads. Therefore, impacts associated with the relocation or construction of electrical utilities would be less than significant and would not be cumulatively considerable.

Wildfire. The Project is not located in a State Responsibility Area nor in an area classified by CAL Fire as high fire hazard severity zone. The Project would not contribute to cumulatively considerable impacts associated with wildfire, as considered would result in less than significant impacts associated with wildfire.

- c) **Less Than Significant with Mitigation Incorporated.** The Project would not result in any substantial adverse effects on human beings, either directly or indirectly, because each potentially significant impact can be reduced to a less-than-significant level with the implementation of the mitigation measures outlined in this document. No other substantial adverse effects on human beings are anticipated as a result of the Project, resulting in a less-than-significant impact with mitigation incorporated.
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Appendix A

CalEEMod Emissions Estimates

Talley Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Talley
Construction Start Date	5/1/2026
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.90000
Precipitation (days)	25.8000
Location	37.020543801811925, -120.38580881303022
County	Madera
City	Unincorporated
Air District	San Joaquin Valley APCD
Air Basin	San Joaquin Valley
TAZ	2551
EDFZ	5
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.37

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 Linear	0.67000	Mile	20.0000	0.00000	0.00000	—	—	—

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.	3.18116	2.69278	22.4479	25.4959	0.04672	0.93631	3.74761	4.68392	0.86141	1.46444	2.32585	—	5,259.59	5,259.59	0.21141	0.05170	0.79415	5,281.07
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.93576	0.79100	6.64505	7.48475	0.01382	0.27705	1.10014	1.37719	0.25488	0.43229	0.68718	—	1,551.16	1,551.16	0.06307	0.01530	0.10143	1,557.40
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.17078	0.14436	1.21272	1.36597	0.00252	0.05056	0.20078	0.25134	0.04652	0.07889	0.12541	—	256.813	256.813	0.01044	0.00253	0.01679	257.845

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	3.18116	2.69278	22.4479	25.4959	0.04672	0.93631	3.74761	4.68392	0.86141	1.46444	2.32585	—	5,259.59	5,259.59	0.21141	0.05170	0.79415	5,281.07
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2026	0.93576	0.79100	6.64505	7.48475	0.01382	0.27705	1.10014	1.37719	0.25488	0.43229	0.68718	—	1,551.16	1,551.16	0.06307	0.01530	0.10143	1,557.40
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.17078	0.14436	1.21272	1.36597	0.00252	0.05056	0.20078	0.25134	0.04652	0.07889	0.12541	—	256.813	256.813	0.01044	0.00253	0.01679	257.845

3. Construction Emissions Details

3.1. Linear, Grubbing & Land Clearing (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-Road Equipment	2.99002	2.51189	22.3266	24.1468	0.04666	0.93624	—	0.93624	0.86134	—	0.86134	—	5,029.56	5,029.56	0.20402	0.04080	—	5,046.82
Dust From Material Movement	—	—	—	—	—	—	3.17580	3.17580	—	1.38031	1.38031	—	—	—	—	—	—	—
Onsite truck	0.00216	0.00170	0.03406	0.02326	0.00007	0.00007	0.37115	0.37122	0.00007	0.03710	0.03716	—	6.89339	6.89339	0.00033	0.00110	0.00804	7.23819
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09011	0.07570	0.67286	0.72771	0.00141	0.02822	—	0.02822	0.02596	—	0.02596	—	151.576	151.576	0.00615	0.00123	—	152.096

Dust From Material Movement	—	—	—	—	—	—	0.09571	0.09571	—	0.04160	0.04160	—	—	—	—	—	—	—
Onsite truck	0.00006	0.00005	0.00106	0.00071	< 0.000005	< 0.000005	0.01040	0.01040	< 0.000005	0.00104	0.00104	—	0.20899	0.20899	0.00001	0.00003	0.00010	0.21924
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01645	0.01382	0.12280	0.13281	0.00026	0.00515	—	0.00515	0.00474	—	0.00474	—	25.0951	25.0951	0.00102	0.00020	—	25.1812
Dust From Material Movement	—	—	—	—	—	—	0.01747	0.01747	—	0.00759	0.00759	—	—	—	—	—	—	—
Onsite truck	0.00001	0.00001	0.00019	0.00013	< 0.000005	< 0.000005	0.00190	0.00190	< 0.000005	0.00019	0.00019	—	0.03460	0.03460	< 0.000005	0.00001	0.00002	0.03630
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18898	0.17919	0.08721	1.32586	0.00000	0.00000	0.20066	0.20066	0.00000	0.04703	0.04703	—	223.134	223.134	0.00705	0.00979	0.78611	227.013
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00514	0.00482	0.00290	0.03391	0.00000	0.00000	0.00595	0.00595	0.00000	0.00139	0.00139	—	6.20393	6.20393	0.00027	0.00029	0.01023	6.30871
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00094	0.00088	0.00053	0.00619	0.00000	0.00000	0.00109	0.00109	0.00000	0.00025	0.00025	—	1.02713	1.02713	0.00004	0.00005	0.00169	1.04448

Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.3. Linear, Grading & Excavation (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-Road Equipment	2.99002	2.51189	22.3266	24.1468	0.04666	0.93624	—	0.93624	0.86134	—	0.86134	—	5,029.56	5,029.56	0.20402	0.04080	—	5,046.82
Dust From Material Movement	—	—	—	—	—	—	3.17580	3.17580	—	1.38031	1.38031	—	—	—	—	—	—	—
Onsite truck	0.00216	0.00170	0.03406	0.02326	0.00007	0.00007	0.37115	0.37122	0.00007	0.03710	0.03716	—	6.89339	6.89339	0.00033	0.00110	0.00804	7.23819
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.36044	0.30280	2.69142	2.91085	0.00562	0.11286	—	0.11286	0.10383	—	0.10383	—	606.303	606.303	0.02459	0.00492	—	608.384
Dust From Material Movement	—	—	—	—	—	—	0.38284	0.38284	—	0.16639	0.16639	—	—	—	—	—	—	—
Onsite truck	0.00024	0.00019	0.00423	0.00285	0.00001	0.00001	0.04158	0.04159	0.00001	0.00416	0.00416	—	0.83596	0.83596	0.00004	0.00013	0.00042	0.87698

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06578	0.05526	0.49118	0.53123	0.00103	0.02060	—	0.02060	0.01895	—	0.01895	—	100.380	100.380	0.00407	0.00081	—	100.725
Dust From Material Movement	—	—	—	—	—	—	0.06987	0.06987	—	0.03037	0.03037	—	—	—	—	—	—	—
Onsite truck	0.00004	0.00004	0.00077	0.00052	< 0.000005	< 0.000005	0.00759	0.00759	< 0.000005	0.00076	0.00076	—	0.13840	0.13840	0.00001	0.00002	0.00007	0.14519
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18898	0.17919	0.08721	1.32586	0.00000	0.00000	0.20066	0.20066	0.00000	0.04703	0.04703	—	223.134	223.134	0.00705	0.00979	0.78611	227.013
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02055	0.01926	0.01159	0.13565	0.00000	0.00000	0.02379	0.02379	0.00000	0.00557	0.00557	—	24.8157	24.8157	0.00106	0.00118	0.04091	25.2349
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00375	0.00352	0.00211	0.02476	0.00000	0.00000	0.00434	0.00434	0.00000	0.00102	0.00102	—	4.10853	4.10853	0.00018	0.00020	0.00677	4.17792
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.5. Linear, Drainage, Utilities, & Sub-Grade (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-Road Equipment	2.99002	2.51189	22.3266	24.1468	0.04666	0.93624	—	0.93624	0.86134	—	0.86134	—	5,029.56	5,029.56	0.20402	0.04080	—	5,046.82
Dust From Material Movement	—	—	—	—	—	—	3.17580	3.17580	—	1.38031	1.38031	—	—	—	—	—	—	—
Onsite truck	0.00216	0.00170	0.03406	0.02326	0.00007	0.00007	0.37115	0.37122	0.00007	0.03710	0.03716	—	6.89339	6.89339	0.00033	0.00110	0.00804	7.23819
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.43417	0.36474	3.24194	3.50625	0.00677	0.13595	—	0.13595	0.12507	—	0.12507	—	730.320	730.320	0.02962	0.00592	—	732.826
Dust From Material Movement	—	—	—	—	—	—	0.46114	0.46114	—	0.20043	0.20043	—	—	—	—	—	—	—
Onsite truck	0.00029	0.00023	0.00510	0.00343	0.00001	0.00001	0.05009	0.05010	0.00001	0.00501	0.00502	—	1.00696	1.00696	0.00005	0.00016	0.00050	1.05636
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07924	0.06657	0.59165	0.63989	0.00124	0.02481	—	0.02481	0.02283	—	0.02283	—	120.913	120.913	0.00490	0.00098	—	121.328

Dust From Material Movement	—	—	—	—	—	—	0.08416	0.08416	—	0.03658	0.03658	—	—	—	—	—	—	—
Onsite truck	0.00005	0.00004	0.00093	0.00063	< 0.000005	< 0.000005	0.00914	0.00914	< 0.000005	0.00091	0.00092	—	0.16671	0.16671	0.00001	0.00003	0.00008	0.17489
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18898	0.17919	0.08721	1.32586	0.00000	0.00000	0.20066	0.20066	0.00000	0.04703	0.04703	—	223.134	223.134	0.00705	0.00979	0.78611	227.013
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02475	0.02320	0.01396	0.16339	0.00000	0.00000	0.02865	0.02865	0.00000	0.00671	0.00671	—	29.8917	29.8917	0.00128	0.00142	0.04927	30.3965
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00452	0.00423	0.00255	0.02982	0.00000	0.00000	0.00523	0.00523	0.00000	0.00122	0.00122	—	4.94891	4.94891	0.00021	0.00024	0.00816	5.03249
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

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)

Vegetati	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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
Linear, Grubbing & Land Clearing	Linear, Grubbing & Land Clearing	5/1/2026	5/16/2026	5.00000	11.0000	—
Linear, Grading & Excavation	Linear, Grading & Excavation	5/17/2026	7/17/2026	5.00000	44.0000	—
Linear, Drainage, Utilities, & Sub-Grade	Linear, Drainage, Utilities, & Sub-Grade	7/18/2026	9/30/2026	5.00000	53.0000	—

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
Linear, Grubbing & Land Clearing	Excavators	Diesel	Average	1.000000	8.00000	36.0000	0.38000
Linear, Grubbing & Land Clearing	Scrapers	Diesel	Average	1.000000	8.00000	423.000	0.48000
Linear, Grubbing & Land Clearing	Graders	Diesel	Average	1.000000	8.00000	148.000	0.41000
Linear, Grubbing & Land Clearing	Tractors/Loaders/Back hoes	Diesel	Average	3.00000	8.00000	84.0000	0.37000
Linear, Grubbing & Land Clearing	Plate Compactors	Diesel	Average	1.000000	8.00000	8.00000	0.43000
Linear, Grubbing & Land Clearing	Rollers	Diesel	Average	1.000000	8.00000	36.0000	0.38000

Linear, Grubbing & Land Clearing	Rubber Tired Dozers	Diesel	Average	1.000000	8.00000	367.000	0.40000
Linear, Grading & Excavation	Excavators	Diesel	Average	1.000000	8.00000	36.0000	0.38000
Linear, Grading & Excavation	Scrapers	Diesel	Average	1.000000	8.00000	423.000	0.48000
Linear, Grading & Excavation	Graders	Diesel	Average	1.000000	8.00000	148.000	0.41000
Linear, Grading & Excavation	Tractors/Loaders/Back hoes	Diesel	Average	3.00000	8.00000	84.0000	0.37000
Linear, Grading & Excavation	Plate Compactors	Diesel	Average	1.000000	8.00000	8.00000	0.43000
Linear, Grading & Excavation	Rollers	Diesel	Average	1.000000	8.00000	36.0000	0.38000
Linear, Grading & Excavation	Rubber Tired Dozers	Diesel	Average	1.000000	8.00000	367.000	0.40000
Linear, Drainage, Utilities, & Sub-Grade	Excavators	Diesel	Average	1.000000	8.00000	36.0000	0.38000
Linear, Drainage, Utilities, & Sub-Grade	Scrapers	Diesel	Average	1.000000	8.00000	423.000	0.48000
Linear, Drainage, Utilities, & Sub-Grade	Graders	Diesel	Average	1.000000	8.00000	148.000	0.41000
Linear, Drainage, Utilities, & Sub-Grade	Tractors/Loaders/Back hoes	Diesel	Average	3.00000	8.00000	84.0000	0.37000
Linear, Drainage, Utilities, & Sub-Grade	Rubber Tired Dozers	Diesel	Average	1.000000	8.00000	367.000	0.40000
Linear, Drainage, Utilities, & Sub-Grade	Plate Compactors	Diesel	Average	1.000000	8.00000	8.00000	0.43000
Linear, Drainage, Utilities, & Sub-Grade	Rollers	Diesel	Average	1.000000	8.00000	36.0000	0.38000

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Linear, Grubbing & Land Clearing	Worker	40.0000	7.10000	LDA,LDT1,LDT2
Linear, Grubbing & Land Clearing	Vendor	0.00000	12.8000	HHDT,MHDT
Linear, Grubbing & Land Clearing	Hauling	0.00000	20.0000	HHDT
Linear, Grubbing & Land Clearing	Onsite truck	2.00000	0.50000	HHDT
Linear, Grading & Excavation	Worker	40.0000	7.10000	LDA,LDT1,LDT2
Linear, Grading & Excavation	Vendor	0.00000	12.8000	HHDT,MHDT
Linear, Grading & Excavation	Hauling	0.00000	20.0000	HHDT
Linear, Grading & Excavation	Onsite truck	2.00000	0.50000	HHDT
Linear, Drainage, Utilities, & Sub-Grade	Worker	40.0000	7.10000	LDA,LDT1,LDT2
Linear, Drainage, Utilities, & Sub-Grade	Vendor	0.00000	12.8000	HHDT,MHDT
Linear, Drainage, Utilities, & Sub-Grade	Hauling	0.00000	20.0000	HHDT
Linear, Drainage, Utilities, & Sub-Grade	Onsite truck	2.00000	0.50000	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

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)
Linear, Grubbing & Land Clearing	—	—	20.0000	0.00000	0.00000
Linear, Grading & Excavation	—	—	20.0000	0.00000	0.00000
Linear, Drainage, Utilities, & Sub-Grade	—	—	20.0000	0.00000	0.00000

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%

5.7. Construction Paving

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2026	0.00000	203.983	0.03300	0.00400

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
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5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres
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5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)
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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	31.5400	annual days of extreme heat
Extreme Precipitation	1.000000	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	0.00000	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 $\frac{3}{4}$ 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	4	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	4	1	1	4
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	76.9384
AQ-PM	59.1786
AQ-DPM	22.5638
Drinking Water	86.6742
Lead Risk Housing	32.2747
Pesticides	90.8621
Toxic Releases	42.8607
Traffic	28.3750
Effect Indicators	—
CleanUp Sites	64.2217
Groundwater	96.6960
Haz Waste Facilities/Generators	21.9590
Impaired Water Bodies	33.1583
Solid Waste	92.8064
Sensitive Population	—
Asthma	64.9676
Cardio-vascular	99.7258
Low Birth Weights	41.4678
Socioeconomic Factor Indicators	—
Education	61.6553
Housing	29.1635
Linguistic	38.6114
Poverty	60.6156
Unemployment	89.1853

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	28.9747209
Employed	22.3662261
Median HI	41.63993327
Education	—
Bachelor's or higher	36.23764917
High school enrollment	22.01976132
Preschool enrollment	60.90080842
Transportation	—
Auto Access	90.86359553
Active commuting	38.76555883
Social	—
2-parent households	78.71166431
Voting	79.73822661
Neighborhood	—
Alcohol availability	92.76273579
Park access	10.36827922
Retail density	3.028358784
Supermarket access	12.80636469
Tree canopy	22.41755422
Housing	—
Homeownership	54.95957911
Housing habitability	71.57705633
Low-inc homeowner severe housing cost burden	51.00731426
Low-inc renter severe housing cost burden	88.79763891

Uncrowded housing	71.88502502
Health Outcomes	—
Insured adults	43.11561658
Arthritis	0.0
Asthma ER Admissions	35.8
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	43.8
Cognitively Disabled	48.3
Physically Disabled	15.4
Heart Attack ER Admissions	17.7
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	47.1
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	17.1
Elderly	36.8
English Speaking	52.0
Foreign-born	33.6
Outdoor Workers	6.2
Climate Change Adaptive Capacity	—
Impervious Surface Cover	91.7
Traffic Density	11.7
Traffic Access	0.0
Other Indices	—
Hardship	58.0
Other Decision Support	—
2016 Voting	59.8

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	82.0000
Healthy Places Index Score for Project Location (b)	41.0000
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
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

8.1. Justifications

Screen	Justification
Construction: Construction Phases	No paving involved.
Construction: Off-Road Equipment	Project specific equipment
Construction: Trips and VMT	Project specific information

8.4. Construction

8.4.1. Construction Phases

Phase Type	Phase Name	Model Parameter	Default Value	New Value
Linear, Drainage, Utilities, & Sub-Grade	Linear, Drainage, Utilities, & Sub-Grade	End Date	9/9/2026	9/30/2026
Linear, Drainage, Utilities, & Sub-Grade	Linear, Drainage, Utilities, & Sub-Grade	Work Days per Phase	38.0000	53.0000

8.4.2. Off-Road Equipment

Phase Name	Equipment Type	Model Parameter	Default Value	New Value
Linear, Grubbing & Land Clearing	Tractors/Loaders/Backhoes	Number per Day	1.000000	3.00000

8.4.6. Trips and VMT

Phase Name	Trip Type	Model Parameter	Default Value	New Value
Linear, Grubbing & Land Clearing	Worker	One-Way Trips per Day	0.00000	40.0000
Linear, Grading & Excavation	Worker	One-Way Trips per Day	0.00000	40.0000

Linear, Drainage, Utilities, & Sub-Grade	Worker	One-Way Trips per Day	0.00000	40.0000
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Appendix B

Biological Constraints Report

Final

TALLEY RECHARGE PROJECT

Biological Constraints Report

Prepared for
Davis Engineering, Inc

March 2026



Final

TALLEY RECHARGE PROJECT

Biological Constraints Report

Prepared for
Davis Engineering, Inc

March 2026

2600 Capitol Avenue
Suite 200
Sacramento, CA 95816
916.564.4500
esassoc.com

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- B. National Wetland Inventory Map

Acronyms and Other Abbreviations

Abbreviation	Definition
ESA	Environmental Science Associates
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CNDDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CVRWQCB	Central Valley Regional Water Quality Control Board
CVFPB	Central Valley Flood Protection Board
CWA	Clean Water Act
FESA	Federal Endangered Species Act
LSA	Lake or Streambed Alteration Program
MBTA	Migratory Bird Treaty Act
MRA	Managed Aquifer Recharge
NRCS	Natural Resources Conservation Service
NWI	National Wetland Inventory
POD	Point of Diversion
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service

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CHAPTER 1

Introduction

1.1 Background and Purpose for the Biological Constraints Review

This report presents an evaluation of the special-status wildlife, plants, and other sensitive biological resources that potentially occur within the Talley Recharge Project Study Area (Study Area). The evaluation is based on background data review of biological resources in the Study Area and vicinity as well as reconnaissance surveys conducted by ESA in November 2025. The intent and scope of this document are to characterize these biological resources in the Study Area (**Figure 1**) and propose measures to protect sensitive biological resources during installation of the groundwater recharge basins and pipelines.

1.2 Study Area Description

The Study Area includes one recharge area that will be connected to the Eastside Bypass to convey flood flows – Talley referred to in this document collectively as the Study Area or proposed project site. The proposed project site is located in Madera County, west of State Route 99 and south of State Route 152 (**Figure 2**). The project site is approximately 11 miles northeast of Dos Palos and 11 miles north of Firebaugh.

The proposed project would construct one new point of diversion (POD) on the Eastside Bypass and the conveyance required (approximately 3,400 feet of pipeline) to divert flood flows to a dedicated 5-acre recharge basin for direct recharge, and to approximately 160 acres of existing farmland for recharge through application to cropped areas, also described as Flood-managed aquifer recharge (MAR). The Talley group of parcels would be utilized for both direct recharge and Flood-MAR (**Figure 2**).

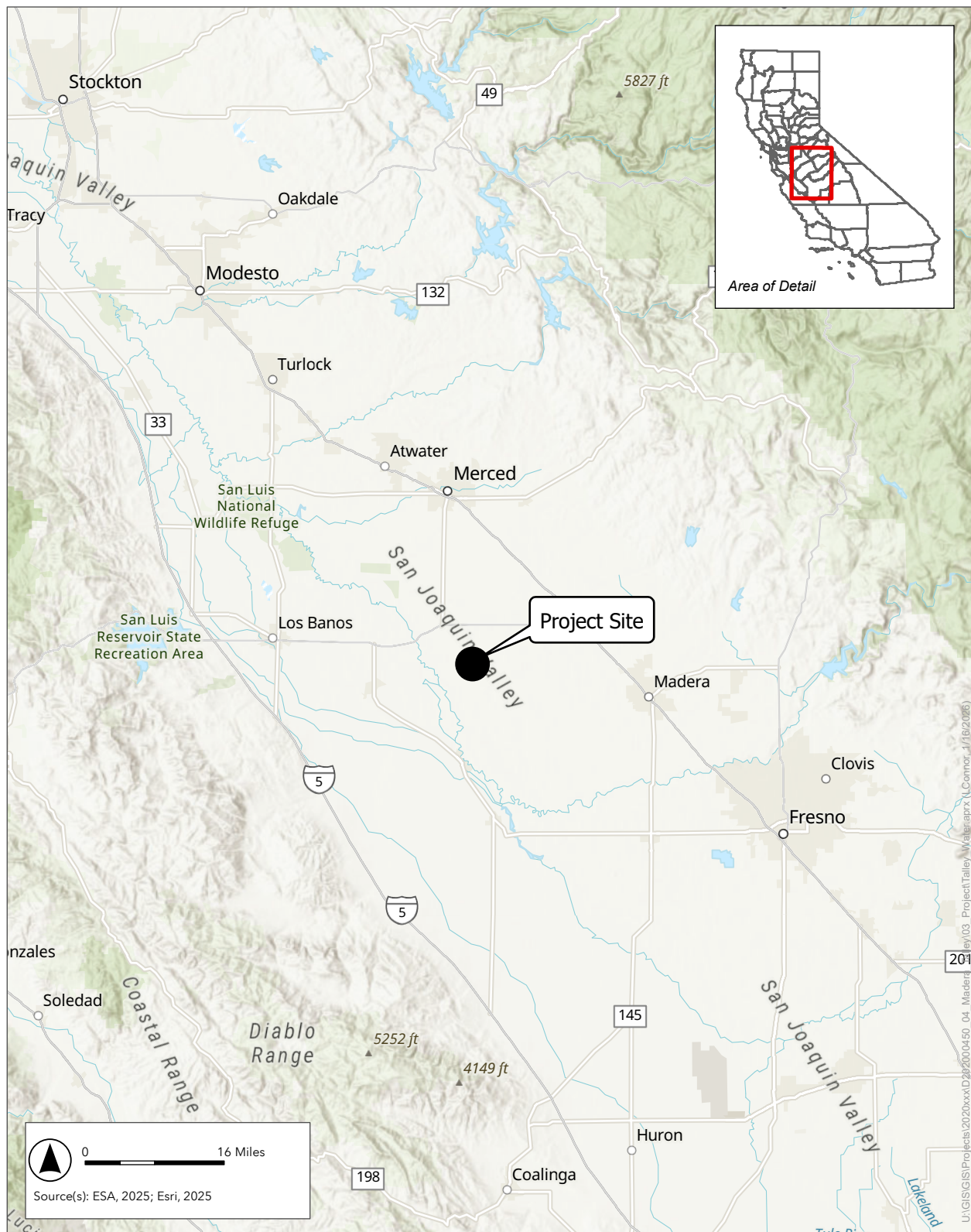


Figure 1
Regional Location

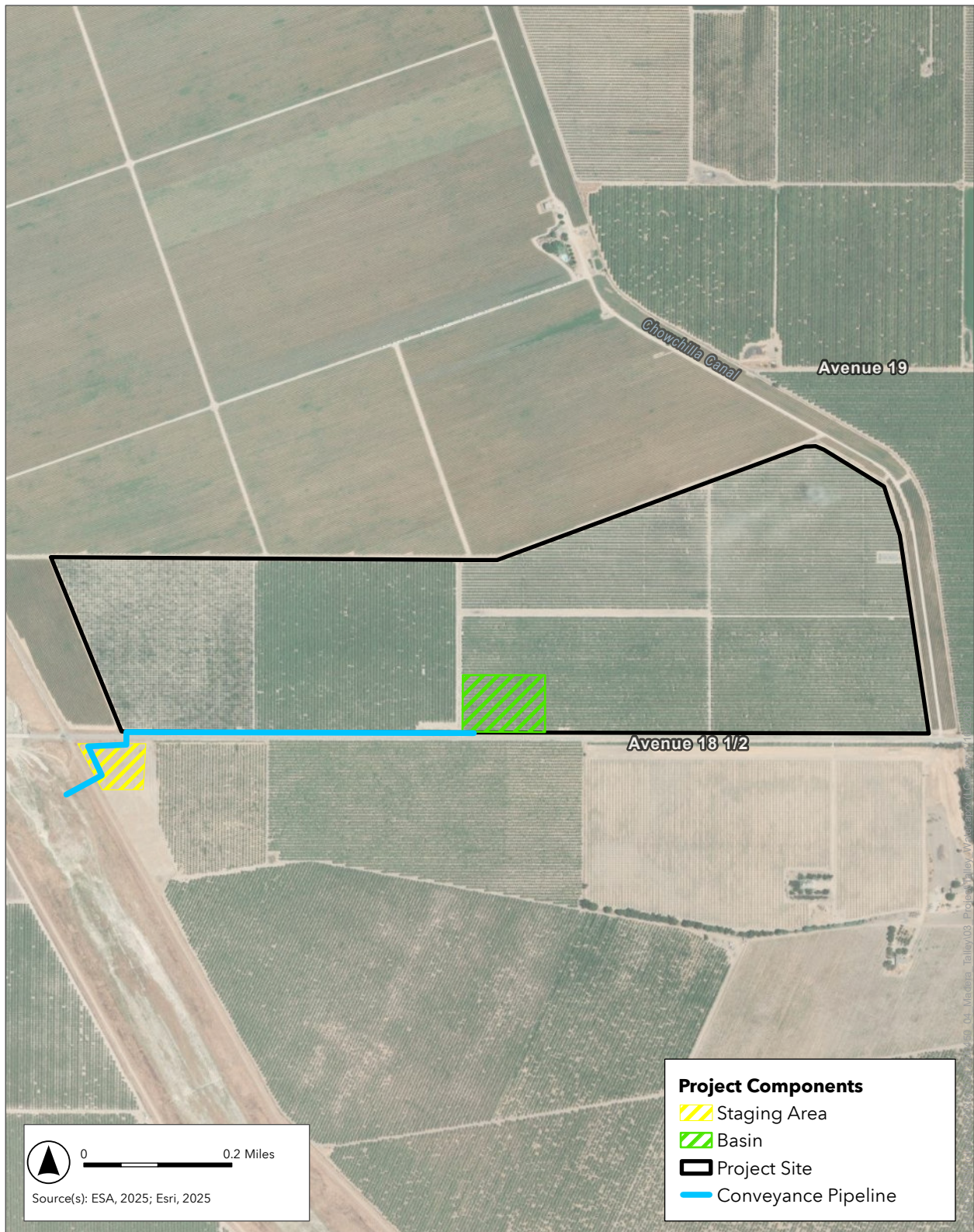


Figure 2
Vicinity Map

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CHAPTER 2

Methods

2.1 Review of Background Information

Prior to performing reconnaissance biological surveys, ESA reviewed publicly available data, subscription-based biological resource data, and Study Area-specific information. Data sources that assisted in this analysis include:

- Topographic maps
- Historic and current aerial imagery (Google Earth 2025)
- The California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CDFWa, 2025)
- The National Wetlands Inventory (NWI) (USFWS 2025a)
- The California Native Plant Society (CNPS) online database (CNPS 2025)
- Soil maps from the Natural Resources Conservation Service (NRCS) (NRCS, 2025)
- U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation database (USFWS 2025b)

2.2 Survey Dates and Surveying Personnel

Biological reconnaissance surveys of the Study Area were conducted by ESA Biologists Angelica Oregel and AJ Samra on November 18, 2025. Surveys were conducted to observe and characterize vegetation communities in the Study Area and to assess habitat quality and potential for common and special-status wildlife species to occur within the Study Area or the vicinity.

2.3 Regulatory Context

Biological resources in the Study Area may fall under the jurisdiction of various regulatory agencies and be subject to their regulations. In general, the greatest legal protections are provided for plant and wildlife species that are formally listed by the federal or state government. The following regulations and agencies are commonly associated with projects that have the potential to affect biological resources:

- Federal Endangered Species Act (FESA)
- Migratory Bird Treaty Act (MBTA)
- Federal Bald and Golden Eagle Protection Act
- Federal Clean Water Act (CWA), Section 404

- California Endangered Species Act (CESA)
- California Fish and Game Code Section 3500-3705, Migratory Bird Protection
- California Native Plant Protection Act
- California Fish and Game Code Section 1600, Lake or Streambed Alteration Program (LSA)
- California Porter Cologne Water Quality Act
- California Environmental Quality Act (CEQA) Guidelines Section 15380

These regulations are presented and discussed in Chapter 4, recommendations.

CHAPTER 3

Environmental Setting

This section provides the environmental baseline for soils, vegetation communities and habitats, and special-status plant and wildlife species in the Study Area.

3.1 Soils

The NRCS is a branch of the U.S. Department of Agriculture whose National Cooperative Soil Survey program produces soil data and provides information to the general public. NRCS has soil maps and data for approximately 95 percent of the nation's counties, including Madera County. Their reference materials include soil surveys, maps, reports and inventories, scientific and research reports and data, forestry, range, and wildlife inventories and studies, and official soil series and soil interpretations.

According to the NRCS soils report, 7 soil units occur within the Study Area, as shown in **Table 1** and **Figure 3**.

TABLE 1
MAP GEOLOGICAL UNIT NAMES

Map Unit Symbol	Map Unit Name	Acres in Study Area	Percent of Study Area
CfaA	Chino fine sandy loam, slightly saline-alkali, 0 to 1 percent slopes	0.3	0.9%
FecA	Fresno and El Peco fine sandy loams, strongly saline-sodic, 0 to 1 percent slopes	8.9	30.8%
PaA	Pachappa fine sandy loam, 0 to 1 percent slopes	8.8	23.6%
PbA	Pachappa fine sandy loam, slightly saline-sodic, 0 to 1 percent slopes	6.8	23.6%
TmA	Traver loam, slightly saline-alkali, 0 to 1 percent slopes	9.6	33.3%
ToA	Trave loam, strongly saline-alkali, 0 to 1 percent slopes	1.4	4.8%
TwA	Tujunga loamy sand, 0 to 3 percent slopes	1.6	5.6%
Total for Study Area		28.9	100.0%

Source: USGS 2025

The surface geology of the Study Area consists predominantly of fine sandy loams and loams. The majority of the soil within the Study Area are formed in alluvium derived from granite rock. The fine sandy loams and loams that make up the majority of the Study Area are primarily moderately well drained with runoff ranging from medium to very low.

3.2 Hydrology

An Aquatic Resources Delineation report has been prepared for the Project, and all relevant aspects of the Study Area hydrology are discussed in that report. Potential aquatic resources can be viewed in Appendix B.

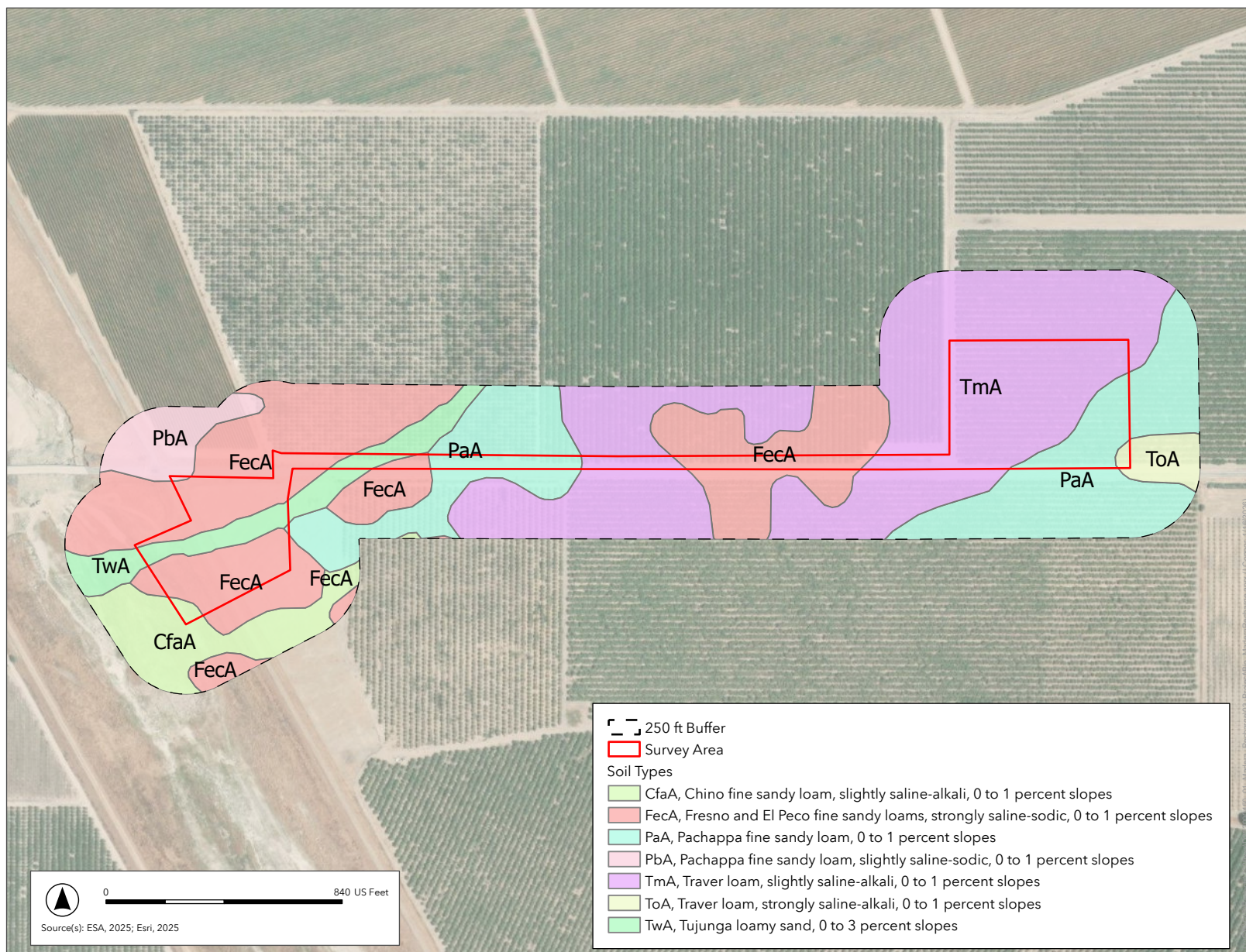


Figure 3
Soils

3.3 Biological Communities and Wildlife Habitats

Biological communities within the Study Area could provide potential habitat for special-status species, and are described below. These habitats were mapped for the Study Area as shown in **Figure 4**.

Upland biological communities within the Study Area include a variety of agriculture crops, grassland and disturbed. Plant communities and habitats associated with aquatic settings within the Study Area include a conveyance bypass, and agricultural basin. A formal delineation of aquatic resources was conducted by ESA at the same time as the biological reconnaissance survey and the boundary delineation results are presented in a separate Aquatic Resources Delineation Report. No sensitive natural communities, such as those with a State rarity ranking of S1, S2, or S3, were observed.

TABLE 2
ACREAGES OF NATURAL COMMUNITIES AND OTHER LAND COVERS IN THE STUDY AREA

Natural Communities and Other Land Covers	Acreage
Upland – Natural Communities	
Avena spp. – Bromus spp. Semi-Natural Alliance	2.11
Upland Habitats – Other Land Covers	
Orchard	44.03
Fallow	6.31
Developed	0.06
Disturbed/Ruderal	6.44
Aquatic Habitats	
Agricultural Ditch	0.13
Constructed Watercourse	7.07
Total	68.09

3.3.1 Agriculture

The Study Area is comprised mainly of agricultural land. In general, agricultural land within the Study Area has been leveled and undergoes frequent, generally seasonal cycles of crop growth and harvesting, along with applications of irrigation water, fertilizers, and pesticides. Study Area agriculture types fall into five main categories described below.

In general, croplands support relatively low species diversity, but the value of agricultural lands for special-status and common wildlife species varies greatly among crop types and agricultural practices. Agricultural lands close to natural land cover can provide functions that complement and increase the habitat value of the natural land cover. For example, some raptors nest in valley foothill riparian habitat but forage in nearby croplands.

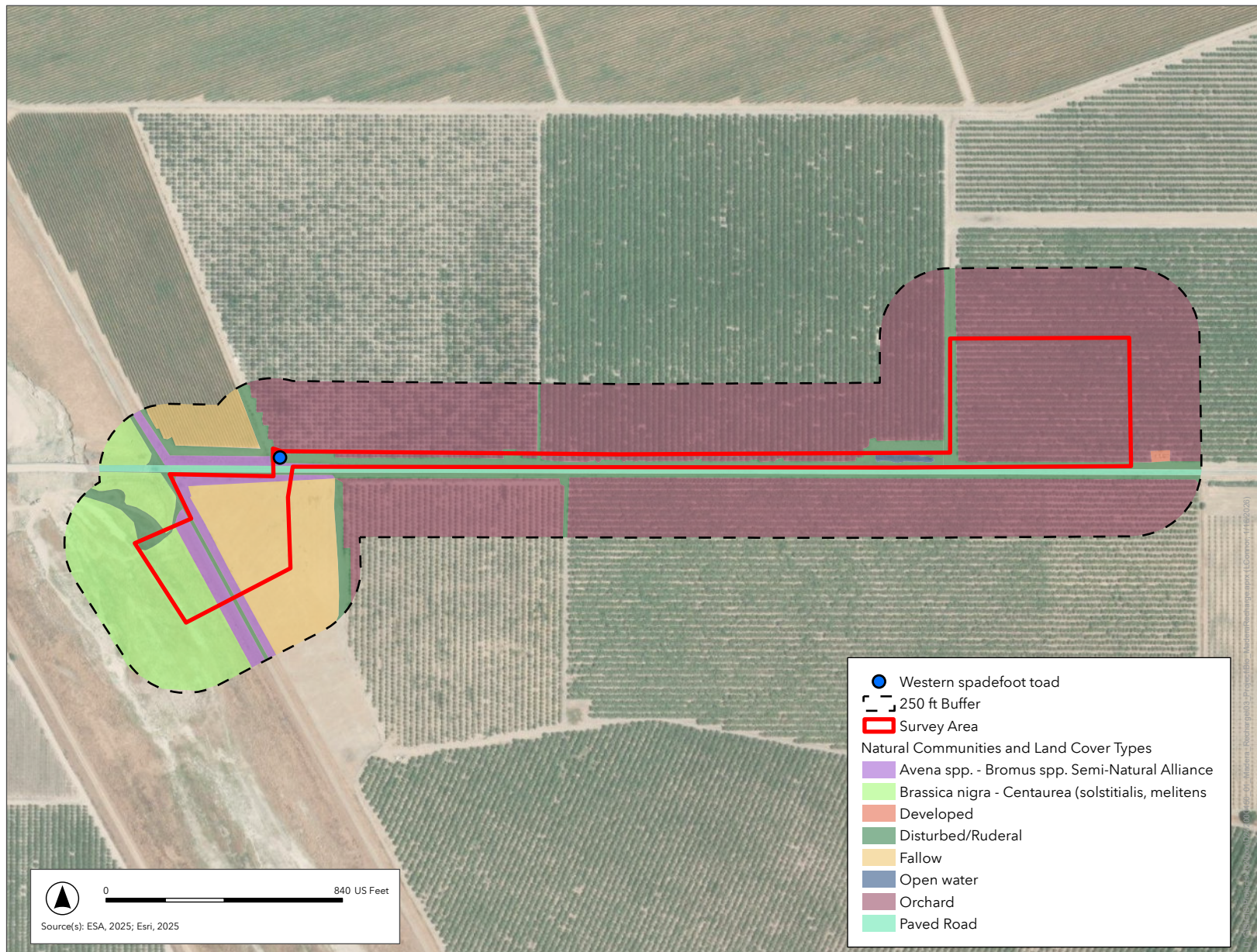


Figure 4
Natural Communities and Land Cover Types

Orchard

Irrigated crops in the orchards within and around the Study Area include almonds and figs. In general, the agricultural fields in the Study Area are kept extremely clean with very few weeds at the field margins, healthy crops, well-maintained roads, and properly functioning drainage and irrigation systems.

Fallow

Two fallow fields border the eastern side of conveyance bypass in the Study Area. Agricultural practices use fallow fields to encourage soil recovery in between growing cycles. Fallow fields are temporary and become irrigated agricultural regularly.

Developed

An agricultural irrigation pump and filtration system is stationed approximately 80 feet east of the Study area within the 250-foot buffer. The area consists of bare ground and the system.

Disturbed/Ruderal

Disturbed/ruderal areas include dirt, gravel, and paved roads throughout the Study Area along with roadsides and levee slopes (**Photo 1**). These areas are either unvegetated with heavily compacted substrate or are sparsely to densely vegetated with weeds.



Photo 1. Disturbed/Ruderal habitat at the bypass levee. Photo facing north.

***Avena* spp. – *Bromus* spp. Semi-Natural Alliance**

Avena spp. – *Bromus* spp. grassland habitat is distributed along the edges of the bypass levee road and 18½. At the time of the survey in November 2025, the dominant species in this habitat type were annual

invasive non-native grasses and native grasses such as wild oat (*Avena spp.*), and emerging *bromus spp.* Annual native herb and invasive non-native shrub species, such as, desert saltgrass (*Distichlis spicata*), turkey mullein (*Croton setigerus*), prickly Russian thistle (*Salsola tragus*), and milk thistle (*Silybum marianum*) were also scattered intermittently within this habitat type (**Photo 2**). This semi-natural alliance is not a sensitive natural community as the global/state rank is not applicable.



Photo 2. Grassland at the bypass levee. Photo facing south.

3.3.2 Aquatic Habitats

Constructed Watercourse

This habitat type is comprised of the Eastside Bypass, an artificially constructed watercourse, used to control flooding of the lower San Joaquin river. The watercourse was constructed between 1956 and 1967 (Levee District 2025). The portion within the Study Area includes those portions of the seasonal watercourse and contained more than 50 percent vegetative cover at the time of the survey. (**Photo 3**).

Brassica nigra – *Centaurea spp.* *Semi-Natural Alliance* habitat is distributed within the Eastside Bypass below the levee. Annual invasive non-native species dominate the watercourse with species such as black mustard (*Brassica nigra*) and yellow start-thistle (*Centaurea solstitialis*). Annual herbs such as Telegraphweed (*Heterotheca grandiflora*), common sunflower (*Helianthus annuus*), jimsonweed (*Datura wrightii*), white horehound (*Marrubium vulgare*), and were also scattered intermittently within this habitat type This semi-natural alliance is not a sensitive natural community as the global/state rank is not applicable.



Photo 3. Eastside Bypass constructed watercourse. Photo facing west.

Agricultural Ditch

This agricultural ditch habitat was located on the northern parcel at the intersection of Ave 18 ½ and Rd 7 (**Photo 4**). The basin was dominated by the native annual herb rough cocklebur (*Xanthium strumarium*). Sparse patches of smooth heliotropium (*Heliotropium curassavicum*), jungle-rice (*Echinochloa colona*), and Mexican-fireweed (*Bassia Scoparia*) were also observed.



Photo 4. Agricultural ditch. Photo facing east.

3.4 Special-Status Species

Several species known to occur on or in the vicinity of the Survey Area are protected pursuant to federal and/or State endangered species laws or have been designated as Species of Special Concern by CDFW. In addition, Section 15380(b) of the *CEQA Guidelines* provides a definition of rare, endangered, threatened species that are not included in any listing.¹ Species recognized under these terms are collectively referred to as “special-status species.”

A list of special-status species with potential to occur on or in the vicinity of the Survey Area was compiled from a nine-quad search of the California Natural Diversity Database (CNDDDB) (CDFW, 2025a), a nine-quad search on the California Native Plant Society’s Rare Plant Inventory (CNPS, 2025), a Survey Area search of the U.S. Fish and Wildlife Service endangered species database (USFWS, 2025b), and biological literature on the region for the surrounding 7.5-minute USGS topographic quadrangles. The quadrangles for the Survey Area were Bliss Ranch Bliss, Chowchilla, El Nido, Firebaugh NE, Oxalis, Plainsburg, Poso Farms, Sandy Mush, Santa Rita Bridge. **Figure 5** is a map of CNDDDB special-status species occurrences within 5 miles of the Survey Area.

From the full list of species, each was then individually assessed based on habitat requirements and distribution relative to vegetation communities and habitat features that occur in and around the Survey Area. A comprehensive list of special-status species that were considered in the analysis is provided in **Appendix A, Special-Status Species with Potential to Occur within the Study Area.**

3.4.1 Special-Status Plants

No special-status plants were identified during the November 18, 2025, biological reconnaissance surveys of the Survey Area.

Based on the habitat types and conditions within the Survey Area, along with review of background information and database searches a variety of special-status plant species have potential to occur in the Survey Area and are listed in Appendix A. From this list, 16 special-status plant species were determined to have low to no potential to occur within the Survey Area and potential to be affected by the project: alkali-sink goldfields (*Lasthenia chrysantha*), Delta button-celery (*Eryngium racemosum*), Ewan's larkspur (*Delphinium hansenii* ssp. *Ewanianum*), golden goodmania (*Goodmania luteola*), Heartscale (*Atriplex cordulata* var. *cordulata*), Hoover's cryptantha (*Cryptantha hooveri*), lesser saltscale (*Atriplex minuscula*), Merced phacelia (*Phacelia ciliata* var. *opaca*), palmate-bracted bird's-beak (*Chloropyron palmatum*), Parry's rough tarplant (*Centromadia parryi* ssp. *rudis*), recurved larkspur (*Delphinium recurvatum*), spiny-sepaled button-celery (*Eryngium spinosepalum*), subtle orache (*Atriplex subtilis*), vernal pool smallscale (*Atriplex persistens*), California alkali grass (*Puccinellia simplex*), Colusa grass (*Neostapfia colusana*).

¹ For example, vascular plants listed as rare or endangered or as List 1 or 2 by the California Native Plant Society (CNPS) are considered to meet Section 15380(b) criteria.

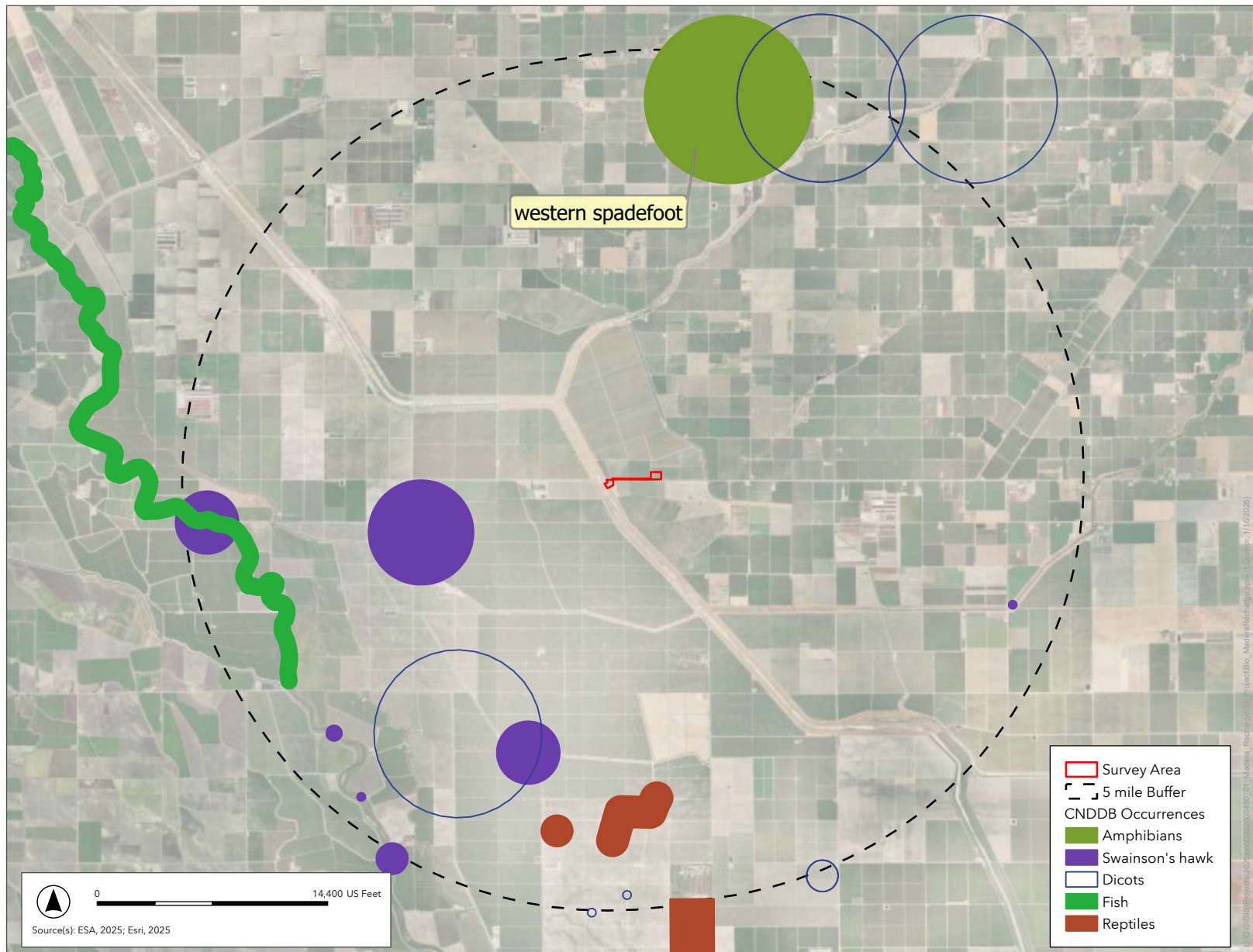


Figure 5
CNDDDB Occurrences within 5 Miles of the Study Area

3.4.2 Special-Status Wildlife Species

One wildlife species that is proposed for listing under FESA, western spadefoot (*Spea hammondi*), was observed during these reconnaissance surveys. Based on the habitat types and conditions within the Survey Area, along with review of background information and database searches a variety of special-status wildlife species have potential to occur in the Survey Area and are listed in Appendix A. From this list, 24 special-status wildlife species were determined to have a low to no potential to occur within the Survey Area and low potential to be affected by the project: California tiger salamander - central California DPS (*Ambystoma californiense* pop. 1), burrowing owl (*Athene cunicularia*), mountain plover (*Charadrius montanus*), northern harrier (*Circus hudsonius*), tricolored blackbird (*Agelaius tricolor*), yellow-headed blackbird (*Xanthocephalus xanthocephalus*), California linderiella (*Linderiella occidentalis*), conservancy fairy shrimp (*Branchinecta conservancy*), midvalley fairy shrimp (*Branchinecta mesovallensis*), vernal pool fairy shrimp (*Branchinecta lynchi*), vernal pool tadpole shrimp (*Lepidurus packardii*), steelhead - Central Valley DPS (*Oncorhynchus mykiss irideus* pop. 11), Crotch bumble bee (*Bombus crotchii*), monarch - California overwintering population (*Danaus plexippus plexippus* pop. 1), valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), American badger (*Taxidea taxus*), Fresno kangaroo rat (*Dipodomys nitratoides exilis*), hoary bat (*Lasiurus cinereus*), San Joaquin kit fox (*Vulpes macrotis mutica*), Yuma myotis (*Myotis yumanensis*), western ridged mussel (*Gonidea angulata*), blunt-nosed leopard lizard (*Gambelia sila*), coast horned lizard (*Phrynosoma blainvillii*), giant garter snake (*Thamnophis gigas*).

From this list, 2 special-status wildlife species were determined to have a moderate to high potential to occur within the Survey Area and potential to be affected by the project: western spadefoot and Swainson's hawk (*Buteo swainsonii*). Western spadefoot is proposed for listing as threatened under FESA and is a California species of special concern. Swainson's hawk is listed as threatened under the California Endangered Species Act.

Western spadefoot

Western spadefoot toads are a species found throughout the central valley and surrounding foothills and are a federally proposed threatened and California species of special concern. Some populations persist for a few years in orchard or vineyard habitats. Breeding occurs in shallow, temporary pools formed by heavy winter rain. Western spadefoots spend most of the year in self-excavated burrows but are also known to take cover in small mammal burrows. Multiple suitable burrows for western spadefoot were observed onsite ranging from less than 1 inch to 4 inches in diameter. One individual was observed in a man-made hole on the northern shoulder of Avenue 18 ½ within the Study Area (Figure 4).

Swainson's hawk

Swainson's hawk is listed as a threatened species under CESA. Swainson's hawk is a breeding resident and migrant in the Central Valley, Klamath Basin, Northeastern Plateau, Lassen county, and Mohave Desert. Swainson's hawk nests in open riparian habitat, in scattered trees, or small groves in sparsely vegetated flatlands. Their nests are typically placed in a tree, bush, or utility pole from 4 to 100 feet above ground. They forage in adjacent grasslands or suitable grain or alfalfa fields, or livestock pastures (Cornell 2025).

Suitable Swainson's hawk nesting habitat occurs in trees along the edges and in close proximity to the Study Area. In addition, this species may utilize medium and large trees for nesting in areas adjacent to the Study Area. There is moderate foraging habitat for Swainson's hawk in and around Study Area.

The most recent CNDDDB records for this species within 5 miles of the Study area are from 2010 and 2004. The 2004 record is less than 2 miles west of the Study Area and describes 2 Swainson's hawk nests observed on top of power poles. The 2010 record is less than 5 miles southeast of the Study Area and describes a nest in a cottonwood tree along the riparian habitat at Berenda slough. Both records are presumed extant.

Potential impacts to special-status species are discussed in Chapter 4 followed by recommendations for avoiding and minimizing these impacts.

3.5 Wildlife Movement Corridors

Wildlife movement corridors link together areas of suitable wildlife habitat that are otherwise separated by rugged terrain, changes in vegetation, or by areas of human disturbance or urban development. Topography and other natural factors in combination with urbanization can fragment or separate large open-space areas. The fragmentation of natural habitat can create isolated "islands" of vegetation and habitat that may not provide sufficient area to accommodate sustainable populations and can adversely impact genetic and species diversity. The retention of wildlife movement corridors ameliorates the effects of such fragmentation by allowing animals to move between remaining habitats, which in turn allows depleted populations to be replenished. Such movement may also promote genetic exchange between separated populations.

The Survey Area is currently used for a variety of agricultural purposes. Wildlife that is able to pass through or over the fencing may move through the Survey Area from surrounding grasslands/agriculture. The Eastside Bypass provides a corridor for movement north/south throughout the region, though there are no woody plant cover and little forage available.

3.6 Critical Habitat for Listed Fish and Wildlife Species

The USFWS defines the term "critical habitat" in the federal Endangered Species Act as a specific geographic area(s) that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. The Survey Area is not within designated critical habitat for any listed plant species, but is adjacent to designated critical habitat for federally endangered steelhead – Central Valley DPS. This critical habitat does not overlap with the Study Area.

3.7 Heritage and Protected Trees

The Survey Area does not support any heritage or protected trees protected by local tree ordinances, and only nonprotected orchard trees would be removed, trimmed, or damaged during project related work.

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CHAPTER 4

Recommendations

Based on the results of ESA's review of the background information, sensitive species database searches, the reconnaissance biological survey, and habitat suitability, the Survey Area provides limited suitable habitat for special-status species. Appendix A presents the potential to occur for special-status species known to occur in the vicinity of the Survey Area. Most of the special-status species evaluated have low potential to occur, or the Survey Area does not support suitable habitat. For special-status species and sensitive biological resources that could be negatively affected by the project, the recommendations below would allow the project to avoid and minimize impacts to special-status species.

4.1 Western Spadefoot

Implementing the following conservation mitigation measures would reduce the potential for impacts to western spadefoot should it occur in the Project impact area.

1. Prior to the start of construction, a qualified biologist will locate appropriate relocation areas for any adult or juvenile western spadefoot that may need to be moved during construction. Appropriate relocation areas will be within 1.3 miles of where they were found, contain suitable burrows and nearby aquatic habitat, and will be located outside the area of impact. Western spadefoot eggs and tadpoles will not be relocated without approval from CDFW.
2. A Worker Environmental Awareness Training will be conducted for all contractors, work crews, and any onsite personnel prior to the start of construction. The training will cover identification of western spadefoot, their status, avoidance measures, and possible penalties for non-compliance. The crew members should sign a sign-in sheet documenting that they have received the training.
3. If at any time during preconstruction surveys or project implementation individual western spadefoot (including adults, juveniles, larvae, or eggs) are found in the work area, any work that could potentially harm western spadefoot will be halted. If the western spadefoot cannot or will not move offsite on its own, it will be relocated by a qualified biologist to the pre-determined relocation areas. Western spadefoot will be transported in clean plastic containers with air holes and a moist unused sponge and will be handled using clean disposable gloves. Western spadefoot will not be held in containers for longer than 30 minutes and will be kept in a shaded area. Western spadefoot will be released at a burrow entrance and monitored for 5 minutes. If the western spadefoot does not enter or remain inside the burrow, an alternative relocation burrow will be found, and the western spadefoot relocated again. If after five relocation attempts, the western spadefoot does not enter a burrow, it will be left near the entrance to a burrow that has no apparent blockages near the ground surface. Western spadefoot may also be relocated to suitable aquatic habitat. The qualified biologist will follow all

disinfectant practices developed by the Declining Amphibian Population Task Force. Construction may resume after the western spadefoot has been relocated.

4. A qualified biologist will conduct preconstruction surveys of the work area immediately prior to ground-disturbing activities (including equipment staging, vegetation removal, and grading). If western spadefoot are found in the work area, they will be relocated as described above.
5. A qualified biologist will be onsite during initial earthmoving activities to survey for western spadefoot. If western spadefoot are found in the work area, they will be relocated as described above.
6. No ground-disturbing work will occur during wet weather unless the site has been cleared of western spadefoot by a qualified biologist and an exclusion fence set up around the work area to prevent migration of western spadefoot into the work area. Wet weather is defined as when there has been 0.25 inch of rain in a 24-hour period. Ground disturbing activities halted due to wet weather may resume when precipitation ceases and the National Weather Service 72-hour weather forecast indicates a 30% or less chance of precipitation. No ground-disturbing work will occur during a dry-out period of 48 hours after the above reference wet weather.
7. During the western spadefoot migration/active season from November 1 to June 15, all project ground-disturbing activities will terminate 30 minutes before sunset and will not resume until 30 minutes after sunrise.
8. No monofilament plastic will be used for erosion control. Some non-monofilament substitutes include coconut coir matting and tackified hydroseeding compounds.
9. Vehicles will not exceed a speed limit of 15 mph on unpaved roads within natural landcover types, or during offroad travel.
10. Trenches or holes more than 6 inches deep will be provided with one or more escape ramps constructed of earth fill or wooden planks and will be inspected by trained construction personnel or a qualified biologist prior to being filled. Any such features that are left open overnight will be searched each day by trained construction personnel or the qualified biologist prior to construction activities to ensure no western spadefoot are trapped. If western spadefoot are found in the work area, they will be relocated as described above.
11. Trained construction personnel or a qualified biologist will inspect under construction equipment and material left onsite prior to moving the equipment or material to look for western spadefoot that may have become trapped or are seeking refuge. If western spadefoot are found in the work area, they will be relocated as described above.

4.2 Special-Status and Other Nesting Birds

If ground disturbance is scheduled to occur during the avian nesting season (February 1 through September 15), Madera County or its contractor may implement the following measures to avoid potential adverse effects to nesting raptors, including burrowing owl, Swainson's hawk, and other common and special-status nesting birds.

Twenty-four hours prior to ground disturbance, a qualified biologist shall perform pre-activity surveys for nesting birds within 500 feet, and 0.5 mile for special-status raptors, of the work areas, where access is available. If pre-activity surveys indicate that nests are inactive or potential habitat is unoccupied during the ground disturbance period, no further surveys or avoidance are required.

1. If active nests are detected during pre-activity surveys, Madera County shall create a no-disturbance buffer around active raptor nests and nests of other special-status birds during the breeding season, or until it is determined that young birds have fledged. Buffers shall be at least 250 feet for raptors and at least 150 feet for other nesting birds. Nests initiated within the active work area may have reduced buffer sizes due to the increased tolerance of disturbance. Reductions to nest buffer distances may be allowed on a case-by-case basis in coordination with the CDFW based on site-specific factors such as the existing disturbance levels, the species of nesting bird, and the magnitude of the proposed disturbance.

4.3 Special-Status Plants

The following measure should be implemented in grassland habitat prior to any ground disturbance to avoid or minimize impacts to special-status plant species:

1. A qualified biologist will conduct pre-construction surveys within the Eastside Bypass floodplain terrace for special-status plant species in suitable habitat areas and areas subject to ground disturbing activities. The surveys will be conducted during bloom season, typically during the months of March and June, and prior to ground-disturbing activities. The biologist will work with the contractor to mark and avoid locations of all special-status plant species observed where feasible or prepare a relocation plan if avoidance is infeasible. The relocation plan may include, but is not limited to, seed and soils collection, plant salvage, suitable relocation sites, monitoring requirements, and success criteria.

4.4 Wetlands and Waters of the U.S. and State, and Lake and Streambed Alteration

An Aquatic Resource Delineation Report has been prepared, for review and verification by USACE. The best strategy to protect wetlands and waters of the U.S would be to avoid impacts to areas identified in the aquatic resources delineation. However, if avoidance is not feasible, the following measure should be implemented to protect Water of the U.S. and state:

1. Clearing of wetland vegetation and ground disturbance in waters and wetlands will be confined to the minimal area necessary for project related impacts.
2. Areas of temporary impacts will be restored to pre-project conditions.
3. Native wetland vegetation should be replaced with the same or similar species known to occur in the area upon completion of ground disturbing activities.
4. Any necessary permits or authorizations (404, 401, CVRWQCB) will be obtained prior to placement of fill or alteration of any regulated waters of the U.S. and state.
5. A Lake and Streambed Alteration Agreement Notification will be submitted to CDFW for impacts to bed, bank, and channel within the San Joaquin River Eastside Bypass.

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CHAPTER 5

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Appendix A

**Special-Status Species with
Potential to Occur within the Study
Area**

APPENDIX A
SPECIAL-STATUS SPECIES CONSIDERED IN THE PROJECT AREA

Organism	Taxonomy	Common Name <i>Scientific Name</i>	Status Federal/ State	CNPS Status	Other Status	Habitat	Identification/ Survey Period	Potential to Occur
Plants	Dicots	alkali-sink goldfields <i>Lasthenia chrysantha</i>	-/-	1B.1	-	Annual herb found in vernal pools from 0 to 655 feet elevation. Known from Fresno, King, Kern, Madera, Merced, Sacramento, Solano, Stanislaus, and Tuolumne counties.	February-April	None. The Study Area does not contain habitat for this species.
		Delta button-celery <i>Eryngium racemosum</i>	-/CE	1B.1	-	Annual/perennial herb found in riparian scrub (vernally mesic clay depressions) from 10 to 100 feet. Known from Calaveras, Contra Costa, Merced, San Joaquin, and Stanislaus counties.	(May)June-October	Low. The Study Area does not contain minimal habitat for this species.
		Ewan's larkspur <i>Delphinium hansenii</i> ssp. ewanianum	-/-	4.2	-	Perennial herb found in cismontane woodland, valley and foothill grassland from 195 to 1970 feet elevation. Known from Alameda, Colusa, El Dorado, Fresno, Madera, Merced, Mariposa, Stanislaus, Tulare, Tuolumne counties	March-May	None. The Study Area does not contain habitat for this species.
		golden goodmania <i>Goodmania luteola</i>	-/-	4.2	-	Annual herb found in meadows and seeps, Mojavean desert scrub, playas, valley and foothill grassland from 65 to 7220 feet elevation. Known from Fresno, Inyo, Kern, Los Angeles, Madera, Mono, Tulare counties.	April-August	None. The Study Area does not contain habitat for this species.
		heartscale <i>Atriplex cordulata</i> var. <i>cordulata</i>	-/-	1B.2	BLM_S-Sensitive	Annual herb found in Chenopod scrub, Meadows and seeps, sandy Valley and foothill grassland from 0 to 785 feet, sometimes in Alkaline conditions. Known from Alameda, Butte, Contra Costa, Colusa, Fresno, Glenn, Kern, Madera, Merced, San Joaquin, San Luis Obispo, Stanislaus, Tulare, Yolo counties	April-October	None. The Study Area does not contain habitat for this species.
		Hoover's cryptantha <i>Cryptantha hooveri</i>	-/-	1A	-	Annual herb found in valley and foothill grassland and inland dunes from 30 to 490 feet elevation. Known from Contra Costa, Madera, Sacramento, and Stanislaus counties.	April-May	Low. The Study Area contains minimal habitat for this species.

Organism	Taxonomy	Common Name Scientific Name	Status Federal/ State	CNPS Status	Other Status	Habitat	Identification/ Survey Period	Potential to Occur
		lesser saltscale <i>Atriplex minuscula</i>	-/-	1B.1	-	Annual herb found in alkaline and sandy Chenopod scrub, Playas, Valley and foothill grasslands from 50 to 655 feet. Known from Alameda, Butte, Fresno, Kings, Kern, Madera, Merced, Stanislaus, and Tulare counties.	May-October	Low. The Study Area contains minimal habitat for this species.
		Merced phacelia <i>Phacelia ciliata</i> var. <i>opaca</i>	-/-	3.2	-	Annual herb found in valley and foothill grassland from 195 to 490 feet elevation. Known from Kings and Merced counties.	February-May	None. The Study Area does not contain habitat for this species.
		palmate-bracted bird's-beak <i>Chloropyron palmatum</i>	FE/CE	1B.1	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Annual herb (hemiparasitic) found in alkaline chenopod scrub, valley and foothill grasslands from 15 to 510 feet. Known from Alameda, Colusa, Fresno, Glendale, Madera, San Joaquin, and Yolo counties.	May-October	None. The Study Area does not contain habitat for this species.
		Parry's rough tarplant <i>Centromadia parryi</i> ssp. <i>rudis</i>	-/-	4.2	-	Annual herb found in valley and foothill grasslands and vernal pool from 0 to 330 feet elevation. Known from Butte, Colusa, Glenn, Lake, Merced, Modesto, Sacramento, San Joaquin, Solano, Stanislaus, and Yolo counties.	May-October	None. The Study Area does not contain habitat for this species.
		recurved larkspur <i>Delphinium recurvatum</i>	-/-	1B.2	BLM_S-Sensitive SB_SBBG-Santa Barbara Botanic Garden	Perennial herb found in alkaline chenopod scrub, cismontane woodland, valley and foothill grasslands from 10 to 2,590 feet. Known from Alameda, Butte, Contra Costa, Fresno, Kings, Kern, Madera, Merced, Monterey, Santa Barbara, San Benito, San Joaquin, San Luis Obispo, Sutter, Tuolumne, and Yuba counties.	March-June	None. The Study Area does not contain habitat for this species.
		spiny-sepaed button-celery <i>Eryngium spinosepalum</i>	-/-	1B.2	BLM_S-Sensitive	Annual/perennial herb found in valley and foothill grassland, and vernal pools from 260 to 3,200 feet. Known from Calaveras, Contra Costa, Fresno, Kern, Madera, Merced, Mariposa, San Luis Obispo, Stanislaus, and Tuolumne counties.	April-June	None. The Study Area does not contain habitat for this species.
		subtle orache <i>Atriplex subtilis</i>	-/-	1B.2	-	Annual herb found in valley and foothill grassland, sometimes in alkaline conditions from 130 to 330 feet elevation. Known from Butte, Fresno, Kings, Kern, Madera, Merced, Stanislaus, and Tulare counties.	June-September (April) (October)	None. The Study Area does not contain habitat for this species.

Organism	Taxonomy	Common Name Scientific Name	Status Federal/ State	CNPS Status	Other Status	Habitat	Identification/ Survey Period	Potential to Occur
		vernal pool smallscale <i>Atriplex persistens</i>	-/-	1B.2	-	Annual herb found in vernal pool, sometimes in alkaline conditions from 35 to 375 feet in elevation. Known from Colusa, Glenn, Madera, Merced, Solano, Stanislaus, and Tulare counties.	June-October	None. The Study Area does not contain habitat for this species.
	Monocots	California alkali grass <i>Puccinellia simplex</i>	-/-	1B.2	BLM_S-Sensitive	Annual herb found in alkaline, vernal mesic, flats, and lake margins of chenopod scrub, meadows and seeps, valley and foothill grassland, and vernal pools from 5 to 3,050 feet. Known from Alameda, Butte, Contra Costa, Colusa, Fresno, Glenn, Kern, Lake, Los Angeles, Madera, Merced, Napa, San Bernardino, Santa Clara, Santa Cruz, San Luis Obispo, Solano, Stanislaus, Tulare, and Yolo counties. Presumed extirpated from Kings County.	March-May	None. The Study Area does not contain habitat for this species.
		Colusa grass <i>Neostapfia colusana</i>	FT/CE	1B.1	-	Annual herb found in vernal pools, sometimes in adobe clay, from 15 to 655 feet in elevation. Known from Colusa, Glenn, Merced, Solano, Stanislaus, and Yolo counties.	May-August	None. The Study Area does not contain habitat for this species.
Wildlife	Amphibians	California tiger salamander - central California DPS <i>Ambystoma californiense</i> pop. 1	FT/CT	-	CDFW_WL-Watch List IUCN_VU-Vulnerable	Frequents grassland, oak savannah, and edges of mixed woodland and lower elevation coniferous forest. Spends much time underground in mammal burrows. Usually breeds in temporary ponds such as vernal pools, but may also breed in slower parts of streams and some permanent waters. Ponds with large populations of California tiger salamander larvae usually contain very few larvae of other amphibian species. Requires long-lasting vernal pools to complete larval development of a minimum of approximately 10 weeks. Adults can migrate up to 1.5 mi from breeding ponds in upland habitat.	-	None. The Study Area does not contain habitat for this species.

Organism	Taxonomy	Common Name Scientific Name	Status Federal/ State	CNPS Status	Other Status	Habitat	Identification/ Survey Period	Potential to Occur
		western spadefoot <i>Spea hammondi</i>	-/-	-	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened	Occurs throughout the Central Valley and adjacent foothills primarily in grassland habitats, but can be found in valley-foothill hardwood woodlands. Vernal pools are essential for breeding and egg-laying. Most of the year is spent in underground burrows up to 36 inches deep, which they construct themselves.	-	High. The Study Area contains habitat for this species, and one was observed during the survey.
	Birds	burrowing owl <i>Athene cunicularia</i>	-/-	-	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	Nests and forages in grasslands, agricultural fields, and low scrub habitats, especially where ground squirrel burrows are present; occasionally inhabit artificial structures and small patches of disturbed habitat.	-	None. The Study Area does not contain habitat for this species.
		mountain plover <i>Charadrius montanus</i>	-/-	-	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened NABCI_RWL-Red Watch List USFWS_BCC- Birds of Conservation Concern	Species is found in short grasslands, freshly plowed fields, newly sprouting grain fields, and sometimes sod farms. Winters in central and southern California primarily from September to mid-March; does not breed in California.	-	Low. The Study Area does not contain habitat for this species.
		northern harrier <i>Circus hudsonius</i>	-/-	-	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	Occurs in annual grassland up to lodgepole pine and alpine meadow habitat as high as 10,000 feet. Breeds from sea level to 5,700 feet in the Central Valley and Sierra Nevada Mountains, and up to 3,600 feet in northeastern California. Frequents meadows, grasslands, open rangelands, desert sinks, fresh and saltwater emergent wetland, though seldom found in wooded areas. Uses tall grasses and forbs in wetlands, or at the wetland/field border, for cover. Roosts and nests on the ground in shrubby vegetation, usually at marsh edges. Mostly nests in emergent wetlands or along rivers or lakes, but may nest in grasslands, grain fields, or on sagebrush flats several miles from water.	-	Low. The Study Area contains minimal habitat for this species.

Organism	Taxonomy	Common Name Scientific Name	Status Federal/ State	CNPS Status	Other Status	Habitat	Identification/ Survey Period	Potential to Occur
		Swainson's hawk <i>Buteo swainsoni</i>	-/CT	-	BLM_S-Sensitive IUCN_LC-Least Concern	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	-	Moderate. The Study Area contains minimal habitat for this species but suitable nesting trees within 0.5 miles.
		tricolored blackbird <i>Agelaius tricolor</i>	-/CT	-	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_EN-Endangered NABCI_RWL-Red Watch List USFWS_ BCC-Birds of Conservation Concern	Forages on ground in cropland and grassland. Nests near or over freshwater. Prefers emergent marsh of dense cattails or tules for nesting, but also nests in thickets of willow, blackberry, wild rose, and tall herbs. Nesting area must be large enough to support a minimum colony of about 50 pairs. Occurs primarily in the Central Valley and in coastal areas south of Sonoma County.	-	None. The Study Area does not contain habitat for this species.
		yellow-headed blackbird <i>Xanthocephalus xanthocephalus</i>	-/-	-	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	Nests in freshwater emergent wetlands with dense vegetation and deep water. Often along borders of lakes or ponds.	-	None. The Study Area does not contain habitat for this species.
	Crustaceans	California linderiella <i>Linderiella occidentalis</i>	-/-	-	IUCN_NT-Near Threatened	Seasonal pools in unplowed grasslands with old alluvial soils underlain by hardpan or in sandstone depressions.	-	None. The Study Area does not contain habitat for this species.
		Conservancy fairy shrimp <i>Branchinecta conservatio</i>	FE/-	-	IUCN_EN-Endangered	Species is endemic to the grasslands of the northern two-thirds of the Central Valley and found in large, turbid pool where vegetation is absent.	-	None. The Study Area does not contain habitat for this species.
		midvalley fairy shrimp <i>Branchinecta mesoallensis</i>	-/-	-	State Rank S2S3	Species is found in vernal pools and wetlands in the Central Valley.	-	None. The Study Area does not contain habitat for this species.
		vernal pool fairy shrimp <i>Branchinecta lynchi</i>	FT/-	-	IUCN_VU-Vulnerable	Endemic to the grasslands of the central valley, central coast mountains, and south coast mountains, in astatic rain-filled pools. Inhabit small, clear-water sandstone-depression pools and grassed swale, earth slump, or basalt-flow depression pools.	-	None. The Study Area does not contain habitat for this species.

Organism	Taxonomy	Common Name Scientific Name	Status Federal/ State	CNPS Status	Other Status	Habitat	Identification/ Survey Period	Potential to Occur
		vernal pool tadpole shrimp <i>Lepidurus packardii</i>	FE/-	-	IUCN_EN-Endangered	Inhabits vernal pools and swales in the Sacramento Valley containing clear to highly turbid water. Pools commonly found in grass bottomed swales of unplowed grasslands. Some pools are mud-bottomed & highly turbid.	-	None. The Study Area does not contain habitat for this species.
	Fish	steelhead - Central Valley DPS <i>Oncorhynchus mykiss irideus</i> pop. 11	FT/-	-	AFS_TH-Threatened	This DPS enters the Sacramento and San Joaquin Rivers and their tributaries from July to May; spawning from December to April. Young move to rearing areas in and through the Sacramento and San Joaquin Rivers, Delta, and San Pablo and San Francisco Bays.	-	None. The Study Area does not contain habitat for this species.
	Insects	Crotch bumble bee <i>Bombus crotchii</i>	-/-	-	IUCN_EN-Endangered	May inhabit open grassland and scrub. Current range is primarily adjacent foothills around the Central Valley. Largely extirpated from agricultural and urban areas of the Central Valley.	-	Low. The Study Area contains minimal habitat for this species.
		monarch - California overwintering population <i>Danaus plexippus</i> pop. 1	FC/-	-	IUCN_EN-Endangered USFS_S-Sensitive	Overwinters within wind-protected groves of trees (primarily Monterey pine [<i>Pinus radiata</i>], Monterey cypress [<i>Hesperocyparis macrocarpa</i>], and eucalyptus [<i>Eucalyptus</i> spp.]) along California coast from northern Mendocino County south to Baja California typically near water and nectar sources. During the breeding season, the required host plant is milkweed (<i>Asclepias</i> spp.) for development, egg deposition, and nectar.	-	None. The Study Area does not contain habitat for this species.
		valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	FT/-	-	-	Occurs only in the Central Valley of California, in association with blue elderberry (<i>Sambucus nigra</i> ssp. <i>caerulea</i>). Prefers to lay eggs in elderberries 2-8 inches in diameter; some preference shown for "stressed" elderberries.	-	None. The Study Area does not contain habitat for this species. No elderberry shrubs (<i>Sambucus</i> sp.), which are the sole hosts for the valley elderberry longhorn beetle (<i>Desmocerus californicus dimorphus</i>), were observed within the Survey Area. Therefore, no valley elderberry longhorn beetle occurs within the Survey Area.

Organism	Taxonomy	Common Name Scientific Name	Status Federal/ State	CNPS Status	Other Status	Habitat	Identification/ Survey Period	Potential to Occur
	Mammals	American badger <i>Taxidea taxus</i>	-/-	-	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	Most abundant in drier open stages of most shrubs, forest, and herbaceous habitats, with friable soils.	-	None. The Study Area does not contain habitat for this species.
		Fresno kangaroo rat <i>Dipodomys nitratoides exilis</i>	FE/CE	-	IUCN_VU-Vulnerable	Alkali sink-open grassland and chenopod scrub habitats in western Fresno County.	-	None. The Study Area does not contain habitat for this species.
		hoary bat <i>Lasiurus cinereus</i>	-/-	-	IUCN_LC-Least Concern	Occurs in any location in California, although distribution patchy in southeastern deserts. Hoary bats have been recorded from sea level to 4125 m (13,200 ft). Generally, roosts in dense foliage of medium to large trees. Preferred sites are hidden from above, with few branches below, and have ground cover of low reflectivity.	-	None. The Study Area does not contain habitat for this species.
		San Joaquin kit fox <i>Vulpes macrotis mutica</i>	FE/CT	-	-	Occurs in deserts and grasslands in the San Joaquin Valley; Chenopod scrub, Valley & foothill grassland.	-	None. The Study Area does not contain habitat for this species.
		Yuma myotis <i>Myotis yumanensis</i>	-/-	-	BLM_S-Sensitive IUCN_LC-Least Concern	Optimal habitats are open forests and woodlands with sources of water over which to feed. Yuma myotis roosts in buildings, mines, caves, or crevices. The species also has been seen roosting in abandoned swallow nests and under bridges. Separate, often more open, night roosts may be used.	-	Low. The Study Area contains minimal habitat for this species.
	Mollusks	western ridged mussel <i>Gonidea angulata</i>	-/-	-	IUCN_VU-Vulnerable	Primarily creeks and rivers and less often lakes. Prefers constant water flow and well- oxygenated stable substrates in areas of low gradient. Originally in most of state, now extirpated from Central and Southern California.	-	None. The Study Area does not contain habitat for this species.
	Reptiles	blunt-nosed leopard lizard <i>Gambelia sila</i>	FE/CE	-	CDFW_FP-Fully Protected IUCN_EN- Endangered	Resident of sparsely vegetated alkali and desert scrub habitats, in areas of low topographic relief. Currently occurs at scattered sites in the San Joaquin Valley and adjacent foothills.	-	Low. The Study Area contains minimal habitat for this species.

Organism	Taxonomy	Common Name Scientific Name	Status Federal/ State	CNPS Status	Other Status	Habitat	Identification/ Survey Period	Potential to Occur
		coast horned lizard <i>Phrynosoma blainvillii</i>	-/-	-	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	Occurs in valley foothill hardwood, conifer and riparian habitats, as well as in pine-cypress, juniper and annual grassland habitats. Occurs in the Sierra Nevada foothills from Butte County to Kern County and throughout the central and southern California coast.	-	Low. The Study Area contains minimal habitat for this species.
		giant garter snake <i>Thamnophis gigas</i>	FT/CT	-	IUCN_VU-Vulnerable	Prefers freshwater marsh and low gradient streams. Has adapted to drainage canals and irrigation ditches. This is the most aquatic of the garter snakes in California.	-	None. The Study Area does not contain habitat for this species.

KEY TO STATUS CODES:

Federal

Candidate = FC
 Delisted = FD
 Endangered = FE
 None = -
 Proposed Endangered = FPE
 Proposed Threatened = FPT
 Threatened = FT

State

Candidate Endangered = CCE
 Candidate Threatened = CCT
 Delisted = CD
 Endangered = CE
 None = -
 Rare = CR
 Threatened = CT

Other

CNPS Rank Categories:

1A = Plants presumed extirpated in California and either rare or extinct elsewhere
 1B = Plants Rare, Threatened, or Endangered in California and elsewhere
 2A = Plants presumed extirpated in California, but more common elsewhere
 2B = Plants Rare, Threatened, or Endangered in California, but more common elsewhere
 3 = Plants about which more information is needed - A Review List
 4 = Plants of limited distribution - A Watch List

CNPS Code Extensions:

.1 = Seriously endangered in California (over 80% of occurrences threatened/high degree and immediacy of threat)
 .2 = Fairly endangered in California (20U+002d80% occurrences threatened)
 .3 = Not very endangered in California (less than 20% of occurrences threatened or no current threats known)

Sources: CNPS 2025; USFWS 2025; CDFW 2025

Appendix B

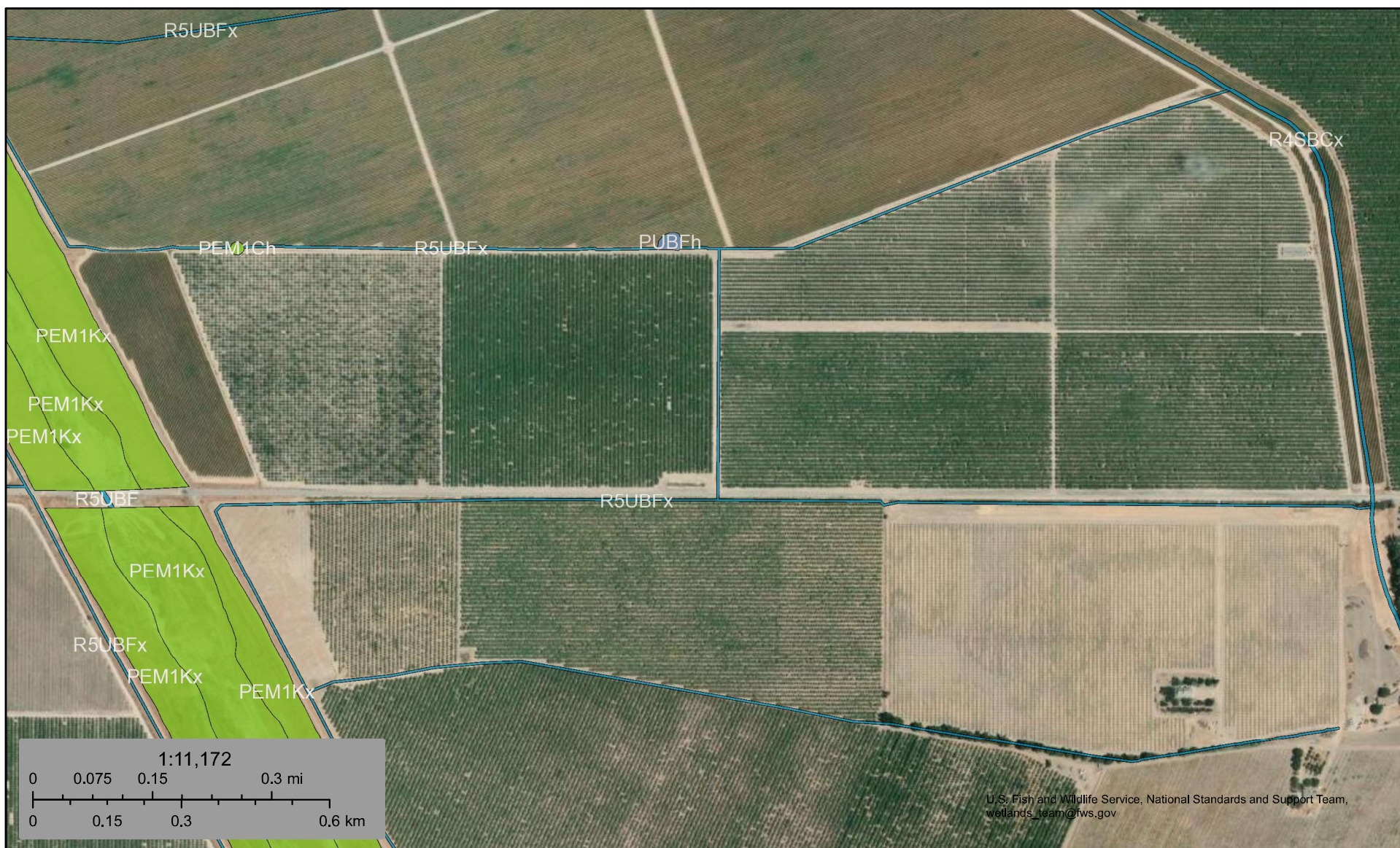
National Wetland Inventory Map



U.S. Fish and Wildlife Service

National Wetlands Inventory

Madera Talley



U.S. Fish and Wildlife Service, National Standards and Support Team,
wetlands_team@fws.gov

November 17, 2025

Wetlands

	Estuarine and Marine Deepwater		Freshwater Emergent Wetland		Lake
	Estuarine and Marine Wetland		Freshwater Forested/Shrub Wetland		Other
			Freshwater Pond		Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

Appendix C
**Aquatic Resources
Delineation Report**

Final

TALLEY RECHARGE PROJECT

Aquatic Resources Delineation Report

Prepared for
Davids Engineering, Inc

January 2026



Final

TALLEY RECHARGE PROJECT

Aquatic Resources Delineation Report

Prepared for
Davids Engineering, Inc

January 2026

2600 Capitol Avenue
Suite 200
Sacramento, CA 95816
916.564.4500
esassoc.com



Bend	Pasadena	San Francisco
Irvine	Pensacola	San Jose
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Mobile	Portland	Sarasota
Oakland	Rancho Cucamonga	Seattle
Orlando	Sacramento	Tampa
Palm Beach County	San Diego	Thousand Oaks

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- E. ORM Aquatic Resources Spreadsheet

Acronyms and Other Abbreviations

Abbreviation	Definition
APT	Antecedent Precipitation Tool
ARDR	Aquatic resources delineation report
CDFW	California Department of Fish and Wildlife
CFGC	California Fish and Game Code
County	Madera County
CWA	Clean Water Act
EPA	U.S. Environmental Protection Agency
ESA	Environmental Science Associates
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
LSAA	Lake or Streambed Alteration Agreement
LSJLD	Lower San Joaquin Levee District
LSJRFCP	Lower San Joaquin River Flood Control Project
NRCS	Natural Resource Conservation Service
NWI	National Wetlands Inventory
OHWM	Ordinary High-Water Mark
POD	Point of Diversion
Porter-Cologne Act	Porter-Cologne Water Quality Control Act
RPS	Relatively Permanent Standard
RWQCB	Regional Water Quality Control Board
SMU	Soil Mapping Unit
SWANCC	Solid Waste Agency of Northern Cook County
TNW	Traditionally Navigable Water
USACE	U.S. Army Corps of Engineers
U.S.	United States
WOTUS	Waters of the United States

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EXECUTIVE SUMMARY

At the request of Davids Engineering, Inc, Environmental Science Associates (ESA) conducted a site investigation for the Talley Recharge Project (project) of the approximately 14-acre study area located in Madera County (County), California, within the Lower Fresno River watershed. The proposed project would add new water delivery infrastructure to a recharge basin to replenish water, when available, from the Eastside bypass. The purpose of the site investigation was to identify and delineate potential wetlands and other waters of the United States and State on the project site, as well as on-site resources that are protected under Section 1600 et seq. of the California Fish and Game Code (CFGF). The information on potential waters of the United States (U.S.) and State and resources protected under Section 1600 et seq. of the CFGF will support any necessary permits from the regulatory agencies.

Based on the results of the aquatic resources delineation and the jurisdictional analysis, it is presumed that potential waters of the United State occur within the study area. It is presumed that 6.15-acre (824 linear feet) of potential wetland waters and 0.28-acre (861 linear feet) of potential other (non-wetland) waters of the State occur within the study area. In addition, it is presumed that 6.15-acre (824 linear feet) of stream and associated riparian habitat occurring within the study area are potentially protected under Section 1600 et seq. of the CFGF.

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CHAPTER 1

Introduction

ESA conducted an aquatic resources delineation for the Madera Talley Recharge Project (Project). The Project would involve the construction of a new point of diversion (POD) and ~3,400-ft. conveyance pipeline to divert flood flows from the Eastside Bypass to a dedicated recharge basin and approximately 160 acres of existing farmland within the County (**Figure 1** and **Figure 2**). Goals and objectives of the Project are to increase groundwater levels and storage in the area, prevent any further soils subsidence and increase water supply reliability. Implementation of the Project would enable these diverted flood waters to act as both direct groundwater recharge and as recharge applied to cropped areas, otherwise known as Flood-MAR.

The purpose of the delineation was to determine the extent of state and federal jurisdiction within each survey area potentially subject to regulation by the U.S. Army Corps of Engineers (USACE) pursuant to Section 404 of the Clean Water Act (CWA); the Central Valley Regional Water Quality Control Board (RWQCB) pursuant to Section 401 of the CWA and the Porter-Cologne Water Quality Control Act (Porter-Cologne Act); and California Department of Fish and Wildlife (CDFW) under Section 1602 of the California Fish and Game Code.

This aquatic resources delineation report (ARDR) was prepared in accordance with the USACE *Recommended Minimum Standards for Aquatic Resources Delineation Reports* (USACE 2025a), *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE 2008a), *Recording Aquatic Resource Delineations Using Global Navigation Satellite Systems* (USACE 2025b) and the *Updated Map and Drawing Standards for the South Pacific Division Regulatory Program* (USACE 2016).

1.1 Survey Location

The survey location for the Madera Talley Recharge Project is located within the Eastside Bypass in the County on privately owned farmland and Avenue 18 ½, where Avenue 18 ½ intersects with the Eastside Bypass (Figure 1). The Project is on the Bliss Ranch U.S. Geological Survey (USGS) 7.5-minute topographical quadrangle and is in the Lower Fresno River watershed (Hydrologic Unit Code 1804000705). The western portion of the survey area overlaps into the Chowchilla Bypass and sits at a lower elevation of approximately 120 feet (NAVD88). The survey area then gradually inclines eastward past the levee marking the boundary of the Eastside Bypass and evens out at approximately 135 feet (NAVD88). The elevation of the survey location occurs at approximately 150 feet above sea level. The Eastside Bypass is located immediately west of the project site, while surrounding land uses in all directions of the survey area are privately owned and managed orchards and other agricultural fields.

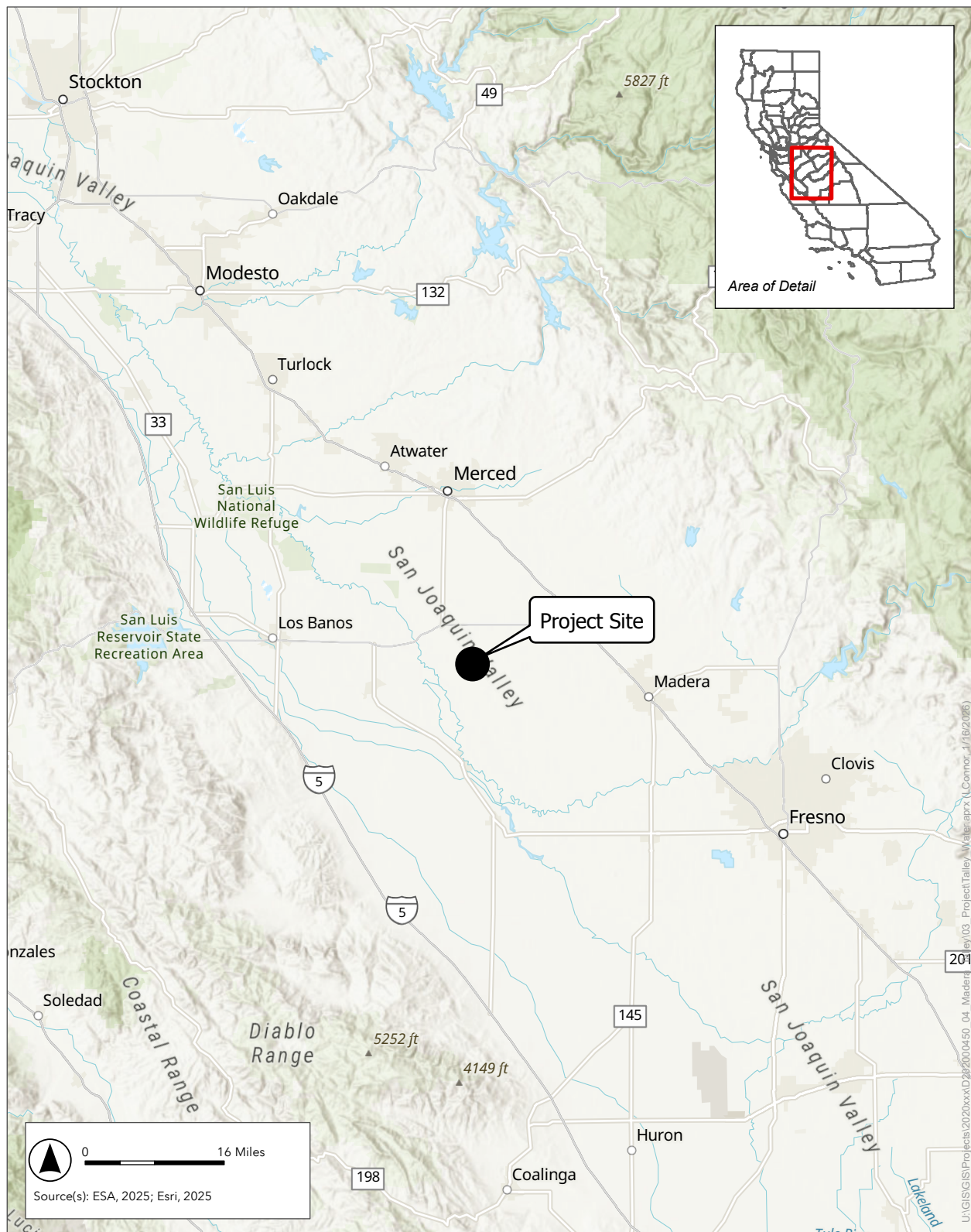


Figure 1
Regional Location

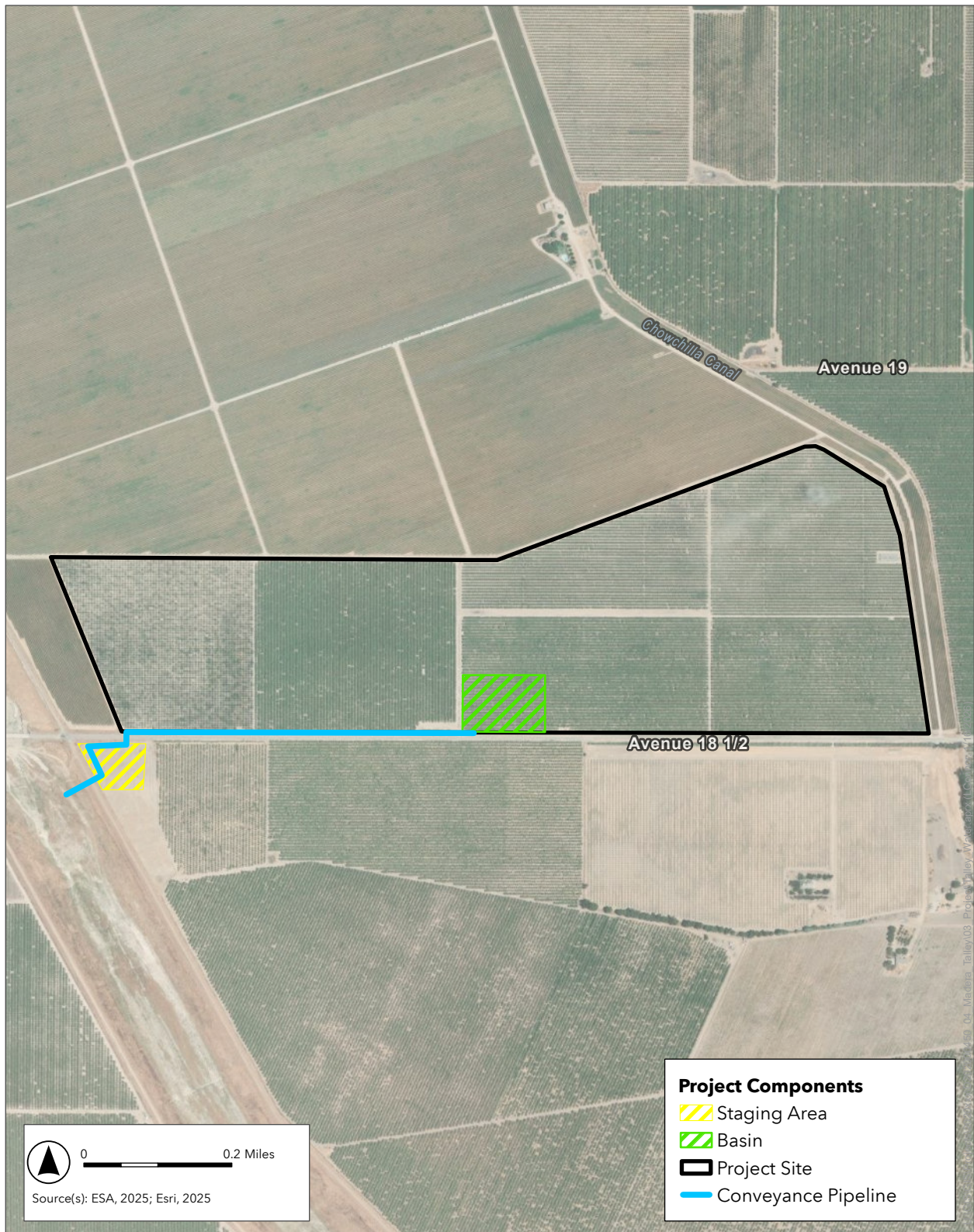


Figure 2
Vicinity Map

1.1.1 Directions to the Survey Area

The survey area is located approximately 11 miles southwest from Chowchilla, California. To drive to the survey area, navigate to the approximate centroid coordinates at 37.018169, -120.436514. Directions to the survey location from Chowchilla, CA area as follows:

- Head southeast on N. 2nd Street toward W. Robertson Boulevard for 50 feet;
- Turn right onto W. Robertson Boulevard;
- Turn right onto Avenue 21;
- Continue on Avenue 21 for 9.9 miles and arrive at the eastern edge of the survey area.

1.2 Contact Information

1.2.1 Applicant

Name: Chad Tienken
Title: Supervising Engineer
Company/agency: Davids Engineering, Inc.
Address: 346 East F Street, Oakdale, CA 95361
Contact information: (530) 757-6107

1.2.2 Property Owner

Name: Chris Talley
Title:
Company/agency:
Address:
Contact information:

1.2.3 Agent

Name: Madera County Water & Natural Resources
Address: 200 W. 4th Street, Suite 3100, Madera, CA 93637
Contact information: (559) 598-0362

1.2.4 Delineator(s)

Name: AJ Samra
Title: Associate Biologist
Company/agency: Environmental Science Associates
Address: 2600 Capitol Avenue Suite 200
Sacramento, CA 95816-5929
Contact information: asamra@esassoc.com

Name: Angelica Oregel
Title: Ecologist
Company/agency: Environmental Science Associates
Address: 2600 Capitol Avenue Suite 200
Sacramento, CA 95816-5929
Contact information: aoregel@esassoc.com

CHAPTER 2

Existing Conditions

The survey area consists of agricultural orchards, fallow agricultural fields, and a portion of the Eastside Bypass and associated levee. This area is intersected by a paved road, identified as Avenue 18 ½.

Agricultural orchards and fields occupy the majority of the survey area, with fields separated by both dirt access roads and Avenue 18 ½. A small portion of the Eastside Bypass and its associated levee occupy the western edges of the survey area. Agriculture is the primary land use within the survey area.

2.1 Survey Area

The survey area encompasses the 5-acre area proposed as a recharge basin, as well as the 50-ft wide boundary along the proposed conveyance pipeline and the 300-ft wide area for the diversion system that feeds into the Eastside Bypass. The current ecological conditions of the survey area would best be described as intensively managed agricultural orchards and fields. Irrigation water is supplied by groundwater and a series of agricultural ditches that intersect the orchards at various locations. This area has been affected by drought within the watershed in the past few decades.

The survey area was investigated for potential jurisdictional wetlands and non-wetland habitats. The survey area was accessible by foot or vehicle and was walked during surveys, taking care to stay within the survey area boundaries and within approved lands. Although agricultural operations have significantly reduced the presence of non-native and invasive plant species, they are still found in the fallow agricultural fields and portions of the unfarmed areas of the survey area such as the levee structure and roadsides. Some wildlife species are known to occur within the survey area, specifically within the Eastside Bypass portion. The agricultural orchards and fields of the survey area, however, provide low-quality habitat for any species known to occur. Similar to other areas within the Central Valley, the survey area was historically a habitat mosaic of wetland and floodplain habitat which became lost due to the development of private and public levee infrastructure and agricultural conversion.

2.2 Vegetation Communities and Land Cover Types

The majority of the survey area's vegetative communities are identified as orchards and fallow agricultural fields, all of which are actively managed (**Figure 3**). The orchards present, specifically, are actively managed with rows of agricultural trees and little to no understory of herbaceous and grass species. The fallow agricultural fields possess some non-native grasses across their acreages and along their boundaries. There are also portions of the survey area identified as disturbed/ruderal, which would include the paved roadway and associated levee. The western portion of the survey area was classified as riverine habitat and is a small portion of the Eastside Bypass. Any open water within the survey area is primarily associated with the riverine portions of the Eastside Bypass and agricultural ditches found on the boundary of the orchards.

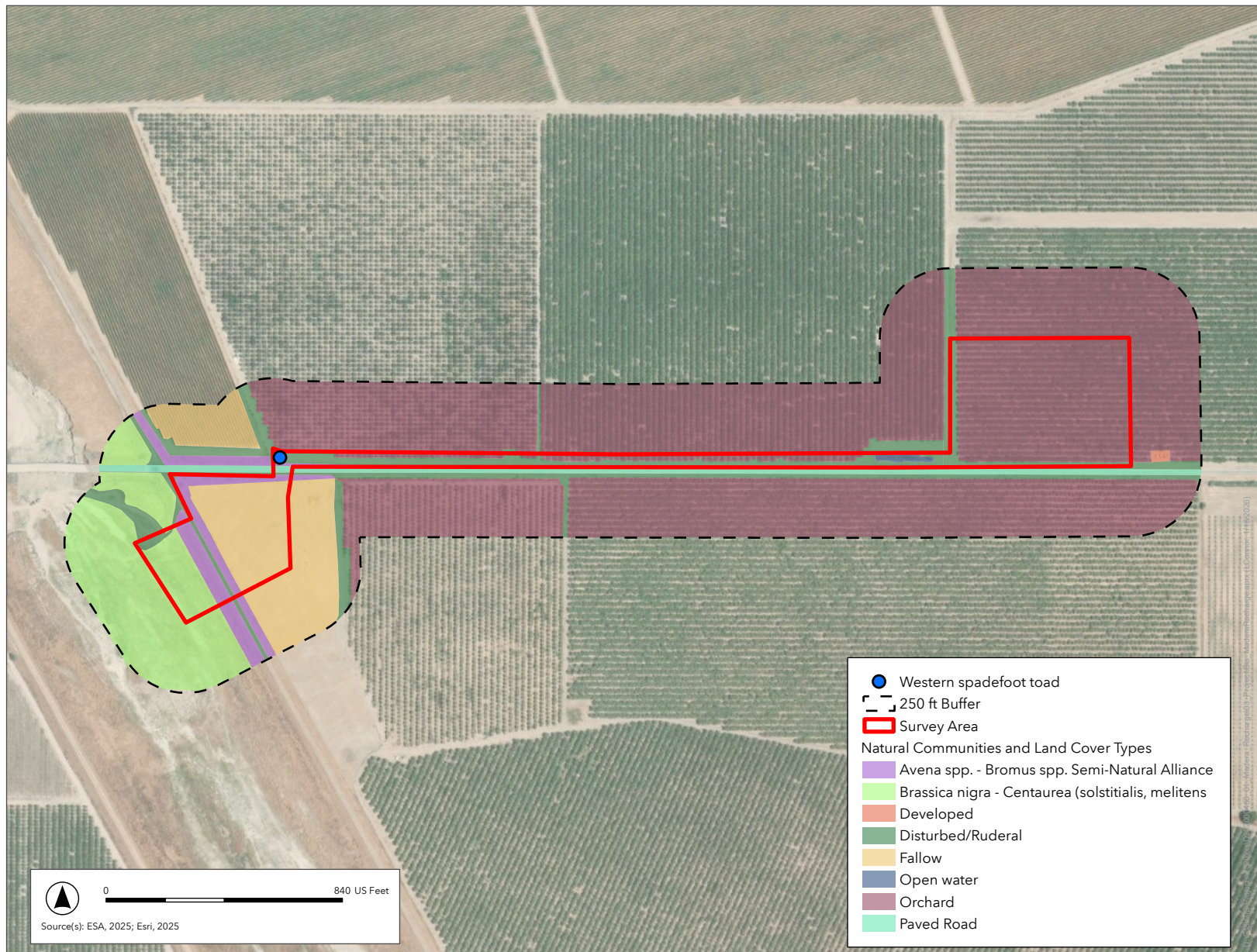


Figure 3
Natural Communities and Land Cover Types

TABLE 1
VEGETATION COMMUNITIES AND LAND COVER TYPES WITHIN THE SURVEY AREA

Vegetation Community/Land Cover Type	Acreage
Upland – Natural Communities	
<i>Avena</i> spp. – <i>Bromus</i> spp. Semi-Natural Alliance	2.11
Upland Habitats – Other Land Covers	
Orchard	44.03
Fallow	6.31
Developed	0.06
Disturbed/Ruderal	6.44
Aquatic Habitats	
Agricultural Ditch	0.28
Constructed Watercourse	6.15
Total	65.38

2.2.1 Open Water, Riparian, and Wetlands

2.2.1.1 Constructed Watercourse

This land cover type refers to the constructed watercourse portions of the Eastside Bypass that overlap into western portions of the survey area. This watercourse is delineated by the OHWM seen in figure 6 to identify the boundary between the Chowchilla Bypass and associated upland areas along the adjacent levee (USACE 33 CFR 328.3(e)). No surface water was being conveyed at the time of the survey.

A mixture of native shrubs, such as California mugwort (*Artemisia vulgaris*), and non-native grasses, herbs and forbes, including black mustard (*Brassica nigra*) and yellow star-thistle (*Centaurea solstitialis*), are present at varying degrees from the OHWM to the westernmost extent of the survey area into the Bypass.

2.2.1.2 Agricultural Ditch

One agricultural ditch was noted within the survey area boundaries. Agricultural ditches and associated structures typically function to convey irrigation water to the surrounding agricultural areas and drain excess waters when there are periods of heavy overland flow. Due to the smaller size of this ditch feature, it likely serves the latter function of capturing any excess flows. There was no evidence of any dredging or any other type of maintenance activities for this ditch, and surface water was present at the time of the survey. Non-native vegetation was present along the banks of this feature, with larger, native shrubs present in the feature such as rough cocklebur (*Xanthium strumarium*).

2.2.2 Uplands

2.2.2.1 *Avena* spp. – *Bromus* spp. Semi-Natural Alliance

Upland areas within the survey area are primarily observed adjacent to the Chowchilla Bypass, past the observed OHWM along the associated levee feature. *Avena* spp. – *Bromus* spp. grassland habitat is distributed along the edges of the bypass levee road and 18 ½. At the time of the survey in November

2025, the dominant species in this habitat type were annual invasive non-native grasses and native grasses such as wild oat (*Avena* spp.), and emerging *bromus* spp. Annual native herb and invasive non-native shrub species, such as, desert saltgrass (*Distichlis spicata*), turkey mullein (*Croton setigerus*), prickly Russian thistle (*Salsola tragus*), and milk thistle (*Silybum marianum*) were also scattered intermittently within this habitat type. This semi-natural alliance is not a sensitive natural community as the global/state rank is not applicable.

2.2.3 Developed/Disturbed

2.2.3.1 Orchard

Orchards occupy most of the survey area and are typically comprised of artificially irrigated perennial crops. Survey area orchards are comprised of almonds and figs and are actively maintained.

2.2.3.2 Fallow Agricultural Fields

Sparsely vegetated fallow agricultural fields are dominated by grasses such as orchard grass (*Dactylis glomerata*) and wild oat (*Avena sativa*). Evidence of grazing was present at the time of the survey. Along with the observed grasses, these fields were also dominated by other ruderal upland herbaceous species.

2.2.3.3 Developed

An agricultural irrigation pump and filtration system is stationed approximately 80 feet east of the Study area within the 250-foot buffer. The area consists of bare ground and the system.

2.2.3.4 Disturbed/Ruderal

Disturbed/Ruderal are portions of the survey area that have been physically altered to an extent that native vegetation is no longer supported. Disturbed/Ruderal land is characterized by pavement or hardscape, and bare ground with no or sparse vegetation. Developed land occurs throughout the levees, the walking trails present atop the levees, bare access roads in the orchards, the road shoulder, and the Avenue 18 ½ roadway.

2.3 Soils

The Natural Resource Conservation Service (NRCS) Web Soil Survey results identify seven soil mapping units (SMU's) within the project site (**Figure 4**). Of these SMU's, three occupy a majority of the site with the first being the Fresno and El Peco fine sandy loams, strongly saline, 0 to 1 percent slopes (FecA). This soil is often found on fan remnants and is derived from alluvium and granite parent material, with a depth of over 80 inches to the water table. The second most prominent soil within the survey area is Pachappa fine sandy loam, 0 to 1 percent slopes (PaA). This soil is also often found on fan remnants, is derived from alluvium and granite parent material, and has a depth of over 80 inches to the water table; however, its maximum salinity is assessed as nonsaline to slightly saline. The final major soil unit within the survey area is Traver loam, slightly saline-alkali, 0 to 1 percent slopes (TmA), which shares similar landform, parent material and depths to water table as the other major soil units. This soil's maximum salinity also differs, as its salinity is assessed as slightly saline to moderately saline. All three major soil units in the survey are not considered hydric soils (NRCS 2025a).

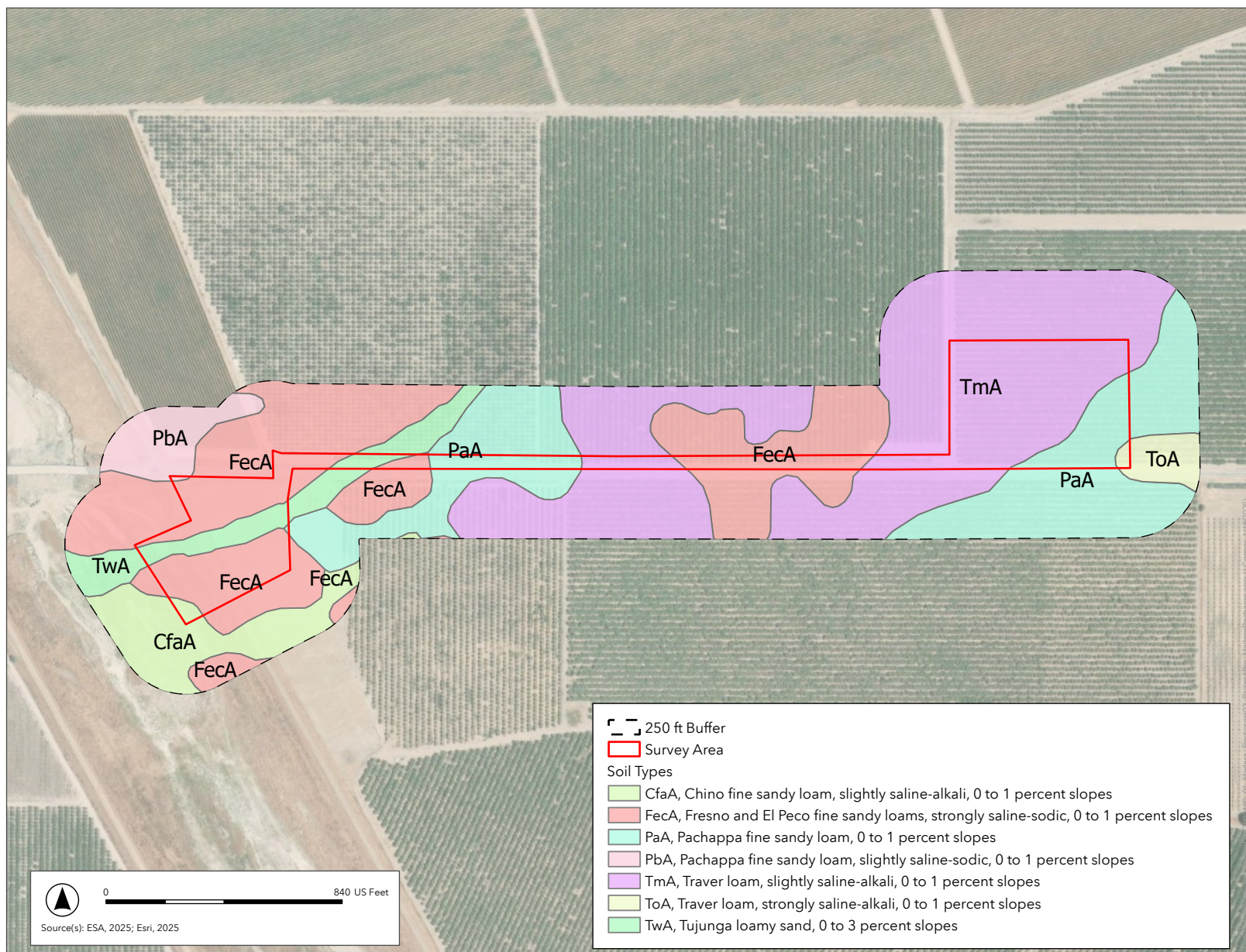


Figure 4
Soils

TABLE 2
SURVEY AREA SOILS

Soil Series	Description	Location	Hydric Soil List? (Y/N)
Chino fine sandy loam, slightly saline-alkali (CfaA) 0%–1% slopes	Occurs on basin floors and is derived from alluvium that is derived from granite. Somewhat poorly drained with medium runoff. Slightly saline to moderately saline.	Riverine, Agricultural Field	N
Fresno and El Peco fine sandy loams, strongly saline-sodic (FecA) 0%–1% slopes	Occurs on fan remnants and is derived from alluvium that is derived from granite. Moderately well drained with medium runoff. Strongly saline.	Riverine, Agricultural Field, Orchard, Urban/Developed, Upland	N
Pachappa fine sandy loam (PaA) 0%–1% slopes	Occurs on fan remnants and is derived from alluvium that is derived from granite. Well drained with medium runoff. Nonsaline to slightly saline.	Agricultural Field, Orchard, Urban/Developed	N
Pachappa fine sandy loam, slightly saline-sodic (PbA) 0%–1% slopes	Occurs on fan remnants and is derived from alluvium that is derived from granite. Well drained with medium runoff. Slightly saline to moderately saline.	Agricultural Field	N
Traver loam, slightly saline-alkali (TmA) 0%–1% slopes	Occurs on fan remnants and is derived from alluvium that is derived from granite. Moderately well drained with low runoff. Slightly saline to moderately saline.	Orchard, Urban/Disturbed, Agricultural Ditch	N
Traver loam, strongly saline-alkali (ToA) 0%–1% slopes	Occurs on fan remnants and is derived from alluvium that is derived from granite. Moderately well drained with low runoff. Strongly saline.	Orchard, Urban/Disturbed	N
Tujunga loamy sand (TwA) 0%–3% slopes	Occurs on floodplains and alluvial fans and is sandy alluvium derived from granite. Somewhat excessively drained with very low runoff. Nonsaline.	Riverine, Upland, Urban/Disturbed, Orchard	N

Additional details on these soil units, as well as the other less prevalent soil units in the survey area, can be found in the NRCS soil report (**Appendix A**). The following resources regarding soils were reviewed:

1. *Hydric Soils List of California, 2022* (NRCS 2025a) <https://www.nrcs.usda.gov/publications/query-by-state.html>
2. NRCS *Web Soil Survey* (NRCS 2025b), queried to determine the soils that have been mapped within the survey area <https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>

2.4 Hydrology

The survey area is located east of the Eastside Bypass within the Lower Fresno River watershed. The Eastside Bypass extends from the confluence of the Fresno River and Chowchilla Bypass to its confluence with the San Joaquin River. The site is within the southern portion of the Bypass, which is a critical component of the Lower San Joaquin River Flood Control Project (LSJRFCP) that provides flood control services for the region and is operated and maintained by the Lower San Joaquin Levee District (LSJLD). The LSJRFCP has substantially influenced the local and regional hydrology, with levee construction along the Bypass facilitating managed floodway conveyance while simultaneously

disconnecting historic floodplains from their natural waterways and aiding in urban and agricultural conversion of these lands.

The Eastside Bypass conveys flows from the San Joaquin, Fresno and Chowchilla Rivers, as well as Berenda and Ash Sloughs and Deadman, Owens and Bear Creeks. Generally, the Eastside Bypass remains dry until required flood flows or Restoration Flows are needed to be conveyed (DWR 2017). Within the survey area, surface water inputs originate from the Sand Slough Control Structure, situated south of the site, to the Mariposa Bypass Control Structure, where surplus flood flows are then split between the Mariposa Bypass and the remainder of the Eastside Bypass. Existing infrastructure that overlaps with the survey area includes the right-bank levee, identified as the Berenda Slough Levee (1905008020) and is situated in the western portion of the site. This levee was constructed as a part of the LSJRFCD and is operated and maintained by the LSJLD, with several issues of seepage and slope erosion being noted (DWR 2017).

Due to the presence of the Berenda Slough Levee, the remainder of the survey area does not experience any flooding events from the Eastside Bypass. Groundwater supply, along with the various irrigation ditches in the greater area, are the primary water supply sources for the orchards and agricultural fields in the region. Recent drought conditions have increased land subsidence and groundwater overdraft issues, both within the survey area and the San Joaquin Valley. This increase in subsidence has already been documented as changing the slopes of the San Joaquin River and its associated tributaries and bypasses, including the Eastside Bypass (DWR 2017).

2.5 Climate

The survey area lies within California's Central Valley, a region defined by dry, hot summers and mild, wet winters. Nearly all precipitation occurs as rain between November and April, with an average annual total of 12.2 inches (NWS 2025). Summer daytime temperatures frequently exceed 100 degrees Fahrenheit, while winter temperatures are milder, with averages of 40-50 degrees Fahrenheit (NWS 2025). Overall, the region experiences an average daily maximum temperature of 80.6 degrees Fahrenheit and an average daily minimum of 63.1 degrees Fahrenheit.

2.5.1 Antecedent Precipitation Tool

The Antecedent Precipitation Tool (APT; Version 3.0.8) (USACE 2025) was used to evaluate climatic conditions in the survey area. The APT Single-Point Sampling Summary provided in **Appendix B, Climatological Data**, summarizes precipitation and climatic data for the survey area for the three months before the delineation survey date of November 18, 2025. The Antecedent Precipitation Score of 15 indicates that climatic conditions were wetter than normal along with the corresponding Palmer drought severity index indication of Mild Drought (**Table 3**).

TABLE 3
ANTECEDENT PRECIPITATION TOOL RESULTS FOR THE PROJECT SITE ON 11-18-2025

No. of Sampling Points	PDSI Class	Season	Antecedent Precipitation Score	Antecedent Precipitation Condition
1	Incipient Drought	Dry Season	18	Wetter than Normal
Note: PDSI = Drought index				
Source: Antecedent Precipitation Tool (v 3.0.8)				

CHAPTER 3

Regulatory Framework

3.1 Waters of the U.S.

3.1.1 Clean Water Act

The CWA establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters. The basis of the CWA was enacted in 1948 and was called the Federal Water Pollution Control Act, but the Act was significantly reorganized and expanded in 1972. "Clean Water Act" became the Act's common name with amendments in 1972.

In 1986, the term "waters of the United States" was defined as follows (33 CFR 328.3[a]):

- (1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- (2) All interstate waters including interstate wetlands;
- (3) All other 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:
 - (i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
 - (ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
 - (iii) Which are used or could be used for industrial purpose by industries in interstate commerce;
- (4) All impoundments of waters otherwise defined as waters of the U.S. under the definition;
- (5) Tributaries of waters identified in paragraphs (a)(1) through (4) of this section;
- (6) The territorial seas; and
- (7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a)(1) through (6) of this section.
- (8) Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other Federal agency, for the

purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with the EPA.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 423.11(m) which also meet the criteria of this definition) are not waters of the United States

Wetlands (including swamps, bogs, seasonal wetlands, seeps, marshes, and similar areas) are also considered waters of the U.S. (subject to the significant nexus test), and are defined by USACE as “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (33 CFR 328.3[b]; 40 CFR 230.3[t]). Indicators of three wetland parameters (i.e., hydric soils, hydrophytic vegetation, and wetlands hydrology), as determined by field investigation, must be present for a site to be classified as a wetland by USACE (Environmental Laboratory 1987).

Solid Waste Agency of Northern Cook County (SWANCC) v. United States

In 2001 and again in 2003, the agencies developed guidance to address the definition of "waters of the United States" under the Clean Water Act following the SWANCC Supreme Court decision. Isolated, intrastate waters that are capable of supporting navigation by watercraft remain subject to CWA jurisdiction after SWANCC if they are traditional navigable waters. However, SWANCC eliminates CWA jurisdiction over isolated waters that are intrastate and non-navigable.

Rapanos v. United States & Carabell v. United States

USACE and the EPA have issued a set of guidance documents detailing the process for determining CWA jurisdiction over waters of the U.S. (waters of the U.S.) following the 2008 Rapanos decision. The EPA and USACE issued a summary memorandum of the guidance for implementing the Supreme Court’s decision in Rapanos that addresses the jurisdiction over waters of the U.S. under the CWA. The complete set of guidance documents, summarized as key points below, were used to collect relevant data for evaluation by the EPA and the USACE to determine CWA jurisdiction over the project and to complete the “significant nexus test” as detailed in the guidelines.

Summary of Key Points:

The agencies will assert jurisdiction over the following waters:

- Traditional navigable waters
- Wetlands adjacent to traditional navigable waters
- Non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months)
- Wetlands that directly abut such tributaries;

The agencies will decide jurisdiction over the following waters based on a fact-specific analysis to determine whether they have a significant nexus with a traditional navigable water:

- Non-navigable tributaries that are not relatively permanent
- Wetlands adjacent to non-navigable tributaries that are not relatively permanent
- Wetlands adjacent to but that do not directly abut a relatively permanent non-navigable Tributary;

The agencies generally will not assert jurisdiction over the following features:

- Swales or erosional features (e.g., gullies, small washes characterized by low volume, infrequent, or short duration flow)
- Ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water;

The agencies will apply the significant nexus standard as follows:

- A significant nexus analysis will assess the flow characteristics and functions of the tributary itself, and the functions performed by all wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical and biological integrity of downstream traditional navigable waters
- Significant nexus includes consideration of hydrologic and ecologic factors

The significant nexus test includes consideration of hydrologic and ecologic factors. For certain circumstances, the significant nexus test would consider physical indicators of flow (evidence of an ordinary high water mark [OHWM]), if a hydrologic connection to Traditionally Navigable Water (TNW) exists, and if the aquatic functions of the water body have a significant effect (more than speculative or insubstantial) on the chemical, physical, and biological integrity of a TNW. The USACE and EPA will apply the significant nexus standard to assess the flow characteristics and functions of a potential water of the U.S. to determine if it significantly affects the chemical, physical, and biological integrity of the downstream TNW.

3.2 Waters of the State

Most projects involving water bodies or drainages are regulated by the RWQCB, the principal State agency overseeing water quality of the State at the local/regional level. The survey area is located within the jurisdiction of the Central Valley, Fresno Office RWQCB. Where waters of the State overlap with waters of the U.S., pending verification from the USACE, those waters would be regulated under Section 401 of the CWA.

In the absence of waters of the U.S., waters may be regulated under the Porter-Cologne Act if project activities, discharges, or proposed activities or discharges could affect California's surface, coastal, or ground waters. The permit submitted by the applicant and issued by RWQCB is either a Water Quality Certification in the presence of waters of the U.S. or a Waste Discharge Requirement (WDR) in the absence of waters of the U.S.

The State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (procedures), as prepared by the State Water Resources Control Board, was implemented on May

28, 2020. The procedures include a definition for wetland waters of the state that include 1) all wetland waters of the U.S.; and 2) aquatic resources that meet both the soils and hydrology criteria for wetland waters of the U.S. but lack vegetation.¹

3.3 Rivers, Streams, and Lakes

Pursuant to Division 2, Chapter 6, Section 1600 et seq. of the FGC, CDFW regulates all diversions, obstructions, or changes to the natural flow or bed, channel or bank of any river, stream, or lake which supports fish or wildlife. A notification of a Lake or Streambed Alteration Agreement must be submitted to CDFW for “any activity that may substantially change the bed, channel, or bank of any river, stream, or lake.” In addition, CDFW has authority under FGC over wetland and riparian habitats associated with lakes and streams. The CDFW reviews proposed actions, and if necessary, submits to the applicant a proposal that includes measures to protect affected fish and wildlife resources. The final proposal that is mutually agreed upon by CDFW and the applicant is the Lake or Streambed Alteration Agreement (LSAA).

¹ Less than 5 percent areal coverage at the peak of the growing season.

CHAPTER 4

Methodology

4.1 Pre-survey Review

Prior to conducting the aquatic resources delineation, ESA conducted a review of available background information pertaining to the survey area to obtain information on hydrology, including information on the local geography and topography.

The following resources were reviewed:

1. National Wetland Plant List, version 3.6: 2018 wetland ratings (USACE 2022);
2. *Hydric Soils List of California* (NRCS 2018);
3. Natural Resources Conservation Service's (NRCS) *Web Soil Survey*, queried to determine the soils that have been mapped within the survey area (NRCS 2025);
4. The National Wetlands Inventory (NWI) (USFWS 2025) (**Figure 5**);
5. USGS topographic maps: Bliss Ranch (USGS 2025b);
6. Historical aerial photography: (Historic Aerials 2025, Google Earth 2025).

4.1.1 National Wetlands Inventory

Aerial maps (Google 2025) and the National Wetlands Inventory (NWI) were used to conduct a preliminary assessment of the limits of aquatic features in the survey area. As shown in Figure 5, NWI mapped freshwater emergent wetlands and riverine features within the survey area (within the Eastside Bypass).

4.2 Survey Methods

The aquatic resource delineations were conducted by ESA ecologist Angelica Oregel and biologist AJ Samra on November 18, 2025. The delineation consisted of walking the survey area, identifying potentially jurisdictional aquatic features using visual observations of vegetation types and changes in hydrology to locate areas for evaluation. Weather conditions during the delineation were conducive to conducting field surveys and were partly cloudy and sunny. Temperatures ranged from 49 degrees to 63 degrees Fahrenheit and winds ranged from 0-3 mph. Data was collected in field, and resources and features were mapped using a handheld submeter GPS device. All plant species observed on-site were noted, and plants that could not be identified in field were identified later using a taxonomic key (Baldwin et al. 2012). Vegetation communities were mapped using a GPS system.

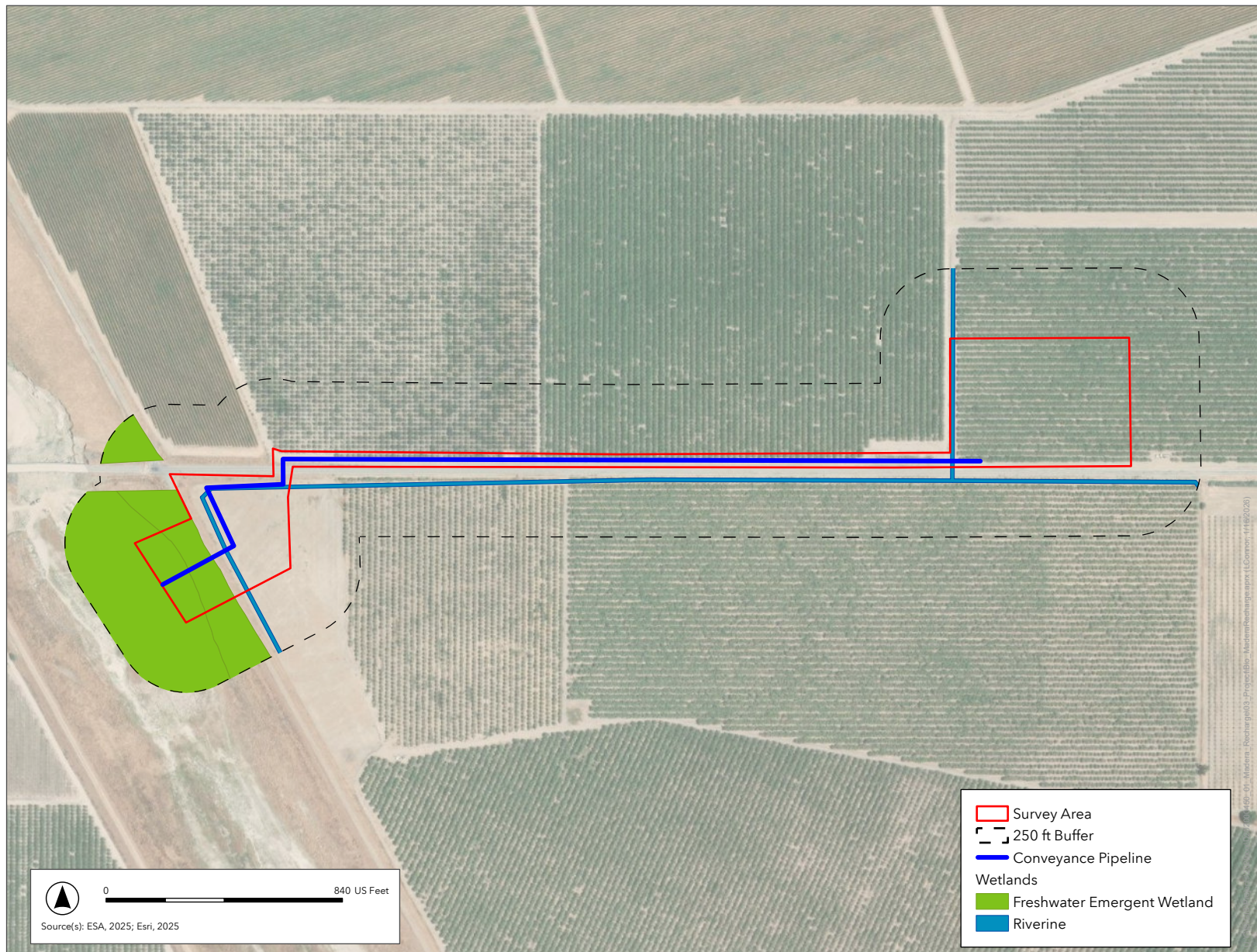


Figure 5
National Wetlands Inventory

4.2.1 Waters of the United States

Delineation of potential non-wetland waters of the U.S., as determined by the presence of an OHWM, was based on the guidance in *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE 2008a). Waters type was determined based on observed hydrological regime and the hydrological connection between the watercourse and a downstream TNW.

Delineation of potential wetland waters of the U.S. used the “Routine Determination Method” as described in the 1987 *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987), hereafter called the “1987 Manual.” The 1987 Manual was used in conjunction with the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Version 2.0) (USACE 2008b), hereafter called the “Arid West Supplement.” For areas where the 1987 Manual and the Arid West Supplement differ, the Arid West Supplement was followed.

Wetlands and waters were classified using commonly accepted habitat types. The Cowardin classification (Cowardin et.al. 1979) of each feature type was also determined.

4.2.2 Waters of the State

Waters of the state regulated under CWA Section 401 were delineated using the same methodology as waters of the U.S. Waters of the state outside of CWA Section 401 jurisdiction and subject to Porter-Cologne Water Quality Act were delineated. Within the survey area, waters of the state under Porter-Cologne were considered congruent with CDFW jurisdiction.

State wetlands were delineated pursuant to the State Wetland Procedures (SWRCB 2020). State wetlands are defined as areas where, under normal circumstances, (1) the continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area’s vegetation is dominated by hydrophytes, or the area lacks vegetation. Unlike federal wetlands, state wetlands require no connection to waters of the U.S. and areas lacking vegetation may still be considered wetlands where hydric soils and wetland hydrology is present.

4.2.3 Rivers, Streams, and Lakes

River, stream, and lake resources were delineated based on the presence of features that could meet CDFW’s broadly applied interpretation of streams and lakes, including areas that exhibit regular and natural ponding and drainage features that exhibit a bed and bank. CDFW resources were also delineated to include streambanks up to the top of the bank (for natural channel banks), and associated wetlands and riparian vegetation, to the outer dripline.

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CHAPTER 5

Results

5.1 Aquatic Resources

A summary of potential wetlands and other waters of the U.S. by survey area within the survey areas are provided in **Table 4**, described below by jurisdiction and separately by survey area.

TABLE 4
AQUATIC RESOURCES WITHIN THE SURVEY AREA

Aquatic Feature	Cowardin Type	Dominant Vegetation/ Land Cover Type	Linear Feet	Area (acres)
Agricultural Ditch-1 (AD-1)	Palustrine unconsolidated bottom (PUB)	Forb and Grass Communities	208	0.13
Agricultural Ditch-2 (AD-2)	Palustrine unconsolidated bottom (PUB)	Forb and Grass Communities	653	0.15
San Joaquin River Eastside Bypass (BP-1)	Riverine Intermittent streambed (R4SB)*	<i>Brassica nigra</i> - <i>Centaurea (solstitialis, melitens)</i>	824	4.88**
Total Aquatic Features:			1685	6.44

* Due to onsite conditions, this classification is better classified as R4SB.

** Acreages are for the area south of the Avenue 18 ½ bridge only.

Aquatic resources discussed in this section are shown on **Figure 6** and **Figure 7** (showing other waters of the U.S., other waters of the state/Fish and Game Code Section 1600 resources). Details of each feature are specified in Table 4. Datasheets are provided in **Appendix C**. Representative photographs of aquatic resources are provided in **Appendix D**.

Two aquatic features were found within the survey areas. Additional detail along survey area alignment is provided below.

5.2 Waters of the United States

As defined under Section 3.1, under the Revised Definition of Waters of the United States, there are five categories that are considered jurisdictional waters of the United States:

- (a)(1)—territorial seas and waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including waters which are subject to the ebb and flow of the tide, and interstate waters, including interstate wetlands.
- (a)(2)—impoundments of waters of the United States.
- (a)(3) tributaries of waters of the United States that meet the relatively permanent standard (RPS).

- (a)(4) wetlands adjacent to certain waters that meet the RPS.
- (a)(5) intrastate lakes and ponds that meet the RPS.

See **Table 5** for an evaluation of the aquatic resources in the survey area that meet the Revised Definition of Waters of the United States.

TABLE 5
FEATURES POTENTIALLY SUBJECT TO SECTION 1600 ET SEQ. OF THE FISH AND GAME CODE

Aquatic Feature	Cowardin Type	Vegetated Bypass within top of bank	Unvegetated Streambed/ Pond/Lake (Acre)	GPS Coordinates (decimal degrees)
BYPASS	R4SB	6.15	N/A*	37.01828012, -120.42326255
Totals		6.15	N/A	

Notes: R4SB = Riverine Intermittent Streambed; PUB3= Palustrine unconsolidated bottom mud

* Unvegetated streambed was outside of the survey area and 250 foot buffer

Source: Data compiled by Environmental Science Associates in 2026

5.2.1 Potential Wetland and Waters of the U.S.

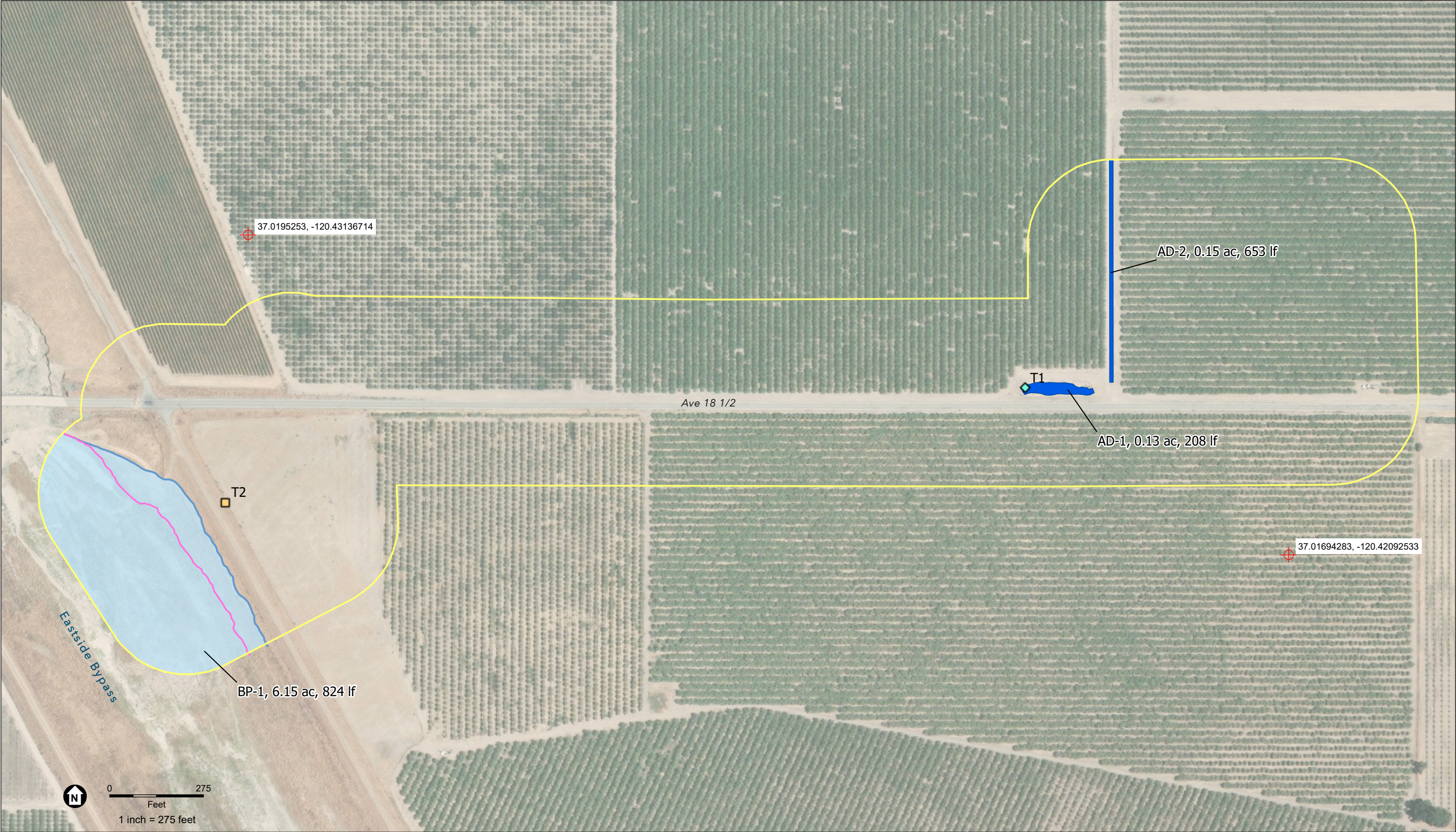
5.2.1.1 Constructed Watercourse

Eastside Bypass

The low flow channel of the Eastside Bypass, located in the center of the bypass is a Waters of the United States (WOTUS). The entire channel was exceptionally dry at the time of the survey; however, historic aerial imagery shows water flowing in the center of the channel some months of some years. The Bypass is a highly controlled system, and flows do not follow a natural hydrologic regime. The bench within the levee that is at a higher elevation than the low flow channel is designed to be a part of the floodplain, but it is not functioning as a wetland because of how infrequently it is wet. The floodplain bench within the Eastside Bypass does not meet minimum hydrologic criteria to be wetland. Based on aerial imagery, the floodplain bench appears to have retained water only one year in the past five. The three points of diversion located on the bench in the Eastside Bypass are therefore located outside of the boundaries of WOTUS.

The NWI classified the Eastside Bypass as a freshwater emergent wetland. The OHWM indicators within the San Joaquin River Eastside Bypass include a distinct low flow channel and bank and eroded banks. The low flow channel has intermittent, highly controlled flows and is dry most of the year. There was no water present at the time of the survey.

Under normal conditions, the active floodplain does not support wetland vegetation due to its infrequent inundation. Due to cattle grazing, this site is sparsely vegetated (<5% cover) and is comprised of upland species such as rattlesnake sandmat and facultative upland species such as Mediterranean barley and Bermuda grass. The floodplain is flat and dominated by non-native grasses.



SOURCE: Esri, 2025; ESA, 2025

Coordinate System: NAD 1983 State Plane
California Zone III FIPS 0404 (US Feet)
Projection: Lambert Conformal Conic
Datum: North American 1983
Vertical Datum: N/A

Survey Area

Map Reference Point

Sampling Points

Upland

Wetland

Ordinary High Water Mark

Top of Bank

Other Waters of the U.S. (6.43 acres)

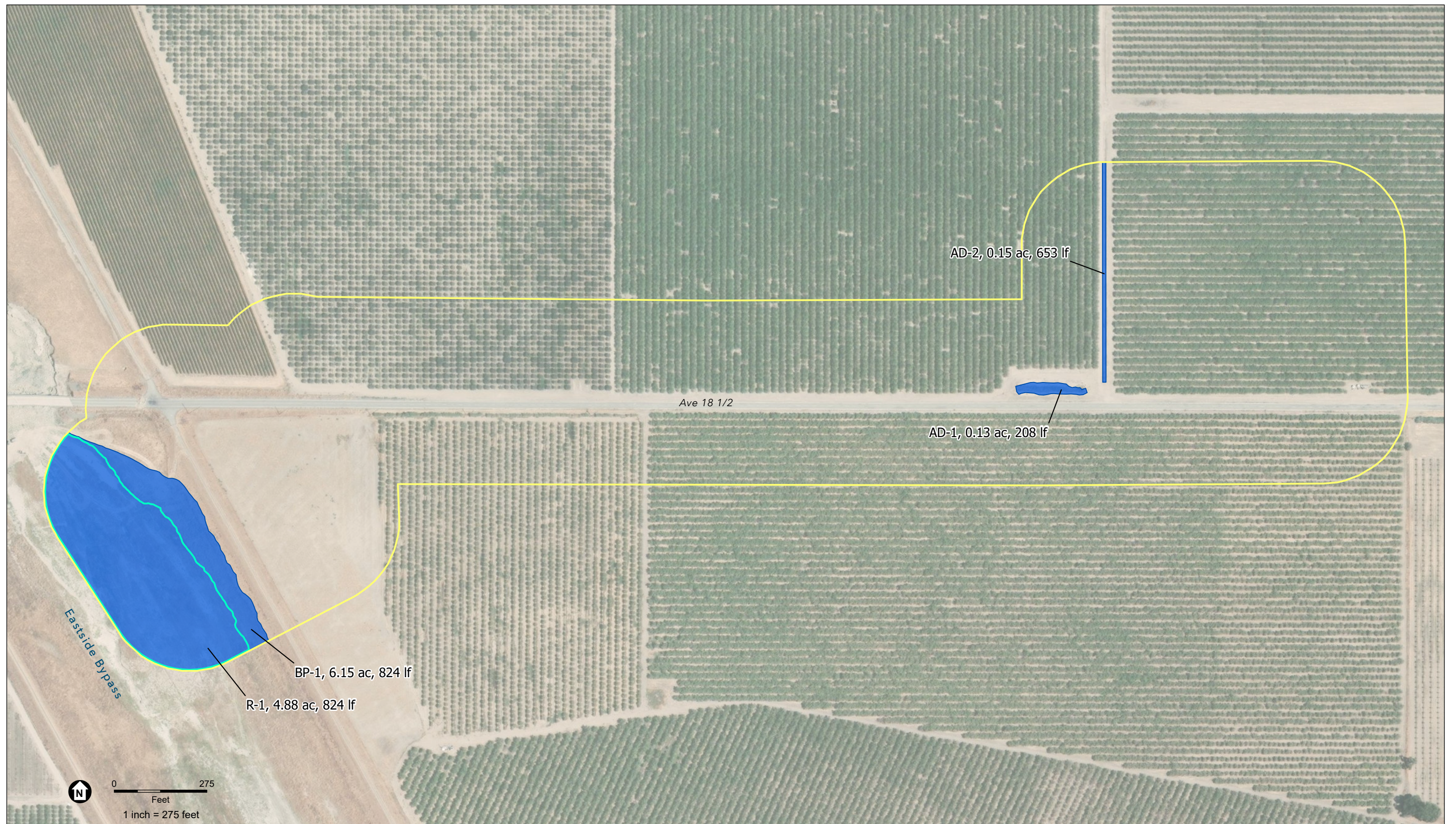
Agricultural Ditch (0.28 acre)

Intermittent Stream (Bypass) (6.15 acres)

Delineated by: AJ Samra
Mapping by: Lauren Connor
Created on: 1/6/2026

Figure 6
Delineated Aquatic Resources





SOURCE: Esri, 2025; ESA, 2025

Coordinate System: NAD 1983 State Plane
California Zone III FIPS 0404 (US Feet)
Projection: Lambert Conformal Conic
Datum: North American 1983
Vertical Datum: N/A

- Survey Area
- Waters of the US, Waters of the State
- Waters of the US, Waters of the State and CDFW/RWQCB

Delineated by: AJ Samra
Mapping by: Lauren Connor
Created on: 1/12/2026

Figure 7
Features Potentially Subject to
Fish and Game Code Section 1600

5.2.2 Potential Other Waters of the U.S.

5.2.2.1 Ditches

Agricultural Ditch-1

The one manmade basin in the survey area is considered to be an agricultural ditch. Agricultural ditches and associated structures typically function to convey irrigation water to the surrounding agricultural areas and drain excess waters when there are periods of heavy overland flow. Due to its smaller size, it likely serves as a drain for excess waters when there are periods of heavy overland flow. Surface water was present at the time of the survey. However, it is not included in the NWI or considered WOTUS. These features are excavated wholly in uplands and do not support relatively permanent water. They are also isolated and do not have drainage beyond the boundaries of the basin. However, at sampling point T1 (**Appendix B, Figure 6**) within the agricultural ditch, field indicators collectively support the presence of a wetland. Vegetation met hydrophytic criteria via the Dominance Test. Soils mapped as Traver loam exhibited a Depleted Matrix (F3) with redox concentrations and manganese masses, satisfying hydric soil indicators. Hydrological indicators were present, including surface water, water table, and saturation; field notes attribute ponded conditions to runoff from rainfall in the month of November 2025, with measurements not obtained due to post-rain conditions. Based on the convergence of hydrophytic vegetation, hydric soils, and wetland hydrology, the sampled area at T1 meets the criteria for a jurisdictional wetland under the Corps' Arid West delineation protocol.

Agricultural Ditch-2

The NWI classified riverine system on Road 7, north of Ave 18 ½ (Figure 6) resembles the similar characteristics as the agricultural ditch described above in section 5.3.1 (T1) and would also be potential waters of the U.S. This manmade feature was excavated wholly in uplands and does not support relatively permanent water. The feature appears to be constructed to collect excess drainage from the surrounding orchards and drain into the manmade basin. Aerial imagery shows this feature does not hold water regularly as it all drains to the basin. It is also isolated and does not have drainage beyond the boundaries of channel and connecting basin. According to NWI, this feature is connected to the Chowchilla Canal, which receives its water from the San Joaquin River and the Chowchilla river, both waters of the U.S. thus this feature cannot be fully excluded.

5.2.3 Potential Non-jurisdictional Features

The Revised Definition of Waters of the United States specifically identifies eight type of excluded waters that are considered non-jurisdictional. Specifically, the Revised Definition of Waters of the United States excludes the following waters: (b)(1) wastewater treatment systems; (b)(2) prior converted cropland designated by the Secretary of Agriculture (b)(3) ditches Including roadside ditches) excavated wholly in and draining only dry land; (b)(4) artificial lands or ponds created by excavating or diking dry land with specific uses; (b)(6) artificial reflecting or swimming pools or other small ornamental bodies of waters; (b)(7) waterfilled depression created in dry land incidental to construction activity; and (b)(8) swales and erosional features. Based on the results of the aquatic resource delineation, non-jurisdictional wetlands/other features were identified in the survey area.

Furthermore, those features that do not meet the RPS or otherwise do not meet definitions of one of the (a)(1) through (a)(5) waters categories may also be considered non-jurisdictional. See Table 4, below, for

a summary of the aquatic resources in the survey area that do not meet the Revised Definition of Waters of the United States or are specifically excluded waters.

5.2.3.1 Non-jurisdictional (Other) Features

Ditches

The National Wetlands Inventory (NWI) map initially identified a portion of the study area below the east side of the levee, the southern road shoulder of Ave 18 ½ and at Road 7 as riverine systems. However, field verification and T2 (Figure 6) revealed that the area below the east side of the levee does not exhibit characteristics of an aquatic habitat. No evidence of an ordinary high-water mark, hydric soils, or hydrophytic vegetation was observed. Instead, the area consists of upland grassland dominated by terrestrial species and lacks indicators of jurisdictional waters. This also applies to the southern shoulder of Ave 18 ½. Therefore, this feature does not meet the criteria for Waters of the U.S. or the State and is excluded from delineation. This feature will not be discussed in Waters of the State.

5.3 Waters of the State

All potential non-wetland waters of the U.S. summarized in Table 4 above are also potential non-wetland waters of the state. Waters of the state are depicted in Figure 6 and acreages are summarized in **Table 5**.

5.3.1 Potential Wetland Waters of the State

All wetland waters of the United States delineated in this report also meet the state wetland definition.

5.3 Rivers, Streams, and Lakes

The entire Eastside Bypass is likely to qualify as a “river” according to the California Fish and Game Code (FGC) section 1602. As a result, any activities that modify the bypass will require a Streambed Alteration Agreement with the California Department of Fish and Wildlife (CDFW). Table 6 and Figure 7 present the survey area acreage within the Eastside Bypass that would be covered by the FGC Section 1602 Streambed Alteration Agreement.

This includes the Eastside Bypass low flow channel up to the top of bank. Although this is an artificial feature, it is greater than 1 acre in size and was created by modifying a surface water of the State (the San Joaquin River) and therefore meets the State Wetland Procedures criterion 2 for “wetland created by modification of a surface water of the state.”

5.4 Conclusions

This report documents the aquatic resources boundary delineation and best professional judgment of ESA investigators. All conclusions presented should be considered preliminary and subject to change pending official review and a jurisdictional determination in writing by the USACE and/or state. All aquatic resources and extent of jurisdictional boundaries identified in this report are considered preliminary pending verification from the appropriate regulatory agencies. This aquatic resource study found three aquatic features within the survey area: only one is considered to be a potential non-wetland water of the U.S. and State- the Eastside Bypass low-flow channel. The other two artificially created retention ditches are not considered waters of the U.S. or State.

CHAPTER 6

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Appendix A

Soils Report



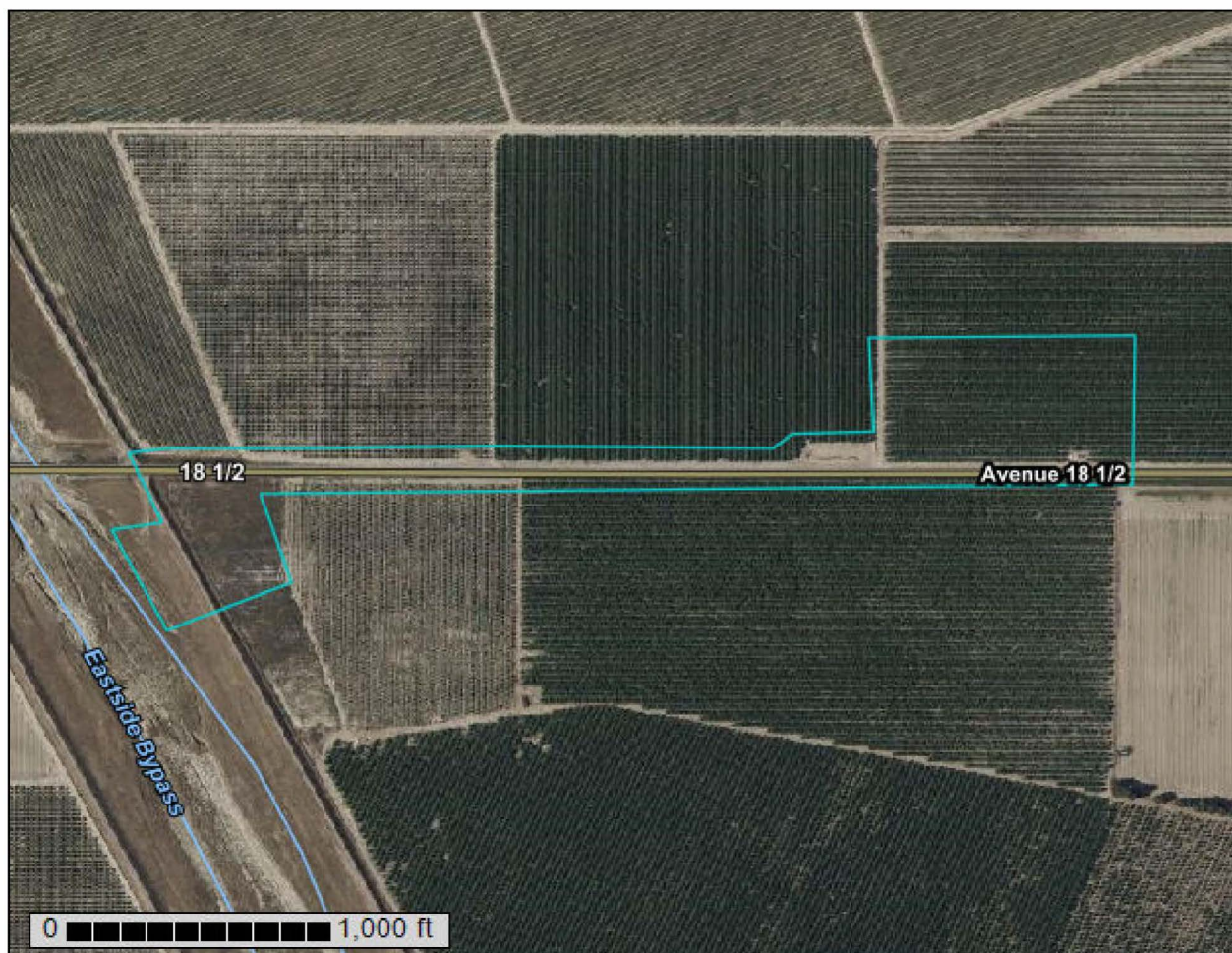
United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

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

Custom Soil Resource Report for Madera Area, California



Preface

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

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

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

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

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

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

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How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

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

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

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

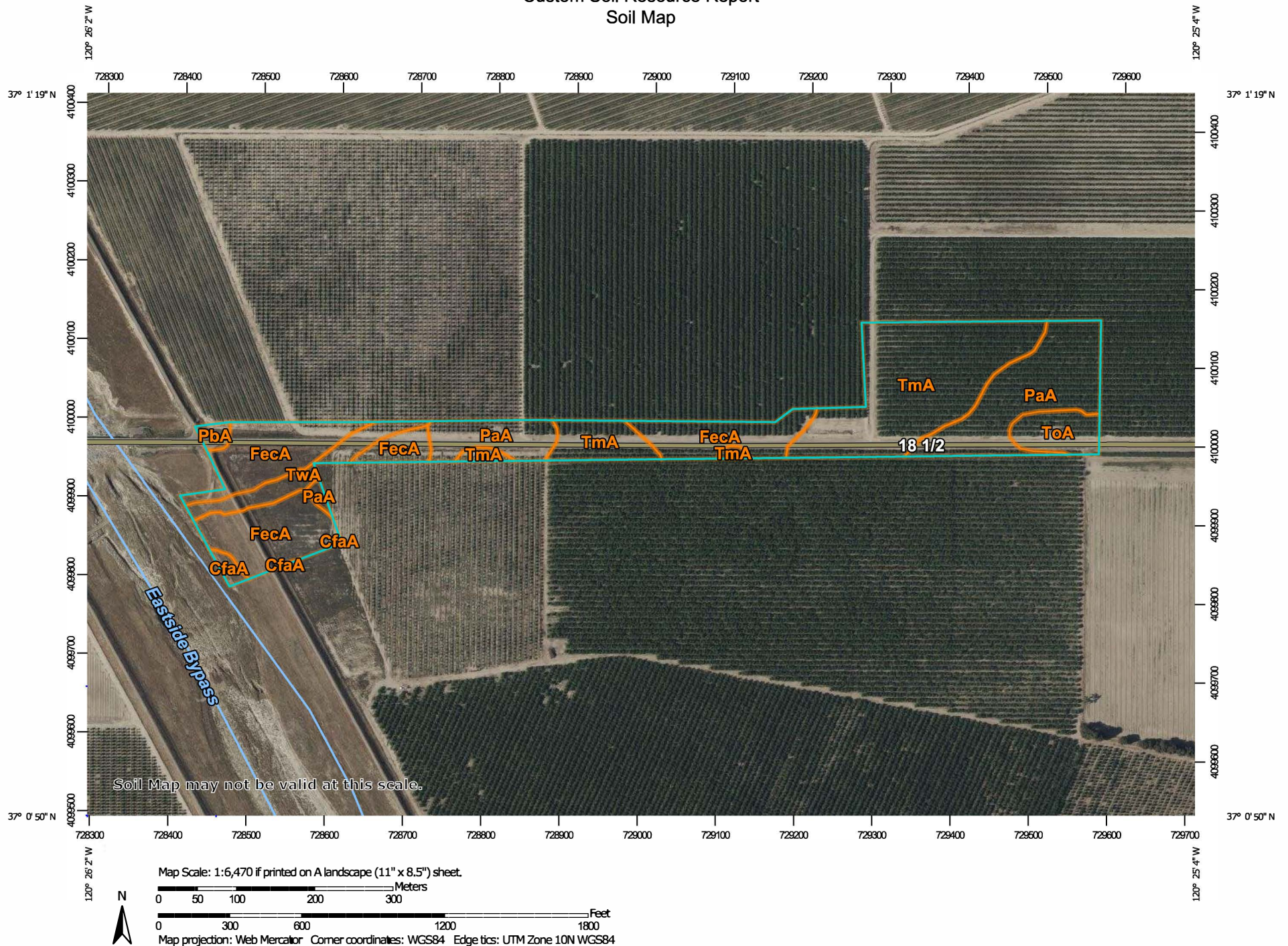
Custom Soil Resource Report

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

Soil Map

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

Custom Soil Resource Report Soil Map



Custom Soil Resource Report

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

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

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

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

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: Madera Area, California

Survey Area Data: Version 19, Sep 2, 2025

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

Date(s) aerial images were photographed: Mar 11, 2022—May 30, 2022

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
CfaA	Chino fine sandy loam, slightly saline-alkali, 0 to 1 percent slopes	0.3	0.9%
FecA	Fresno and El Peco fine sandy loams, strongly saline-sodic, 0 to 1 percent slopes	8.9	30.8%
PaA	Pachappa fine sandy loam, 0 to 1 percent slopes	6.8	23.6%
PbA	Pachappa fine sandy loam, slightly saline-sodic, 0 to 1 percent slopes	0.3	1.0%
TmA	Traver loam, slightly saline-alkali, 0 to 1 percent slopes	9.6	33.3%
ToA	Traver loam, strongly saline-alkali, 0 to 1 percent slopes	1.4	4.8%
TwA	Tujunga loamy sand, 0 to 3 percent slopes	1.6	5.6%
Totals for Area of Interest		28.9	100.0%

Map Unit Descriptions

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

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

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas

are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

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

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

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

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

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

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

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

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

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

Madera Area, California

CfaA—Chino fine sandy loam, slightly saline-alkali, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: hk4v

Elevation: 20 to 3,100 feet

Mean annual precipitation: 8 to 20 inches

Mean annual air temperature: 61 to 64 degrees F

Frost-free period: 230 to 340 days

Farmland classification: Prime farmland if irrigated

Map Unit Composition

Chino and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Chino

Setting

Landform: Basin floors

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium derived from granite

Typical profile

H1 - 0 to 4 inches: fine sandy loam

H2 - 4 to 60 inches: silty clay loam

Properties and qualities

Slope: 0 to 1 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Somewhat poorly drained

Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: Rare

Frequency of ponding: None

Calcium carbonate, maximum content: 10 percent

Maximum salinity: Slightly saline to moderately saline (4.0 to 8.0 mmhos/cm)

Sodium adsorption ratio, maximum: 5.0

Available water supply, 0 to 60 inches: High (about 10.1 inches)

Interpretive groups

Land capability classification (irrigated): 2s

Land capability classification (nonirrigated): 4s

Hydrologic Soil Group: C

Ecological site: R017XY901CA - Clayey Basin Group

Hydric soil rating: No

Minor Components

Hanford

Percent of map unit: 10 percent

Hydric soil rating: No

Visalia

Percent of map unit: 5 percent

Hydric soil rating: No

FecA—Fresno and El Peco fine sandy loams, strongly saline-sodic, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 30r9b

Elevation: 140 to 190 feet

Mean annual precipitation: 11 to 12 inches

Mean annual air temperature: 62 to 62 degrees F

Frost-free period: 303 to 312 days

Farmland classification: Not prime farmland

Map Unit Composition

Fresno and similar soils: 36 percent

El peco and similar soils: 34 percent

Minor components: 30 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Fresno

Setting

Landform: Fan remnants

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium derived from granite

Typical profile

Ap - 0 to 4 inches: fine sandy loam

ABnz - 4 to 12 inches: fine sandy loam

Bknzg - 12 to 18 inches: sandy clay loam

Bknqzm - 18 to 24 inches: cemented material

Cknzg - 24 to 60 inches: stratified fine sandy loam to loam

Properties and qualities

Slope: 0 to 1 percent

Depth to restrictive feature: 18 inches to duripan

Drainage class: Moderately well drained

Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.01 in/hr)

Custom Soil Resource Report

Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum content: 18 percent
Maximum salinity: Strongly saline (23.0 to 30.0 mmhos/cm)
Sodium adsorption ratio, maximum: 20.0
Available water supply, 0 to 60 inches: Very low (about 0.4 inches)

Interpretive groups

Land capability classification (irrigated): 4s
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: D
Ecological site: R017XY902CA - Duripan Vernal Pools
Hydric soil rating: No

Description of El Peco

Setting

Landform: Fan remnants
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Typical profile

Ap - 0 to 8 inches: fine sandy loam
Cn - 8 to 14 inches: fine sandy loam
Ckn - 14 to 38 inches: fine sandy loam
2Bknqzm - 38 to 43 inches: cemented material
2Ck - 43 to 60 inches: silt loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: 38 inches to duripan
Drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.01 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Strongly saline (16.0 to 30.0 mmhos/cm)
Sodium adsorption ratio, maximum: 15.0
Available water supply, 0 to 60 inches: Very low (about 0.5 inches)

Interpretive groups

Land capability classification (irrigated): 4s
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: C
Ecological site: R017XY902CA - Duripan Vernal Pools
Hydric soil rating: No

Minor Components

Pozo

Percent of map unit: 10 percent

Custom Soil Resource Report

Landform: Basin floors
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R017XY901CA - Clayey Basin Group
Hydric soil rating: No

Pachappa

Percent of map unit: 10 percent
Landform: Fan remnants
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R017XY905CA - Dry Alluvial Fans and Terraces
Hydric soil rating: No

Traver

Percent of map unit: 9 percent
Landform: Basin floors, fan remnants
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R017XY906CA - Non-Alkali San Joaquin Valley Desert
Hydric soil rating: No

Playas

Percent of map unit: 1 percent
Landform: Playas

PaA—Pachappa fine sandy loam, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 30r8y
Elevation: 140 to 300 feet
Mean annual precipitation: 12 to 13 inches
Mean annual air temperature: 62 to 62 degrees F
Frost-free period: 297 to 313 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

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

Description of Pachappa

Setting

Landform: Fan remnants
Landform position (three-dimensional): Tread
Down-slope shape: Linear

Custom Soil Resource Report

Across-slope shape: Linear

Parent material: Alluvium derived from granite

Typical profile

Ap - 0 to 14 inches: fine sandy loam

Btk - 14 to 28 inches: loam

Bk - 28 to 45 inches: fine sandy loam

Ck - 45 to 60 inches: stratified loamy sand to fine sandy loam

Properties and qualities

Slope: 0 to 1 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Moderately low (0.01 to 0.14 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 5 percent

Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)

Available water supply, 0 to 60 inches: Moderate (about 6.2 inches)

Interpretive groups

Land capability classification (irrigated): 1

Land capability classification (nonirrigated): 4c

Hydrologic Soil Group: C

Ecological site: R017XY905CA - Dry Alluvial Fans and Terraces

Hydric soil rating: No

Minor Components

Fresno

Percent of map unit: 5 percent

Landform: Fan remnants

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Ecological site: R017XY902CA - Duripan Vernal Pools

Hydric soil rating: No

Hanford

Percent of map unit: 5 percent

Landform: Alluvial fans

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans

Hydric soil rating: No

Traver

Percent of map unit: 5 percent

Landform: Basin floors, fan remnants

Landform position (three-dimensional): Tread, talf

Down-slope shape: Linear

Across-slope shape: Linear

Ecological site: R017XY906CA - Non-Alkali San Joaquin Valley Desert

Hydric soil rating: No

PbA—Pachappa fine sandy loam, slightly saline-sodic, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 30r8z

Elevation: 140 to 300 feet

Mean annual precipitation: 12 to 13 inches

Mean annual air temperature: 62 to 62 degrees F

Frost-free period: 299 to 310 days

Farmland classification: Prime farmland if irrigated

Map Unit Composition

Pachappa and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pachappa

Setting

Landform: Fan remnants

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium derived from granite

Typical profile

Ap - 0 to 14 inches: fine sandy loam

Btk - 14 to 28 inches: loam

Bk - 28 to 45 inches: fine sandy loam

Ck - 45 to 60 inches: stratified loamy sand to fine sandy loam

Properties and qualities

Slope: 0 to 1 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Moderately low (0.01 to 0.14 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 5 percent

Maximum salinity: Slightly saline to moderately saline (4.0 to 8.0 mmhos/cm)

Sodium adsorption ratio, maximum: 5.0

Available water supply, 0 to 60 inches: Low (about 4.5 inches)

Interpretive groups

Land capability classification (irrigated): 1

Land capability classification (nonirrigated): 4c

Custom Soil Resource Report

Hydrologic Soil Group: C

Ecological site: R017XY905CA - Dry Alluvial Fans and Terraces

Hydric soil rating: No

Minor Components

Fresno

Percent of map unit: 5 percent

Landform: Fan remnants

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Ecological site: R017XY902CA - Duripan Vernal Pools

Hydric soil rating: No

Hanford

Percent of map unit: 5 percent

Landform: Alluvial fans

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans

Hydric soil rating: No

Traver

Percent of map unit: 5 percent

Landform: Basin floors, fan remnants

Landform position (three-dimensional): Tread, talf

Down-slope shape: Linear

Across-slope shape: Linear

Ecological site: R017XY906CA - Non-Alkali San Joaquin Valley Desert

Hydric soil rating: No

TmA—Traver loam, slightly saline-alkali, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: hkbg

Elevation: 1,000 feet

Mean annual precipitation: 10 inches

Mean annual air temperature: 63 degrees F

Frost-free period: 250 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Traver and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Traver

Setting

Landform: Fan remnants
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Typical profile

H1 - 0 to 3 inches: loam
H2 - 3 to 17 inches: sandy clay loam
H3 - 17 to 64 inches: stratified fine sandy loam to silty clay loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Slightly saline to moderately saline (4.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum: 20.0
Available water supply, 0 to 60 inches: Moderate (about 6.6 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Ecological site: R017XY906CA - Non-Alkali San Joaquin Valley Desert
Hydric soil rating: No

Minor Components

Fresno

Percent of map unit: 5 percent
Hydric soil rating: No

Chino

Percent of map unit: 5 percent
Hydric soil rating: No

Hanford

Percent of map unit: 4 percent
Hydric soil rating: No

Playas

Percent of map unit: 1 percent
Landform: Playas
Hydric soil rating: Yes

ToA—Traver loam, strongly saline-alkali, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: hkbj

Elevation: 1,000 feet

Mean annual precipitation: 10 inches

Mean annual air temperature: 63 degrees F

Frost-free period: 250 days

Farmland classification: Not prime farmland

Map Unit Composition

Traver and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Traver

Setting

Landform: Fan remnants

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium derived from granite

Typical profile

H1 - 0 to 3 inches: loam

H2 - 3 to 17 inches: sandy clay loam

H3 - 17 to 64 inches: stratified fine sandy loam to silty clay loam

Properties and qualities

Slope: 0 to 1 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 5 percent

Maximum salinity: Strongly saline (16.0 to 30.0 mmhos/cm)

Sodium adsorption ratio, maximum: 20.0

Available water supply, 0 to 60 inches: Low (about 5.4 inches)

Interpretive groups

Land capability classification (irrigated): 4s

Land capability classification (nonirrigated): 6s

Hydrologic Soil Group: B

Ecological site: R017XY906CA - Non-Alkali San Joaquin Valley Desert

Hydric soil rating: No

Minor Components

Fresno

Percent of map unit: 5 percent

Hydric soil rating: No

Chino

Percent of map unit: 5 percent

Hydric soil rating: No

Hanford

Percent of map unit: 4 percent

Hydric soil rating: No

Playas

Percent of map unit: 1 percent

Landform: Playas

Hydric soil rating: Yes

TwA—Tujunga loamy sand, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 30r93

Elevation: 70 to 350 feet

Mean annual precipitation: 11 to 15 inches

Mean annual air temperature: 62 to 64 degrees F

Frost-free period: 298 to 329 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Tujunga and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tujunga

Setting

Landform: Flood plains, alluvial fans

Landform position (three-dimensional): Dip

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Sandy alluvium derived from granite

Typical profile

Ap - 0 to 11 inches: loamy sand

C1 - 11 to 24 inches: stratified loamy sand to coarse sand

C2 - 24 to 60 inches: stratified gravelly sand to gravelly coarse sand to gravelly gravel

Custom Soil Resource Report

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.5 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: R017XY903CA - Stream Channels and Floodplains
Hydric soil rating: No

Minor Components

Delhi

Percent of map unit: 5 percent
Landform: Flood plains, sand sheets, terraces
Landform position (three-dimensional): Tread, rise
Down-slope shape: Linear
Across-slope shape: Convex, linear
Ecological site: R017XY906CA - Non-Alkali San Joaquin Valley Desert
Hydric soil rating: No

Hanford

Percent of map unit: 5 percent
Landform: Alluvial fans
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans
Hydric soil rating: No

Dinuba

Percent of map unit: 5 percent
Landform: Alluvial fans
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R017XY905CA - Dry Alluvial Fans and Terraces
Hydric soil rating: No

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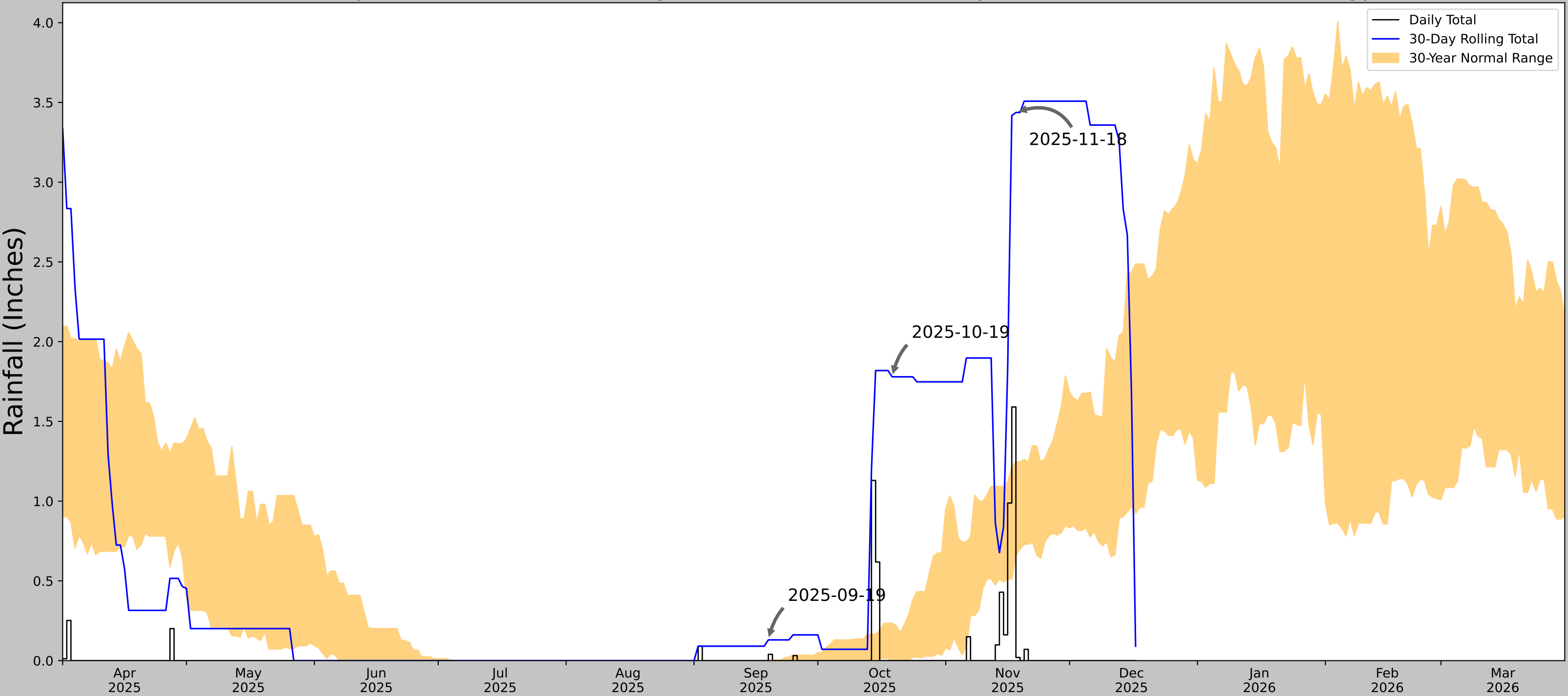
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Appendix B

Climatological Data

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	37.01817, -120.43651
Observation Date	2025-11-18
Elevation (ft)	141.388
Drought Index (PDSI)	Incipient drought
WebWIMP H ₂ O Balance	Dry Season

30 Days Ending	30 th %ile (in)	70 th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2025-11-18	0.657874	1.246063	3.437008	Wet	3	3	9
2025-10-19	0.0	0.233858	1.779528	Wet	3	2	6
2025-09-19	0.0	0.003543	0.129921	Wet	3	1	3
Result							Wetter than Normal - 18



US Army Corps
of Engineers.



Figures and tables made by the
Antecedent Precipitation Tool
Version 3.0

Developed by:
U.S. Army Corps of Engineers and
U.S. Army Engineer Research and
Development Center

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
MERCED	37.2889, -120.5158	153.871	19.209	12.483	8.884	10291	89
MERCED MUNI AP	37.2858, -120.5178	151.903	0.241	1.968	0.109	1059	1
MERCED 1.2 NW	37.3102, -120.4968	167.979	1.805	14.108	0.838	3	0

Appendix C

Data Sheets

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Arid West Region
See ERDC/EL TR-08-28; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 9/30/202
Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)

Project/Site: Madera Talley City/County: Chowchilla Sampling Date: 2025-11-18
Applicant/Owner: Davids Engineering State: California Sampling Point: T1
Investigator(s): AJ Samra, Angelica Oregel Section, Township, Range: 34, 10S, 14 E
Landform (hillside, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 1
Subregion (LRR/MLRA): LRR-C Lat: 37.018235852 Long: -120.423654551 Datum: WGS 1984
Soil Map Unit Name: Traver Loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland?	Yes <u>X</u> No <u> </u>
Hydric Soil Present?	Yes <u>X</u> No <u> </u>		
Wetland Hydrology Present?	Yes <u>X</u> No <u> </u>		
Remarks:			

VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1.				
2.				
3.				
4.				
		<u>0</u>	=Total Cover	
Sapling/Shrub Stratum (Plot size: <u>10</u>)				
1.	<u>Xanthium strumarium</u>	<u>30</u>	<u>yes</u>	<u>FAC</u>
2.				
3.				
4.				
5.				
		<u>30</u>	=Total Cover	
Herb Stratum (Plot size: <u>5</u>)				
1.	<u>Echinochloa colona</u>	<u>1</u>	<u>no</u>	<u>FAC</u>
2.	<u>Bassia scoparia</u>	<u>15</u>	<u>yes</u>	<u>FAC</u>
3.	<u>Heliotropium curassavicum</u>	<u>1</u>	<u>no</u>	<u>FACU</u>
4.				
5.				
6.				
7.				
8.				
		<u>17</u>	=Total Cover	
Woody Vine Stratum (Plot size: <u>30</u>)				
1.				
2.				
		<u>0</u>	=Total Cover	
% Bare Ground in Herb Stratum <u>53</u> % Cover of Biotic Crust <u> </u>				

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACV 2 (A)
Total Number of Dominant Species Across All Strata 2 (B)
Percent of Dominant Species That Are OBL, FACV 100 (A/B)

Prevalence Index worksheet:
Total % Cover of: Multiply by:
OBL species 0 x 1 = 0
FACW species 0 x 2 = 0
FAC species 46 x 3 = 138
FACU species 1 x 4 = 4
UPL species 0 x 5 = 0
Column Totals: 47 (A) 142 (B)
Prevalence Index = B/A = 3.02

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
 Prevalence Index is ≤3.0¹
 Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 Problematic Hydrophytic Vegetation¹ (Explain)
¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No

Remarks:

SOIL

Sampling Point: T1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-15	10YR 4/2	97	2.5YR 4/6	2	C	M	Sandy loam	Mn 10YR 2/1, 1%, D M
-								
-								
-								
-								
-								
-								
-								
-								
-								
-								
-								
-								
-								
			¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.			² Location: PL=Pore Lining, M=Matrix.		
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)								Indicators for Problematic Hydric Soils³:
☐ Histosol (A1)			☐ Sandy Gleyed Matrix (S4)			☐ 1 cm Muck (A9) (LRR C)		
☐ Histic Epipedon (A2)			☐ Sandy Redox (S5)			☐ 2 cm Muck (A10) (LRR B)		
☐ Black Histic (A3)			☐ Stripped Matrix (S6)			☐ Iron-Manganese Masses (F12) (LRR D)		
☐ Hydrogen Sulfide (A4)			☐ Loamy Mucky Mineral (F1)			☐ Reduced Vertic (F18)		
☐ Stratified Layers (A5) (LRR C)			☐ Loamy Gleyed Matrix (F2)			☐ Red Parent Material (F21)		
☐ 1 cm Muck (A9) (LRR D)			☒ Depleted Matrix (F3)			☐ Very Shallow Dark Surface (F22)		
☐ Depleted Below Dark Surface (A11)			☐ Redox Dark Surface (F6)			☐ Other (Explain in Remarks)		
☐ Thick Dark Surface (A12)			☐ Depleted Dark Surface (F7)			³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.		
☐ Iron Monosulfide (A18)			☐ Redox Depressions (F8)					
☐ Sandy Mucky Mineral (S1)								
Restrictive Layer (if observed):								
Type: _____								
Depth (inches): _____							Hydric Soil Present? Yes ☒ No ☐	
Remarks: 								

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (2 or more required)	
☒ Surface Water (A1)	☐ Salt Crust (B11)	☐ Water Marks (B1) (Riverine)	
☐ High Water Table (A2)	☐ Biotic Crust (B12)	☐ Sediment Deposits (B2) (Riverine)	
☐ Saturation (A3)	☐ Aquatic Invertebrates (B13)	☐ Drift Deposits (B3) (Riverine)	
☐ Water Marks (B1) (Nonriverine)	☐ Hydrogen Sulfide Odor (C1)	☐ Drainage Patterns (B10)	
☐ Sediment Deposits (B2) (Nonriverine)	☐ Oxidized Rhizospheres on Living Roots (C3)	☐ Dry-Season Water Table (C2)	
☐ Drift Deposits (B3) (Nonriverine)	☐ Presence of Reduced Iron (C4)	☐ Crayfish Burrows (C8)	
☐ Surface Soil Cracks (B6)	☐ Recent Iron Reduction in Tilled Soils (C6)	☐ Saturation Visible on Aerial Imagery (C9)	
☐ Inundation Visible on Aerial Imagery (B7)	☐ Stunted or Stressed Plants (D1) (LRR A)	☐ Shallow Aquitard (D3)	
☐ Water-Stained Leaves (B9) (except	☐ Other (Explain in Remarks)	☐ FAC-Neutral Test (D5)	
Field Observations:			
Surface Water Present?	Yes ☒ No ☐	Depth (inches):	
Water Table Present?	Yes ☒ No ☐	Depth (inches):	
Saturation Present?	Yes ☒ No ☐	Depth (inches):	
(includes capillary fringe)			
		Wetland Hydrology Present? Yes ☒ No ☐	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: Surface water present, likely as runoff from recent rains the day prior (11/17/2025); unable to obtain measurements due to post-rain conditions			

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Arid West Region
See ERDC/EL TR-08-28; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 9/30/202
Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)

Project/Site: Madera Talley City/County: Chowchilla Sampling Date: 2025-11-18
Applicant/Owner: Davids Engineering State: California Sampling Point: T2
Investigator(s): AJ Samra, Angelica Oregel Section, Township, Range: 34, 10S, 14 E
Landform (hillside, terrace, etc.): Footslope Local relief (concave, convex, none): Convex Slope (%): 3
Subregion (LRR/MLRA): LRR C Lat: 37.0173783473 Long: -120.431623436 Datum: WGS 1984
Soil Map Unit Name: FecA NWI classification: Riverine

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No	<u>X</u>	Is the Sampled Area	
Hydric Soil Present?	Yes	No	<u>X</u>	within a Wetland?	Yes <u> </u> No <u>X</u>
Wetland Hydrology Present?	Yes	No	<u>X</u>		
Remarks:					

VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACV <u>0</u> (A) Total Number of Dominant Species Across All Strata <u>1</u> (B) Percent of Dominant Species That Are OBL, FACV <u>0</u> (A/B)
1.					
2.					
3.					
4.					
<u>0</u> =Total Cover					
Sapling/Shrub Stratum	(Plot size: <u>30</u>)				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>4</u> x 3 = <u>12</u> FACU species <u>50</u> x 4 = <u>200</u> UPL species <u>1</u> x 5 = <u>5</u> Column Totals: <u>55</u> (A) <u>217</u> (B) Prevalence Index = B/A = <u>3.94</u>
1.					
2.					
3.					
4.					
5.					
<u>0</u> =Total Cover					
Herb Stratum	(Plot size: <u>5</u>)				Hydrophytic Vegetation Indicators: Dominance Test is >50% Prevalence Index is ≤3.0 ¹ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1.	<u>Rumex crispus</u>	<u>1</u>	<u>no</u>	<u>FAC</u>	
2.	<u>Dactylis glomerata</u>	<u>50</u>	<u>yes</u>	<u>FACU</u>	
3.	<u>Distichlis spicata</u>	<u>3</u>	<u>no</u>	<u>FAC</u>	
4.	<u>Hirschfeldia incana</u>	<u>1</u>	<u>no</u>	<u>UPL</u>	
5.					
6.					
7.					
8.					
<u>55</u> =Total Cover					
Woody Vine Stratum	(Plot size: <u>30</u>)				Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>
1.					
2.					
<u>0</u> =Total Cover					
% Bare Ground in Herb Stratum <u>45</u> % Cover of Biotic Crust <u> </u>					
Remarks:					

SOIL

Sampling Point:

T2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	10YR 4/2	100					Loam	
3-16	10YR 3/3	100					Sandy loam	
-								
-								
-								
-								
-								
-								
-								
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.								
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)							Indicators for Problematic Hydric Soils³:	
_____ Histosol (A1)			_____ Sandy Gleyed Matrix (S4)			_____ 1 cm Muck (A9) (LRR C)		
_____ Histic Epipedon (A2)			_____ Sandy Redox (S5)			_____ 2 cm Muck (A10) (LRR B)		
_____ Black Histic (A3)			_____ Stripped Matrix (S6)			_____ Iron-Manganese Masses (F12) (LRR D)		
_____ Hydrogen Sulfide (A4)			_____ Loamy Mucky Mineral (F1)			_____ Reduced Vertic (F18)		
_____ Stratified Layers (A5) (LRR C)			_____ Loamy Gleyed Matrix (F2)			_____ Red Parent Material (F21)		
_____ 1 cm Muck (A9) (LRR D)			_____ Depleted Matrix (F3)			_____ Very Shallow Dark Surface (F22)		
_____ Depleted Below Dark Surface (A11)			_____ Redox Dark Surface (F6)			_____ Other (Explain in Remarks)		
_____ Thick Dark Surface (A12)			_____ Depleted Dark Surface (F7)			³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.		
_____ Iron Monosulfide (A18)			_____ Redox Depressions (F8)					
_____ Sandy Mucky Mineral (S1)								
Restrictive Layer (if observed): Type: _____ Depth (inches): _____							Hydric Soil Present? Yes No X	
Remarks: Soil is saturated from recent rains								

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (2 or more required)	
_____ Surface Water (A1)	_____ Salt Crust (B11)	_____ Water Marks (B1) (Riverine)	
_____ High Water Table (A2)	_____ Biotic Crust (B12)	_____ Sediment Deposits (B2) (Riverine)	
_____ Saturation (A3)	_____ Aquatic Invertebrates (B13)	_____ Drift Deposits (B3) (Riverine)	
_____ Water Marks (B1) (Nonriverine)	_____ Hydrogen Sulfide Odor (C1)	_____ Drainage Patterns (B10)	
_____ Sediment Deposits (B2) (Nonriverine)	_____ Oxidized Rhizospheres on Living Roots (C3)	_____ Dry-Season Water Table (C2)	
_____ Drift Deposits (B3) (Nonriverine)	_____ Presence of Reduced Iron (C4)	_____ Crayfish Burrows (C8)	
_____ Surface Soil Cracks (B6)	_____ Recent Iron Reduction in Tilled Soils (C6)	_____ Saturation Visible on Aerial Imagery (C9)	
_____ Inundation Visible on Aerial Imagery (B7)	_____ Stunted or Stressed Plants (D1) (LRR A)	_____ Shallow Aquitard (D3)	
_____ Water-Stained Leaves (B9) (except	_____ Other (Explain in Remarks)	_____ FAC-Neutral Test (D5)	
Field Observations:			
Surface Water Present?	Yes _____ No _____	X _____	Depth (inches): _____
Water Table Present?	Yes _____ No _____	X _____	Depth (inches): _____
Saturation Present?	Yes _____ No _____	X _____	Depth (inches): _____
(includes capillary fringe)			
Wetland Hydrology Present? Yes No X			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			

Appendix D

Representative Photographs



Photo 1: T1, agricultural ditch facing southwest. November 18, 2025



Photo 2: T1, agricultural ditch facing east. November 18, 2025



Photo 3: T1, agricultural ditch facing northeast. November 18, 2025



Photo 4: T2, Avena spp. – Bromus spp. Semi-Natural Alliance facing north. November 18, 2025

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SOURCE: ESA, 2025

East Madera County

Appendix E Representative Site Photos 1 through 4



Photo 5: T2, Avena spp. – Bromus spp. Semi-Natural Alliance facing north. November 18, 2025



Photo 6: T2, Avena spp. – Bromus spp. Semi-Natural Alliance facing south. November 18, 2025



Photo 7: Eastside bypass facing west. November 18, 2025



Photo 8: Eastside bypass facing east. November 18, 2025

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SOURCE: ESA, 2025

East Madera County

Appendix E Representative Site Photos 5 through 8



SOURCE: ESA, 2025

East Madera County

Appendix E
Representative Site Photo 9

Appendix E

ORM Aquatic Resources Spreadsheet

Waters_Name	State	Cowardin_Code	HGM_Code	Meas_Type	Amount	Units	Waters_Type	Latitude	Longitude	Local_Waterway
BP-1	CALIFORNIA	R4SB	RIVERINE	Area	6.15	ACRE	A1-1.TNW-404.10	37.01690682	-120.43241104	
AD-1	CALIFORNIA	PUB	DEPRESS	Area	0.3	ACRE	A4-2.ADJ.WET.A2&A3-404	37.01828012	-120.42326255	
AD-2	CALIFORNIA	PUB	RIVERINE	Area	0.15	ACRE	A4-2.ADJ.WET.A2&A3-404	37.01923261	-120.42270393	

